

Maternal Identity Assessment Instrument Development for Mothers of Infant Children in the COVID-19 Era

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Abstract

This research aims to create a tool that will allow researchers to assess the maternal identity of women who cared for young children during the COVID-19 pandemic. The methodological goal of this study is to create a maternal identification tool for women raising young children and to confirm the tool's reliability and validity. It is divided into two stages: tool development and tool evaluation. The data collection period lasted from July 1, 2021, to July 30, 2021, and it was carried out after gaining prior consent from institutions such as public health centers through an official letter. Four factors and 22 items were chosen from the factor analysis. Finally, through reliability and validity testing, 17 items were constructed into four sub-factors: "warmth type," "best effort type," "indifference type," and "preparation type." An essential point in the tool development process is to verify the validity and reliability of the tool appropriately, theoretically, and methodically. Because of this, a test was created specifically for this study to evaluate the maternal identity of domestic women raising young children. The instrument's validity and reliability was verified.

Keywords: Mothers, Measurement tool, Maternal identification, Infancy children, COVID-19 pandemic

1. Introduction

1.1. The necessity of research

A woman's concept of self includes her maternal identity, which is defined as an activity-related tendency meant to fulfill the role of mother and acquire the same identity as a result [1]. Gradually integrating a woman's ego system and accepting herself as a mother while acknowledging the picture of her performing the parental role after finishing child delivery is crucial to adjusting to the role of motherhood [2]. Beginning with the development of maternal identity during pregnancy and continuing with the nurturing of the infant after childbirth in the COVID-19 Era, the mother's identity may be further established and consolidated in the relationship with the baby [1].

The most crucial environmental component in laying the groundwork for socializing is the presence of parents, particularly mothers, who establish intimate bonds with their newborns immediately after birth [4]. This is just one of the many aspects influencing an infant's overall

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development. Through constant engagement with the environment, the foundation for physical, intellectual, social, and emotional development is set throughout the critical period of infancy. Numerous studies have already demonstrated that moms profoundly influence their children's overall development [5].

According to a KOSTAT survey on child-rearing, as of 2015, 50.2% of infants were raised by their mothers; in light of this, it is clear that mothers nurture more than half of the children in care [6].

Rapid social, economic, and cultural changes have brought about various changes in modern society's way of life. The number of dual-income households has also increased due to women's entry into society [4]. Most mothers adjust to becoming mothers successfully, but for some women, the strain and stress of being a mother are too much [7].

Such burdens and stress cause the mothers' negative emotions to grow, such as helplessness, guilt, ambivalence, guidance, depression, and resentment by Mercer and Walker [8] and also cause problems for the mother's warm and sensitive care and interaction [9]. Positive interactions with children significantly impact an infant's development if a mother has an obvious maternal identity. Additionally, the fact that an infant is healthy and developing typically makes the mother feel competent and confident about her maternal identity, which is evidence that it enhances the maternal identity [4]. Maternal role adaptation is a significant phenomenon of interest for nursing, and research is carried out consistently at home and abroad during the COVID-19 Era [8][10][11][12][13][14][15][16][17].

It is necessary to develop a tool that includes a theoretical model and an interview with an expert group to establish a mother's maternal identity according to the flow of the 21st century. Furthermore, it is necessary to develop a maternal identity measurement tool that fits the emotions of Brazilian mothers and mothers caring for newborns as an essential competency in maternal identity.

By creating a maternal identity measurement tool for mothers of infant children and assessing its validity and reliability, this study seeks to improve the maternal identity of women who care for their young children in the COVID-19 Era.

This research aims to create a tool that will enable women raising their infant infants to be measured for their maternal identity during the COVID-19 period.

2. Method

2.1. Research design

This methodological study aims to develop a maternal identity instrument for women caring for children and confirm its validity and reliability. It comprises two stages: tool development and tool evaluation.

First, the definition of maternal identity was to be measured. Based on a review of relevant domestic and foreign literature, the target was specified as mothers with infant children. Second, the existing domestic and foreign scales related to maternal identity by Kim and Hong [14] and Mercer et al. to construct a pool of questions [8][9][10][11]. Furthermore, the semi-structured interviews were conducted with 40 mothers with infant children. Third, the data obtained through the interview were analyzed according to the rigorous evaluation criteria of the qualitative research by Lincoln and Guba [19]. Fourth, the researcher's previous understanding of the research, assumptions, and prejudices were continuously checked to increase neutrality. Fifth, the measurement scale's meaning and the measurement result's

interpretation were specified. This tool is a 5-point Likert scale, with 1 point for 'not at all,' 2 points for 'disagree,' 3 points for 'normal,' 4 points for 'yes,' and 5 points for 'always.'

2.2. Validity check of the content

Based on a previous study which claims that three or more and ten or fewer experts are suitable for content validity verification by Lynn [20], two maternal nursing professors, one child nursing professor, two maternal ward nurses, and one obstetrics and gynecology specialized physician, three mothers with infancy children and one statistics professors, for a total of ten experts were formed. Questions were revised and supplemented according to experts' opinions, and questions unrelated to maternal identity were deleted and added. As a result of the CVI (Content Validity Index) of the total items, the Item-level Content Validity Index [I-CVI] was .90-1.00, which was above the standard value of .78 by Lynn [20], and eight items did not meet the standard and were deleted. The SCVI/Ave (averaging) of the Scale-level Content Validity Index [S-CVI] was .97, which satisfies the standard value of .90 or higher.

2.3 Preliminary survey

Before proceeding with this investigation using DeVellis's fifth procedure [18], a preliminary tool consisting of 27 items was used to determine whether the difficulty of the words used in the tool, the comprehension of the sentence, and the composition of the tool were appropriate and to confirm that responding was not difficult.

A preliminary survey was conducted with 120 mothers with infant children from Rio de Janeiro and four cities in Brasilia. The final data of 110 people were used for the preliminary survey, excluding the data of 10 people whose responses to the questionnaire were insignificant. When the items were deleted, and five items were removed from the 27 items that had been chosen, the overall correlation coefficient for each item and Cronbach's coefficient were calculated for the item analysis that was performed.

2.4. Evaluation stage: Verification of reliability and validity of the tool

2.4.1. Research subjects

The mothers of infants, those without common illnesses or physical deformities, those from non-multicultural families, those who could communicate, and those who consented to engage in the study were the criteria for choosing the subjects for this study.

Suppose the criteria for the selection of subjects were met. In that case, the research subjects are informed verbally and in writing of the purpose and method of the research, guarantee of anonymity for participation in the research, voluntary consent and refusal to participate in the study, the possibility of mid-term abandonment, possible advantages, and disadvantages, etc., and the informed consent were obtained. The mother herself filled out the questionnaire, and data from 300 people were analyzed, excluding the data from 11 people whose final responses were silent. Given that Nunnally's measurement tool has to be verified with at least 300 individuals or 500 percent of the total number of items, 300 subjects in this study constituted a suitable sample size [21].

2.4.2. Data collection

The data collection period ran from July 1, 2021, to July 30, 2021, and the data collection was carried out after obtaining previous permission through an official letter from institutions such as public health centers, cultural centers, and pediatric hospitals in each region. As in the preliminary survey, for the mothers who visited public health centers, daycare centers, and pediatric hospitals, the head of the relevant institution was requested to cooperate with the survey, and the researcher and two research assistants met the subjects and conducted a study.

2.4.3. Data analytical method

The SPSSWIN 21.0 and AMOS 21.0 software packages were used to analyze this study and confirm the validity and reliability of the proposed tool. Descriptive statistics assessed the participants' demographic features by percentage and frequency, as well as mean and standard deviation. Pearson correlation was utilized to provide the correlation required for the item analysis. The Varimax approach was employed for the exploratory factor analysis, and AMOS was used for the confirmatory factor analysis. Cronbach's α internal consistency and the Gottman Split half-reliability were employed for each factor's overall scale and reliability.

3. Result

3.1. General characteristics of the subjects

[Table 1] illustrates the general characteristics of the subjects of this study. A total of 300 subjects were included in this survey, with 152 males (50.6%) and 148 females (49.3%), while the mean age of the children was 10.82 ± 7.45 months. The health status of children was confirmed to be very healthy 34 (11.0%), healthy 252 (84.0%), and on average 14 (5.0%). As for the caregiver's academic background, most of them had a community college degree, 131 of them had a college degree (39.0%), 19 had a graduate school degree (16%), and 8 had a high school diploma (3%). Two hundred twenty-nine cases (76.0%) of caregivers were without a job, and 71 cases (24%) with a job were confirmed. Occupational types were identified as 181 professionals (60.0%), 75 office workers (25.0%), 32 service workers (10.0%), and 12 managerial workers (5%). As for the number of years of marriage, 112 persons (38.0%) were married for 1-5 years, followed by 95 persons (31.0%) for 6-10 years, 81 persons (27.0%) for 11-15 years, and 12 persons (16 years or more) 4% as confirmed.

Table 1. Demographic characteristics of participants (n=300)

Characteristics	Categories	n(%)orM±SD
Children' gender	Male	152(50.6)
	Female	148(49.3)
Children's age (month)		10.82±7.45
Children's Health	Very good	34(11)
	Good	252(84)
	Moderate	14(5)
Age (year)	≤25	18(6)
	26-30	33(11)
	31-35	45(15)
	36-40	89(30)
	≥41	115(38)
Education	High school	8(3)
	Community college	142(42)
	University	131(39)
	Master & Doctoral degree	19(16)
Job	None	229(76)
	Have	71(24)
Job type	Service	32(10)
	Office job	75(25)
	Professions	181(60)
	Administrative position	12(5)
Marital period (years)	1-5	112(38)
	6-10	95(31)
	11-15	81(27)
	≥16	12(4)

3.2. Verification of validity

3.2.1. Item analysis

For the item analysis performed, mean, standard deviation, skewness, kurtosis, etc., were reviewed, and the item-whole correlation analytical method was used to confirm the discriminating power of items [22]. Only the items with a correlation coefficient of .60 or more but less than .80 were selected. This is because when the correlation coefficient between the item and all items is less than .30 during item analysis, the item is evaluated as having a low contribution within each scale area. As a result of the item analysis performed, the items with a correlation coefficient between the item and all items less than .30 and greater than .80 were deleted.

3.2.2. Construction validity

(1) Exploratory factor analysis: factor extraction and factor rotation

Exploratory factor analysis was performed on 27 items to test the construct validity of the maternal identity measurement tool for mothers with infant children.

To determine whether data is appropriate for factor analysis performed, the standard formation adequacy value for the sample adequacy test was extracted, and the measurement value was .86. As a result of Bartlett's sphericity test, p was less than .001, indicating that the correlation coefficient matrix of the items was not an identity matrix. The items used in the analysis were confirmed to be suitable for factor analysis [22]. Principal component analysis was performed using the factor extraction method to minimize the number of factors and information loss. For factor rotation, the Varimax rotation was used among orthogonal rotation methods. In the principal component factor analysis using Varimax rotation, 12 items are factor loadings, .50 or negative factor loading was deleted, and four factors and 22 items were selected. As a result of performing exploratory factor analysis again with the finally selected 22 items, the KMO measurement value was 0.86, and the results of $\chi^2=2532.56$, $df=231$, $p<.001$ were confirmed in Bartlett's Sphericity test, confirming the suitability of the factor analysis performed. As a result, four factors were extracted, which explained 59.5% of the total variance. The commonality of all the questions loaded in the four factors was .43 to .87, and the extracted factors explained more than 50.0% of the variance of each question.

(2) Exploratory factor analysis: factor naming

For the items of factor 1, 'I am happy when I am with my child,' 'regardless of the child's appearance, my child is the prettiest.' among other items, it was named as a warmth-type factor in the sense that it responds to feelings of interest, love, and acceptance. Nine items were consistent with the factor naming of the preliminary tool, and the eigenvalue was 7.14, explaining 32.4%. The question corresponding to the first factor was named 'warmth type.' The dictionary meaning of 'warmth' is 'warm love or recognition' by Kim and Hong [14], and it is considered that the items of this instrumental factor are properly explained. In the item of the second factor, 'As a mother, I respond promptly to everything about my child,' 'As a mother, I am kind to my child,' 'As a mother, I do my best when I treat my child,' etc., it was named as the best effort factor in the sense of reacting eagerly. The total of 6 items was consistent with the factor naming of the preliminary tool; the eigenvalue was 3.48, and 15.8% of the second factor was explained. The item corresponding to the second factor was named the best factor. Kim and Hong's dictionary meaning of 'best' is 'to care for or to interfere' [14], and hence, the items of this instrumental factor are properly explained. The components of the third factor consist of 'I have no feelings for my child' and 'I'm not interested in my child,' which appears to be a neglect of the preliminary tool, and it was named the indifference factor. It consists of 4 items, and the eigenvalue is 1.30, which explains 5.9%. The item corresponding to the third factor was named 'indifference.' The dictionary meaning of 'indifference' carries the meaning of 'not interested or interested' by Kim and Hong [14], and hence, it reflects the meaning appropriately. As for the items of the 4th factor, 'I am physically healthy as a mother,' 'I am rich in knowledge about child-rearing as a mother,' and 'I am mentally healthy as a mother,' which means that I am always ready for my child. It is related to the preparation type factor. It consisted of a total of 3 items and was consistent with naming the preliminary tool's control factors, and the eigenvalue was 1.16, explaining 5.2%. The item corresponding to factor 4 was named 'preparation type.' The dictionary meaning of 'preparation' is 'prepared and equipped' by Kim and Hong [14], and hence, it appropriately reflects the meaning of the three items in this tool. As a result of the factor analysis, the amount of variance and explanatory variables of the first factor were very high, indicating that the first factor, the warmth dimension, is the most important in the primary caregiver's parenting behaviour measurement tool in infancy [Table 2].

Table 2. Factor Analysis

Item No.	Item contents	Factor loading			
		F 1	F 2	F 3	F 4
4	I'm happy when I am with my child.	0.650	0.089	-.057	0.131
5	My child is the prettiest regardless of how they look.	0.695	0.241	-.013	0.006
9	I feel good when I see my child.	0.806	0.006	0.023	0.111
10	I have a special feeling for my child.	0.853	0.002	0.092	0.109
13	I cherish my child.	0.670	0.029	0.060	-.025
14	I love my child.	0.874	0.041	-.022	0.147
18	I don't know how time flies when I'm with my kids.	0.437	-.100	-.036	0.214
19	I'm the saddest when my child is sick.	0.807	-.086	0.163	0.019
20	I most like to spend time with my child.	0.853	0.002	0.037	-.051
1	As a mother, I react quickly to everything about my children.	0.018	0.762	0.140	-.016
2	As a mother, I'm kind to my child.	-.060	0.669	-.059	-.100
6	As a mother, I do my best when dealing with my child.	0.102	0.676	-.025	-.081
7	As a mother, I show mature behaviour to my child.	0.102	0.643	-.003	0.135
8	As a mother, I'm careful about everything I do for my child.	0.023	0.793	0.123	-.013
15	I do my best for my child's health.	0.141	0.879	-.098	-.004
11	I have no feelings for my child.	.169	-.007	0.739	0.142
16	I'm not interested in my child.	.168	.065	0.674	0.018
21	I take care of my child with a sense of duty.	.073	-.041	0.707	0.063
22	I have a lot of ups and downs when dealing with my child.	.070	-.007	0.681	0.047
3	I'm physically healthy as a mother.	.098	0.005	-.054	0.694
12	As a mother, I have a wealth of knowledge about parenting.	.013	-.013	0.006	0.622
17	I'm mentally healthy as a mother.	.097	.082	-.019	0.662
Eigenvalue		7.14	3.48	1.30	1.16
Explained variance(%)		32.46	15.85	5.91	5.29
Accumulative variance(%)		32.46	48.32	54.24	59.53
Kaiser-Meyer-Olkin(KMO)		.866			
Bartlett's test of sphericity		χ^2		2532.56	
		df		231	
		p		<.001	

3.2.3. Confirmatory factor analysis

The scale developed based on the results of the exploratory factor analysis had its components validated by conducting a confirmatory factor analysis using the AMOS for the 22 items. The standard values for the variables Bagozzi and Yi [23] observed were standardized following the confirmatory factor analysis's conclusion and the convergence validity evaluation. Because the factor load (λ : lambda) values of five observation variables (questions 4, 5, 15, 22, and 3) were 0.5 or less, they were discarded. The confirmatory factor analysis results in this study showed that the fitness indices, χ^2/df , were 2.666, which was below the reference value of 3. The values were 301.264 (df=113) and GFI, IFI, NFI, and CFI, which were above the acceptance criterion of 0.7 by Lee and O [27]. The RMSEA was also 0.075, acceptable within the reference value—0.05 to 0.08.

As a result of intensive validation of each construct, the standardized factor load for all observed variables was .530 or higher, which was higher than the .5 presented in [Table 4].

After confirming the fit of the model, the intensive validation of the maternal identity scale was verified. As a result, the standardized factor loadings of the items forming the first factor ranged from .530 to .810, all of which were significant at the significance level of .05. The standardized factor loadings of the items forming the second factor ranged from .612 to .768, were all significant at the significance level of .05. Following which, the standardized factor loading of the items forming the third factor was .590-.809, which was significant at the significance level of .05, and the items comprising the fourth factor. The standardized factor loads were .580 and .795, which were significant at the significance level of .05. It was substantial when these values were over.5. The results of this study were proven to be satisfactory because the standardized factor loads in this study were all over .5 [Table 4] [Figure 1].

Table 3. Model fit statistics by confirmatory factor analysis

Model	χ^2	df	p	GFI	CFI	RMSEA	IFI	NFI
Reference			$\geq .05$	$\geq .70$	$\geq .70$.05-.08	$\geq .70$	$\geq .70$
Hypothetical	301.264	113	<.001	.818	.877	.075	.883	.780

Table 4. Confirmatory factor analysis

Factors	Items	Standardized λ	S.E.	C.R.	p
F1 (warmth type)	I feel good when I see my child.	0.592	-	-	p<.001
	I have a special feeling for my child.	0.608	0.238	4.224	p<.001
	I cherish my child.	0.627	0.142	4.323	p<.001
	My child is lovely.	0.679	0.145	4.584	p<.001
	I don't know how time flies when I'm with my child.	0.530	0.331	3.797	p<.001
	I'm the saddest when my child is sick.	0.810	0.247	5.163	p<.001
	I most like to spend time with my child.	0.549	0.325	3.901	p<.001
F2 (best effort type)	As a mother, I react quickly to everything about my child.	0.768	-	-	p<.001
	As a mother, I'm kind to my child.	0.643	0.148	4.758	p<.001
	As a mother, I do my best when dealing with my child.	0.654	0.143	4.833	p<.001
	As a mother, I show mature behaviour to my child.	0.612	0.116	4.539	p<.001
	As a mother, I'm careful about everything I do for my child.	0.694	0.130	5.096	p<.001
F3 (indifference type)	I have no feelings for my child.	0.590	-	-	p<.001
	I'm not interested in my child.	0.809	0.236	5.696	p<.001
	I take care of my child with a sense of duty.	0.590	0.274	4.613	p<.001
F4 (preparation type)	As a mother, I have a wealth of knowledge about parenting.	0.580	-	-	p<.001
	I'm mentally healthy as a mother.	0.795	0.200	5.061	p<.001

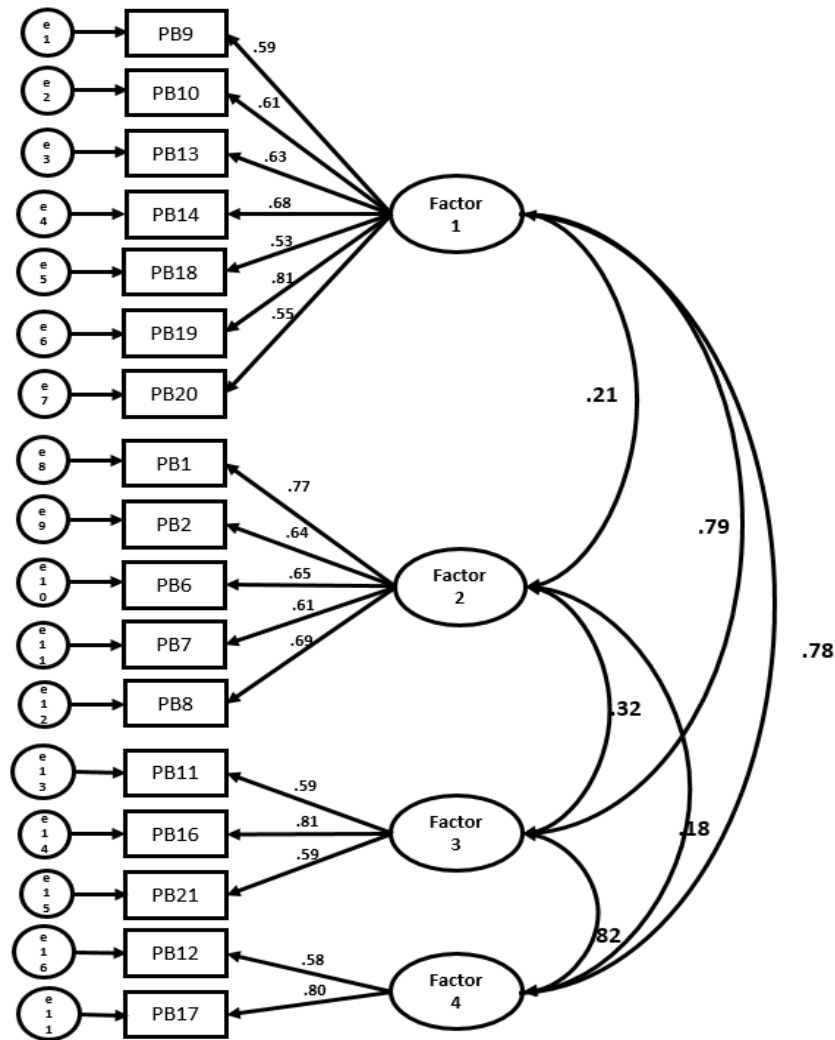


Figure 1. Confirmatory factor analysis

3.2.4. Convergence and discriminant validity

The score measured by the study's tool was highly correlated with the maternal role confidence score ($r=.70$, $p.001$) because the convergence and discriminant validity were confirmed through correlation with other variables. The parenting stress index's convergence and discriminatory validity were confirmed by the measurement tool PSI (Parenting Stress Index), which showed a low correlation ($r=.33$, $p.001$).

3.3. Verification of reliability

The overall scale had 17 items, and the internal agreement of each component, measured by Cronbach's alpha and the half reliability of the Guttman split, was computed to examine the reliability of the maternal identity scale for mothers of infants. The results are summarized in the table below [Table 4].

As for the internal reliability of each factor, the number of items for the first factor was 7, Cronbach's α was .90, and Guttman's half-reliability coefficient was .91. As for the second factor, the number of items was 5, Cronbach's α was .89, and Guttman's half-reliability coefficient was .87. In the case of the third factor, the number of questions was 3, Cronbach's α was .85, and Guttman's half-reliability coefficient was .82. In the case of factor 4, the number of items was 2, Cronbach's α was .85, and Guttman's half-reliability coefficient was .84.

3.4. The maternal identification scale of mothers of young children emerged

As previously described, the mothers of newborns in this study completed the maternal identity tool, consisting of 17 items, through factor structure search, confirmation, reliability, and validity testing.

Seven questions addressed the first factor, "friendly," five questions addressed the second, "optimal," three questions addressed the third factor, "indifference," and two questions addressed the fourth factor, "preparation type." These were designed with a 5-point rating system to gauge the inclination toward maternal identification. To assess the overall maternal identity and the trend of maternal identity by a factor, the average value for each factor and the overall scale are divided individually to calculate the score expressing the mother's identity. Lastly, [Table 4] presents the maternal identity measurement method for moms of infants.

4. Discussion

As part of the methodological project COVID-19 Era, a tool for measuring maternal identity among moms of young children is being created. We assessed the reliability and validity of helping moms raising little children feel more like mothers. The tool developed targeted mothers with infant children who did not have common diseases or physical deformities, were not from multi-cultural families, could communicate, and gave their consent to participate in the study out of 311 responses, targeting 300 people and removing the data of 11 people whose responses were false. In the end, 17 items were determined to be formed of 4 sub-factors through validity and reliability tests: "warmth type," "best effort type," "type of mother," and "type of child."

An important point in the tool development process is to verify the validity and reliability of the tool appropriately, theoretically, and methodically. This study's questions were composed based on previous research after specifying the measurement target through domestic and international literature reviews. Content validity was confirmed by a group of experts, and in the case of construct validity, exploratory factor analysis and confirmatory factor analysis were conducted, and the focused validity of the development tool was also confirmed. To make the verification of the tool a little more concrete, it was verified through a reliability test. Therefore, in this study, developing a tool for measuring maternal identity in mothers of infants has created a crucial foundation for confirming the mother's role and identity as a mother, which is required for women to nurture their children.

Mercer [8] claimed that maternal identity is a key factor in maternal role adaptation, and while recognizing the image of herself performing the maternal role after childbirth, gradually integrates the female ego system and accepts herself as a mother by evaluating the maternal identity of caring for infants and children, it will be possible to promote maternal identity and re-aware of maternal identity. As a result of this study, the average age of the mothers caring for infant children was 115 over 41, indicating that the mother's age is increasing. These

changes are related to the delay in the age of first marriage in Brazil. Changes in the maternal identity are based on the general characteristics of mothers, such as age, education, occupation, monthly income, and marriage period, and the maternal identity is based on the age and health of the children. It is necessary to confirm what kind of change it makes through future continuous research. Furthermore, as the marriage of the younger generation is delayed and the low fertility rate in our society is accelerating, mothers must recognize their maternal identity. It is imperative to support the present generation's crucial awareness of maternal identity and aid in establishing maternal identity as a future mother, given changes in social flow, sociodemographic factors, economic factors, and values.

The components of the maternal identity measurement tool for mothers with infant children developed through this study are as follows. The first factor, 'warmth type,' is primarily related to warm love or recognition. The mother values and acknowledges her child and feels happy when they are with her to protect and psychologically stabilize the child. In the study of Shin et al. [24], the results of maternal identity when raising children are consistent with the results of 'love,' 'calmness,' and 'warmth,' which are representative factors of the first factor. According to the study by Park and Kang [25], affection was the highest for a mother's parenting behaviour. This is consistent with the results of this study. In the study of Park and Kang [25], physical affection was the most frequent in the positive area of parenting behaviour. In raising a child, the child becomes the center of all life and is also revealed as a being that causes excellent repercussions in the mother's life. It was claimed that the higher the parent's parenting behaviour was affectionate and receptive to the child, and the higher the tendency to participate and praise the child, the child develops character in a leadership and cooperative manner in the group [26]. In this study, affectionate parenting behaviour is the highest characteristic of parenting behaviour in infancy, like a factor in the previously developed parenting behaviour tools. The first factor, 'warmth type,' may reflect maternal identity well. Still, the mothers of infant children should develop an education program for this so that they may have more compassionate feelings for their children.

The second factor is that the 'best effort type' responds eagerly to the child's behaviour and work: prompt response and interest in the child's work. A mother needs to respond effectively when a child's needs arise, and she will need to be able to fulfill her role as a mother. In the study of Shin et al. [24], the findings of the study are similar to factors such as 'When I take care of my child before taking care of my body after childbirth' and 'I react immediately when the baby cries even if I am tired because I can't sleep.' The study of Park and Kang [25] confirmed that 'having a lot of time with children' and 'being sensitive to children's needs', and they reported that continuous and immediate response and responsibility for children are important. Furthermore, it has been confirmed that the mother's affectionate and optimal parenting attitude affects school life when the child grows up and enters school [27]. Avvisati et al. [28] also confirmed that the working parents' experiences raising infants were 'parents who are still novice caregivers but do their best in their parenting roles.' This is similar to the results of this study, which state that mothers are clumsy because they have no experience raising children but do their best as mothers. The second factor, the 'best effort type factor,' reflects maternal identity well. The third factor is 'indifference,' which is an effort not to provide a rich environment for children. There is no time investment, material investment, indifference, or interest in children. The results are similar to those of the study of Smorti et al. [29], which showed that when a mother's physical and psychological health is unstable, her relationship with her infant is greatly affected. Previous researchers studied the parenting stress and fatigue perceived by the primary caregivers of infants and young children. The higher the stress caused by child-rearing, the higher the stress and neglect of the child

[30][31]. Parenting behaviour was found to be high. Nursing intervention development is needed to remove these stress and neglect factors, and it is considered very important to pay attention to positive maternal identity formation from pregnancy. Hence, it may be suggested that there is a need for a method with feedback and a specific program to raise the child properly. The fourth factor, 'preparation type,' is directly related to whether it is possible to provide the child with the best mental, physical, and financial condition as he is always on standby for his child. In the study of Shin et al. [24], the statements resemble "Children grow up looking at their parents," "Important for a child's proper growth," "Children look like their parents and resemble them," and "Create a good environment for children to grow up properly and guide them so that they can do so."

Furthermore, it is similar to the findings of Chae [7] that a mother needs a lot of preparation before raising a child. The study of Kim and Hong [14] confirmed that the mother's prepared maternal identity plays an important role in promoting the interaction between the child and the mother and acquiring the maternal role. Hence, it is necessary to implement an education program for mothers so that they may have confidence before raising children. The significance of this study is as follows. First, the maternal identity of mothers with infant children was comprehensively understood from various aspects, and the meaning and characteristics were described and explained from the mother's point of view. Second, a maternal identity measurement study was conducted on mothers of infant children. In a follow-up study related to the maternal identity of mothers of infancy children, the four factors of warmth type, best effort type, indifference type, and preparation type will be helpful in the COVID-19 Era.

5. Conclusion

A tool was created for this study to assess the maternal identity of domestic women parenting young children, and the validity and reliability of the tool were confirmed. As the hypothesis gains more traction and utility, this study will be fully exploited as foundational evidence for studies on maternal identity when raising infants as a mother. It will also be feasible to use it as a significant evaluation instrument to gauge the success of intervention research about the enhancement of maternal identity in domestic mothers parenting young children. Three of the seventeen questions in the maternal identity tool developed as a result of this study are reversed. On average, the questionnaire takes five to ten minutes, and answers are entered on a five-point Likert scale. The scale goes from 17 to 85, with a higher score indicating a stronger sense of maternal identity.

Based on the results of this study, the following recommendations are made. First, this tool was later seen in newborns. The applicability and usefulness of the tool should be continuously expanded and verified by applying it to the first half of academic history and school age. Second, it is advised that a study that uses this instrument to identify maternal identity-related factors or confirm the effectiveness of the intervention.

6. Ethical considerations

The authors have completely observed ethical issues (including plagiarism, informed consent, misconduct, data fabrication and falsification, double publication and submission, redundancy, etc.).

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