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Determinants of quality of life,mental health and suicidal ideation in mothers of children with neurodevelopmental disorders: a cross-sectional analytical study in Feira de Santana, Bahia

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Abstract

Objectives: to analyze factors associated with quality of life (QoL), common mental disorder (CMD), depressive symptoms and suicidal ideation in mothers of children with neurodevelopmental disorders, and to explore association patterns via quality of life.

Methods: cross-sectional study with 153 mothers (117 atypical, 36 typical) in Feira de Santana, Bahia, Brazil, 2025. WHOQOL-BREF (QoL), SRQ-20 (CMD and suicidal ideation — item 17) and PHQ-9 (depression) were applied. Poisson regression with Huber-White robust variance (aPR; 95%CI) was performed; for suicidal ideation, exploratory Poisson analysis was performed in the total sample. Mediated patterns were investigated by product-of-coefficients with bias-corrected bootstrap (BC, R=2,000 resamples).

Results: atypical mothers showed poor QoL in 54.7% vs. 19.4% (p<0.001); CMD in 81.2% vs. 44.4% (p<0.001); depression in 65.8% vs. 36.1% (p=0.002); suicidal ideation in 23.9% vs. 2.8% (OR=11.01; p=0.005). Being an atypical mother (aPR=2.06) and obstetric complications (aPR=1.41) predicted poor QoL. Poor QoL was associated with CMD (aPR=1.66) and depression (aPR=2.63). In the total sample, prior mental disorder diagnosis (aPR=3.30) and poor QoL (aPR=4.29) predicted suicidal ideation.

Conclusions: atypical mothers show higher mental distress across all outcomes. Poor QoL is associated with CMD and depression; suicidal ideation is strongly concentrated in the atypical group. Findings reinforce intersectoral support strategies for families of children with NDD.

Key words *Quality of life, Mental disorders, Depression, Suicidal ideation, Mothers, Neurodevelopmental disorders, Caregiver burden*

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Introduction

Atypical motherhood—experienced by women who are the primary caregivers for children with neurodevelopmental disorders (NDD)—represents one of the most intense manifestations of the female care burden in the contemporary Brazil. Autism Spectrum Disorder (ASD), Cerebral Palsy, and Intellectual Disability are diagnoses that force families—and mothers in particular—to radically reorganize their daily lives, entailing significant professional, social, and personal sacrifices.[1,2]

These women experience what is conventionally termed a "multi-shift": they simultaneously fulfill the roles of specialized caregiver, therapeutic interpreter, manager of medical appointments, and emotional provider for the family, often without adequate institutional support.[3] Neurodevelopmental disorders (NDDs), including Autism Spectrum Disorder (ASD), Cerebral Palsy, and Intellectual Disability, place intense and continuous demands on families—particularly on mothers, who, in contexts marked by gender inequalities, take on most of the care. The associated burden has been consistently linked to negative maternal mental health outcomes.[4,5]

Singer[6] identified, in a meta-analysis, a prevalence of depressive symptoms of 29% among mothers of children with developmental disabilities versus 19% in controls—a pattern consistent with greater vulnerability, although it refers to depression (not CMD) and is not specific to ASD. Lins-Silva *et al*.[4] provide estimates more aligned with the profile under investigation. National studies corroborate this pattern, with higher prevalences of CMD, depression, and higher rates of suicidal ideation among atypical mothers.[7–9]

Quality of life (QOL) emerges as an integrative construct, capable of capturing the multidimensional impact of this burden across physical, psychological, social, and environmental domains. The deterioration of maternal QoL has been associated with depression and psychological distress in intensive care settings,[8,10] but studies investigating the role of QoL in a cascade of outcomes—CMD, depression, and suicidal ideation—are scarce, especially in the Northeast of Brazil.

The theory of the social determinants of health, particularly in the formulations by Breilh[11] and Laurell[12] on the social determination of the health-disease process, offers a fruitful analytical framework to understand specific living conditions—income, schooling, time spent on unpaid work, and social isolation—interacting to produce mental illness in this group. From this perspective, the mental distress experienced by atypical mothers is not a purely individual or psychological phenomenon, but rather an expression of structural vulnerabilities that require collective and policy-based responses.

This study investigates the determinants of QoL, CMD, depressive symptoms, and suicidal ideation among mothers of children with NDD, and examines the pattern of association between poor QoL and mental health outcomes.

Methods

This is an analytical observational, cross-sectional study conducted in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)[13] recommendations.

The research was conducted in the city of Feira de Santana, Bahia (population: 616,272; 2022 Census),[14] between March and September 2025. Recruitment of atypical mothers was conducted via convenience sampling at five referral institutions for NDD: APAE, *Organização Crescer Cidadão* (Growing Citizen Organization) and three private clinics. For the typical group, the snowball sampling was used, with each atypical mother indicating two typical mothers of typical children from a similar socioeconomic background—a strategy acknowledged as a limitation of the study. The burden variables (care >6 h/day and self-care ≤1 h/day) were assessed only in atypical mothers; therefore, they are not included in the models used to comparing among groups (N=153).

Women aged ≥18 years, biological or adoptive mothers, residing in the region, who agreed to complete the digital Inform Consent Form were included. Women with disabling cognitive impairments and questionnaires with >20% missing data were excluded.

The instruments used were:

Quality of life: WHOQOL-BREF (26 items), classified as Poor (1.0–2.9), Fair (3.0–3.9), and Good (4.0–5.0), dichotomized into Poor vs. Fair/Good.[15]

Common mental disorder: SRQ-20, cutoff score ≥7 for women.[16]

Depressive symptoms: PHQ-9, cutoff score ≥10.[17]

Suicidal ideation: screened using item 17 of the SRQ-20 ("Have you ever had thoughts of ending your life?"), in accordance with the Brazilian validation of the instrument,[16] binary variable. Methodological note: During the development phase of the data collection instrument, item 17 was inserted in position 19 of the form, with the wording adapted during data entry ("Have you been thinking about ending your life?"), which is semantically equivalent to the validated item 17—the operationalized construct is identical: screening for thoughts of ending one's own life, as per formulations recognized in the Brazilian literature on the instrument. The inconsistency was identified through an internal audit and corrected: the analyzed variable corresponds to item 17 of the validated scale, extracted from the corresponding response column (29 positive responses). A previous

pre-calculated variable of untraceable origin (75 positive responses) was discarded. The original version of the manuscript used an earlier database; the prevalences of CMD and suicidal ideation were corrected in the revised version. The variation in CMD between versions (78.6% → 81.2% among atypical mothers) stems from a correction of a data entry /case definition in the original database, independent of the correction to the ideation item. Single-item screening may underestimate the actual prevalence of the outcome.

For statistical analysis, a descriptive analysis was performed using absolute and relative frequencies. Bivariate associations were estimated using crude odds ratios (OR) with 95%CI (chi-square or Fisher's exact test). For poor QoL, CMD, and depression, we used Poisson regression with Huber-White robust variance to estimate adjusted prevalence ratios (aPR) with 95%CI—an approach recommended for prevalent outcomes in cross-sectional studies.[18,19]

Variable selection was based on a directed acyclic graph (DAG) constructed a priori (Supplementary Figure 1), according to the criteria of Greenland *et al*.[20] The minimum sufficient set of adjustment variables, derived from the DAG using the backdoor criterion, is identical for CMD and depression, as both outcomes share the same confounding pathways—this identity is grounded in the DAG. Stepwise selection was not used.

For each outcome (poor QoL, CMD, depression), two models were constructed: (1) Direct model—exposure + confounders (schooling, income, marital status, obstetric problems, prior diagnosis of MD, father's age), without burden variables; (2) Mediation model—adds poor QoL as a covariate. For suicidal ideation, we included depression in the mediation model, but this analysis was not feasible due to complete data separation—all 29 cases of ideation had a positive depression diagnosis.

Patterns of mediated association were investigated using the product-of-coefficients method (βa×βb) with bootstrap bias-corrected percentile (BC, R=2,000 resamples).[21,22] The results are presented as descriptive indices of mediated association—not as estimates of causal effects—in accordance with the limitations of the cross-sectional design.[23,24]

For suicidal ideation, the prevalence of 19.0% in the total sample (N=153) justify a Poisson analysis with robust variance. Given that comparisons between groups are limited by statistical instability resulting from only one positive case in the typical group, the prevalences by group are presented with crude ORs as a descriptive estimator of the difference. Exploratory multivariate analysis was conducted on the total sample, using a parsimony model adjusted for the most stable predictors (previous diagnosis of MD and poor QoL). The analysis of the mediated pattern DEP→IDSUI was not possible due to complete separation (all 29 cases of ideation have DEP=1; a property of the data).

As a sensitivity analysis for the CMD model, the model was re-estimated by excluding the variable "previous diagnosis of MD"; the other coefficients varied by <5%, indicating stability. The complete analytical protocol is provided in Supplementary Material 2, which is sufficient to reproduce Tables 2 through 4. Significance level: α=5%. For the crude OR estimates in the bivariate analysis, Fisher's exact test was used for the *p*-value and the Wald method for the confidence interval; in cells with an expected value <5, slight disagreement between the two is expected and results from the small sample size.

The project was approved by the *CEP do Centro Universitário Nobre* (Institutional Review Board) Nº. 7,423,622, CAAE Nº. 86000425.9.0000.5654, on March 6, 2025, in accordance with CNS Resolutions Nº. 466/2012 and No. 510/2016.

Results

A total of 153 mothers participated (117 atypical, 36 typical). Among the atypical, ASD was the most common diagnosis (76.1%), followed by Cerebral Palsy (6.4%); ADHD was diagnosed concurrently in 29.2% of the children. The mean maternal age was 37.9 years (SD=4.5). The sociodemographic profile, data on caregiving burden, and mental health outcomes are presented in Table 1.

Atypical mothers had significantly higher prevalences across all outcomes: poor QoL (54.7% *vs.* 19.4%), CMD (81.2% *vs.* 44.4%), depression (65.8% *vs.* 36.1%), and suicidal ideation (23.9% vs. 2.8%; OR=11.01; 95%CI=1.44–84.06; *p*=0.005). Care >6 h/day was reported by 100 (85.5%) and self-care ≤1 h/day by 59 (50.4%) of the atypical mothers.

In the multivariate analysis for poor QoL (Table 2), the significant predictors were of an atypical mother (aPR=2.06; 95%CI=1.03–4.10; *p*=0.041) and problems during childbirth/puerperium (aPR=1.41; 95%CI=1.03–1.95; *p*=0.035).

For CMD and depression (Table 3), a previous diagnosis of MD was the most consistent predictor in the direct models (CMD: aPR=1.35; 95%CI=1.17–1.55; *p*<0.001; depression: aPR=1.47; 95%CI=1.16–1.85; *p*=0.001). In the mediation models, poor QoL emerged as a strong predictor of CMD (aPR=1.66; 95%CI=1.35–2.04; *p*<0.001) and depression (aPR=2.63; 95%CI=1.86–3.73; *p*<0.001), attenuating the direct effect of being an atypical mother.

In the exploratory analysis of suicidal ideation in the total sample (N=153; prevalence=19.0%), the parsimony model identified a previous diagnosis of MD (aPR=3.30; 95%CI=1.75–6.24; *p*<0.001) and poor QoL (aPR=4.29; 95%CI=1.68–10.93; *p*=0.002) as independent predictors.

Table 1

Sociodemographic characteristics, burden, and mental health outcomes by group. Feira de Santana, Bahia, 2025.

Characteristics	Typical mothers (n=36)		Atypical mothers (n=117)		Total (N=153)		OR crude (95%CI)	*p**
	n	%	n	%	n	%		
Sociodemographic data								
Schooling ≤ high school	8	22.2	52	44.4	60	39.2	2.80 (1.18–6.66)	0.017
Family income ≤1 MW	9	25.0	60	51.3	69	45.1	3.16 (1.37–7.29)	0.006
No partner	6	16.7	47	40.2	53	34.6	3.36 (1.30–8.69)	0.010
Diagnosis and obstetric conditions								
Previous diagnosis of MD[a]	2	5.6	24	20.5	26	17.0	4.39 (0.98–19.56)	0.042
Problems during childbirth/puerperium	8	22.2	51	43.6	59	38.6	2.70 (1.14–6.43)	0.021
Father aged <34 at conception	15	41.7	64	54.7	79	51.6	1.69 (0.79–3.60)	0.171
Mental health outcomes								
Poor quality of life (WHOQOL-BREF)	7	19.4	64	54.7	71	46.4	5.00 (2.03–12.33)	<0.001
CMD (SRQ-20 ≥7)	16	44.4	95	81.2	111	72.5	5.40 (2.41–12.07)	<0.001
Depression (PHQ-9 ≥10)	13	36.1	77	65.8	90	58.8	3.41 (1.56–7.43)	0.002
Suicidal ideation (SRQ-20 item 17)[b]	1	2.8	28	23.9	29	19.0	11.01 (1.44–84.06)	0.005
Burden and self-care (atypical mothers, n=117)[c]								
Care >6h/day	—	—	100	85.5	—	—	—	—
Self-care ≤1h/day	—	—	59	50.4	—	—	—	—
No leisure activities	—	—	82	70.1	—	—	—	—

OR=crude odds ratio; 95%CI=95% confidence interval; MD=mental disorder; MW=minimum wage; [a]95%CI estimated using the Wald method; *p**=Fisher's exact test. For variables with an expected value per cell <5, slight disagreement between the two methods is expected; corrected [b]IDSUI: item 17 of the SRQ-20; OR presented as a descriptive estimator (1 case in the typical group prevents modeling); [c]assessment only in the atypical group; not included in models with N=153.

Table 2

Poisson regression with robust variance for poor quality of life — direct model (N=153). Feira de Santana, Bahia, 2025.

Variable	aPR	95%CI	*p*
Main exposure			
Being an atypical mother (vs. typical)	2.06	1.03–4.10	0.041
Socioeconomic determinants			
Schooling ≤ high school	1.28	0.87–1.88	0.212
Family income ≤1 MW	1.05	0.70–1.57	0.812
No partner	1.16	0.85–1.59	0.352
Clinical and obstetric conditions			
Problems during childbirth/puerperium	1.41	1.03–1.95	0.035
Previous diagnosis of MD	1.15	0.82–1.61	0.416
Father <34 years old at conception	1.08	0.80–1.45	0.611

MD=mental disorder; aPR=adjusted prevalence ratio (Poisson, robust variance HC1, N=153). Burden variables excluded: measured only in the atypical group and positioned as mediators in the DAG (directed acyclic graph).

Table 3

Poisson regression with robust variance for common mental disorders (3a), depression (3b), and suicidal ideation (3c). Feira de Santana, Bahia, 2025.

Variable	Direct model — CMD			Mediation model (+Poor QoL)		
	aPR	95%CI	*p*	aPR	95%CI	*p*
3a. Common Mental Disorder (SRQ-20 ≥7)						
Main exposure						
Being an atypical mother	1.58	1.09–2.27	0.015	1.43	1.02–2.01	0.039

Variable	Direct model — CMD			Mediation model (+Poor QoL)		
	aPR	95%CI	*p*	aPR	95%CI	*p*
Socioeconomic determinants						
Schooling ≤ high school	1.04	0.86–1.27	0.661	0.97	0.82–1.16	0.749
Income ≤1 MW	1.10	0.89–1.37	0.377	1.08	0.90–1.31	0.406
No partner	1.02	0.83–1.23	0.880	0.97	0.81–1.17	0.777
Clinical and obstetric conditions						
Problems during childbirth/puerperium	1.07	0.90–1.26	0.449	0.97	0.82–1.13	0.678
Previous diagnosis of MD*	1.35	1.17–1.55	<0.001	1.27	1.11–1.46	<0.001
Father <34 years old at conception	1.13	0.95–1.34	0.182	1.12	0.94–1.32	0.199
Mediator						
Poor QoL (WHOQOL-BREF)	—	—	—	1.66	1.35–2.04	<0.001

* Complete separation in the data; Sensitivity analysis: variation <5% when excluding variable; aPR = Poisson HC1, N=153.

3b. Depression (PHQ-9 ≥10)	Direct model — CMD			Mediation model (+Poor QoL)		
	aPR	95%CI	*p*	aPR	95%CI	*p*
Main exposure						
Being an atypical mother	1.40	0.92–2.14	0.114	1.18	0.81–1.71	0.394
Socioeconomic determinants						
Schooling ≤ high school	1.07	0.81–1.41	0.626	0.95	0.75–1.19	0.653
Income ≤1 MW	1.19	0.87–1.63	0.281	1.15	0.89–1.49	0.278
No partner	1.22	0.95–1.58	0.122	1.14	0.90–1.43	0.272
Clinical and obstetric conditions						
Problems during childbirth/puerperium	1.18	0.93–1.50	0.166	0.99	0.80–1.23	0.946
Previous diagnosis of MD *	1.47	1.16–1.85	0.001	1.27	1.03–1.55	0.022
Father <34 years old at conception	1.27	1.00–1.62	0.052	1.25	1.00–1.56	0.053
Mediator						
Poor QoL (WHOQOL-BREF)	—	—	—	2.63	1.86–3.73	<0.001

aPR = Poisson HC1, N=153.

3c. Suicidal ideation — exploratory analysis in the total sample (N=153; prevalence=19.0%)	aPR	95%CI	*p*
Adjusted model: MD diagnosis + income + no partner + poor QoL			
Previous diagnosis of MD	3.07	1.61–5.83	<0.001
Income ≤1 MW	1.56	0.74–3.29	0.241
No partner	1.33	0.68–2.61	0.410
Poor QoL	3.60	1.40–9.24	0.008
Parsimonious model (significant variables in the adjusted model)			
Previous diagnosis of MD	3.30	1.75–6.24	<0.001
Poor QoL	4.29	1.68–10.93	0.002
Sensitivity analysis: parsimonious model + atypical mother			
Previous diagnosis of MD	3.06	1.62–5.78	<0.001
Poor QoL	3.55	1.45–8.66	0.005
Atypical mother	4.23	0.60–29.58	0.147

Exploratory analysis — Poisson HC1. Comparison between groups not feasible (1 case in the typical group); Prevalences: atypical = 23.9% (28/117); typical = 2.8% (1/36); crude OR = 11.01 (95% CI = 1.44–84.06; p=0.005). 100% of the 29 cases have positive CMD and depression scores. The atypical mother variable loses statistical significance after adjustment (p=0.147).

The profile of the 29 cases reveals accumulated distress: 100% had CMD and depression, 82.8% had poor QoL, and 48.3% had a previous diagnosis of MD.

The mediation analysis (Table 4) presents the product-of-coefficients (β_a×β_b) for the pathways mediated by poor QoL: CMD (1.44; 95%CI=1.08–2.47), depression (2.01; 95%CI=1.16–5.26), and suicidal ideation (2.40; 95%CI=1.13–21.03). These indices are descriptive—they do not constitute indirect prevalence ratios or a formal decomposition of the total effect.

Discussion

This study investigated a cascade of mental health outcomes among mothers of children with NDD in the Northeast of Brazil. The findings confirm that atypical mothers constitute an extremely vulnerable group, with significantly higher prevalence rates across all outcomes.

The observed prevalence rates—CMD in 81.2%, depression in 65.8%, and suicidal ideation in 23.9% of atypical mothers—are consistent with recent systematic reviews.[4,6,10,25] The finding that 15.7% of the mothers simultaneously presented all four outcomes points to cumulative distress that cannot be reduced to isolated diagnoses. Palma *et al*.[26,27] identified a similar overlap among urban workers and the general population in Feira de Santana, Bahia—data that, although referring to the general population and workers, provide a contextual comparative benchmark. Extrapolation to caregivers of children with NDD should be done with caution, recognizing that risk mechanisms may differ qualitatively.

Among atypical mothers, 85.5% reported providing care for >6 hours/day and 50.4% reported self-care of ≤1 hour/day. Although these variables were not included in the multivariate models with N=153—since they were measured exclusively in the atypical group and positioned as mediators in the DAG—their descriptive magnitude reflects the progressive depletion of physical and emotional resources imposed by the intensity of caregiving demands.[28] This finding is consistent with the stressor-resource model: the intensity of demands progressively depletes available resources.[28,29] The time spent on direct care does not account for time spent on passive monitoring, managing treatment schedules, and advocating for children's rights.

Another important aspect stemming from this personal schedule is the deprivation of self-care, which compromises physical and psychological recovery and maintains a state of constant vigilance that predisposes individuals to depressive distress.[30] Although 56.2% of the mothers reported having a support network, only 10.5% had access to paid professional support, indicating that the available informal support is insufficient to ensure effective time for self-care.

The deterioration of maternal mental health caused by caregiving burden and the lack of self-care is not merely an individual outcome—it feeds back into the very system that generated it. Mothers with CMD, depression, or suicidal ideation exhibit a progressive impairment in their ability to care for their child, their emotional responsiveness, and their management of the child's therapeutic needs, which tends to worsen the functional and behavioral prognosis of the child with NDD.[31,32] From this perspective, investing in maternal mental health is not only an ethical imperative for women's care—it is also a child's health strategy.

Before interpreting the results of the mediation analysis, it is necessary to acknowledge a fundamental limitation: in cross-sectional studies, all variables are measured simultaneously, and empirical verification of temporality is not possible. The results describe patterns of association consistent with a mediated model, not a demonstration of a causal mechanism.[23,24]

The observed pattern is consistent with a mediated association between poor QoL and CMD (β_a×β_b=1.44; 95%CI=1.08–2.47) and depression (β_a×β_b=2.01; 95%CI=1.16–5.26). The cascade of burden → poor QoL → mental health is consistent with the theory of the social determinants of health,[11,12] but causal inference requires longitudinal designs.

Suicidal ideation emerges as a clinically relevant outcome and is strongly concentrated in the atypical group (23.9% vs. 2.8%; OR=11.01; 95%CI = 1.44–84.06; *p*=0.005), although, a multivariate comparison between groups is not feasible due to the small number of cases. In

Table 4

Mediated association indexes via poor QoL — product-of-coefficients with bootstrap BC (R=2,000 resamples). Feira de Santana, Bahia, 2025.

Form	β_a×β_b	95%CI BC (2.000 resamples)	Observed pattern
Atypical mother → Poor QoL → CMD	1.44	1.08–2.47	Pattern consistent with mediated association
Atypical mother → Poor QoL → Depression	2.01	1.16–5.26	Pattern consistent with a mediated association
Atypical mother → Poor QoL → Suicidal ideation[a]	2.40	1.13–21.03	Indicative index — wide CI (n=28 positive cases in the atypical group)

β_a×β_b = product of coefficients on a log-Poisson scale (MacKinnon *et al.*,[22]); 95% CI bias-corrected percentile (BC), R=2,000 resamples; The values represent descriptive indices of the pattern of association—they are not indirect prevalence ratios and do not constitute a formal decomposition of the total causal effect (cross-sectional design; Maxwell & Cole[23]; VanderWeele,[24]); The wide CI reflects n=28 positive cases in the atypical group; the result should be interpreted as indicative, not conclusive; Form: Atypical Mother → Depression → Suicidal Ideation: impossible due to the inability to completely separate the data (all 29 cases of suicidal ideation have a positive depression diagnosis).

the total sample (prevalence = 19.0%), exploratory Poisson analysis identified a previous diagnosis of MD (aPR = 3.30; 95%CI = 1.75–6.24; p<0.001) and poor QoL (aPR = 4.29; 95%CI = 1.68–10.93; p=0.002) as independent predictors. The profile of the 29 cases reveals accumulated suffering: 100% had CMD and depression, and 82.8% had poor QoL. The index of mediation via poor QoL for suicidal ideation ($\beta a \times \beta b$ = 2.40; 95%CI = 1.13–21.03) is indicative, with a wide confidence interval reflecting the n=28 sample size in the atypical group. These results should be interpreted with caution and not extrapolated beyond what the data support.

As social determinants of health, a prior diagnosis of MD emerged as a consistent predictor of CMD and depression (aPR = 1.35 and 1.47), with stable estimates and precise confidence intervals in the Poisson models. Sensitivity analysis confirmed the stability of the other coefficients in the absence of this variable (variation <5%). This finding has relevant clinical implications: mothers with a psychiatric history may constitute a group deserving of increased attention in contexts of high care burden, since situations of prolonged stress may contribute to the reactivation or worsening of previous conditions. Thus, screening and follow-up are recommended in services that care for children with NDD, especially when associated with conditions of psychosocial vulnerability.

Although, suicidal ideation and completed suicide are not outcomes exclusively associated with depression, depressive illness is a particularly relevant proximal risk marker in this population, requiring integrated strategies for prevention and mental healthcare.[26,27]

The results point to the need for intersectoral public policies. In Primary Care, it is recommended that psychopathological screening be systematically incorporated into pediatric checkups for children with NDD. At the specialized level, child rehabilitation centers should integrate psychological care for mothers and structured family programs. At the policy level, effective strategies include: expanding social benefits for families with atypical children; establishing day centers; implementing inclusion policies of effective school; and training professionals to identify and manage maternal distress.[33,34]

It is noteworthy to emphasize the importance of strengthening the existing social support systems. Most mothers report having some support network, but this support is predominantly informal and insufficient to ensure effective time for self-care. Interventions that strengthen and formalize this network—such as community support groups, family training programs, and partnerships with social services—can constitute low-cost, high-impact strategies for reducing maternal burden.

The cross-sectional design does not allow for causal inferences regarding mediating mechanisms. The sample size obtained (n=117 atypicals) fell short of the calculated size (n=137), limiting statistical power in some analyses. Snowball sampling for typical mothers limits representativeness and was not addressed analytically. The dyadic structure (dependence among observations nested within the mother indicator) was not recorded, preventing cluster adjustment—confidence intervals in between-group comparisons may be underestimated.

An additional limitation is the failure to assess the mothers' own neurodivergent status. Given that the heritability of ASD is estimated to be between 60–90%, some of the atypical mothers may have an undiagnosed neurodivergent profile, with masking and autistic burnout acting as omitted variables in the analyses.[35,36] Future studies should incorporate screening tools for maternal neurodivergence.

This study documented that mothers of children with NDD in Feira de Santana, Bahia, have significantly higher prevalences of poor QoL, CMD, depression, and suicidal ideation than mothers of typical children. The status of being na atypical mother and obstetric problems were predictors of poor QoL in the adjusted model.

The pattern of association between poor QoL and CMD and depression is consistent with mediation, with product-of-coefficients indices falling within their respective 95% confidence intervals bootstrap. For suicidal ideation, the difference between groups is striking in the bivariate analysis (OR=11.01), and exploratory analysis of the total sample identified a prior diagnosis of MD and poor QoL as independent predictors—a result that should be interpreted with caution given the small number of cases. The cross-sectional design does not allow for causal inferences regarding mediating mechanisms.[23,24]

These findings reinforce the urgency of intersectoral strategies that expand support for families of children with NDD, with special attention to maternal mental health as a foundational component of comprehensive care.

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Authors' Contributions

Palma TF: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project management, Resources, Software, Supervision, Validation, Visualization, Drafting—original draft, Writing—revision and editing

Souza ES: Conceptualization, securing funding, research, resources, visualization, writing—original draft

Santos LL: Conceptualization, securing funding, research, resources, visualization, writing—original draft

Tranquilli AG: Data curation, writing—revision and editing

All authors approved the final version of the article and declare that they have no conflicts of interest.

Use of artificial intelligence

Generative AI tools (Claude, Anthropic) were used to assist with text revision and formal verification of references. The research, data analysis, and original writing were conducted exclusively by the authors, who assume full responsibility for the content.

Data availability

Primary data are not publicly available (CNS Resolution No. 510/2016). Anonymized data are available upon request to the corresponding author (tfpalma@gmail.com) and approval by CEP.

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Supplementary Figure 1

Directed Acyclic Graph (DAG).

