



Comparison of Cognitive Emotion Regulation and Psychological Well-being in Working Mothers of Children with Cerebral Palsy and Mothers of Typically Developing Children

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Quantitative Study

Abstract

Background: Raising a child diagnosed with infantile cerebral palsy (CP) is a challenge for families and causes many changes in their lifestyle. This study aimed to compare the cognitive emotion regulation and psychological well-being in working mothers of children with CP and mothers of typically developing children.

Methods: As a retrospective and causal-comparative design, this was a descriptive study. This study was conducted in Tehran, Iran, in 2019; the sample was purposefully selected from working mothers with CP children who have been referred to educational and rehabilitation centers (Tak and Pouya, District 2, Tehran) as well as mothers with healthy children enrolled in kindergartens (District 2, Tehran). The sample number was selected based on previous comparative studies of 100 working mothers with CP children ($n = 50$) and mothers with healthy children ($n = 50$) who answered Ryff Psychological Well-being Questionnaire and Cognitive Emotion Regulation Questionnaire (CERQ). In this research, in addition to the Kolmogorov-Smirnov (K-S) normality test, mean, standard deviation (SD), and an analysis of variance (ANOVA) were used by SPSS software.

Results: There was a significant difference between working mothers with healthy children and working mothers with unhealthy children ($F = 115.15, P < 0.001$).

Conclusion: This study supports that working mothers of children with CP experienced a low level of cognitive emotion regulation and psychological well-being compared to mothers of typically developing children.

Keywords: Emotion regulation; Well-being; Mothers; Cerebral palsy

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Introduction

There is no known cure for cerebral palsy (CP), an irreversible brain disorder involving permanent brain damage in young children. A study by the Centers for Disease Control and Prevention (CDC) found that CP incidence varied considerably across different geographic regions, but the average prevalence of the disease was found to be 3.3 per 1000 live births and 3.1 per 1000 children aged 8-9 in 2004 and 2008, respectively (Himmelmann, 2019; Darling-White, Sakash, & Hustad, 2018). CP may occur in up to 3 live births out of 1000 births if the child is born in a high-income or low-to-middle-income country or geographical region (Sadowska, Sarecka-Hujar, & Kopyta, 2020). In addition to spastic paralysis, cognitive impairment, chronic pain, speech and visual impairments, as well as digestive and feeding difficulties, a child with CP suffers from several problems. Moreover, they have significant limitations in other self-care functions, including feeding, dressing, bathing, and mobility (Gugala et al., 2019; Patel, Neelakantan, Pandher, & Merrick, 2020). In addition to the usual long-term care required for a typical child, children with developmental disabilities may require long-term care (Surender, Gowda, Sanjay, Basavaraja, Benakappa, & Benakappa, 2016). As a result of the difficulties experienced by children with CP, their parents suffer from higher levels of stress that harm their physical and social health (Nimbalkar, Raithatha, Shah, & Panchal, 2014). Healthcare systems and societal attitudes have changed over the years, resulting in more children being cared for at home by their families rather than in institutions. For families of children with CP, physical rehabilitation is usually an expensive process (Michael, Olufemi, Jasola, Abigail, Adetutu, & Modinat, 2019).

A person with a disability has an effect on the entire family. CP causes psychological anxiety and financial difficulties for the families of affected individuals. Parents tend to feel pressed for time and find it difficult to maintain their social and cultural activities (Park, 2021). In addition to the unique challenges faced by working mothers (Guy & Arthur, 2020), mothers typically have a significant amount of responsibility for caring for children (Smith, 2012; Hertel-Fernandez, 2016). Staying home to take care of a sick child is just not possible for many working mothers (Brody, 2017). Family members who have a child with CP are faced with many challenges and have to change their lifestyle. An unexpected diagnosis can result in feelings of uncertainty and bewilderment, which can be difficult to manage (Fernandez-Alcantara et al., 2015).

Rather than reducing or alleviating the experience of negative emotions, it has been suggested that individuals with higher levels of emotion regulation deficits are more likely to engage in risky behaviors (Extremera, Quintana-Orts, Ssnchez-Alvarez, & Rey, 2019). A model of emotion regulation developed by Garnefski and Kraaij explains that individual differences exist in how people manage negative emotions with adaptive and maladaptive cognitive-emotional strategies (Extremera et al., 2019). Research has demonstrated that cognitive-emotional regulation plays a crucial role in a person's ability to deal with stressful life events (Garnefski, Koopman, Kraaij, & ten Cate, 2009). Chen (2016) demonstrated that cognitive assessment could reduce the emotional experience and the activation of the physiological processes, while the inhibition of expression can reduce emotion-based behavior, whereas physiological response and activation of the sympathetic nervous system were enhanced (Chen, 2016). It was supported by Nezamipour and Ahadi (2016). Emotion regulation and management plays a determinant role in the health

and prevention of mental disorders (Purnamaningsih, 2017).

It is specially common for mothers to experience mental stress, which can be detrimental to their psychological well-being (Cramm & Nieboer, 2012; Findler, Klein, & Gabis, 2016). In addition, parents of children with developmental and mental health issues have a greater responsibility to provide for their children, like having less time to spend with them and more negative parenting experiences (Sloan, Mailick, Hong, Ha, Greenberg, & Almeida, 2020; Panahi, Etebarian Khorasgani, Amiri, & Pouy, 2021). The study by Fritz and Sewell-Roberts (2020) found that parents of children with CP suffered greater stress, less physical well-being, and less psychological well-being than parents with typically developing children (Fritz & Sewell-Roberts, 2020). Generally, mothers with children with CP who work are more likely to experience difficulties in cognitive emotion regulation and psychological well-being than mothers of typically developing children. Further, according to the research literature, no study has assessed cognitive emotion regulation or psychological well-being among working mothers with children with CP. Therefore, the purpose of this study was to assess the cognitive emotion regulation and psychological wellbeing of working mothers of children with CP and mothers of normally developing children.

Methods

It was a descriptive study with a causal-comparative design. This study was conducted in Tehran, Iran, in 2019, and the sample included working mothers with children with CP who have been referred to educational and rehabilitation centers (Tak and Pouya, District 2, Tehran) as well as housewives with healthy children enrolled in kindergartens (District 2, Tehran). The sample number was selected based on previous comparative studies of 100 working mothers with children with CP ($n = 50$) and housewives with healthy children ($n = 50$) (Palacio, Krikorian, & Limonero, 2018; Mohan & Kulkarni, 2018). A sample of educational and rehabilitation centers of Tehran was chosen at random (Tak and Pouya, District 2); then 100 participants were selected within the study based on the inclusion and exclusion criteria. Inclusion criteria included children aged 2 to 13, mothers under 25 years of age and over 35 years of age, and also working and housewife mothers. Incomplete answering to the questionnaire and dissatisfaction with cooperation were the criteria for exclusion from the study. When the necessary permissions were obtained, questionnaires were distributed to educational and rehabilitation centers (Tak and Pouya) and kindergartens in District 2 of Tehran. After a brief explanation about the research, the subjects were invited to complete the questionnaires (cognitive emotion regulation and psychological well-being). Collecting data was administered by the researchers, and completing the questionnaires took almost 30 minutes for every participant. For the present study, the ethical codes were obtaining licenses to enter rehabilitation and educational centers and children and kindergartens, explaining the purpose of the research to the relevant unit of these facilities and kindergartens, using voluntary companies in the research, ensuring the confidentiality of personal information, and providing a report from the results of research into children's centers and supplies.. The Kolmogorov-Smirnov (K-S) normality test, mean, standard deviation (SD), and an analysis of variance (ANOVA) were used by SPSS software (version 21, IBM Corporation, Armonk, NY, USA).

Measures

Ryff Psychological Well-being Scale (short form): The Ryff scale was developed in 1989 (Ryff, 1989). This questionnaire has 18 questions, and its purpose is to

evaluate psychological well-being from different dimensions (independence, mastery of the environment, personal growth, positive communication with others, purpose in life, self-acceptance). Its scoring range is based on a Likert scale with six options. Higher scores indicate higher psychological well-being in the respondent and vice versa. For six subscales, the internal consistency coefficients ranged from 0.87 to 0.96 and the test-retest reliability coefficients ranged from 0.78 to 0.97. These results indicate that the scale is applicable to adolescents and adults In Iran, total score of internal consistency of this scale using Cronbach’s alpha was 0.82 (Aghababaei & Farahani, 2011).

Cognitive Emotion Regulation Questionnaire (CERQ): The CERQ (Gross, 2001) CERQ is a 36-item scale which assesses cognitive emotion regulation. It is a multidimensional assessment of a person's cognitive strategies and styles following an event (Gross, 2001). From 1 (almost never) to 5 (almost always), each item is rated using a 5-point Likert scale. Scores from each component or cognitive emotion regulation strategies are added up to yield an individual subscale score (from 4 to 20). Scores higher than 20 indicate increased usage of the technique. Internal reliability scores for each strategy ranged from 0.68 to 0.87 (Jermann, Van der Linden, d'Acromont, Zermatten A, 2006). The Persian version of the CERQ (CERQ-P) has strong internal consistency (Cronbach's alpha ranges between 0.76 and 0.92) (Hasani, 2010).

Results

The mean and SD of age of mothers in normal children and children with CP were 34.48 ± 9.12 and 35.16 ± 8.82, respectively. Table 1 shows demographic variables.

Table 1. Demographic variables

Variables		Groups	Frequency
Education state	Diploma	Healthy	9
		Unhealthy	12
	Bachelor of Art	Healthy	31
		Unhealthy	24
	Master of Art	Healthy	10
		Unhealthy	11
Economical state	Under 10000000 Rial	Healthy	0
		Unhealthy	0
	Between 10000000 and 20000000 Rial	Healthy	4
		Unhealthy	14
	Between 20000000 and 30000000 Rial	Healthy	34
		Unhealthy	27
Age (year)	Under 25	Healthy	9
		Unhealthy	7
	25 to 30	Healthy	19
		Unhealthy	19
30 to 35	Healthy	12	
	Unhealthy	17	
35 and higher	Healthy	10	
	Unhealthy	7	

Table 2. Descriptive statistics of positive and negative emotion variables and psychological well-being by group

Variables	Groups	Mean ± SD	K-S	P-value
Positive emotions	Healthy	1.73 ± 22.44	0.091	0.129
	Unhealthy	2.16 ± 18.22	0.081	0.151
Negative emotions	Healthy	1.75 ± 42.42	1.100	0.142
	Unhealthy	1.64 ± 47.90	0.956	0.115
Psychological well-being	Healthy	1.16 ± 81.32	0.852	0.146
	Unhealthy	2.21 ± 68.22	0.426	0.172

SD: Standard deviation; K-S: Kolmogorov-Smirnov test

Based on the information in table 2 and regarding the distribution of scores of participants with unhealthy children and healthy children in the psychological well-being and emotion regulation test, different descriptive indices and the results of the K-S normality test showed that the distribution of scores of the sample group in both groups in the measured variables tended to the normal distribution.

Based on the calculated ANOVA in table 3 ($f = 115.15$, degree of freedom (df) = 98, $P = 0.001$) with a 95% confidence interval (CI) level, there was a significant difference between working mothers with healthy children and mothers with unhealthy children. Therefore, there was a significant difference between the mean level of psychological well-being and the regulation of emotion among mothers with unhealthy children versus those with healthy children. This difference indicates a higher level of emotion regulation in the group of mothers with healthy children compared to the other group.

Discussion

The aim of this study was to compare the cognitive emotion regulation and psychological well-being in working mothers of children with CP and mothers of typically developing children. In general, providing care for a child with these conditions can contribute to a feeling of chronic stress for mothers (Sloan et al., 2020; Panahi et al., 2021; Fritz & Sewell-Roberts, 2020; Masefield, Prady, Sheldon, Small, Jarvis, & Pickett, 2020).

Our results are in line with previous findings in terms of regulation of emotion (Surender et al., 2016; Yang & Kim, 2021; Sloan et al., 2020; Rohder, Willerslev-Olsen, Nielsen, Greisen, & Harder, 2021). In comparison to low-risk babies, high-risk babies tend to be more fretful, less engaged, and less active. Mothers of these infants are at greater risk for being less emotionally involved and less sensitive to the infants, and more likely to inappropriately stimulate their infants more than mothers of developmentally typical infants (Rohder et al., 2021). Thus, the negative emotion of mothers with children with developmental disabilities was especially high, and this may be exacerbated if the child still lives at home.

Table 3. Results of positive and negative emotion analysis of variance (ANOVA) and psychological well-being by group

Variables	Groups	Mean ± SD	df	f	P-value
Positive emotions	Healthy	22.440 ± 1.739	1	115.151	0.001
	Unhealthy	18.220 ± 2.169	98		0.001
Negative emotions	Healthy	42.420 ± 1.750	1	260.275	0.001
	Unhealthy	47.900 ± 1.644	98		0.001
Psychological well-being	Healthy	81.320 ± 1.168	1	1367.477	0.001
	Unhealthy	68.220 ± 2.215	98		0.001

SD: Standard deviation; df: Degree of freedom

Further, for parents of individuals with mental health problems, a longer duration of the condition was associated with higher parental negative emotions (Sloan et al.,

2020). Results from a study showed that mothers with the low emotion regulation profile were significantly more distressed and had poorer global regulation during the cleanup task than mothers with moderate, high, and mixed profiles. Mothers in high and mixed emotion regulation profiles exhibited the least amount of distress, and according to their scores on the global regulation code, they could be classified as mostly or well regulated (Garcia, 2020). Working mothers, in particular, are known to face considerable stress in meeting the needs of their families and work. The majority of working mothers are also involved in household chores and child care and face work-family conflicts. Among working mothers in Iran, spouses and employers showed the least support (Yang & Kim, 2021).

Interestingly, this study also found that mothers of children with CP reported lower levels of psychological well-being than mothers of typical children. Numerous studies have been conducted that support our findings, including Barlow et al. (2006), Irwin et al., (2019), Park (2021), Homan et al. (2020), and Smith and Grzywacz (2014). A study conducted by Barlow et al. (2006) revealed that mothers of children with CP often felt distressed, particularly depressed, and anxious (Barlow, Cullen-Powell, & Cheshire, 2006). In the study, the results revealed that mothers were at low, moderate, and high risk of clinical depression, compared to the population norms, respectively. According to the study, mothers were at low and moderate risk of clinically depressed mood compared with norms. There was an inverse association between anxiety and depression moods and generalized self-efficacy, as well as anxiety and sleeping difficulties. Overall, the levels of maternal psychological well-being are of great concern and warrant exploring interventions that will reduce maternal distress and increase self-efficacy (Barlow et al., 2006). Park (2021) in a study with the title Relationship among Gross Motor Function, Parenting Stress, Sense of Control, and Depression in Mothers of Children with Cerebral Palsy revealed that mothers of children with CP at lower functional levels reported greater stress and lower quality of life than those at higher functional levels. Mothers of children with CP with high self-control were found to have low levels of parenting stress and depression. This lends credence to the belief that self-control can act as a protective variable against stress and depression, even if an individual is placed in difficult situations. Recent systematic reviews and meta-analyses reported that interventions to improve psychological well-being in the parents of children with CP were effective (Irwin, Jesmont, & Basu, 2019). However, the psychological well-being and somatic symptoms of parents of children with mental health issues did not differ from those of compared parents (Sloan et al., 2020). As opposed to previous findings (Homan, Greenberg, & Mailick, 2020; Smith & Grzywacz, 2014), Sloan et al. (2020) found that fathers were more susceptible to the negative effects of caregiving stress than mothers. There is a possibility that fathers have fewer social supports than mothers, and therefore, are less able to cope with the stress of these unique caregiving situations (Sloan et al., 2020).

Due to the limited time, the small sample size, the non-random sampling method, and the self-reported scales which were administered to mothers in District 2 of Tehran, it is impossible to generalize the results beyond the sample. In this study, there were no matched groups based on age, number of children, marital status, and economic status. However, it is still hoped that future studies will take into account the interfering variables and control over them.

Conclusion

Parenting a child with developmental or mental health problems will impact the parental well-being, even into adulthood and when there are fewer children living at home. In addition, these difficulties are nuanced by other factors within individuals, such as age and gender, as well as factors related to the duration and time since a condition was diagnosed. Researchers should consider contextual factors, such as social support and employment stress when investigating how parents with high caregiving stress can cope. It is important to identify malleable factors within this population that might be used for intervention. It would be helpful to know more about how parents in these circumstances cope with daily challenges and stress due to caregiving, as well as what sources of internal and external support are most helpful in minimizing the effects of caregiving stress.

Conflict of Interests

Authors have no conflict of interests.

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