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Paternal Roles in Breastfeeding in Jakarta, Indonesia: A Mixed-method Approach

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Abstract

We explored paternal roles in timely breastfeeding initiation and exclusive breastfeeding practices in Jakarta using a mixed-methods approach in sequence of focus group discussions (FGDs – phase 1) and a quantitative survey (phase 2). The study population was parents with infants aged below 6 months. Data on paternal roles, maternal attributes, and breastfeeding practices were collected from 43 purposively selected parents in phase 1 and 536 couples in phase 2. FGDs provided insights to finalize the questionnaire for the survey. Nine paternal roles were identified: 1-accompanying the mother during antenatal and postnatal visits, 2-suggesting places for health checkups and delivery, 3-seeking information about child nutrition, 4-accompanying the mother during delivery, 5-facilitating psychological support of the mother, 6-childcare involvement, 7-engagement in childcare discussions, 8-involvement in decisions about infant feeding mode, and 9-enthusiasm for fatherhood. Roles 3 (aOR=1.65; 95%CI=1.07 to 2.54) and 9 (1.59; 1.04-2.44) were positively associated with timely initiation of breastfeeding. Role 8 was positively associated with exclusive breastfeeding (1.69; 1.10-2.60), but roles 2 (0.49; 0.32-0.76) and 5 (0.97; 0.41-0.64) were negatively associated with exclusive breastfeeding. Fathers played roles in breastfeeding practices under study. Fathers need a tailored breastfeeding promotion to stimulate necessary support for breastfeeding mothers.

Keywords: *initiation of breastfeeding, exclusive breastfeeding, fathers, mixed-methods approach, Indonesia*

INTRODUCTION

The body of literature regarding paternal roles in childcare has been growing. As a result of the shift in the nature of fatherhood from the early 1980s to the present, fathers are expected to be more involved in the care of young children than they used to be. Fathers are expected to be

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more nurturing, to develop closer emotional relationships with their children, and to share caregiving-related joys and activities with the mothers [1]. Paternal involvement in caregiving includes their roles in maternal breastfeeding practices. Although fathers are not directly involved in breastfeeding, their opinions and support remain significant [2-4]. Bar-Yam and Darby [5] found that paternal influence on breastfeeding comprises four aspects: decisions about breastfeeding, assistance during first feeding, duration of breastfeeding, and risk factors for bottle feeding. Studies have shown that paternal involvement in the initial method of infant feeding, especially with regard to timely initiation of breastfeeding and exclusive breastfeeding practices, may begin during the prenatal period, at childbirth [6], or during the postpartum period [4].

Breastfeeding is known to have long-term public health benefits [7,8]. The proportion of infants younger than 6 months who are exclusively breastfed in Indonesia in 2018, however, was only 37.3% [9], still below the global target of 41% for that year [10]. Recommended breastfeeding practices are influenced by many factors, such as services provided by the place of delivery and support received by nursing women at home and from their surroundings. Hector *et al* [11] suggested a conceptual framework of layers of influence on breastfeeding, which includes a family-based component. Nevertheless, quantitative data on the contribution of family-based aspects (e.g., the father) to breastfeeding practices, especially in non-Western settings, have been lacking [12].

Our objective was to explore paternal roles in the timely initiation of breastfeeding and exclusive breastfeeding practices.

MATERIALS AND METHODS

Study Sample

This study, conducted between November 2006 and June 2007, enrolled fathers and mothers living in Jakarta who had infants younger than 6 months old. We included fathers and mothers who were apparently healthy, who were living together, and whose infants were their biological children; the infants were singletons, had been born without complications, and had been breastfed. We excluded families of infants with congenital disorder or low birth weight. The unit of analysis was the family which consisted of father and mother.

Study Design and Data Analyses

In this cross-sectional study, we used a mixed-methods design with sequential strategy [13] in two phases. Phase 1 was a qualitative study, and phase 2 involved a quantitative survey.

Phase 1. In the qualitative phase of the study, focus group discussion (FGD) was used to help finalize the development of the survey instrument to be used in phase 2. Six FGDs were conducted; participants viewed and commented on pretested pictures illustrating the concepts of parenting and paternal roles within the continuum of pregnancy, childbirth, and postpartum. Participants meeting the inclusion and exclusion criteria were approached conveniently with the assistance from local community health volunteers. Each FGD was attended by six to eight purposively selected participants. As much as possible, each FGD was attended by participants with similar socio-economic background, therefore they mostly belonged from the same neighboring area. In addition, the discussion was aided with some pile sorting activities which required group consensus collaboratively. A total of 43 participants attended the FGDs of both sexes with different working statuses, education levels, and parity to

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cover richer information from various demographic backgrounds. Each FGD lasted approximately 1.5 to 2 h and was recorded. The first author facilitated all FGDs.

Right after the completion of each FGD, a preliminary analysis was carried out to list all of the important information in a matrix for constant comparison. A trained note-taker transcribed the recorded FGD verbatim. Content analysis for the delineation of specific paternal roles during pregnancy, childbirth, and the postpartum period was performed by the first author and directed toward refining questions and their answer options in the structured questionnaires to be used in phase 2.

Phase 2. A cross-sectional survey was designed to identify paternal roles and assess whether they were significant predictors of breastfeeding. The minimum sample size necessary was calculated, as follows:

$$N = \frac{DEFF\ (Z_{1-\alpha/2})^2\ p\ (1-p)}{d^2}$$

$$= \frac{2 \times 1.645^2 \times 0.43 \times (1- 0.43)}{0.05^2}$$

$$= \frac{2 \times 2.706 \times 0.43 \times 0.57}{0.0025}$$

$$= 531 \text{ families}$$

The sample size was based on a formula for proportion estimation [14] to guarantee that 43% of the fathers selected would be involved in discussions about the infant's nutrition and health (p), according to a previous study [15] with 5% absolute precision (d), a 90% confidence level (α = 10%), and design effect of 2 (DEFF) to capture the heterogeneity of the samples in an urban setting. A total of 585 families were interviewed; in 49, only one parent was interviewed (in 33 [67%], the father was not at home; in 13 [27%], it was difficult to make an appointment with the father; in 2 [0.04%], the father was not willing to be interviewed; and in 1 [0.02%], the mother was not at home). Data from the remaining 536 families, consisting of pairs of fathers and mothers, were included in the analysis.

Subjects included in phase 2 were different from those in the FGDs but belonged to the same study population and areas. Because we needed to include as many young infants as possible, we specifically selected subdistricts and villages with the highest numbers of neonatal visits and deliveries, as reported by the local health offices. At the village level, we gathered data from community administrative units that reported the highest numbers of infants born. We included all eligible infants to achieve the number of samples needed. Trained enumerators with education in nutrition collected data in face-to-face interviews with each mother and father separately on different occasions at their respective homes. A pretested structured questionnaire was used to elicit the data, which included sociodemographic characteristics, infant attributes, maternal attributes, paternal roles, exposure to information, and breastfeeding practices.

Breastfeeding practices

Timely initiation of breastfeeding was determined by the answer to the question "How long after delivery did you breastfeed your baby?" (1 = yes, if within 1 h after delivery; 0 = no, if more than 1 h after delivery). To determine whether breastfeeding was the exclusive method of feeding the infant, parents were asked about a 24-h food recall (1 = yes, if the infant had received only breast milk in the previous 24 h; 0 = no, if the infant received other sources of milk in the previous 24 h). Current exclusive breastfeeding practice, as

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examined in this study, was also evaluated in another study [16].

Paternal roles

Fathers were asked about their roles throughout the course of their wives' pregnancies, deliveries, and postpartum periods; each positive response was regarded as evidence that the father participated in that particular activity. Any nonresponse or negative response to these questions was considered a nonpositive response. In this way, we identified 22 paternal behavioral items. We performed principal component analysis to reduce these 22 items into discriminative measures to evaluate their potential association with breastfeeding practice. Two behaviors (involvement in some household tasks and positive coping with stress encountered at work and at home) were removed from the analysis because both of them had poor anti-image correlation coefficients ($r < 0.5$). Furthermore, a Kaiser-Meyer-Olkin statistic of 0.675 and Bartlett's sphericity test with a p level lower than 0.001 showed that the samples were adequate and thus analysis could be performed [17]. Ultimately, 20 items were included in the analysis. With the eigenvalue (latent root criterion) set above 1, the factors that emerged from these 20 items could be grouped into nine components. Varimax rotation with Kaiser normalization yielded convergence in 32 iterations with 66.3% of the total variance for nine paternal roles, as shown in Table 2.

Maternal knowledge and attitude

The knowledge scores on general child health/nutrition and attitude scores on breastfeeding practices were based on the percentage of correct answers and positive attitude, respectively, with 70% cutoff. In reliability analysis of all 15 items on knowledge, Cronbach's alpha was 0.6045; and in the analysis of 30 items on attitude, Cronbach's alpha was 0.5460.

Data Analysis

SPSS software version 16 (SPSS Inc., Chicago, IL) was used for entry, processing, and statistical analyses of quantitative data. Multivariate analyses with logistic regression were performed to assess determinants of breastfeeding practices. The enter method of regression analysis was used in one run to examine the role of all potential determinants of breastfeeding practices. Adjusted odds ratios (aORs) and 95% confidence intervals (CIs) were calculated to determine the association of factors with breastfeeding practices. A p value of less than 0.05 was used to indicate significance.

Paternal roles and other factors, such as maternal attributes, level of exposure to information and health services, and sociodemographic characteristics, were included as the covariates during multivariate analysis. Maternal attributes were maternal employment, experience of lactation-related difficulties, parity, and knowledge of and attitude toward breastfeeding. Types of exposure to information were parental exposure to mass media and interpersonal communication; services received during antenatal care (ANC), delivery, and postnatal care (PNC) from the health service provider (e.g., breastfeeding counseling received during ANC and PNC, rooming-in facilities for the mother and newborn, and whether the infant did or did not receive prelacteal feeding). Sociodemographic covariates included infant's age, household composition, level of family income, and father's educational level.

Ethical Clearance

The study procedures were fully approved by the Health Research Ethics Committee of the Faculty of Medicine, Universitas Indonesia (approval no. 225/PT02.FK/ETIK/2006). All participants provided written consent before data collection.

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RESULTS

Characteristics of the Study Participants

Table 1 shows the variation in level of education and parity status of the FGD participants. Of the participants in phase 2 (Table 2), the mothers were generally younger than the fathers. Both fathers and mothers were mostly secondary school graduates; 23.3% of the mothers were employed. More than 60% of the subjects had more than one child, and 57.1% lived as a nuclear family. Nearly 90% of the mothers had experienced at least one difficulty with lactation. Approximately one fourth of the mothers demonstrated good knowledge, and slightly fewer demonstrated a favorable attitude. More than half the infants were older than 3 months; the numbers of both sexes were comparable. The frequencies of some breastfeeding practices were suboptimal (Table 2).

Table 1. Characteristics of the Study Participants in Phase 1

Characteristics	Percentage (n = 43)
No. of participants	
Female	79.1
Male	20.9
Main occupation, by sex	
Female: housewife	91.2
Male: private employee	66.7
Highest education level of all informants	
Primary schooling	14.0
Secondary schooling	65.1
College	20.9
First-time parents	51.2

Table 2. Characteristics of the Study Participants Phase 2

Characteristics	Proportion (n = 536)	
	Father	Mother
Parental socio-demographic characteristics		
Median age upon interview (range)	32 (19–55)	27 (16–48)
Highest level of education		
Elementary school	13.6	21.1
Secondary school	68.8	67.5
College	17.5	11.4
Currently employed	98.1	23.3
Average monthly family income above national median	49.8	
First-time parents	38.2	
Being in a nuclear family	57.1	
Maternal attributes related to infant's condition and breastfeeding		
Experience of lactation difficulties	88.4	
Good knowledge of breastfeeding (maternal)	27.4	
Favorable attitude toward breastfeeding (maternal)	23.1	
Infants younger than 3 months	43.5	
Female infants	49.8	
Infant feeding practices:		
Breastfed timely (within an hour after birth)	31.7	
Received prelacteal feeding	65.3	
Exclusively breastfed at time of interview	29.1	
No longer breastfed	9.1	

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Phase 1 - Insights from the FGDs

The FGDs revealed some insights about the concept of fathering: specifically, the quality of the fathers' support of the mothers during pregnancy, fathers' involvement during childbirth, forms of father's psychological support provided that were important to mothers, and participation as the mothers' discussion partners about childcare in general. These findings were incorporated to improve the structured questionnaire used in phase 2.

Table 3. Patterns and Proportions of Paternal Behaviors

Paternal Behavioral Patterns	Eigenvalue	% of Variance	Loadings	% of Participants
Role 1: Accompanying mothers during ANC and immunization/PNC	3.148	15.739	—	—
• Accompanying mother during ANC	—	—	0.870	84.5
• Frequently accompanying mother for ANC	—	—	0.800	69.2
• Entering the examination room for ANC	—	—	0.735	64.9
• Accompanying mother during PNC	—	—	0.513	56.0
Role 2: Suggesting a place for health checkups and delivery	1.734	8.669	—	—
• Suggesting a place for ANC	—	—	0.790	89.0
• Suggesting a place for delivery	—	—	0.790	87.1
• Suggesting a place for PNC	—	—	0.653	85.4
Role 3: Seeking information about child nutrition	1.526	7.631	—	—
• Currently searching for information about breastfeeding and infant feeding	—	—	0.859	43.1
• Ever searching/discussing information about breastfeeding and infant feeding	—	—	0.821	58.8
Role 4: Accompanying mothers during delivery	1.413	7.064	—	—
• Accompanying mothers during delivery	—	—	0.883	81.7
• Entering the delivery room	—	—	0.856	58.6
Role 5: Facilitating psychological support for breastfeeding	1.191	5.953	—	—
• Providing help to ease mother's difficulties	—	—	0.775	82.6
• Noticing that wife is under stress	—	—	0.569	89.2
• Having suggested breastfeeding since pregnancy	—	—	0.501	85.3
Role 6: Active involvement in childcare	1.128	5.638	—	—
• Spending time with the child	—	—	0.805	35.6
• Involvement in several childcare activities	—	—	0.532	56.5
Role 7: Involvement in discussions about child's well-being	1.062	5.308	—	—
• Discussing infant health/nutrition with the mother	—	—	0.528	30.4
Role 8: Facilitating the decision and initiation of breastfeeding	1.053	5.267	—	—
• Involvement in decision regarding infant feeding	—	—	0.739	23.1
• Encouraging timely initiation of breastfeeding	—	—	0.668	79.5
Role 9: Enthusiasm for fatherhood	1.004	5.020	—	—
• Satisfaction with the marital relationship after having a child	—	—	0.741	60.3

Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization. Rotation converged in 32 iterations.
ANC: antenatal care; PNC: postnatal care.

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Phase 2

Paternal Behaviors during the Continuum of ANC, Delivery, and PNC

The range of father's behavioral supports under studied in phase 2 is presented in Table 3. Nine major paternal behaviors were identified, they were 1) accompanying the mother during antenatal and postnatal visits, 2) suggesting places for health checkups and delivery, 3) seeking information about child nutrition, 4) accompanying the mother during delivery, 5) facilitating psychological support of the mother, 6) childcare involvement, 7) engagement in childcare discussions, 8) involvement in decisions about infant feeding mode, and 9) enthusiasm for fatherhood. Table 3 also shows that majority of the fathers displayed many positive behaviors with regard to pregnancy and childcare: accompanying mothers during ANC and delivery; suggesting places for ANC, delivery, and PNC; suggesting breastfeeding; and providing psychological support for the mothers. However, performance of other behaviors was less optimal: accompanying mothers to the examination room during health checkups and delivery; involvement in acquiring information and discussion about proper infant feeding; involvement in some childcare activities; and enthusiasm for fatherhood. In addition, only 23.1% of the fathers were involved in decisions regarding methods of feeding the child.

Table 4. Results of Logistic Regression Analysis for Factors Associated with Timely Initiation of Breastfeeding

Factor	Odds ratio (OR)	95% Confidence Interval		*p*
		Lower	Upper	
Paternal behavioral pattern				
Accompanying mother during ANC and PNC	0.842	0.539	1.317	0.512
Suggesting place for health checks and delivery	1.281	0.831	1.974	0.220
Seeking information about child nutrition*	1.648	1.068	2.544	0.014
Accompanying mother during delivery	1.060	0.693	1.622	0.321
Providing psychological support for breastfeeding	1.524	0.974	2.384	0.502
Involvement in childcare	1.318	0.863	2.013	0.347
Involvement in talks about child's well-being	1.177	0.771	1.797	0.331
Involvement in decision about method of feeding infant*	0.633	0.413	0.970	0.031
Enthusiasm about fatherhood*	1.590	1.036	2.440	0.026
Maternal attributes				
Being a housewife	0.939	0.505	1.747	0.290
Experiencing lactation difficulties	1.115	0.578	2.151	0.497
Being first-time mother	0.644	0.402	1.032	0.451
Having good knowledge about breastfeeding	0.901	0.522	1.554	0.328
Having positive attitude toward breastfeeding	1.075	0.636	1.819	0.800
Exposure to information about breastfeeding				
Father's	0.854	0.538	1.354	0.405
Mother's	0.900	0.575	1.410	0.248
Support from health care facilities*	8.644	5.207	14.351	0.000
Sociodemographic characteristics				
Having younger infant	0.762	0.496	1.171	0.351
Living as a nuclear family	0.971	0.632	1.494	0.423
Good family income level	0.824	0.486	1.398	0.222
Father's high education level	0.552	0.287	1.063	0.199
Constant	0.232			

*$p<0.05$

ANC, antenatal care; PNC, postnatal care.

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Paternal Roles in Timely Breastfeeding Initiation

As presented in Table 4, timely initiation of breastfeeding was associated with seeking information about child nutrition (aOR, 1.65; 95% CI, 1.07 to 2.54) and enthusiasm for fatherhood (1.59; 1.04-2.44), respectively. Paternal involvement in decisions regarding infant feeding was negatively associated with timely initiation of breastfeeding (0.63; 0.41-0.97). Another significant positive factor for timely initiation of breastfeeding was the use of supportive health services (8.64; 5.21-14.35).

Table 5. Results of Logistic Regression Analysis for Factors Associated with Exclusive Breastfeeding

Factor	Odds ratio (OR)	95% Confidence Interval		*p*
		Lower	Upper	
Paternal behavioral pattern				
Accompanying mother during ANC and PNC	0.740	0.475	1.155	0.311
Suggesting place for health checks and delivery*	0.491	0.317	0.760	0.023
Seeking information about child nutrition	1.036	0.673	1.594	0.766
Accompanying mother during delivery	0.810	0.529	1.240	0.238
Providing psychological support for breastfeeding*	0.639	0.410	0.997	0.033
Involvement in childcare	1.006	0.658	1.538	0.655
Involvement in talks about child's well-being	1.416	0.929	2.157	0.463
Involvement in decision about method of feeding infant*	1.686	1.095	2.597	0.017
Enthusiasm about fatherhood	0.917	0.598	1.407	0.230
Maternal attributes				
Being a housewife	1.712	0.907	3.233	0.207
Experiencing lactation difficulties	1.534	0.800	2.942	0.156
Being first-time mother*	0.544	0.337	0.877	0.006
Having good knowledge about breastfeeding*	1.707	1.010	2.887	0.031
Having positive attitude toward breastfeeding*	1.901	1.148	3.148	0.045
Exposure to information about breastfeeding				
Father's	0.938	0.592	1.488	0.751
Mother's	1.358	0.872	2.114	0.548
Support from health care facilities*	1.732	1.038	2.891	0.025
Sociodemographic characteristics				
Having younger infant*	3.364	2.195	5.156	0.012
Living as a nuclear family	1.334	0.862	2.063	0.561
Good family income level	0.824	0.491	1.382	0.244
Father's high education level	1.091	0.592	2.012	0.321
Constant	0.135			

*$p<0.05$

ANC, antenatal care; PNC, postnatal care.

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Paternal Roles in Exclusive Breastfeeding

On the other hand, paternal involvement in decisions regarding method of feeding the infants was positively associated with exclusive breastfeeding (1.69; 1.10-2.60). Exclusive breastfeeding was negatively associated with both paternal involvement in suggesting a place for health checkups and delivery (0.49; 0.32-0.76) and provision of psychological support (0.97; 0.41-0.64), respectively. In addition, first-time mothers were less likely to practice exclusive breastfeeding (0.54; 0.34-0.89) than were those who had sufficient knowledge about breastfeeding (1.71; 1.01-2.89) and a favorable attitude toward breastfeeding (1.90; 1.15-3.15). Furthermore, those who received breastfeeding support services from the place of delivery (1.73; 1.04-2.89) and had infants younger than 3 months (3.36; 2.20-5.16) were more likely to breastfeed exclusively (Table 5).

DISCUSSION

Nine Paternal Behaviors during the Continuum of ANC, Delivery, and PNC in a Non-western Setting

Our study is among the first in which an explorative mixed-methods approach was used, thereby allowing for the identification of contextual perspectives from subjects residing in a non-Western setting such as Indonesia on paternal roles towards breastfeeding. In phase 1 of this study, as found in another study [18], the ideal involvement of fathers entailed their being present during ANC, childbirth, and PNC and their being accessible for discussions about childcare; available to help with childcare; understanding of mothers' concerns, and willing to learn about fatherhood.

In this study, we identified nine major behaviors of fathers from an urban setting in Indonesia. In a study of paternal roles with a similar but wider scope that was performed two decades ago, Bar-Yam and Darby [5] suggested that fathers' influence on breastfeeding comprises four aspects: breastfeeding decision, assistance at first feeding, duration of breastfeeding, and risk factors for bottle feeding. The design of our study, enabled us to identify more specific paternal roles during the continuum of pregnancy, delivery, and postpartum which were 1) accompanying the mother during antenatal and postnatal visits, 2) suggesting places for health checkups and delivery, 3) seeking information about child nutrition, 4) accompanying the mother during delivery, 5) facilitating psychological support of the mother, 6) childcare involvement, 7) engagement in childcare discussions, 8) involvement in decisions about infant feeding mode, and 9) enthusiasm for fatherhood.

Although other similar studies have focused mostly on information about fathers alone [12], phase 2 of the present study included an exploration of other factors (i.e., maternal attributes, sociodemographic characteristics, and exposure to information) known to contribute to breastfeeding practice overall. Thus after we controlled for other contributing factors, this study showed evidence of both positive and negative associations between paternal behaviors and breastfeeding practices under study.

Two Major Environments Mattered in the Present Study

Our multivariate analyses highlighted the importance of two major environments (health care facility and home), which suggested that support from different environments was likely to play stronger roles in early initiation of breastfeeding and exclusive breastfeeding [11]. Supportive service from health care facilities was 8.6 times more likely to facilitate timely initiation of breastfeeding. These included services received during antenatal care (ANC), delivery, and postnatal care (PNC) from the health

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service provider such as breastfeeding counseling during ANC and PNC, rooming-in facilities for the mother and newborn, and infant did not receive prelacteal feeding). On the other hand, both fathers' seeking information about child nutrition and enthusiasm for fatherhood were positively associated with timely initiation of breastfeeding. However, paternal involvement in decisions regarding infant feeding was negatively associated with timely initiation of breastfeeding. A previous study showed that parents often receive a variety of information about infant feeding. Appropriate information is a prerequisite for correct behaviors [4]. Thus fathers clearly need more appropriate and specific information so as to support initiation of breastfeeding [16].

After discharge from the health care facility, the setting of the breastfeeding dyad (mother-infant) becomes the home. Parenting roles, infant care (including breastfeeding), and marital roles are all amplified when new parents arrive home. At this stage, the breastfeeding triad (mother-father-infant) plays more roles. As the family member closest to the breastfeeding dyad, fathers are expected to become increasingly involved in a wide range of activities [19]. We also discovered that paternal involvement in decisions regarding method of feeding infants was positively associated with exclusive breastfeeding, but paternal involvement in suggesting a place for health checkups/delivery and father's provision of psychological support were negatively associated with exclusive breastfeeding. The reasons for these negative associations were less clear. We speculate that the passivity of fathers' participation during any contacts with health personnel (data not shown) may have been related to these negative associations and resulted in their lack of knowledge about breastfeeding. As previously discussed with regard to initiation of breastfeeding, support from the health care facility was also found to be strongly associated with exclusive breastfeeding, but the aOR was lower than that of timely initiation of breastfeeding.

Reasons for Being an Involved Father

Because men are typically less affiliative than women, they tend to be less physically or emotionally involved in parenting, a critical issue, throughout their lives as fathers. Moreover, having been brought up during a time in which men were less involved in birth and childrearing, some men probably lacked a good role model for fatherhood. Such conditions may have resulted partly from societal gender norms [20]. In an exploration of the culture of fatherhood through the analysis of a yearlong Canadian newspaper series dedicated to family issues, Wall and Arnold [1] found that through representations of parental guilt, parental responsibility, work–family balance, and hegemonic masculinity, mothers continue to be positioned as the primary parents. Fathers are viewed as part-time, secondary parents whose relationship with children remains less important than mothers' [20]. However, nursing women perceive the opinions, views, and support of their partners to be helpful in sustaining breastfeeding [2]. Men want to participate in parenting, but they need information and support [21]. On the other hand, most men have fewer support networks and therefore rely primarily on their partners for such support [16].

The most modifiable factor found in this study was the lack of knowledge about breastfeeding. As we found, only about half of the fathers were actively seeking information. We defined seeking information as not merely searching for information but also discussing and using the information [22]. Support from relevant surroundings for the breastfeeding triad is therefore imperative. Studies have confirmed the role of health care facilities

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as the key point of contact between health care providers and the breastfeeding triad and in providing them with appropriate and adequate support for sustaining breastfeeding in Indonesia [23-25], as well as in the Lao People's Democratic Republic [26] and Brunei Darussalam [27]. In addition, family support, especially from the husband, is an important predictor for adherence to a regimen of iron folic acid supplementation, which suggests the important roles of fathers in maternal and child nutrition programs in Indonesia [28].

Our study had some limitations. The 24-h food recall used to assess the exclusive breastfeeding practice may not have accurately reflected the actual breastfeeding practices. In addition, the cross-sectional study design used in this study limits our conclusion on understanding the causal relationship between paternal roles and breastfeeding practices.

CONCLUSIONS

The present study showed that fathers' roles were both positively and negatively associated with breastfeeding practices under study. Paternal involvement in decisions regarding infant feeding is central to their other roles for improved breastfeeding practices, provided that they are motivated to seek for proper information and use them. Fathers also need adequate support to sustain their supports throughout the first 6 months postpartum. Breastfeeding promotion needs to be further tailored to equip fathers with necessary support for the breastfeeding mothers.

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