



STRESS LEVELS OF MOTHERS WITH CHILDREN WITH SPECIAL NEEDS AT THE YAYASAN PEMBINAAN ANAK CACAT SURABAYA BEFORE AND DURING THE COVID-19 PANDEMIC

Anastasya Annisa Karlina¹, Nining Febriyana², Arina Setyaningtyas³, Yunias Setiawati⁴

¹ Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

^{2,4} Department of Psychiatry, Faculty of Medicine, Fakultas Kedokteran, Universitas Airlangga, Surabaya, Indonesia

³ Department of Child Health, Faculty of Medicine, Fakultas Kedokteran, Universitas Airlangga, Surabaya, Indonesia

Corresponding Email: annastasiaannisa745@gmail.com

Article History :

Received date : 2026/04/11

Revised date : 2026/05/07

Accepted date : 2026/06/23

Published date : 2026/07/07



Copyright: © 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (BY NC) license (<https://creativecommons.org/licenses/by-nc/4.0/>).

E-ISSN :

ISSN 3048-1368



P-ISSN

ISSN 3048-1376



ABSTRACT

Introduction: Stress is a pervasive phenomenon of modern life, and mothers of children with special needs (CSN) constitute a particularly vulnerable group. Based on national data from the Indonesian Bureau of Statistics (BPS) 2017, approximately 1.6 million children with special needs reside in Indonesia. The COVID-19 pandemic introduced additional psychosocial stressors, markedly disrupting daily life patterns and caregiving routines.

Methods: This was an analytical cross-sectional study conducted at Yayasan Pembinaan Anak Cacat (YPAC) Surabaya from March to July 2021. A total of 36 mothers meeting inclusion criteria participated. Stress was measured using the Depression Anxiety Stress Scale (DASS-42), focusing on the 14-item stress subscale, administered twice to compare the pre-pandemic and pandemic periods. Demographic questionnaires assessed age, education,

marital status, occupation, income, child's age, child's birth order, and type of disability. **Results:** Before the pandemic, 94% of respondents reported normal stress levels, 3% mild stress, and 3% moderate stress. During the pandemic, only 41.7% remained in the normal range, while 13.9% experienced mild stress, 27.8% moderate stress, and 16.7% severe stress. The overall prevalence of stress increased dramatically from 6% to 78.4%. The age group 36–40 years was most affected during the pandemic (6% mild, 17% moderate, 17% severe). Mothers with income below regional minimum wage, those employed as private employees, and those with higher educational levels showed the greatest stress increases. **Discussion:** Multiple factors including maternal age, marital status, education, occupation, income, child type, and child birth order influenced stress levels. The pandemic amplified pre-existing stressors through school closures, financial hardship, and increased caregiving demands. **Conclusion:** There was a marked increase in maternal stress levels among mothers of CSN during the COVID-19 pandemic, with moderate stress being the most prevalent category. Comprehensive mental health support for this population is urgently warranted.

Keywords: Maternal stress; children with special needs; COVID-19 pandemic; Depression Anxiety Stress Scale; YPAC Surabaya

INTRODUCTION

Background

Children with special needs (CSN) represent one of the most medically and socially vulnerable populations globally.¹ The definition encompasses children deviating from average developmental norms in mental characteristics, sensory, physical, or neuromuscular capacities, social-emotional behaviour, or communicative ability, and who consequently require modifications in educational methods and therapeutic services.² According to Abdullah (2013), CSN are those exhibiting deviation or impairment from normal conditions in physical, mental, or social behavioural characteristics.¹

The global prevalence of developmental disabilities is rising substantially. In Indonesia, the most recent data from the Bureau of Central Statistics (BPS) 2017 documented 1.6 million children with special needs.¹ In the United States, the National Health Interview Survey (NHIS) reported a 9.5% increase in the prevalence of developmental disabilities among children over the nine-year period from 2009 to 2017.³ This epidemiological trend underscores the growing burden on caregiving families, particularly maternal caregivers.

Mothers constitute the primary caregivers for children with special needs, and this caregiving role is associated with substantial psychological burden.⁴ Previous research conducted in Malang, Indonesia by Riandita (2017) demonstrated that 57.4% of mothers of CSN reported high stress levels, encompassing physical, psychological, and behavioural symptom domains.⁵ Caregiving for a child with special needs demands not only additional time and patience but also continuous emotional resilience and adaptive coping strategies.⁶

Stress is conceptualized as any emotionally and physiologically challenging experience.⁷ McEwen (2007) described stress as experiences in which a sense of control and mastery is lacking, often prolonged or recurrent, and emotionally draining or physically harmful.⁷ Agustin (2014) further defined it as a state precipitated by internal or external demands that overwhelm the individual's coping capacity, resulting in physiological and psychological responses.⁸ The body's

stress response is mediated through the Hypothalamic-Pituitary-Adrenal (HPA) axis, involving sequential release of corticotropin-releasing hormone (CRH), adrenocorticotrophic hormone (ACTH), and cortisol.⁹

The COVID-19 pandemic emerged as an unprecedented global health crisis that disrupted virtually every aspect of daily life—enforcing social isolation, causing economic hardship, and generating widespread fear of contagion.¹⁰ School closures implemented as a public health measure globally placed parents, particularly mothers, in the dual role of caregiver and educator.¹¹ For mothers of CSN, these disruptions were superimposed upon already elevated baseline stress levels, potentially creating a compounding psychosocial burden.¹² Polizzi et al. (2020) documented that the pandemic amplified psychological distress through mechanisms of helplessness, loss of financial stability, and impaired future planning.¹⁰

Research Problem

This study sought to address the following research questions: (1) What are the stress levels of mothers of CSN at YPAC Surabaya before and during the COVID-19 pandemic? (2) How do stress levels compare between the two time periods? (3) What sociodemographic and clinical factors influence maternal stress levels in this population?

Research Objectives

The primary objective was to analyse the stress levels of mothers with CSN at YPAC Surabaya. Secondary objectives included: (1) identification and comparison of maternal stress levels before versus during the COVID-19 pandemic; (2) analysis of sociodemographic and child-related factors associated with maternal stress.

Research Significance

Academically, this research contributes baseline epidemiological data on maternal psychological well-being in a population of mothers with CSN, which can inform clinical practice, educational interventions, and future research. Practically, findings may serve as a reference for developing optimism-enhancing and stress-reduction strategies for this high-risk group.

METHODS

Study Design and Setting

This was an analytical observational study employing a cross-sectional design. The study was conducted at Yayasan Pembinaan Anak Cacat (YPAC) Kota Surabaya, located at Jalan Semolowaru Utara 5 No. 2A, Semolowaru, Kecamatan Sukolilo, Surabaya, East Java, Indonesia. The institution registered 74 active students, predominantly with tunadaksa (physical disability), followed by tunagrahita (intellectual disability) and autism spectrum disorder.

Study Period

Data collection was conducted from March 13 to March 30, 2021. The overall study period spanned March 2020 to July 2021.

Study Population and Sampling

The target population comprised all biological mothers who served as the primary caregivers of CSN enrolled at YPAC Surabaya. Total sampling was initially planned; however, due to COVID-19 pandemic conditions, 24 students had taken a leave of absence, reducing the accessible active population to 40 students. Using the cross-sectional sample size formula with $N = 64$ (total registered students), $Z = 1.96$ (95% confidence level), $p = 0.50$, and $d = 0.10$, the minimum sample size was calculated at $n = 55$. Ultimately, 36 respondents fulfilled the inclusion criteria and completed the questionnaires via Google Form.

Inclusion and Exclusion Criteria

Inclusion criteria were: (1) biological mother and primary caregiver for at least 6 months; (2) child enrolled at YPAC Surabaya; (3) able to read and write fluently; (4) willing to participate with signed informed consent. Exclusion criteria included: mothers with serious pre-existing medical illness necessitating long-term treatment prior to pregnancy.

Variables

The independent variable was the presence of a child with special needs. The dependent variable was the maternal stress level as measured by the DASS-42 stress subscale. Confounding variables included maternal age, marital status, educational level, employment status, household income, type of CSN, child's age, and birth order of the CSN.

Data Collection Instruments

Two instruments were employed: (1) a demographic questionnaire capturing sociodemographic characteristics and child-related information; (2) the Depression Anxiety Stress Scale-42 (DASS-42) stress subscale, comprising 14 items with a 4-point Likert-type response format (0 = does not apply to me at all; 3 = applies to me very much or most of the time), validated in the Indonesian language by Damanik (2011) with a Cronbach's alpha reliability coefficient of 0.91 and high discriminant validity as reported by Lovibond and Lovibond (1995).^{13,14} The DASS stress subscale scoring criteria are: Normal (0–14), Mild (15–18), Moderate (19–25), Severe (26–33), and Extremely Severe (>33).¹³ The questionnaire was administered twice—retrospectively for the pre-pandemic period and for the current pandemic period—to enable within-subject comparison.

Data Collection Procedure

Following ethical clearance (No. 28/EC/KEPK/FKUA/2021) from the Health Research Ethics Committee, Faculty of Medicine, Universitas Airlangga, institutional permission was obtained from YPAC Surabaya's principal. Informed consent was secured electronically via Google Form in accordance with pandemic protocols. Questionnaires were distributed and collected online. An orientation session was conducted via Zoom videoconferencing to explain study procedures.

Data Analysis

Data were analysed using descriptive and analytical statistics. Descriptive statistics were employed to calculate the frequency and percentage distribution of stress levels according to Lovibond and Lovibond's (1995) classification. Analytical statistics were used to explore associations between sociodemographic factors and stress levels. All analyses were performed using standard statistical software.¹³

RESULTS

General Overview of the Study Setting

YPAC Kota Surabaya had 74 registered students, with 40 active during the pandemic period. The majority of students presented with tunadaksa (physical disability). Data collection yielded 36 respondents who met the inclusion and exclusion criteria. Among these, pre-pandemic assessment revealed 34 respondents (94%) with normal stress, 1 (3%) with mild stress, and 1 (3%)

346

with moderate stress. During the pandemic, 15 respondents (41.7%) had normal stress, 5 (13.9%) mild, 10 (27.8%) moderate, and 6 (16.7%) severe stress. No respondents reached the extremely severe category at either time point.

Table 1: Stress Levels by Maternal Age

Maternal Age (Years)	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
30–35	14%	0%	0%	0%	6%	6%	3%	0%
36–40	56%	0%	0%	0%	17%	6%	17%	17%
41–45	22%	0%	0%	0%	17%	0%	6%	0%
46–50	3%	3%	3%	0%	3%	3%	3%	0%
Total	94%	3%	3%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

The largest cohort of respondents was in the 36–40-year age group (n = 20). No respondents in any age group reported stress before the pandemic, except the 46–50 group (3% mild, 3% moderate). During the pandemic, the 36–40 year group was most severely affected, with 6% mild, 17% moderate, and 17% severe stress.

Table 2: Stress Levels by Educational Level

Education	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Junior High School (SMP)	6%	0%	3%	0%	3%	3%	0%	3%

Education	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Senior High School (SMA)	33%	3%	0%	0%	19%	3%	14%	0%
University (PT)	56%	0%	0%	0%	19%	8%	14%	14%
Total	94%	3%	3%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

University-educated mothers (n = 20) showed the highest pandemic stress rates: 8% mild, 14% moderate, and 14% severe. This group had no pre-pandemic stress. SMA-educated mothers showed 3% mild, 14% moderate pandemic stress; SMP-educated mothers showed 3% mild, 3% severe.

Table 3: Stress Levels by Marital Status

Marital Status	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Harmonious	94%	3%	3%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

All 36 respondents reported harmonious marital relationships. Despite this, a marked increase in stress levels was observed during the pandemic (14% mild, 28% moderate, 17% severe), suggesting that pandemic-related stressors operate independently of marital quality.

Table 4: Stress Levels by Employment Status

Occupation	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Unemployed	44%	3%	0%	0%	36%	0%	8%	3%
Private Employee	39%	0%	0%	0%	6%	8%	14%	11%
Civil Servant	3%	0%	0%	0%	0%	0%	0%	3%
Sales Promoter	3%	0%	0%	0%	0%	3%	0%	0%
Self-Employed	6%	0%	3%	0%	0%	3%	6%	0%
Total	94%	3%	3%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

Private employees (n = 14) showed the highest pandemic stress rates (8% mild, 14% moderate, 11% severe), followed by the unemployed group (8% moderate, 3% severe). Pre-pandemic, only the unemployed (3% mild) and self-employed (3% moderate) showed any stress.

Table 5: Stress Levels by Household Income

Income Level	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Below Regional Minimum	56%	3%	3%	0%	22%	6%	19%	14%

Income Level	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Wage (UMR)								
Above UMR	39%	0%	0%	0%	19%	8%	8%	3%
Total	94%	3%	3%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

Mothers with below-UMR income (n = 22) showed the greatest pandemic stress burden: 6% mild, 19% moderate, 14% severe. Above-UMR earners also showed an increase: 8% mild, 8% moderate, 3% severe, versus no pre-pandemic stress.

Table 6: Stress Levels by Child Birth Order

Birth Order of CSN	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
1st Child	64%	0%	3%	0%	39%	14%	11%	3%
2nd Child	22%	0%	0%	0%	0%	0%	11%	11%
3rd Child	3%	0%	3%	0%	0%	0%	6%	0%
Only	6%	0%	0%	0%	3%	0%	0%	3%

Birth Order of CSN	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Child								
Total	94%	0%	6%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

Table 7: Stress Levels by Child's Age

Child's Age (Years)	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
5–10	6%	0%	0%	0%	3%	0%	0%	3%
= 10	17%	0%	0%	0%	6%	0%	6%	6%
10–15	39%	0%	0%	0%	19%	8%	3%	8%
= 15	8%	0%	3%	0%	6%	3%	3%	0%
> 15	25%	3%	0%	0%	8%	3%	17%	0%
Total	94%	3%	3%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

Table 8: Stress Levels by Type of Disability

Type of Disability	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
Tunadaksa	58%	3%	3%	0%	33%	14%	11%	6%

Type of Disability	Pre-Pandemic Normal	Pre-Pandemic Mild	Pre-Pandemic Moderate	Pre-Pandemic Severe	Pandemic Normal	Pandemic Mild	Pandemic Moderate	Pandemic Severe
(Physical)								
Tunagrahita (Intellectual)	31%	0%	0%	0%	3%	0%	17%	11%
Autism Spectrum Disorder	6%	0%	0%	0%	6%	0%	0%	0%
Total	94%	3%	3%	0%	42%	14%	28%	17%

Source: Primary data, YPAC Surabaya, March 2021

Mothers of tunagrahita children showed the greatest pandemic stress increase despite no pre-pandemic stress: 17% moderate and 11% severe. Tunadaksa mothers had the highest absolute numbers due to their larger proportion in the sample (14% mild, 11% moderate, 6% severe). Remarkably, mothers of children with autism showed no stress at either time point in this sample (n = 2).

DISCUSSION

Overall Comparison of Maternal Stress Before and During the COVID-19 Pandemic

The most striking finding of this study is the dramatic escalation of maternal stress prevalence—from 6% pre-pandemic to 78.4% during the pandemic. This finding is consistent with the broader literature documenting the deleterious mental health impact of the COVID-19 pandemic on caregivers of children with special needs.^{10,12} Josephine (2021) documented that adaptation to home-based learning imposed additional emotional and cognitive burdens on mothers serving as surrogate teachers, a challenge markedly amplified in the context of caring for a child with special needs.¹⁵ Government-mandated stay-at-home policies and school closures, while epidemiologically

necessary, eliminated critical respite opportunities for caregivers, thereby intensifying cumulative stress.¹¹

Maternal Age and Stress

The 36–40 year age group was most severely affected, with 40% experiencing some degree of stress during the pandemic compared to zero pre-pandemic. This is consistent with findings of Herdy (2012), who identified the 29–45 year age range as the highest-risk group for stress, representing 62.85% of stressed individuals.¹⁶ Levinson's (2012) developmental theory of adulthood frames this period as one of multiple simultaneous role demands—career consolidation, household management, and parenting—which collectively reduce coping reserves.¹⁷ The WHO similarly identifies 15–44 years as the primary risk window for stress-related disorders.¹⁸ Conversely, mothers aged 41–50 showed less severe stress increases, potentially reflecting greater emotional maturity and adaptive coping mechanisms accumulated with age.⁸

Child's Age and Maternal Stress

Mothers of children older than 15 years showed the greatest pandemic stress intensity, particularly regarding moderate stress (17%). This finding appears to contradict the model proposed by Neece et al. (2012), who suggested that parenting stress decreases as children age.¹⁹ However, Deater-Deckard (2004) noted that parental expectations regarding self-control and compliance intensify with the child's age, and unmet developmental expectations in older adolescents with disabilities may generate increased frustration and stress.²⁰ Abidin's parenting stress model identifies child adaptability and mood as key stress indices—characteristics that may become more challenging to manage in older children with persistent behavioural dysregulation.²¹

Marital Status and Maternal Stress

All respondents reported harmonious marital relationships, yet stress levels increased substantially during the pandemic. This suggests that protective effects of a supportive marriage are insufficient to buffer against the extraordinary demands imposed by the pandemic.²² Cohen (1993) demonstrated that caregiving for a child with special needs can strain marital relationships and even lead to separation, compared to parents of typically developing children.²² The pandemic's additional stressors—forced confinement, reduced financial stability, and fear of contagion—

introduced new relational pressures that may have eroded even harmonious marital functioning.¹⁰ Kusumastuti (2014) documented that single mothers of CSN experience compounded physical and psychological exhaustion, highlighting the critical protective role of marital support.²³

Educational Level and Maternal Stress

Counter-intuitively, university-educated mothers showed the highest pandemic stress rates (8% mild, 14% moderate, 14% severe). While Kumar (2008) posited that higher education correlates with lower psychological stress and superior stress-coping strategies,²⁴ the present findings diverge from this paradigm. A plausible explanation is that higher-educated mothers had greater access to pandemic-related information, which, while potentially empowering, may also have amplified health anxiety regarding infection risk.¹⁰ Additionally, higher-educated mothers working in knowledge-intensive occupations may have faced greater work-from-home pressures simultaneously. Ramadhany (2017) acknowledged that higher education facilitates access to information regarding child development but does not necessarily confer immunity to stress.²⁵

Employment and Maternal Stress

Employed mothers, particularly private-sector employees, exhibited the greatest pandemic stress burden (8% mild, 14% moderate, 11% severe). This aligns with findings by Firat (2002) and Apreviadizy (2014) demonstrating higher stress among employed mothers due to the dual demands of occupational and domestic roles.^{26,27} The pandemic further complicated this dynamic by necessitating Work From Office (WFO) attendance while simultaneously requiring home-based learning supervision, creating temporal and cognitive conflicts.¹⁰ The additional threat of viral transmission between workplace and home, combined with pandemic-related employment instability (reduced hours, retrenchment), contributed to the observed stress escalation.^{10,25} Paradoxically, non-employed mothers also showed increased stress, consistent with Herdy (2012), who documented that full-time homemakers face high stress from domestic demands and child management without occupational fulfilment as a counterbalance.¹⁶

Household Income and Maternal Stress

Mothers with below-UMR income showed the greatest pandemic stress burden (6% mild, 19% moderate, 14% severe). Taylor (2009) emphasised that families of children with intellectual

disabilities carry compounded psychosocial burdens related to financial incapacity to meet future care costs, medical expenses, and daily living needs.²⁸ During the pandemic, essential commodity prices increased, pandemic-related job losses reduced family income, and government-mandated online schooling created additional expenses for devices and internet connectivity that low-income families could ill afford.²⁹ The implementation of pemberlakuan pembatasan kegiatan masyarakat (PPKM) further reduced economic activity and household income.¹⁰

Child Birth Order and Maternal Stress

Mothers whose first child had special needs showed the highest stress prevalence (14% mild, 11% moderate, 3% severe) during the pandemic. This aligns with findings from Edi (2007), who documented that parents of firstborn children with disabilities experience prolonged shock and grief.³⁰ David (2016) further demonstrated that a child with special needs generates disproportionate familial responsibility.³¹ However, mothers of second and third children with CSN also showed substantial pandemic stress (11% moderate and 11% severe for second children), suggesting that birth order's influence is secondary to the intrinsic caregiving burden and pandemic amplification thereof.⁸

Type of Disability and Maternal Stress

Mothers of tunagrahita children showed disproportionate pandemic stress escalation (17% moderate, 11% severe) despite zero pre-pandemic stress. This is consistent with findings by Munayang et al. (2012), who documented higher rates of depression among mothers of tunagrahita children.³² Sefira (2017) noted that tunagrahita children require more intensive supervision and caregiving compared to other disability categories, a burden considerably amplified during school closures.³³ While Weiss (2002) and Boyd (2002) identified autism as the most stressogenic disability type for mothers,^{34,35} the autism group in the present study was too small ($n = 2$) to draw meaningful conclusions, and no stress was detected in this subgroup. Tunadaksa mothers showed the highest absolute stress numbers due to their numerical preponderance in the sample, but proportionally, tunagrahita mothers demonstrated the steepest stress increase.

Mechanisms Underlying Pandemic-Related Stress Amplification

The HPA axis-mediated stress response, as described by Chrousos (2009), is activated by perceived threats to homeostasis.⁹ The COVID-19 pandemic represents a multidimensional stressor engaging all three categories identified by Thoits (1995): life events (diagnosis, family member hospitalisation), chronic strains (sustained economic hardship, role overload), and daily hassles (home confinement, technology difficulties for online learning).³⁶ Serido et al. (2004) demonstrated that these stressor categories independently and synergistically impair health.³⁷ For mothers of CSN, these pandemic stressors operated on an already elevated stress baseline, potentially precipitating a threshold effect that shifted many women from subclinical to clinically significant stress levels.

The tend-and-befriend response, proposed by Taylor (2000) as characteristic of female stress responses,³⁸ was severely restricted by pandemic social distancing requirements, eliminating access to the social support networks that constitute the primary female coping mechanism.³⁸ This is supported by Ramadhany (2017), who identified social support as the primary modifiable protective factor against caregiving stress.²⁵

Study Limitations

Several limitations should be acknowledged. First, data collection was conducted online, limiting the depth of clinical assessment compared to in-person interviews. Second, the final sample (n = 36) was smaller than the calculated minimum (n = 55) due to pandemic-related absenteeism, potentially reducing statistical power. Third, retrospective recall of pre-pandemic stress levels may be subject to memory bias. Fourth, the exclusively harmonious marital status of all respondents limits generalisability to populations with marital conflict. Fifth, the cross-sectional design precludes causal inference.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study demonstrates a dramatic and clinically significant increase in maternal stress levels among mothers of children with special needs at YPAC Surabaya during the COVID-19 pandemic, with the prevalence rising from 6% pre-pandemic to 78.4% during the pandemic. Moderate stress was the most prevalent category during the pandemic. Key factors associated with

356

elevated pandemic stress included maternal age 36–40 years, university-level education, private-sector employment, income below the regional minimum wage, and having a child with tunagrahita. The COVID-19 pandemic functioned as a potent amplifier of pre-existing caregiving stressors through mechanisms of role overload, economic pressure, restricted social support, and elimination of institutional respite care.

Recommendations

For future research: (1) Larger prospective cohort studies with representative sampling are recommended; (2) Assessment of IQ levels of CSN to examine the relationship with maternal stress; (3) Inclusion of a control group of mothers with typically developing children. For clinical practice and YPAC administration: (1) Online mental health webinars addressing parental psychological resilience during and beyond the pandemic should be implemented; (2) Mothers should be encouraged to maintain regular communication with educators to monitor child progress during home-based learning; (3) Social support networks and peer support groups should be facilitated, even in virtual formats. For policy: (1) Psychological support services should be integrated into special education institutional frameworks; (2) Financial assistance programmes for low-income families of CSN should be expanded during public health emergencies.

REFERENCES

1. Abdullah N. Mengenal Anak Berkebutuhan Khusus. Magistra. 2013;25(86):1.
2. Mangunsong F. Psikologi dan Pendidikan Anak Berkebutuhan Khusus. Depok: LPSP3 UI; 2009.
3. Durkin MS. Increasing prevalence of developmental disabilities among children in the US: a sign of progress? Pediatrics. 2019;144(4):e20192005.
4. Boyd BA. Examining the relationship between stress and lack of social support in mothers of children with autism. Focus Autism Other Dev Disabl. 2002;17(4):208–15.
5. Riandita AA. Tingkat Stres Ibu yang Memiliki Anak Berkebutuhan Khusus [Doctoral dissertation]. University of Muhammadiyah Malang; 2018.
6. Wijayanti D. Subjective well-being dan penerimaan diri ibu yang memiliki anak down syndrome. Ejournal Psikologi. 2015.

7. McEwen BS. Physiology and neurobiology of stress and adaptation: central role of the brain. *Physiol Rev.* 2007;87(3):873–904.
8. Gaol NTL. Teori stres: stimulus, respons, dan transaksional. *Buletin Psikologi.* 2016;24(1):1–11.
9. Chrousos GP. Stress and disorders of the stress system. *Nat Rev Endocrinol.* 2009;5(7):374.
10. Polizzi C, Lynn SJ, Perry A. Stress and coping in the time of COVID-19: pathways to resilience and recovery. *Clin Neuropsychiatry.* 2020;17(2).
11. Moroni G, Nicoletti C, Tominey E. Children's socio-emotional skills and the home environment during the COVID-19 crisis. 2020.
12. Ornell F, Schuch JB, Sordi AO, Kessler FHP. 'Pandemic fear' and COVID-19: mental health burden and strategies. *Braz J Psychiatry.* 2020;(AHEAD).
13. Parkitny L, McAuley J. The depression anxiety stress scale (DASS). *J Physiother.* 2010;56(3):204.
14. Damanik ED. The measurement of reliability, validity, items analysis and normative data of Depression Anxiety Stress Scale (DASS). 2011. Available from: <http://www2.psy.unsw.edu.au/dass/Indonesian/Damanik%20Indonesian%20translation>.
15. Tamara J. Stress pada ibu terhadap pembelajaran daring selama pandemi COVID-19. 2021.
16. Wulandari FE, Hadiati T, Sarjana W. Hubungan antara tingkat stres dengan tingkat insomnia mahasiswa/i angkatan 2012/2013 Program Studi Pendidikan Dokter Fakultas Kedokteran Universitas Diponegoro. *J Kedokt Diponegoro.* 2017;6(2):549–57.
17. Gobel RS, Rattu JA, Akili RH. Faktor-faktor yang berhubungan dengan stres kerja pada perawat di ruang ICU dan UGD RSUD Datoe Binangkang Kabupaten Bolaang Mongondow. *Kesehatan Masyarakat Universitas Sam Ratulangi.* 2013:1–7.
18. Butler G. Definitions of stress. *Occas Pap R Coll Gen Pract.* 1993;(61):1.
19. Neece C, Green S, Baker B. Interrelations among maternal and child behavior problems: the role of child age and developmental level. *J Abnorm Child Psychol.* 2012;40:1219–31.
20. Deater-Deckard K. Parenting stress and child adjustment: some old hypotheses and new questions. *Clin Psychol Sci Pract.* 2004;11(4):386–91.

21. Ahern L. Parenting stress index—short form. In: Maruish ME, editor. *The Use of Psychological Testing for Treatment Planning and Outcomes Assessment*. 3rd ed. Mahwah: Lawrence Erlbaum Associates; 2004.
22. Cohen S. *Measuring stress: a guide for health and social scientists*. Oxford University Press; 1993.
23. Kusumastuti AN. Stres ibu tunggal yang memiliki anak autisme. *J Psikologi*. 2014;7(2).
24. Kumar K. Parent educational status and psychological stress of parents having mentally retarded children. 2008.
25. Ramadhany SD. Faktor-faktor yang berhubungan dengan tingkat stres pengasuhan pada ibu yang memiliki anak tunagrahita di SLB Dharma Bhakti Dharma Pertiwi. 2016.
26. Apreviadizy P, Puspitacandri A. Perbedaan stres ditinjau dari ibu bekerja dan ibu tidak bekerja. *J Psikologi Tabularasa*. 2014;9(1).
27. Firat S. *Stress in mothers of children with special needs*. 2002.
28. Taylor SE. *The biology of social behavior*. In: *Handbook of Social Psychology*. 5th ed. 2009.
29. Raihana R. Upaya pengelolaan emosi ibu pada anak selama pembelajaran dari rumah (dampak pandemi COVID-19). *Generasi Emas*. 2020;3(2):132–42.
30. Sujito E, Prihartanti N. *Dinamika penerimaan orang tua yang memiliki anak berkebutuhan khusus [Doctoral dissertation]*. Universitas Muhammadiyah Surakarta; 2017.
31. Wahyuminati R, Uyun Z. *Hubungan antara resiliensi dan dukungan sosial dengan stres pengasuhan pada orang tua yang memiliki anak berkebutuhan khusus [Doctoral dissertation]*. Universitas Muhammadiyah Surakarta; 2020.
32. Munayang H, Kandou LFJ, Rampengan N, Sumarauw ME. Stres pada ibu-ibu yang mempunyai anak cacat yang bersekolah di Yayasan Pembinaan Anak Cacat (YPAC) Manado. *J Biomedik JBM*. 2012;4(3).
33. Ghoniyah Z, Savira SI. Gambaran psychological well being pada perempuan yang memiliki anak down syndrome. *J Psikologi UNESA*. 2015;3(1).
34. Weiss MJ. Hardiness and social support as predictors of stress in mothers of typical children, children with autism, and children with mental retardation. *Autism*. 2002;6(1):115–30.

35. Boyd BA. Examining the relationship between stress and lack of social support in mothers of children with autism. *Focus Autism Other Dev Disabl.* 2002;17(4):208–15.
36. Thoits PA. Stress, coping, and social support processes: where are we? what next? *J Health Soc Behav.* 1995;(extra issue):53–79.
37. Serido J, Almeida DM, Wethington E. Chronic stressors and daily hassles: unique and interactive relationships with psychological distress. *J Health Soc Behav.* 2004;45:17–33.
38. Taylor SE. Tend and befriend: biobehavioral bases of affiliation under stress. *Curr Dir Psychol Sci.* 2006;15(6):273–7.
39. Fink G. Stress, definitions, mechanisms, and effects outlined: lessons from anxiety. In: *Stress: Concepts, Cognition, Emotion, and Behavior.* Academic Press; 2016. p. 3–11.
40. Seaward BL. *Managing Stress.* Jones & Bartlett Learning; 2017.
41. Woods SM, Melville JL, Guo Y, Fan MY, Gavin A. Psychosocial stress during pregnancy. *Am J Obstet Gynecol.* 2010;202(1):61.e1.
42. Bagby RM, Ryder AG, Schuller DR, Marshall MB. The Hamilton Depression Rating Scale: has the gold standard become a lead weight? *Am J Psychiatry.* 2004;161(12):2163–77.
43. Berry JO, Jones WH. The parental stress scale: initial psychometric evidence. *J Soc Pers Relat.* 1995;12(3):463–72.
44. Haskett ME, Ahern LS, Ward CS, Allaire JC. Factor structure and validity of the parenting stress index-short form. *J Clin Child Adolesc Psychol.* 2006;35(2):302–12.
45. Slade T, Grove R, Burgess P. Kessler psychological distress scale: normative data from the 2007 Australian National Survey of Mental Health and Wellbeing. *Aust N Z J Psychiatry.* 2011;45(4):308–16.
46. Remor E. Psychometric properties of a European Spanish version of the Perceived Stress Scale (PSS). *Span J Psychol.* 2006;9(1):86–93.
47. Fitriani A, Ambarini TK. Hubungan antara hardiness dengan tingkat stres pengasuhan pada ibu dengan anak autisme. *J Psikologi Klinis Kesehatan Mental.* 2013;2(2):34–40.
48. Koydemir S, Tosun U. Impact of autistic children on the lives of mothers. *Procedia Soc Behav Sci.* 2009;1(1):2534–40.