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Latent Profiles of Depression, Anxiety, and Stress in Parents of Children with Developmental Disabilities

Gelişimsel Yetersizliğe Sahip Çocuğu Olan Ebeveynlerde Depresyon, Anksiyete ve Stres: Örtük Profil Analizi

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Abstract: Parents of children with developmental disabilities tend to experience high levels of depression, anxiety, and stress due to caregiving burdens, social stigma, and social inadequacies. This study aimed to identify psychological distress profiles based on parents' levels of depression, anxiety, and stress and to examine whether parent gender and the type of the child's disability predict membership in these profiles. The study was conducted with the participation of 335 parents of children with developmental disabilities, and Latent Profile Analysis was performed using the Depression Anxiety Stress Scale (DASS)-21 scale. The analysis identified three profiles: High Psychological Distress, Moderate Psychological Distress, and Low Psychological Distress. Findings showed that mothers were more likely than fathers to belong to the high distress profile. Additionally, parents of children diagnosed with autism spectrum disorder experienced higher levels of psychological distress compared to parents of children with intellectual disabilities. The results indicate that depression, anxiety, and stress are not homogeneously distributed among parents and emphasize the need to tailor intervention programs according to individual risk levels. In this context, it is highlighted that services and supports for parents should be implemented through multilayered support models that take into account gender roles and the type of disability.

Keywords: Developmental disabilities, depression, anxiety, stress, latent profile analysis

Öz: Gelişimsel yetersizliği olan çocukların ebeveynleri bakım yükü, toplumsal damgalama ve sosyal yetersizlikler nedeniyle yüksek düzeyde depresyon, anksiyete ve stress yaşama eğilimindedir. Bu çalışma ebeveynlerin depresyon, anksiyete ve stress düzeylerine gore depresyon, anksiyete ve stress profillerini belirlemeyi ve ebeveyn cinsiyeti ile çocukların yetersizlik türünün bu profillere üyeliği yordayıp yordamadığını incelemeyi amaçlamıştır. Gelişimsel yetersizliğe sahip çocuğu olan 335 ebeveynin katılımıyla yürütülen çalışmada Depresyon Anksiyete Stres Ölçeği (DASS)-21 ölçeği kullanılarak Örtük Profil Analizi uygulanmıştır. Analiz sonucunda üç profil belirlenmiştir: Yüksek Düzey Sorun, Orta Düzey Sorun ve Düşük Düzey Sorun. Bulgular annelerin babalara kıyasla yüksek düzey profilinde olduğunu ayrıca otizm spectrum bozukluğu tanılı çocukların ebeveynlerinin zihinsel yetersizlik tanılı çocukların ebeveynlerine kıyasla daha yüksek düzeyde sorun yaşadığını göstermiştir. Sonuçlar ebeveynlerin depresyon, anksiyete ve stress düzeylerinin homojen dağılmadığını ortaya koymakta ve müdahale programlarının bireysel risk düzeylerine gore farklılaştırılması gerektiğini vurgulamaktadır. Bu bağlamda ebeveynlere yönelik hizmetler ve desteklerin toplumsal cinsiyet roller ve yetersizlik türünü dikkate alarak çok katmanlı destek modelleriyle gerçekleştirilmesinin önemli olduğu belirtilmektedir.

Anahtar Kelimeler: Gelişimsel yetersizlik, depresyon, anksiyete, stres, örtük profil analizi

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Introduction

Parents of children with developmental disabilities (DDs) experience elevated levels of psychological distress compared to parents of typically developing children. Research consistently documents higher levels of depression, anxiety, and stress among these parents, often associated with increased caregiving demands and long-term support needs (Hayes & Watson, 2013; Scherer et al., 2019). In addition to caregiving responsibilities, contextual factors such as limited access to services, socioeconomic constraints, and stigma further shape parental well-being (Marquis et al., 2019; Ali et al., 2012). Variations in psychological distress have also been linked to parental gender and the type of the child's disability (Bourke-Taylor et al., 2012; Emerson et al., 2010).

Depression among these parents is commonly associated with prolonged caregiving strain and uncertainty regarding the child's future (Hoyle et al., 2021; Miodrag & Hodapp, 2010). Anxiety has been linked to behavioral challenges and the ongoing demands of navigating services (Karst & Van Hecke, 2012; Hayes & Watson, 2013). Similarly, stress levels appear to be influenced by the intensity of caregiving responsibilities and the availability of social support (Bujnowska et al., 2021; Marquis et al., 2020). Although these psychological indicators frequently co-occur, most studies have examined them separately using variable-centered approaches. Consequently, relatively limited attention has been given to identifying distinct psychological patterns among parents. A person-centered approach, such as Latent Profile Analysis (LPA), may provide a more nuanced understanding of how depression, anxiety, and stress cluster together within different subgroups of parents.

In this context, understanding parental mental health requires not only acknowledging structural influences but also examining how psychological symptoms cluster together within individuals. Although prior research has documented elevated levels of depression, anxiety, and stress among parents of children with DDs, most studies have examined these constructs separately using variable-centered approaches. Such approaches may overlook heterogeneity in symptom patterns and the existence of distinct psychological risk profiles. A person-centered analytical framework, such as Latent Profile Analysis, provides an opportunity to identify meaningful subgroups of parents based on shared configurations of psychological distress. Accordingly, the present study aims to examine the latent profiles of depression, anxiety, and stress among parents of children with developmental disabilities and to investigate whether parental gender and disability type predict profile membership.

Parents of Children with Developmental Disabilities

Developmental disabilities (DDs) are a group of disorders that emerge during early childhood and result in enduring impairments in various domains of functioning (American Psychiatric Association, 2013). This category encompasses conditions such as autism spectrum disorder (ASD), intellectual disability, attention-deficit/hyperactivity disorder (ADHD), speech and language impairments, and Down syndrome. Among these, ASD and intellectual disability are the most frequently diagnosed (Morris-Rosendahl & Crocq, 2020). Intellectual disability is characterized by marked limitations in intellectual functioning and adaptive behavior, including deficits in reasoning, problem-solving, and the capacity to learn from experience (Harris, 2006). ASD, commonly identified in the preschool years, involves persistent challenges in social communication and interaction, as well as the presence of restricted and repetitive patterns of behavior (Leekam et al., 2011). DDs can substantially hinder essential life activities, including self-care, communication, learning, mobility, and independent living (Francés et al., 2022). Individuals with such disabilities often require long-term support due to significant impairments in cognitive, physical, and social domains (Patel et al., 2010). These ongoing support needs inevitably extend beyond the individual and shape the experiences of family members, particularly parents who assume primary caregiving responsibilities. Consequently, parents of children with DDs frequently experience elevated levels of psychological stress, societal stigma, and emotional fatigue, all of which may negatively affect family functioning and well-being (Lee, 2013).

Parents play a fundamental role in shaping their children's developmental processes and life experiences (Worthman et al., 2016). However, children with DDs require more intensive care and support compared to their typically developing peers, making standard approaches to child development and parenting insufficient for this group (Grenier-Martin & Rivard, 2022; Machalicek et al., 2015). The care for these individuals is often provided by parents throughout the lifespan, positioning them as primary and permanent caregivers (Marsack-Topolewski et al., 2021; Masefield et al., 2020). Family support is crucial for ensuring equal opportunities in areas such as social participation, independent living, and economic autonomy for individuals with DDs (Hirano et al., 2018). In this regard, families need both formal and informal sources of support to maintain their quality of life and to cope with the demands of caring for a family member with developmental needs (Lakhani et al., 2024). On the other hand, DDs do not only affect the individual but also influence the entire family system (Reichman et al., 2008). Raising a child with a disability can bring about a range of challenges across different stages of family life (Lee et al., 2020). This may lead parents to assume more responsibility than anticipated and may also constrain their social lives (Iovino et al., 2021; Sit et al., 2020). Therefore, parents of individuals with DDs are at greater risk of experiencing psychological difficulties compared to parents of typically developing children (Peer & Hillman, 2014). Adapting to the demands of caregiving and restructuring daily life accordingly can negatively affect the overall well-being of families, leading to increased levels of depression, anxiety, and stress (Gardiner & Iarocci, 2012). It can also result in additional difficulties, such as the financial burden of intervention services and the challenges working parents face in securing adequate caregiving support (Banda et al., 2024; Resch et al., 2010; Sapiets et al., 2021).

Parenting a child with DDs has consistently been associated with elevated psychological stress due to the unique and persistent caregiving demands these parents face (Hayes & Watson, 2013; Matthews et al., 2021). These include managing the child's symptoms and co-occurring behavioral issues, navigating complex service systems, and coping with stigma and social exclusion (Davis & Neece, 2017; Mitter et al., 2019). These challenges are not confined to early childhood, as DDs are lifelong conditions (Sapiets et al., 2021). As such, parents often continue to provide daily care and support even as their children reach adulthood (Tekola et al., 2022). The long-term caregiving responsibilities associated with DDs extend beyond the developmental needs of the child and shape the well-being of parents. In this context, compared to the general parent population, parents of children with DDs report poorer mental health and are at heightened risk for physical health problems and symptoms (Namkung et al., 2018). Nevertheless, despite these adversities, many parents exhibit resilience and demonstrate the capacity to adapt and cope effectively (Gugliandolo et al., 2023). This variability in parental responses highlights the importance of examining not only the presence of psychological distress but also differences in how such distress manifests across individuals.

Depression, Anxiety, and Stress in Parents of Children with Developmental Disabilities

Raising a child with DDs entails multifaceted challenges that extend beyond emotional strain to include psychological, social, and systemic demands (Maes et al., 2021). One of the most frequently encountered psychological difficulties in this context is depression (Hoyle et al., 2021). Parents are often forced to cope with changing life circumstances and uncertainties associated with their child's developmental condition, which may gradually lead to a loss of hope (Geuze et al., 2023). This uncertainty-laden life experience negatively affects parents' mental health and, in turn, diminishes their overall quality of life (Park & Lee, 2022). Daily responsibilities, difficulties within family dynamics, and challenges in maintaining social relationships place additional burdens on parents of children with DDs (Kaniamattam & Oxley, 2021). In particular, limited access to accurate information about their child, difficulties in communicating the nature of the disability to others, and persistent concerns about the future contribute to elevated stress levels (Oti-Boadi et al., 2022; Totsika et al., 2022). Over time, the accumulation of this stress can result in emotional exhaustion and increase the risk of depression (Glidden et al., 2021; Vitale et al., 2023). The intensification of parenting demands, the inadequacy of support systems, and societal pressures further exacerbate the psychological burden experienced by these parents (Mbatha & Mokwena, 2023; Sánchez Amate & Luque de la Rosa, 2024).

Research consistently demonstrates that parents of children with DDs experience elevated levels of anxiety (Almansour et al., 2013; Hayes & Watson, 2013; Kim et al., 2000; Scherer et al., 2019). The roles these parents undertake and their emotional and cognitive perspectives may change over time, and their expectations and future plans for their children may also differ accordingly (Karst & Van Hecke, 2012). This transformation can also influence their social environment, professional life, and economic conditions (Scorgie et al., 2004). Due to the limitations their children face, these parents are required to make greater efforts in areas such as communication, social interaction, medical care, physical arrangements, and the provision of materials compared to

parents of typically developing children (McConkey, 2024; Oti-Boadi et al., 2022). Moreover, experiencing intense emotions such as guilt and sadness, and having difficulties coping with these emotions, may lead to adaptation challenges and consequently increase their anxiety levels (Higgins et al., 2023). There are many factors that contribute to the increased anxiety levels of these parents (Acar et al., 2021; Hoyle et al., 2021). These include the lack of sufficient information about their children, the emotional difficulties they face, health problems and behavioral issues in their children, challenges in explaining their children's differences to others, the necessity of cooperating with numerous specialists during educational and treatment processes, the need for more time and financial resources to support their children's development, efforts to access appropriate educational opportunities, and uncertainties regarding their children's future (Lamba et al., 2022; Klatte et al., 2023).

Parenting naturally involves a certain level of stress that arises from the inherent responsibilities and roles associated with caring for a child (Roquette Viana et al., 2021). Although all parents encounter some degree of parental stress those raising children with DDs often face significantly greater challenges (Bujnowska et al., 2021; Staunton et al., 2020).Parents with lower socioeconomic status may have limited access to information and a lack of understanding regarding their child's condition which can lead to heightened feelings of uncertainty and discouragement about their child's developmental limitations and future prospects (Donley et al., 2018). Additionally, these parents may experience feelings of being overwhelmed and overburdened which can hinder their ability to adhere to prescribed treatment and rehabilitation programs for their children thereby further elevating parental stress levels (Dijkstra & Rommes, 2021).

Parents of children with DDs face a considerably heightened risk of stress and other mental health challenges as they attempt to manage caregiving responsibilities alongside other life demands (Lakhani et al., 2024; Marquis et al., 2020; Oti-Boadi et al., 2022). Much of this stress stems directly from the child's health condition and tends to vary depending on the severity of the disability the level of functional impairment and the presence of behavioral difficulties (Peer & Hillman, 2014). The resulting stress can significantly diminish the quality of life for all family members (Savari et al., 2023). It is frequently linked to poorer mental and physical health reduced social engagement, heightened depressive symptoms and psychological strain increased sleep problems and fatigue, greater exposure to stigma, heavier financial burdens, unstable or insufficient employment, and even poverty (Dillenburger et al., 2015; Marquis et al., 2020; Vasilopoulou & Nisbet, 2016; Zan & Scharff, 2015). Despite these multifaceted needs disability-related services often fail to adequately address parents' requirements for sustained support, urgent care options, and opportunities for respite (Tétreault et al., 2012). The gap between parental needs and available services may contribute to variability in psychological adjustment among parents. This variability suggests that parental mental health cannot be assumed to follow a uniform pattern, but rather may reflect distinct configurations of distress and adaptation. Understanding these configurations requires approaches that move beyond single-variable explanations.

The Present Study

In recent years, the mental health of parents of children with DDs has become an increasingly multidimensional field of inquiry within special education, psychology, and public health (Ranta et al., 2024). The existing literature demonstrates that these parents exhibit significantly higher levels of depression, anxiety, and stress compared to parents of typically developing children (Al-Farsi et al., 2016; Hayes & Watson, 2013; Plant & Sanders, 2007; Scherer et al., 2019). Moreover, it is well established that these psychological symptoms often co-occur and form an interactive pattern that shapes the individual's overall mental state (Glidden et al., 2021; Vitale et al., 2023). Accordingly, examining parental mental well-being not solely through isolated variables but through integrated psychological patterns may yield more meaningful outcomes for intervention purposes (Halstead et al., 2018; Hauser-Cram et al., 2001).

The primary aim of the present study is to identify the latent profiles of parents of children with DDs based on their levels of depression, anxiety, and stress. Latent profile analysis is a statistical technique that detects unobserved subgroups within a population by estimating individuals' membership probabilities in different groups based on specific observed variables (Collins & Lanza, 2009; Ferguson et al., 2020). This approach reveals the heterogeneity of the population by clustering individuals with similar characteristics through parameters such as means and variances (Lanza & Rhoades, 2013). Consequently, each individual is assigned to the profile with the highest membership probability (Spurk et al., 2020). The secondary aim of this study is to examine whether factors such as parental gender and the type of child's disability significantly predict latent profile membership. The literature suggests that mothers, who often assume the role of primary caregivers, bear a heavier psychological burden and are at greater risk for symptoms such as burnout, anxiety, and depression compared to fathers (Cetinbakis et al., 2018; Findling et al., 2023; Findling et al., 2024; Giallo et al., 2011; Kütük et al., 2021).

Similarly, the type of the child's disability plays a decisive role in determining parental levels of depression, anxiety, and stress. In particular, ASD, due to its unpredictable course, complex behavioral characteristics, and high caregiving demands, poses significant challenges for parents and consequently elevates their levels of psychological distress (Crowell et al., 2019; Hayes & Watson, 2013; Karst & Van Hecke, 2012; Mitter et al., 2019; Rezendes & Scarpa, 2011). Therefore, the type of disability should be considered a critical factor in determining the caregiving burden and the associated levels of depression, anxiety, and stress experienced by parents. The unique contribution of the current study lies in its approach to examining risk factors related to the mental health of parents of children with DDs through structured psychological patterns rather than categorical classifications. Moreover, by investigating how these patterns relate to individual demographic variables, the study offers important practical implications for the design of preventive and supportive intervention programs that are not solely diagnosis-based but also tailored to levels of psychological risk (Brown et al., 2022; Schlebusch et al., 2022). Based on the above, the study's questions are as follows:

1) What are the latent profiles of depression, anxiety, and stress among parents of children with developmental disabilities?
2) Do parent gender and the type of child disability predict membership in the identified latent profiles?

Method

Research Design

This study was conducted using a cross-sectional quantitative survey design. Data were collected at a single time point from parents of children with developmental disabilities through standardized self-report measures. The cross-sectional nature of the design aimed to capture contemporaneous patterns of psychological distress rather than longitudinal change or developmental trajectories. The study adopted a person-centered analytical framework to examine heterogeneity in parental mental health. Specifically, Latent Profile Analysis (LPA), a model-based mixture modeling technique, was employed to identify distinct subgroups of parents based on their observed levels of depression, anxiety, and stress. By estimating class membership probabilities using continuous indicators, LPA enabled the identification of underlying psychological profiles within the sample. This design allowed for the examination of between-person differences in symptom configurations at a single time point, while not implying temporal or causal relationships among the variables.

Participants

The study sample comprised 335 parents of children with developmental disabilities, including 189 mothers (56.4%) and 146 fathers (43.6%). Participants ranged in age from 24 to 60 years (M = 41.42, SD = 9.39). The number of children per parent varied between one and four (M = 2.31, SD = 0.92), and 14 families (4.2%) reported having more than one child with a developmental disability. In addition to parental age and gender, demographic characteristics were collected to contextualize the sample. Regarding educational attainment, 24% (n = 80) of parents had completed primary school, 25% (n = 84) middle school, 25% (n = 83) high school, and 26% (n = 88) held a university degree. In terms of employment status, 72% (n = 240) were employed full-time, 10% (n = 35) part-time, and 18% (n = 60) were not employed. The majority of participants were married (88%, n = 295), while 12% (n = 40) were single, divorced, or widowed. Household income was reported in categories, with 20% (n = 67) indicating low income, 60% (n = 201) middle income, and 20% (n = 67) high income. Most participants resided in urban areas (75%, n = 250), with the remainder living in rural settings (25%, n = 85).

Participants were recruited through special education centers and parent support groups located in Istanbul. Data were collected between January and March. Recruitment announcements were distributed via institutional mailing lists and social media platforms targeting parents of children with developmental disabilities. Inclusion criteria required participants to (a) be a parent or primary caregiver of a child with a confirmed diagnosis of a developmental disability, (b) have a child aged between 4-16 years, and (c) provide informed consent for participation. Diagnosis was based on parental report of a formal clinical or educational evaluation. Exclusion criteria included incomplete survey responses and cases in which the child did not have a documented developmental disability. A total of 420 parents accessed the survey link. After excluding incomplete responses, the final sample consisted of 335 parents. The response rate was approximately 80%. Children's diagnoses were reported by parents based on prior clinical or educational evaluations. Of the 335 children represented in the study, 176 (52.5%) were diagnosed with autism spectrum disorder (ASD) and 159 (47.5%) were diagnosed with Intellectual Disability (ID). No other developmental disability categories were included in the sample.

Data Collection

Data were collected with the *Depression Anxiety Stress Scale-21 (DASS-21)*. The scale developed by Lovibond and Lovibond (1995) was adapted to Turkish culture by Sarıçam (2018). The scale consists of three factors, each containing seven items, each of which is depression, anxiety, and stress. Each item is rated on a four-point Likert-type scale (0 = Never, 3 = Always). Although categorical cutoffs indicate the level of the relevant structures on a scale (see Lovibond & Lovibond, 1995), the increase in the total score obtained from the factors refers to the increase in the level of Cronbach's α value for internal consistency was calculated as 0.85 for depression, 0.80 for anxiety, and 0.77 for stress (Sarıçam, 2018). For the present study, Cronbach's α and McDonald's ω for depression were calculated as 0.87, Cronbach's α for anxiety and stress were 0.86, and McDonald's ω were 0.87.

Ethical research standards were followed when conducting the study. Before data collection, the purpose of the study was clearly explained to the participants, and informed consent was obtained. Participation was entirely voluntary, and participants were assured they could withdraw from the study without any negative consequences.

Data Analysis

In this study, Latent Profile Analysis (LPA) was used to determine profiles of parents of children with developmental disabilities according to their depression, anxiety, and stress levels. Latent Profile Analysis (LPA) is a categorical latent variable methodology designed to identify unobserved subpopulations within a larger population by determining distinct configural profiles of individuals based on a specific set of personal characteristics (Spurk et al., 2020). Multiple goodness of fit measures such as Log-Likelihood, Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC), Sample Adjusted BIC (SABIC), and entropy were used in model selection, as well as predictive comparison tests such as Vuong-Lo-Mendell-Rubin (VLMR-LRT), adjusted Lo-Mendell-Rubin (LMR), and Bootstrap Likelihood Ratio Test (BLRT). The lowest AIC, SABIC, and BIC values offers best model fit (Masyn, 2013; Spurk et al., 2020). Higher entropy of 0.80 or above (perfect at 1) indicates a better fit (Clark & Muthén, 2009). LRTs were used to compare k-1 and k class models and provide a p-value that can be used to determine whether there is a statistically significant improvement in fit for including one more class (Nylund et al., 2007). This method minimizes classification bias and ensures more robust and reliable inferences by preserving the measurement model during the estimation of covariate effects on latent class membership (Asparouhov & Muthén, 2014). Analyses were conducted using Mplus version 8.3 (Muthén & Muthén, 2017). The internal consistency reliability of the scale was reassessed using the study sample. Skewness and kurtosis values were also assessed to verify that the data met the assumptions of normality for parametric analyses.

Results

The descriptive statistics for the depression (Dep), anxiety (Anx), and stress (Str) scales used in the study are presented in Table 1.

Table 1. Descriptive statistics

Variable	Number of items	Minimum score	Maximum score	*M*	*SD*	*M*/k	Skewness	Kurtosis
Dep	7	3	20	12.53	4.88	1.79	-0.39	-1.33
Anx	7	3	21	12.61	4.72	1.80	-0.41	-1.30
Str	7	3	21	12.50	4.77	1.78	-0.38	-1.34

Table 1 shows descriptive statistics of the variables, including the number of items, minimum and maximum scores obtained by the participants, as well as the mean (M), standard deviation (SD), mean per item (M/k), skewness, and kurtosis values. The mean depression score was 12.53 (1.79 out of 3), the mean anxiety score was 12.61 (1.80 out of 3), and the mean stress (Str) score was 12.50 (1.78 out of 3). The skewness values ranged between -0.41 and -0.38, while the kurtosis values ranged from -1.34 to -1.30. Since all absolute values of skewness and kurtosis were below 2, the data can be considered to meet the assumption of univariate normality (Hair et al., 2010).

The correlation coefficients between depression, anxiety, and stress scores are presented in Table 2.

Table 2. Inter-correlation between the variables

	1	2	3
1. Dep	1	0.80**	0.78**
2. Anx		1	0.80**
3. Str			1

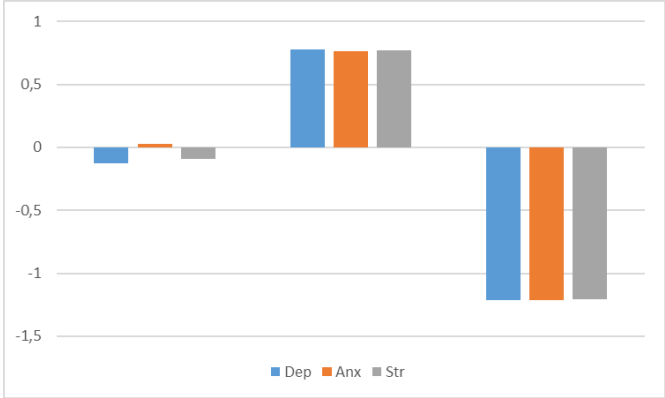
**$p < 0.01$

Table 2 revealed that strong and statistically significant positive correlations between depression and anxiety ($r = .80$, $p < .01$), depression and stress ($r = .78$, $p < .01$), and anxiety and stress ($r = .80$, $p < .01$).

LPA models with increasing numbers of profiles were estimated, and model fit indices are reported in Table 3.

Table 3 shows the model fit indices used to determine the optimal number of latent profiles. As the number of profiles increased from one to five, information criteria values (AIC, BIC, and SABIC) gradually decreased, indicating improved model fit. However, model parsimony and interpretability were also considered. Although the four- and five-profile solutions showed slightly better fit indices, their smallest class sizes fell below 5%, and the VLMR and LMR tests were not statistically significant ($p > .05$). In contrast, the three-profile model demonstrated a good balance between statistical fit and interpretability, with lower information criteria, significant likelihood ratio tests ($p < .001$), and high classification accuracy (entropy = 0.97), and was therefore retained as the optimal solution. Although the entropy value was high, this may partly reflect the strong inter-correlations among depression, anxiety, and stress indicators, which can facilitate clearer separation between low, moderate, and high symptom profiles.

The standardized mean scores (z-scores) of depression, anxiety, and stress for each latent profile are presented in Figure 1.



Note. Dep = depression, Anx = anxiety, Str = stress

Figure 1. Z-score distributions of DASS profiles

Figure 1. Revealed that the first profile exhibited scores close to the mean depression (Z = -0.13), anxiety (Z = 0.03), and stress (Z = -0.09), and was labeled Moderate Psychological Distress. The second profile indicated above-average levels of depression (Z = 0.78), anxiety (Z = 0.76), and stress (Z = 0.77), labeled as High Psychological Distress. Finally, the third profile was characterized by below-average levels of depression (Z = -1.21), anxiety (Z = -1.22), and stress (Z = -1.201), labeled as Low Psychological Distress.

Table 3. Profile enumeration

Model	Log likelihood	Estimated Parameter	AIC	BIC	SABIC	Entropy	VLMR (*p*)	LMR (*p*)	BLRT (*p*)	Smallest n
1	-2999.482	6	6010.963	6033.848	6014.815	-	-	-	-	-
2	-2296.332	10	4612.663	4650.804	4619.083	0.99	0.00	0.00	0.00	38%
3	**-2245.980**	**14**	**4519.960**	**4573.358**	**4528.949**	**0.97**	**0.00**	**0.00**	**0.00**	**6.7%**
4	-2237.457	18	4510.915	4579.569	4522.471	0.90	0.15	0.16	0.02	3.2%
5	-2230.684	22	4505.367	4589.278	4519.492	0.92	0.12	0.13	0.04	1.9%

Table 4. Descriptive statistics of profiles

	Profile 1 (n = 22, 6.57%)		Profile 2 (n = 121, 36.11%)		Profile 3 (n = 192, 57.32%)	
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*
Dep	11.91	1.74	16.13	1.67	6.61	1.74
Anx	12.73	1.58	16.21	1.69	6.87	1.73
Str	12.05	2.28	16.18	1.69	6.74	1.70

Table 5. Logistic regression of gender of parent as a predictor of latent profile membership

Comparison	Predictor (Gender)	Coefficient	*SE*	*OR*	*p*	Significant
Profile 2 vs. Profile 1	Male	-0.77	0.51	0.46 [0.17, 1,25]	.03	Yes
Profile 3 vs. Profile 1	vs.	-0.20	0.52	0.82 [0.30, 2.27]	.67	No
Profile 3 vs. Profile 2	Female	0.57	0.24	1.77 [1.11, 2.83]	.02	Yes

Table 6. Logistic regression of disability types of the children as a predictor of latent profile membership

Comparison	Predictor (disability type)	Coefficient	*SE*	*OR*	*p*	Significant
Profile 2 vs. Profile 1	Autism	3.82	1.86	45.78 [1.19, 1755.57]	0.04	Yes
Profile 3 vs. Profile 1	vs.	1.58	1.86	4.85 [0.13, 185.89]	0.40	No
Profile 3 vs. Profile 2	Intellectual Disability	-2.25	0.29	0.11 [0.06, 0.20]	< 0.01	Yes

Table 4 shows the descriptive statistics of depression, anxiety, and stress scores across the three latent profiles identified through the analysis. Accordingly, while Profile 1 had moderate scores for depression (M = 11.91, SD = 1.74), anxiety (M = 12.73, SD = 1.58), and stress (M = 12.05, SD = 2.28), Profile 2 had the highest mean scores for depression (M = 16.13, SD = 1.67), anxiety (M = 16.21, SD = 1.69), and stress (M = 16.18, SD = 1.69). In contrast, Profile 3 had the lowest mean scores regarding depression (M = 6.61, SD = 1.74), anxiety (M = 6.87, SD = 1.73), and stress (M = 6.74, SD = 1.70).These scores supported the differentiation between the profiles according to psychological distress.

A multinomial logistic regression examined whether parental gender predicted latent profile membership, and the results are presented in Table 5.

Table 5 indicates that gender significantly predicted latent profile membership when comparing Profile 2 with Profile 1 and Profile 3 with Profile 2. Specifically, fathers were significantly less likely than mothers to belong to Profile 2 compared to Profile 1 (OR = 0.46[0.17, 1,25], p = .03). Fathers were also significantly more likely than mothers to belong to Profile 3 compared to Profile 2 (OR = 1.77[1.11, 2.83], p = .02).No statistically significant difference was found between Profile 3 and Profile 1 (OR = 0.82[0.30, 2.27], p = .67).

A multinomial logistic regression examined whether the type of child disability predicted latent profile membership, and the results are presented in Table 6. Table 6 indicates that the type of child disability significantly predicted profile membership in some comparisons. Parents of children with autism were significantly more likely to belong to Profile 2 than to Profile 1 (OR = 45.78[1.19, 1755.57], p = .04). However, no significant difference was observed between Profile 3 and Profile 1 (OR = 4.85[0.13, 185.89], p = .40). In contrast, parents of children with autism were significantly less likely to belong to Profile 3 compared to Profile 2 (OR = 0.11[0.06, 0.20], p< .01).

Discussion and Conclusion

This study identified three latent profiles of parents of children with DDs based on their levels of depression, anxiety, and stress. Rather than indicating qualitatively distinct psychological structures, the profiles appear to reflect severity-based differentiation in overall psychological distress. The high inter-correlations among depression, anxiety, and stress suggest that these constructs tended to increase and decrease together, resulting in quantitative rather than qualitative distinctions between profiles. In this sense, the findings indicate graded levels of distress rather than structurally different psychological configurations. Accordingly, depression, anxiety, and stress may be better conceptualized as closely related dimensions that jointly represent varying levels of parental psychological vulnerability. Inadequacies in inclusive and family-centered policies further increase the psychological burden on parents (Helkkula et al., 2020; Matthews et al., 2021; Mestre et al., 2024). From this perspective, depression, anxiety, and stress reflect not only individual psychological states but also parents' positions within social structures.

The identified latent profiles also emphasize the need to conceptualize mental health within socioeconomic, cultural, and sociological contexts (Skinner & Weisner, 2007). Psychological distress among parents of children with DDs is closely linked to individual well-being, children's developmental trajectories, intra-family interactions, and broader social integration (Lloyd & Hastings, 2009; Pozo et al., 2014; Resch et al., 2012). Distinguishing these psychological clusters enables the development of needs-based and multi-tiered interventions. Parents in high-distress profiles may require intensive clinical support, whereas those experiencing lower yet persistent stress may benefit more from strengthened social support systems or community-based services. Accordingly, interventions should move beyond exclusively parent-centered approaches and adopt child- and family-centered frameworks that address contextual and systemic influences.

This study revealed that gender was significantly associated with latent profile membership among parents of children with DDs. Specifically, mothers were more likely than fathers to be classified into the high psychological distress profile. In other words, maternal gender was associated with higher odds of belonging to the high distress profile compared to paternal gender. These findings indicate differences in profile membership probabilities rather than direct differences in symptom severity. This observation aligns with existing literature on both individual psychological vulnerabilities and the influence of gender roles on mental health (Ang & Loh, 2019; Ha et al., 2008; Scherer et al., 2019). The fact that mothers often assume the role of primary caregivers in the context of children with DDs constitutes a significant factor that increases their psychosocial burden (Findling et al., 2023; Findling et al., 2024). Giallo et al. (2011) found that mothers, due to this caregiving role, experience greater levels of burnout and depression both physically and psychologically. Similarly, Cetinbakis et al. (2018) reported that mothers cope more intensely with their children's behavioral difficulties, leading to elevated levels of stress and anxiety. Kütük et al. (2021) also noted that mothers exhibit significantly higher levels of depression and burnout compared to fathers. Underlying these disparities are factors such as gender roles, the socially constructed responsibilities of motherhood, unequal distribution of caregiving labor within families, and limited access to social support networks. Especially in families from lower socioeconomic backgrounds, mothers not only carry the primary burden of care but also engage more frequently in navigating their children's challenges, thereby encountering

bureaucratic and institutional barriers more often (Cummins, 2001; Heinrich et al., 2022; Sousa, 2015).

Consequently, mothers are more frequently involved in physical caregiving responsibilities as well as in managing emotional difficulties, educational planning, and access to healthcare services. The literature indicates an association between these caregiving demands and higher levels of depression, anxiety, and stress among mothers (Al-Farsi et al., 2016; Ali Nathwani et al., 2021; Bujnowska et al., 2019; Miodrag & Hodapp, 2010; Uskun & Gundogar, 2010). Within this framework, expanding psychosocial support programs tailored for mothers, promoting a more balanced distribution of caregiving responsibilities, and encouraging greater paternal involvement may contribute to reducing psychosocial strain. Improving access to support services for mothers may also be associated with better psychological well-being.

The results of the study revealed that the type of child's disability is a significant predictor of parental psychological distress profiles of parents of children with DDs. Specifically, parents of children with ASD exhibited a higher likelihood of belonging to both moderate and high psychological distress profiles in comparison to parents of children with intellectual disabilities. This finding is consistent with several studies in the existing literature (Blacher & Baker, 2019; Picardi et al., 2018; Yorke et al., 2018; Zaidman-Zait et al., 2018). Behavioral problems, co-occurring emotional difficulties, and the continuous nature of caregiving for individuals with ASD significantly impact parental well-being (Karst & Van Hecke, 2012; Hayes & Watson, 2013; Sánchez Amate & Luque de la Rosa, 2024). In contrast, limitations in cognitive and adaptive functioning typically define intellectual disabilities, and individuals with such diagnoses often have more structured and systematically provided access to special education and rehabilitation services (Aron &Loprest, 2012; Patel et al., 2020; Schalock&Luckasson, 2004). Therefore, while parents of children with intellectual disabilities may follow a more predictable path when planning for their children's education and future, parents of children with ASD are often confronted with a more dynamic and uncertain process.

In line with the present study's findings, Scherer et al. (2019) also emphasized that the type of disability significantly affects the levels of depression and anxiety observed in parents. Similarly, Hayes and Watson (2013) found that parents of children with ASD exhibit higher levels of stress compared to those raising children with other DDs. These findings underscore the necessity of individualized intervention programs. In particular, it is crucial to provide more intensive, comprehensive, and long-term support to parents of children with ASD (DePape & Lindsay, 2015; Helkkula et al., 2020; Oono et al., 2013). Interventions targeting these parents should not be limited to individual counseling or support groups but should also encompass areas such as access to healthcare and education systems and the quality of caregiving services (Lindo et al., 2016; Singer et al., 2007). This finding suggests that, compared to parents of children with intellectual disability, parents of children with ASD showed higher odds of belonging to the higher psychological distress profile. These results underscore the importance of developing disability-specific policies and service models that take into account differences between ASD and intellectual disability.

Implications, Limitations, and Future Research Directions

The findings of this study indicate that the levels of depression, anxiety, and stress experienced by parents of children with DDs do not follow a homogeneous structure but rather exhibit severity-based differentiation. This underscores the necessity of designing intervention programs not solely based on diagnostic categories but also tailored to psychological risk levels. Parents classified within high psychological distress profiles could inform the identification of families who might benefit from more intensive forms of support. Likewise, parents in moderate distress profiles may benefit from socially oriented or preventive interventions. Moreover, the predictive role of parental gender and child diagnosis type in determining psychological profile membership suggests that support services must be responsive to both the caregiving roles and the developmental needs of the children. In particular, the greater likelihood of mothers being included in high distress profiles highlights the importance of enhancing psychosocial support mechanisms targeted at mothers. Similarly, within the scope of the present comparison, parents of children with ASD demonstrated higher odds of belonging to certain distress profiles compared to parents of children with intellectual disability. This finding suggests that differences between ASD and intellectual disability may be considered when designing diagnosis-sensitive service models. Rather than implying universal risk, these results highlight the potential value of multi-tiered and individualized support frameworks that account for contextual and individual vulnerability factors.

This study has several limitations that may affect the generalizability and interpretation of the findings. First, the data were collected using self-report measures that may be influenced by social desirability and subjective perception. Second, the sample was limited to parents residing in Turkey, which restricts the cultural generalizability of the results, as caregiving roles and access to support systems may vary across contexts. Third, only parental gender and child diagnosis type were included as covariates; other relevant variables such as socioeconomic status, parental education, social support, and family structure were not examined. In addition, the cross-sectional design limits the interpretation of associations identified in the study. The findings reflect relationships observed at a single point in time and should therefore not be interpreted as directional or causal effects. Statements regarding the influence of certain variables should be understood as indicative of statistical associations rather than explanatory mechanisms. Longitudinal research would be necessary to clarify temporal dynamics and potential causal pathways among these variables. Another limitation concerns the relatively small size of the lowest-profile group (n = 22, 6.6% of the sample). Small class sizes in mixture modeling may result in less stable parameter estimates and inflated standard errors in regression analyses examining profile membership. Therefore, comparisons involving this group should be interpreted with caution. Future studies with larger and more balanced class distributions are needed to confirm the robustness of these findings.

Future research can expand upon the current study in several key ways. First, longitudinal research designs could be employed to track the evolution of parental psychological well-being over time. Because the present study did not assess child developmental outcomes, future studies may also examine how changes in parental psychological profiles interact with the developmental trajectories and adjustment outcomes of children with DDs. Such designs would provide a clearer understanding of the long-term dynamics between parental well-being and child development. Second, cross-cultural and multicenter studies with larger samples are needed to enhance the generalizability of the findings. Third, future

research should explore the influence of psychosocial variables such as perceived social support, coping strategies, parental self-efficacy, and intra-family communication patterns on latent profile membership. In addition, mixed-methods research designs incorporating qualitative data collection could offer a more in-depth understanding of parents' lived experiences. Finally, experimental studies that evaluate the effectiveness of tailored intervention programs for different psychological profiles are needed to determine how various subgroups respond to specific support models. This would facilitate the development of more personalized and evidence-based intervention strategies.

Author Contributions

The author declares that no other author contributed to this study and that the final version of the manuscript has been read and approved.

Ethical Declaration

This study was conducted with the approval of the Ethics Committee for Human Research in Social Sciences at Bartın University (Protocol No. 2025-SBB-0638), granted at the meeting dated June 18, 2025 (Decision No. 2025/11).

Conflict of Interest

The author declare that they have no conflict of interest with any institution or person within the scope of the study.

Declaration of Generative AI Use

During the English language editing stage of this study, ChatGPT 5.1, a generative artificial intelligence tool, was used to a limited extent solely for translation purposes. The accuracy of the translated text was carefully reviewed by the author, and necessary revisions were made. The author assumes full responsibility for the content of the manuscript.

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