

COMPLEMENTARY FEEDING KNOWLEDGE AND ITS RELATED FACTOR ON COVID-19 POST PANDEMIC

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Abstract: Inappropriate complementary feeding (CF) is a major cause of child malnutrition and is more difficult when the COVID-19 (coronavirus disease-2019) occurs in Indonesia. The COVID-19 pandemic has made changes to healthcare utilization. This study purposed to capture and see the determinants of the mothers' CF knowledge during the COVID-19 pandemic. It focused on 133 mothers who have children aged 6-24 months and have internet access. The study was a cross-sectional and observational study conducted in Depok, West Java, Indonesia. The online survey for four weeks (November-December 2021) was performed to assess mothers' knowledge regarding CF during the COVID-19 outbreak. The obtained data were analyzed using logistic regression against various parameters, including mothers' education, knowledge, etc. The results exhibited that most mothers were 20-40 years old and had a bachelor's degree. Among the studied population, knowledge level on CF practice during the COVID-19 was fairly acceptable even though 53.4% of mothers had never gone to maternal class during the pandemic. Maternal education was the strongest determinant of CF knowledge ($p= 0.009$), even during the outbreak. Next, the research revealed that the maternal class did not directly affect CF knowledge during the COVID-19. On the other hand, health workers' role was one of the strongest CF determinants ($p= 0.01$). In conclusion, even though it is crucial to have good awareness about CF, it is strongly recommended that healthcare keep improving their CF online consultation and health social media as a reliable source, especially during the pandemic.

Keywords: mother, knowledge, complementary feeding, COVID-19, health promotion, health education

Introduction

Inappropriate complementary feeding (CF) knowledge is one of the concerns throughout the COVID-19 (coronavirus disease-2021) occurrence in Indonesia. The complementary feeding period introduced into the infant's diet is a period of rapid growth and development. Complementary feeding (CF) is the transition phase from breast or milk feeding to family foods. During this time, infants are prone to undernutrition and overnutrition. Then, when a child is exposed to new tastes, foods, and chewing experiences, significant dietary changes occur (Fewtrell *et al.*, 2017).

Delayed introduction of solid foods leads to malnutrition, developmental disorders, and eating disorders caused by the delay of stimulating healthy development of oral muscles like chewing and biting abilities, overweight and obesity (Romulus-Nieuwelink *et al.*, 2011) (Pearce *et al.*, 2013). However, CF introduced before the age of four months may increase the risk of diarrhea, colitis,

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abdominal pain, and later overweight and obesity (Scott *et al.*, 2009). The success of CF is determined by various factors, especially mothers' CF knowledge.

As recently reviewed, restricted access to healthcare and educational disruptions can occur during the COVID-19 restrictions and affect the mothers' CF knowledge (Scott *et al.*, 2009). In response to further mitigating the threat of the COVID-19, investigating the importance of CF knowledge and related factors and determinants in providing developmental data is required to emphasize preparations for the possibility of further emergence. Therefore, our objective is to capture the mothers' CF knowledge and find determinants of CF knowledge during post-pandemic.

Materials and Methods

The study was a cross-sectional, observational study conducted in Depok city, West Java Province, Indonesia. The study's population was 133 mothers of children aged 6 to 24 months who had internet access. An online survey was performed on the mothers for four weeks (November-December 2021). Data were then analyzed using the χ^2 test for the bivariate analysis. Finally, a multivariate logistic regression analysis method was completed to detect the most affecting determinants of CF knowledge.

Results and Discussion

Table 1 summarizes the socio-demographic characteristics of 133 mothers. Most of the participants (99%) were 20 to 40 years old, with the majority having a bachelor's degree (45%) and housewives as the main occupation (53%). In addition, half of them received CF information from the internet (57%) and never attended maternal class during the pandemic (56%). Lastly, 12% of the mothers felt that there was still a lack of support from health workers to disseminate CF information.

Table 1. Distribution of all variables, CF knowledge, and their relationship.

No	Variables	Frequency (%)	CF Knowledge		p-value
			Good	Lack	
1	Mother's age				
	20-40	132(99%)	67	65	0.9
	>40	1(1%)	1	0	
2	Mother's education level				
	Junior high school	1(1%)	0	1	0.01*
	High school	47(35%)	19	28	
	Diploma	25(19%)	9	16	
	Bachelor	60(45.1%)	40	20	
3	Mother's occupation				
	Not Working / Housewife	70(53%)	31	39	0.09
	Working	63(47%)	37	26	
4	CF information source				
	Family and friends	15(11.3%)	6	9	

	Internet and social media	76(57.1%)	44	32	0.35
	Health workers	35(26.3%)	15	20	
	Book and television	7(5.3%)	3	4	
5	Maternal class attendance				
	Never	71(56%)	38	33	
	1x	33(27%)	17	20	0.8
	2x	8(7%)	5	6	
	> 2x	13(10%)	8	6	
6	Health workers support				
	Lack	16(12%)	8	8	0.04*
	Fair	94(71%)	41	53	
	Good	23(17%)	19	4	

Table 2. Logistic Regression analysis of CF knowledge determinants

No	Variables	95% CI		P
		Lower	Upper	
1	Mother's age	0.910	1.122	0.8
2	Mother's education level	1.152	2.686	0.009*
3	Mother's occupation	0.348	1.587	0.4
4	CF information source	0.492	1.440	0.5
5	Maternal class attendance	0.629	1.382	0.7
6	Health workers support	1.180	5.269	0.01*

Fulfillment of the items, including proper breastfeeding during the COVID-19, minimum meal frequency, dietary diversity, hygienic and safe, and adequate feeding, are general principles to identify sufficient CF knowledge (Scott *et al.*, 2009). Next, the results showed that the most affecting factors associated with appropriate CF knowledge during the COVID-19 are the mothers' educational level ($p = 0.01$) and health workers' role ($p = 0.04$). Furthermore, based on Table 2, the mother's educational level became the most affecting determinant ($p=0.009$), followed by health workers' role ($p=0.01$). Table 2 presents the results of the logistic regression analysis of CF knowledge determinants.

According to Table 1, most mothers had CF information sources from the internet (57.1%). These results are similar to the previous CF research that most parents accessed online for information and support (Plantin & Daneback, 2009). It was frequently mentioned by the mothers that the source of information from the internet includes scientific research papers, interactive online websites, and social media such as Instagram. Online communication has become one of the most important forms of information sharing among parents today, where mothers represent the largest individual group, accounting for over 60% of parenting website users (Szymańska, 2021).

Further, from Table 1, half of the mothers never attended the maternal class conducted by the integrated health care during the study period (56%). It was cited that the causes of this condition were lockdown restrictions and the fear of contracting COVID-19. These results resonate with the findings in Kenya that there has been a reduction of maternal care visits during the COVID-19 caused by restricted access to health facilities and fear of the infection risk (Kimani *et al.*, 2020). The COVID-19 pandemic seems to have finally provided an unavoidable excuse for dealing with digital transformations like telemedicine (Golinelli *et al.*, 2020).

Next, this study discovered that mothers' education and health workers' roles were the determinants of CF knowledge. It is consistent with the previous study, which stated that better-educated mothers contributed to significant appropriate CF knowledge (Kostecka *et al.*, 2020). Additionally, these results explained the previous finding that a higher mother's education led to a better understanding of information and a higher level of knowledge (Munde & Save, 2021). Education level is the strongest factor influencing a mother's knowledge. It is supported by CF knowledge study in Aceh, confirming that education level is one of the factors influencing mothers' knowledge about CF (Ahmad *et al.*, 2020).

Besides mothers' education, a health worker's role was also associated with CF knowledge, especially during the pandemic. This finding supports another CF study indicating that maternal knowledge was driven by existing factors such as the healthcare workers' role (Ahmad *et al.*, 2020). Health professionals become the source of information that provides information about food diversity by motivating and encouraging mothers to gain good knowledge (World Health Organization, 2020).

These findings are also related to the literature study denoting that maternal education and health care workers' role are classified as the community and societal factors that affect CF knowledge and later risk to child stunting (Beal *et al.*, 2018).

Nevertheless, the study results did not show a significant relationship between maternal class attendance and mothers' knowledge. This finding is explained by the previous study that educational interventions to improve CF knowledge and practice to produce meaningful results take a long time (Munde & Save, 2021). The maternal class captured in this study are limited during the research period.

However, due to the limitation of this survey, the results may differ from the results of face-to-face surveys conducted in rural areas where the internet and social media are inaccessible.

Conclusion

Most mothers obtained CF information sources from the internet during the pandemic. The mother's educational level and healthcare worker support were the factors associated with CF knowledge. Therefore, sustainable intervention by healthcare professionals to increase CF knowledge by improving online health consultation and managing healthcare social media is essential to support mothers in practicing CF in all conditions, especially during the pandemic.

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Declaration of Interest Statement

The author(s) declared no potential conflicts of interest concerning this article's research, authorship, and publication.

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