Guidance on breastfeeding by public health nurses has an impact on competence of first-time mothers

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The aim of the study was to obtain information about factors that contribute to the maternal competence of first-time mothers when the child is 3 months old. Data collection was by structured questionnaires. The sample consisted of 271 first-time mothers, who completed the questionnaires when their infants were 3 months old. The multivariate method used was a stepwise regression analysis. According to multivariate analysis, seven predictors remained in the model to explain maternal competence. The better the mother felt about succeeding in child care, the more balanced was her state of mind, and the more cheerful and easy-going the child was, the greater was the mother's competence. Younger mothers, those who received more concrete support from members of their social network and those who were more attached to their child showed better competence. Those mothers who received more guidance on breastfeeding from public health nurses also showed greater maternal competence. The research findings suggest that important factors that contribute to the maternal competence of first-time mothers include maternal resources, social support received from those close to the mother, and guidance on breastfeeding from public health nurses.

Key words: breastfeeding; first-time mother; maternal competence; public health nursing; social support

Introduction

Maternal role attainment is a personal and specific relationship between mother and child. Because role attainment is specific in each case, it must be achieved individually with each child to whom a woman gives birth (Rubin, 1984). According to Mercer (1986), maternal role attainment is an interactional and developmental process that occurs over a period of time during which the mother becomes attached to her infant and develops competence in her role as a mother. Mercer (1981) suggests that a new mother progresses through several stages in role attainment, including rigidly adhering to rules and directives of others, and finally

evolving her own interpretation of the maternal role. As a mother evolves her own style of role performance, an accompanying increase in self-confidence in her role occurs.

Maternal competence – the mother's skills and interactions in the care of her infant – reflects her maternal confidence, which is a basic determinant of her capacity as a mother and affects her response to her infant (Walker *et al.*, 1986; Bullock and Pridham, 1988). The mother actively studies her infant's characteristics and their responses to her as she establishes her identity in relation to the infant (Rubin, 1984; Bullock and Pridham, 1988). The infant's response to care is a source of the mother's confidence, and has been found to be positively related to the mother's perceived competence (Bullock and Pridham, 1988).

Although maternal competence is strongly cognitive in nature, there is also an affective compo-

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nent expressed in empathy with the child and commitment. The affective component is expressed in a mother's positive regard for the infant and for herself as a mother of this infant (Rubin, 1984). In this study, the competence subscale assessed the mother's sense of competence in relation to her role as a parent. It relates to the knowledge of how to manage the child's behaviour and comfort when making decisions such as how to take care of the child and how to administer discipline. The mother also assessed her feelings and sense of enjoyment about being a mother (Abidin, 1983; 1995).

Mercer (1981) proposed that a number of factors may influence the first-time mother's attainment of maternal competence, including age, socioeconomic status, personality traits, infant temperament and social support. Mercer (1986) studied the effect of maternal education and age on the evaluation of parenting. Mothers with more education reported less satisfaction with the mothering role throughout the infant's first year. Older mothers, who also tended to be better educated, consistently reported the least satisfaction with the maternal role. In Broom's study (1994), maternal age predicted the mother's sensitivity to her infant. Older mothers were more sensitive than younger mothers. Mercer's study (1986) examined predictors explaining maternal competence when the infant was 4 months old. The mother's state of mind, maternal health and attachment to the child, and characteristics of the infant such as rhythmicity and health, were important factors explaining maternal competence. Mercer and Ferketich (1994) have also reported that the mother's self-esteem and state of anxiety predicted low-risk women's maternal competence when the child was 4 months old. Rogan *et al.* (1997), in their qualitative study, suggested factors that mediate the process of becoming a mother, such as the baby's behaviour, the mother's sense of isolation and social support.

When assuming a new role, feedback from a partner and a social network are important ways of validating competent performance (Rubin, 1984; Murphy, 1990). Women adapt their mothering behaviours according to the responses of their families, friends and other important individuals to their actions (Mercer, 1981; Ventura, 1986; Higgins *et al.*, 1993). Everyday sources of support may give a mother increased energy, freedom from worry, and pleasure. The mother may be more sensitive to and aware of infant care and parenting issues such as those linked to infant development, growth and temperament (Lazarus and Folkman, 1984). Close and frequent interaction with relatives, friends and neighbours has been shown to promote feelings of competence among parents (Mercer, 1986; Antonucci and Mikus, 1988). Some types of support, such as emotional or informational support, may be more helpful than others. In particular, emotional support from a partner appears to be most important with regard to the mothering role (Mercer, 1986). Another important factor in developing parenting competence, particularly during the first few months after birth of the child, is the support given by professionals in the form of information about child care and upbringing (Pridham *et al.*, 1994; Vehviläinen-Julkunen, 1994; 1995). Mothers who enlist more help from clinicians or professionals are likely to receive more feedback about themselves as parents (Deutsch *et al.*, 1988).

The purpose of the present study was to collect information about factors that contribute to the maternal competence of first-time mothers when the child is 3 months old. Particular attention was paid to the relationship between social support received by the mother, both from her social network and from public health nurses at the child welfare clinic, and maternal competence. The aim of the research was to determine what factors contributed to maternal competence when the child was 3 months old.

Methods

Sample

This study forms part of a larger study in which the growth to motherhood of first-time mothers was followed for 8 months postpartum. Data were collected by means of structured questionnaires. Approval for the study was obtained from the institutional ethical board of the hospital in one city in Finland. Questionnaires for the first survey were distributed to all first-time mothers (*n* = 326) who had a single-embryo pregnancy immediately after childbirth, the second 3 months after and the third 8 months after the birth. The present paper is concerned with the second stage. In Finland, child welfare services are available for every family after childbirth. For the first 6 months the family visits the child welfare clinic approximately once a

month. Public health nurses at the welfare clinic distributed questionnaires to all participants who had voluntarily responded in the first survey, when they visited the clinic with their 3-month-old infants ($n = 271$). The response rate was 93% ($n = 254$ mothers), and the questionnaires were returned by mail to the researcher.

Instruments

The questionnaires were developed with reference to the literature and to earlier studies and taking into account the instruments used in previous studies (Kahn, 1979; Norbeck *et al*., 1981; 1983; Abidin, 1983; Karila, 1991; Tarkka and Paunonen, 1996a; 1996b).

Independent variables

Demographic variables included the age of the mother, marital status, education and socioeconomic position. The instrument used to measure self-concept was that developed by Saari and Majander (1985), consisting of 10 Likert-scale (1–5) questions measuring the individual's level of self-appreciation. A sum variable was formed of the 10 elements examined (range 10–50). The functionality of the sum variable was measured using Cronbach's alpha and the score was 0.80.

The experience of being a parent was measured using the Parenting Stress Index (PSI) developed by Abidin (1983). This instrument consists of 101 questions to be answered by the respondent, divided into sections that describe the child and being a parent. The PSI consists of six elements which describe the child, and three of these were used in the present study, namely acceptability, demandingness and mood. There are seven subareas concerning parenthood, and all of these were included in the present study. They were competence, attachment, state of mind, health, isolation, role restriction and spouse. The internal validity of the PSI was tested using Cronbach's alpha. The resulting reliability coefficients were as follows: acceptability, 0.59; demandingness, 0.76; mood, 0.77; attachment, 0.52; depression, 0.71; health, 0.61; isolation, 0.69; role restriction, 0.57; spouse, 0.71.

The difficulty or ease of caring for a particular child was measured on a scale of 1 to 5, where 1 denotes very difficult and 5 denotes very easy to care for. The level of coping with child care was assessed using the instrument developed by Karila

(1991), which was designed to measure coping with the care of an infant. Child care is described by 13 tasks or situations such as bathing, feeding, soothing and dressing the child. The respondents assessed how well, in their own estimation, they perceived themselves to be coping with each task or situation. The values for coping were measured on a scale of 1 to 5 (where 1 = 'I cope very badly' and 5 = 'I cope very well'). A sum variable was formed of the questions that measured coping with child care (range 10–50). The functionality of the sum variable was measured using Cronbach's alpha. In the present study the reliability coefficient was 0.87.

Guidance and prompting by public health nurses with regard to breastfeeding, acknowledgement of breastfeeding in society, and perceptions of breastfeeding in motherhood were measured by variables on the ordinal scale (range 1–5).

The social network of the mother and the support she received from its members were measured using Norbeck's Social Support Questionnaire (NSSQ). This instrument is based on Kahn's theory of social support (Kahn, 1979; see also Tarkka and Paunonen, 1996a). The modes of support are affect, affirmation and aid. The mean functional support variable was formed as a sum of the three modes of support (affect, affirmation and aid) and divided by the number of individuals who provided social support. Details of this instrument can be found in Norbeck *et al*. (1981; 1983). In the present study, the reliability coefficient (r) of the questions measuring affect was 0.95, the correlation of questions measuring affirmation was $r = 0.95$ and the correlation of questions measuring aid was $r = 0.92$. Both instruments (the PSI and the NSSQ) were translated into Finnish using a back-translation technique.

The instruments developed by the researcher were used to ascertain the social support received by the mother from the public health nurse at the child welfare clinic. The instrument was based on Kahn's (1979) theory of social support. It consists of 18 questions, of which six measure affect, seven measure affirmation and five measure aid. An example of a statement on affect is 'The public health nurse shows that she accepts me as I am'. An example of a statement on affirmation is 'The public health nurse encourages me to find my own solutions according to my own expertise'. An example of a statement on aid is 'The public health

nurse indicates that she has plenty of time for me'. Each mother responded to these statements on a five-point scale ranging from 1 (= 'no support at all') to 5 (= 'a great deal of support'). The internal validity of the instrument was tested using Cronbach's alpha (affect, 0.90; affirmation, 0.89: aid, 0.74).

Dependent variable

The dependent variable in this study was maternal competence, which was included in the PSI instrument (Abidin, 1983). There were 10 questions measuring maternal competence, such as uncertainty and demands of being a parent, the ability to make decisions on child care independently, as well as assessing coping with parenthood and pleasure in parenthood. A sum variable was formed of the 10 elements examined. The functionality of the sum variable was measured using Cronbach's alpha and the score was 0.79.

Data analysis

Analysis of variance and Spearman correlation coefficients were used to examine the relationship between the predictors and maternal competence. The multivariate method used was a stepwise regression analysis. The selection for the model of predictors was stepwise in the order of best explanation. Only variables which enhanced the degree of explanation and were statistically significant were included in the final model. The contents of the model were interpreted by means of a scatterplot (Draper and Smith, 1981). Statistical analysis was performed using Statistica/Win Software Version 5 (StatSoft Inc, Tulsa, Oklahoma).

Results

Respondents

The mean age of the mothers participating in the study was 28 years (range 17–42 years). In total, 94% of the mothers were in a relationship. The mean of the sum variables for the mothers' self-concept was 42.91 (SD 4.91, range 25–50). More than half of them (64%) had completed either a university degree or a college level qualification, and half (52%) had worked outside the home before the birth of the child. In Finland, all new mothers can stay at home for about 1 year follow-ing childbirth, because of the availability of maternity insurance.

Background variables and maternal competence when the child is 3 months old

The mean of the sum variables for maternal competence was 41.39 (SD 5.35, range 17–50). The mother's age, marital status, education, and socioeconomic status showed no statistically significant correlation with maternal competence. However, there was a strong positive correlation ($r = 0.41$, $P < 0.0001$) between the mother's self-concept and maternal competence.

Characteristics of mother and child and maternal competence

The child's acceptability ($r = 0.46$, $P < 0.0001$), mood ($r = 0.56$, $P < 0.0001$) and level of demandingness ($r = 0.57$, $P < 0.0001$) were strongly correlated with the mother's competence. The more attractive or pleasant and easy to handle the child was, the higher was the level of maternal competence. The child's level of demandingness was also strongly correlated. The fewer problems the child had, such as crying and frequently requesting help, the greater was maternal competence. The mother's characteristics, such as attachment to the child ($r = 0.54$, $P < 0.0001$), health ($r = 0.48$, $P < 0.0001$), sense of isolation from society ($r = 0.48$, $P < 0.0001$), relationship with spouse ($r = 0.35$, $P < 0.0001$), role restrictions ($r = 0.39$, $P < 0.0001$) and sense of self ($r = 0.66$, $P < 0.0001$) also correlated strongly with maternal competence. The more attached the mother was to the child, the healthier the mother was, and the better her relationship with her spouse, the greater was her competence. The less isolated the mother felt from society, and the lower the frequency of role restrictions and depression, the greater was her maternal competence. The mother's success in taking care of her child, such as bathing, dressing and soothing the baby, was also strongly positively correlated with her competence ($r = 0.68$, $P < 0.0001$).

Social support for the mother and maternal competence

The mother's social support network on average consisted of seven support persons (SD 2.32, range 1–15). In 98% of cases the mother named her spouse or the child's father as the most important

support person. Other important sources of support included the grandparents (96%) and friends (88%). The mothers estimated that the most common form of support they had received from their support group had been aid or concrete support, while they had received the least affirmation or decision-making support by the time the child was 3 months old. The average functional support from the support persons had an effect on maternal competence ($r = 0.30$, $P < 0.0001$). Affect ($r = 0.30$, $P < 0.0001$) and aid ($r = 0.24$, $P < 0.0001$) as well as affirmation ($r = 0.24$, $P < 0.0001$) from the support persons also showed a positive correlation with maternal competence.

The mothers assessed the support received from public health nurses during the first 3 months postpartum. Affect or emotional support was most frequently received, and affirmation or support for decision making was least frequently received. Maternal competence had a positive correlation with affect ($r = 0.27$, $P < 0.0001$) and affirmation ($r = 0.30$, $P < 0.0001$) given by public health nurses, as well as with aid ($r = 0.21$, $P < 0.0001$).

Predictors of maternal competence according to stepwise regression analysis

Stepwise regression analysis was used to examine the relationship of several predictors with the variable of maternal competence. When the analysis was performed without background variables, five variables remained in the model to explain maternal competence. In order, these were as follows: coping with child care; state of mind; the child's mood; the public health nurse's guidance on breastfeeding; the mother's attachment to the child. The model's power of explanation was good ($R^2 = 0.68$). The strongest predictor was the extent to which the mother succeeded in child care. The more the mother felt that she was succeeding in child care, the greater was her maternal competence. The second predictor was the mother's state of mind. The less depression the mother felt, the greater was her maternal competence. The child's characteristics of mood and the way in which the public health nurse was guiding and encouraging the mother about breastfeeding were also predictors of maternal competence. The more cheerful and easygoing the child and the more guidance and encouragement the mother received about breastfeeding from the public health nurse, the greater was the mother's competence. Simi-

larly, the more attached the mother was to the child, the greater was her maternal competence (see Table 1).

When the background variables were included in the analysis, seven variables remained in the model to explain maternal competence, namely coping with child care, state of mind, mood, mother's age, help from the support network, attachment to the child and guidance and encouragement from the public health nurse about breastfeeding. Five variables were the same as in the first model. The mother's age and concrete support or help from the support network were the variables which also remained in the model. The younger the mother was, and the more concrete support she received from the social network, the greater was her maternal competence. The model's power of explanation was good ($R^2 = 0.70$) (see Table 2).

Discussion

The voluntary participation of the mothers in the study and the response rate (93%) lead to the conclusion that the mothers felt motivated to participate in the study. The age, marital status, education and socioeconomic status of the non-responders did not differ from those of the mothers who participated in the study, and thus the non-respondents cannot be said to have distorted the research findings. The mothers had completed the questionnaires thoroughly, and only a few questions were left unanswered, so higher levels of reliability may be obtained. The instruments used in the study were pre-tested ($n = 30$), and on the basis of the pilot study, elements in the questionnaire were adjusted to ensure greater content validity and reliability. The instrument that measured social network support (Norbeck *et al*., 1981; 1983) was used in an earlier study (Tarkka and Paunonen, 1996a), and it was found to be highly functional in the Finnish culture. The Parenting Stress Index developed by Abidin (1983) was used for the first time in Finland. The PSI has been validated not only with a variety of samples from the USA, but also in transcultural research involving Chinese, Italian, Portuguese, Latin American, Hispanic and French Canadian populations (Abidin, 1995). An item analysis was performed when forming sum variables. With the help of the reliability coef-

Table 1 Predictors related to maternal competence when the child is 3 months old in stepwise regression analysis without background variables ($R^2 = 0.68$)

Predictor	Regression coefficient	t	P-value	Cumulative R^2
Coping with child care	0.38	5.33	<0.0001	0.44
State of mind	0.34	4.70	<0.0001	0.61
Mood	0.22	3.19	0.002	0.65
Guidance on breastfeeding	0.12	2.10	0.04	0.66
Attachment to the child	0.14	2.01	0.05	0.68

Table 2 Predictors related to maternal competence when the child is 3 months old in stepwise regression analysis including background variables ($R^2 = 0.70$)

Predictor	Regression coefficient	t	P-value	Cumulative R^2
Coping with child care	0.32	4.46	<0.0001	0.44
State of mind	0.31	4.11	<0.0001	0.61
Mood	0.24	3.53	0.001	0.64
Mother's age	−0.14	−2.41	0.02	0.66
Aid from support network	0.13	2.16	0.03	0.68
Attachment to the child	0.14	2.05	0.04	0.69
Guidance on breastfeeding	0.10	1.76	0.08	0.70

ficient it was possible to ascertain that the homogeneity of the sum variables was good in general, but that some questions must be further developed to be more appropriate to Finnish culture.

When considering the relationship of single predictors to maternal competence, it was found that self-concept was the only background variable which was positively correlated with maternal competence, as was also indicated by an earlier study (Mercer, 1986; Mercer and Ferketich, 1994). The average functional support that the mother received from her social network was positively correlated with her maternal competence. The emotional support provided by the network had the strongest effect of all the forms of support. The spouse, or the child's father if the mother was not in a relationship, proved to be the most significant support person for the mother in this study, and Mercer (1986) has also found that emotional support from a partner was most important for the mothering role a few months after the baby had been born. The social support given by public health nurses showed a positive correlation with the maternal competence of first-time mothers. Affirmation or support for decision making was the most strongly related form of

social support. Mothers expect nurses to give them professional advice and support concerning the child's growth and development and how the child's development can be promoted. Earlier studies have also shown that support by health care professionals is important during the first months after childbirth (Pridham *et al.*, 1994; Vehviläinen-Julkunen, 1994; 1995).

In multivariate analysis, when the background variables were not included, the most important predictors of maternal competence were the mother's ability to cope with child care, the mother's state of mind, the child's mood, guidance on breastfeeding by public health nurses and the mother's attachment to the child. When the background variables were included, the mother's age and aid or concrete support from her social network remained in the model in addition to the factors mentioned earlier. Compared to earlier studies (e.g., Mercer, 1986; Mercer and Ferketich, 1994), it can be stated that of the predictors of maternal competence, the mother's state of mind, her attachment to the child and the child's mood remained in the model in this study, too. The most important predictor was how the mother felt she was coping with child care, and another important predictor

was guidance on breastfeeding from public health nurses. According to several studies, those parents who reported low self-esteem or who lacked practical knowledge about child care considered themselves to be incompetent as parents (Abidin and Wilfong, 1989; Webster-Stratton, 1990; Sommer *et al.,* 1993). The results show the important role of the professional in helping the first-time mother as she learns to recognize and respond to the needs of her child. Earlier studies (Tarkka *et al.*, 1998; 1999) have shown that the first-time mother considers it very important to succeed in breastfeeding. In the present study an important predictor was guidance on breastfeeding from public health nurses. First-time mothers need more support, information, guidance and encouragement about breastfeeding from the public health nurse during the first months after the baby is born, in order to promote the mother's positive attitude towards breastfeeding. The public health nurse should be able to recognize those mothers who might lack knowledge about how to achieve success in breastfeeding. Health care professionals who work with new families should have adequate expertise in human lactation and breastfeeding, and should ensure that their knowledge is up to date.

In Mercer's study (1986), older mothers reported least satisfaction with the maternal role, and in Broom's study (1994), older mothers were more sensitive to infants' needs than younger mothers. In this study, the younger the mother's age, the greater was her maternal competence. Perhaps younger mothers are more likely to overestimate their competence, whereas older mothers may expect to have greater maternal competence. However, this area requires further studies. Concrete support or aid from the social network also remained in the model when background variables were included in the analysis. Public health nurses should be aware of the mother's social network and the level of support received, as well as its possible absence. The interventions for those mothers with only a few close providers of support should be parent education classes and parent discussion groups in which they will be given suggestions on child management and at the same time experience the support of other members of the group.

The research findings suggest that important factors which contribute to the maternal competence of first-time mothers include maternal resources, social support from those close to the mother, and

guidance on breastfeeding by public health nurses. Child welfare clinics should develop the care that they deliver into a more family-centred direction, so the most important supporter (who in this study was the child's father) should be present when advising and supporting the mother in her new role. Health care professionals must pay more attention to providing effective guidance and support for new mothers with regard to successful breastfeeding. Further research is needed on the factors which are most important to maternal competence when the child is older, and more studies on fatherhood are also urgently required.

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