



## The correlation between infant and toddler feeding practices by working mothers and the nutritional status<sup>☆</sup>



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### KEYWORDS

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### Abstract

**Objective:** This study aims to determine the correlation between infant and toddler feeding practices in working mothers with the nutritional status of children aged 6–23 months in Depok City.

**Method:** This study applied cross-sectional design and cluster sampling technique. The study population was 8772 with a sample of 223 selected respondents. Feeding practices measured by the Guidelines for the Integrated Childhood Illness Management Chart from the Indonesian Ministry of Health, while nutritional status was measured by calculating children's weight-for-height.

**Results:** The results indicated that most feeding practices were inappropriate (98.9%) with normal nutritional status in children (80.8%). The results of the statistical analysis showed that there was no significant relationship between feeding practices and nutritional status in infant and toddlers ( $p=0.923$ ).

**Conclusion:** The results indicate there were other parameters to determine nutritional status, so further analysis needs to be done.

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## Introduction

Optimal health in children can be realized by the food intake and the proper feeding practices.<sup>1</sup> Proper feeding practices in accordance with the gold standard of feeding consist of four things, namely Early Initiation of Breastfeeding (EIBF), exclusive breastfeeding until the age of 6 months, giving

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weaning food starting from the age of 6 months, and continuing breastfeeding until the child is 2 years or older.<sup>2</sup> In fact, the practice of feeding according to the gold standard cannot yet be realized properly.

WHO and UNICEF stated that more than 50% of children and toddlers deaths were caused by malnutrition, and about two-thirds of these deaths were related to the lack of proper feeding practices in accordance with gold standard.<sup>3</sup> Based on condition, in Indonesia according to the Statistics Indonesia in the 2017 IDHS (Indonesia Demographic and Health Survey), appropriate feeding practice for ages 6–8 months only reached 69.9%, 73.7% for ages 9–11 months, 74.3% for ages 12–17 months and 58.2% for ages 18–23 months.<sup>4</sup>

Another phenomenon based on statistic in the 2017 IDHS, only 52% of infants aged 0–5 months were exclusively breastfed.<sup>4</sup> For babies aged 0–1 months, initial attachment or skin contact did immediately after birth only reached 60%.<sup>4</sup> It is also known that only 61% of babies were placed on the mother's chest.<sup>4</sup> Meanwhile, breastfeeding provided by mothers to children until 2 years old only reached 54%.<sup>4</sup>

Regarding malnutrition and other nutritional problems in children under five, Indonesia is now declared as one of the countries with high rates for the incidence of stunting, thinness, and overnutrition.<sup>5</sup> Ministry of Health Republic of Indonesia explained data in of wasted children as much as 3.7%, underweight as much as 8.9%, normal as much as 83.1% and fat as much as 4.3%.<sup>6</sup> The number of underweight children shows that the quality of children health is still low. Particularly in West Java, data indicated that very thin children are 2.4%, thin children are 8%, normal children are 86.8%, and obese children are 2.9%.<sup>6</sup> Meanwhile, according to the Depok City Health Office, there are 8.094 (6.06%) over-nourished children, 121.397 (90.96%) well-nourished children, 4.029 (3.02%) under-nourished children, and 85 (0.08%) malnourished children.<sup>7</sup>

Nutritional status as an indicator of children welfare can be influenced by socio-economic conditions of the family.<sup>8</sup> Parent's occupation as part of socio-economics is considered to contribute to the condition of children's nutritional status.<sup>9</sup>

Based on the Central Bureau of Statistic of Depok, currently, around 33% of the total number of existing workers are women. Women especially working mother can certainly have a positive influence on the family in the form of increasing welfare. However, the limited time for working mothers becomes a risk of malnutrition in children. This happens because working mother has a lack of attention to children's nutritional needs.

Therefore, the purpose of this study is to determine whether there is a relationship between feeding practices carried out by working mothers and the nutritional status of children aged 6–23 months.

## Method

This study aims to determine the relationship of two variables, feeding practice in working mothers and the nutritional status of the children under five. Therefore this study used Cross-Sectional design. Collecting data of independent and dependent variables from the study were carried out at one time.

**Table 1** Distribution of respondents based on age of working mothers, age of children and children birth weight ( $n = 223$ ).

Variables	Mean	SD	95%CI
Mother's age (years)	30.05	5.525	29.32–30.78
Children's age (months)	14.12	5.068	13.45–14.79
Children birth weight	3.04	0.381	2.99–3.09

This study was conducted in five sub-districts community health centers in Depok City. Site selection was based on the highest number of workers in various sub-districts in Depok. Data collection was carried out in May 2018 with a total population was 8772, and total samples were 223 working mother. A sample of a working mother determined by using Cluster Sampling method and Proportion Formula which is in line with the inclusion criteria of this study. The questionnaire as an instrument in this study for feeding practice was based on the Guidelines for the Integrated Childhood Illness Management Chart (IMCI) from Ministry of Health Republic of Indonesia. Meanwhile, nutrition status was measured by calculating body weight based on body height (z scores).

## Results

The average age of working mothers in this study was 30.06 years old, with the majority of working mothers educational background were high school graduates (44.4%) and had less than five family members (60.1%). The working mothers mostly were non-health professionals (99.1%) with 8 of working hours (44.4%) and with the income above the Regional Minimum Wages (UMR) (55.6%). Working mothers can prepare meals for children (72.6%) and feed meals (40.8%). It means that the average socioeconomic background of working mother well, but only a few of working mother can take the time to feed the child.

The average age of children was 14 months with most of them were girls (52.9%). The average children's body weight at birth was 3000 g. Most of the feeding practices by working mothers were not appropriate (97.3%), and most of the nutritional status of children was normal (82.5%). Statistical test results according to Table 3 stated that there was no significant relationship between feeding practices by working mothers and the nutritional status of children aged 6–23 months ( $p = 0.479$ ,  $\alpha = 5\%$ ).

## Discussion

Based on Table 1, the average age of working mothers is 30 years old. According to Laure et al, most skinny children were born to mothers aged 15–25 years, and overweight children were more common in children with mothers aged 25–35 years.<sup>10</sup> Also, Sukoco et al. stated that the younger the mother's age was, the more the incidence of under weight and severely underweight in children happened.<sup>5</sup>

Based on Table 2, most working mothers in this study had less than five family members. Family size had a negative effect on health.<sup>11</sup> It is because the larger the family was, the less food was provided for the family members.<sup>11</sup>

**Table 2** Distribution of respondents based on characteristics of working mothers, children, feeding, and nutritional status.

Variables	n (%)
<i>Family size</i>	
<5 people	134 (60.1)
>5 people	89 (39.9)
<i>Income</i>	
Above UMR	124 (55.6)
Below UMR	99 (44.4)
<i>Education</i>	
High	55 (24.7)
Middle	99 (44.4)
Primary	69 (30.9)
<i>Types of job</i>	
Health workers	2 (0.9)
Non-Health workers	221 (99.1)
<i>Working hours</i>	
<8 h	96 (43.0)
8 h	99 (44.4)
>8 h	28 (12.6)
<i>A person who prepares meals</i>	
Mother	162 (72.6)
Grandmother	42 (18.8)
Housemaid	19 (8.5)
<i>Person who feeds</i>	
Mother	91 (40.8)
Grandmother	83 (37.2)
Housemaid	49 (22.2)

Accordance other observation that is stating there was no significant relationship between family size and children's nutritional status.<sup>12</sup> Large families tended to have less nutritional status. It is because the bigger the family was, the more members must fulfill their nutrition.

Furthermore, related to working mothers' income, according to earlier studies there was a significant relationship between economic status and nutritional status of children.<sup>11</sup> Other studies also stated that the high incidence of malnutrition (36.84%) happened in families with low income.<sup>12</sup> Géa-horta, Felisbino-mendes, Ortiz, & Velasquez-melendez claimed that family income was related to the incidence of childhood obesity.<sup>13</sup> Working mothers tended to provide high-calorie instant food so that it was risking

the children to experience obesity. Job status is certainly related to the type of job itself.<sup>13</sup>

Based on Table 2 most working mothers work in the non-health field. This is in accordance with the Statistics Indonesia revealed that the main job status in West Java is: 46.7% work as labor or an employee and the rest 19.7% as an entrepreneur.<sup>14</sup> Moreover, Sukoco et al. revealed that there was no significant correlation between the type of mothers' job with the children nutritional status.<sup>5</sup> Working mothers' bustle did not guarantee the formation of poor nutritional status in children. In this study, most working mothers work for 8 h. According to Géa-horta et al, the mothers had limited time to provide food for children.<sup>13</sup> They used to alternate it by providing instant food, and just ignored healthy food choices.<sup>13</sup>

Not only related to work, another characteristic of working mothers was related to education. According to Perdani et al., the higher the mother's education was the wider knowledge and experience in child care they had, especially in relation to feeding practices.<sup>15</sup> High education and high income could improve socio-economic status, as well as adequate family needs, especially in children<sup>13</sup> affecting their nutritional status.

The next variable is related to the meal provider and feeder to children. Based on this study, working mothers could provide meals and feed directly to children. Géa-horta et al. stated that working mothers could have a positive impact on children's growth.<sup>13</sup> High income could provide the best service for children, in terms of food provision, good sanitation access, and utilization of good health services. Working mothers' were used to look for an assistant, such as a caregiver, their mother, or their mother-in-law, to give attention and to supervise their children's health care.<sup>16</sup>

The characteristic of children under five in the study is age-related. The average children are 14 months old in this study. According to Laure et al, most malnutrition cases occurred in infants aged 0–3 months (50%), while most cases of malnutrition occurred in infants aged 12–18 months (66.7%).<sup>10</sup> The high risk of nutritional events more often happened in children under five as they got older. It is because after the age of 6 months children started to have weaning food.<sup>10</sup> Meanwhile related to children under five birth weight, there was no significant relationship between children birth weight with nutritional status.<sup>17</sup> In addition, according to Patandianan et al, large factors influencing nutritional status were genetic and family socio-economic conditions.<sup>18</sup> Moreover, in this study, related to the children sex, most of them were female. According to Hayati, there was no significant relationship between sex with children

**Table 3** Correlation analysis of feeding practices of babies and children by working mothers with the nutritional status.

Feeding practice	Nutrition status								Total	P value
	Severely underweight		Under weight		Normal weight		Overweight			
	n	%	N	%	n	%	n	%		
Proper	1	16.7%	0	0%	5	83.3%	0	0%	6	0.284
Improper	7	3.2%	15	6.9%	179	82.5%	16	7.4%	217	
Total	8	3.6%	14	6.7%	184	82.5%	16	7.2%	223	

nutritional status.<sup>17</sup> Furthermore, differences in sex only occurred during the interaction with the mother.

Regarding the analysis of the correlation between feeding practices of a working mother with the nutritional status of children that shown in Table 3, the majority of respondents with improper feeding practices still had normal nutritional status in their children. This result indicates that there was no significant relationship between the feeding practices by working mothers with the nutritional status of children ( $p$  value > 0.05).

The results of this study are in line with the research conducted by Suryani and Andrias stating that there was no significant relationship between the various food with underweight in children aged 6–24 months ( $p$  value > 0.05). Also, there was no significant relationship between eating frequency with nutritional status in children ( $p$  value > 0.05).<sup>19</sup>

However, different opinions emerged from a study conducted by Suryani and Andrias stating that there was no significant relationship between the diversity of food with underweight in children aged 6–24 months ( $p$  value > 0.05).<sup>19</sup> In addition, Suryani and Andrias claimed that there was no significant relationship between the frequency of eating and nutritional status in children ( $p$  value > 0.05).<sup>19</sup>

Based on the analysis, it is revealed that the nutritional status of children was not only determined by the feeding practice, but there were also other factors that could influence it. According to Indarti, the constituting factors of nutritional status were determined by direct and indirect factors.<sup>11</sup> Direct factors consisted of food intake and children infection, while indirect factors could not be separated from other various family characteristics.<sup>11</sup>

Family characteristic in this study is causing no association with feeding practices and children nutritional status was mothers' job. Working mothers by earning income might prioritize family needs. When the family needs are met, nutritional intake would be also fulfilled.<sup>8</sup> This could be seen from the number of working mothers who earned income above the UMR (55.6%).

Not only income but working mothers' knowledge of child care could also affect the children nutritional status. Good knowledge was reflected by the level of education mothers had. In this study, there were many working mothers earned highly education up to high school degree (44.4%). High level of mothers' knowledge affecting the easier information absorption related to the implementation of healthy life. In addition, Setyaningsih and Agustini stated that good knowledge of infant nutrition in mothers was expected to have an impact on the attitude and good behavior of mothers in fulfilling the nutrition of children under five.<sup>20</sup> In the future, related to this research, it is expected that further analysis can be carried out on factors that can affect the nutritional status of children under five or a reconsideration of the research design used.

## Conflict of interests

The authors declare no conflict of interest.

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