

**Original Research****Determinant Factors Affecting Self-Medication Behavior In Breastfeeding Mothers****Murwati Murwati<sup>1</sup>, Suroso Suroso<sup>2</sup>, Nur Atikah<sup>3\*</sup>**<sup>1,3</sup> Department of Pharmacy, Poltekkes Kemenkes Surakarta, Indonesia<sup>2</sup> Department of Pharmacy and Food Analysis Poltekkes, Kemenkes Surakarta, Indonesia**ABSTRACT**

**Background:** Self-medication practices can be a source of medication errors, especially for nursing mothers, because almost all drugs taken by nursing mothers are detected in breast milk, even though the concentrations are low. It can be prevented by identifying the determinants of self-medication.

**Methods:** This study is a cross-sectional quantitative analytic study. A sample of 150 mothers was chosen by purposive sampling with the criteria for breastfeeding a baby with a maximum age of 6 months. The instrument used is a questionnaire on the determinants of self-medication behavior in breastfeeding mothers. The questionnaire has been tested for validity with Pearson's test ( $p < 0.05$ ) and reliability with Chronbach's alpha (0.78). Data analysis with chi-square and multivariate tests

**Results:** The statistical analysis showed a significant association between education level, medical history, drug price, and information media and self-medication behavior in breastfeeding mothers. However, those that had an impact were the history of the disease ( $p = 0.014$ ), education level ( $p = 0.024$ ), and drug price ( $p = 0.006$ ).

**Conclusion:** The determinants of self-medication behavior in breastfeeding mothers were disease history, drug prices, and education. Further research is needed regarding the rationality of self-medication to determine the optimization and safety of drugs used by breastfeeding mothers.

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**INTRODUCTION**

The breastfeeding period is a condition that is vulnerable to various health problems for both mother and baby (Ummah et al., 2018). These health problems are usually overcome by breastfeeding mothers by taking medication. Pharmacokinetic drugs will go through absorption, distribution, metabolism, and excretion in the body, affecting the breastfeeding process. Almost all drugs taken by breastfeeding mothers are detected in breast milk, although the concentration is low (Ummah et al., 2018).

If a nursing mother is forced to take medication, it is crucial to pay attention to the peak level of the drug in breast milk and the drug's half-life. Drug safety must be established by ensuring that the drug obtained has the appropriate indication, the correct drug, dose, method, and timing of administration (rational medicine). The side effects, contraindications, and expiration date must be known (Ummah et al., 2018).

Breastfeeding mothers are permitted to use prescription and non-prescription medications, as well as self-medication (self-medication). The prevalence of breastfeeding mothers who obtain drugs and supplements independently is 84.5% (Ummah et al., 2018). Another study states that 59% of breastfeeding mothers continue to take self-medication (Sagitaras, 2016). This prevalence is relatively high compared to pregnant women at 20.1% and women at 12.5% (Jambo et al., 2018).

Various internal and external factors can affect the practice of *self-medication* in nursing mothers. Internal factors include the characteristics of breastfeeding mothers (age, education, occupation), attitudes, knowledge, and perceptions of drug use. In addition, a history of taking medication, previous breastfeeding experience, and ownership of health insurance.

External factors are exposure to information media, support from health workers, over-the-counter drug availability, easy access to health services, expensive medical costs, and long distances (Mohseni et al., 2018). Another study showed significant results regarding the effect of drug advertisements on TV on self-medication practices, and 73% of people were influenced by advertisements when they decided to buy drugs. Other research also states a significant effect of leaflet media on self-medication (Mardiati et al., 2021).

*Self-medication* practice can be a source of drug-related *problems* because of the limited knowledge of the community. A study showed that 65% of breastfeeding mothers' knowledge of self-medication was poor (Sagitaras, 2016). Another study showed that community knowledge about self-medication was 52% in the low category (Kristina et al., 2007). Therefore, strategic efforts are needed to handle these problems, such as communication, education, and drug information, which can be adequately handled.

Problems regarding the practice of *self-medication* need to be described, especially in the phase of breastfeeding mothers. Klaten Regency was chosen because it is one of the regencies in Central Java Province with a high enough number of women who choose *self-medication*, as much as 62.40%. This figure is slightly below the Central Java average of 67% (BPS, 2018) and almost the same as the national figure of 62.75% (BPS, 2019). Based on these conditions, this study aims to determine the prevalence, profile, and determinants of *self-medication behavior* in breastfeeding mothers.

## **MATERIALS AND METHOD**

The design of this research involves quantitative analysis with a *cross-sectional approach*. A sample of 150 breastfeeding mothers, with inclusion criteria, namely breastfeeding mothers for the first six months, and exclusion criteria, namely experiencing complications and having a history of severe illness. The study was conducted at the Klaten District Health Center, which represented the characteristics of the respondents, namely South Klaten, Bayat, Karanganom, and Jambukulon Health Centers, in August 2021.

Primary and secondary data were collected through a questionnaire about the characteristics and behavior of self-medication. The data variable is nominally scaled, and the percentage is calculated. It is then statistically tested with chi-square to analyze

the relationship between internal and external factors with self-medication behavior in breastfeeding mothers.

A multivariate test was conducted to see the factors influencing self-medication behavior in breastfeeding mothers. Statistical test requirements, namely  $H_0$ , are rejected if the significance value is  $p < 0.05$ , which means that there is a relationship or influence between internal and external factors on self-medication behavior in breastfeeding mothers. This research has been through ethical clearance from the Ethics Commission of Health Polytechnic Ministry of Health Surakarta, with the ethical eligibility number No.LB.02.02/1.1/3747.1/2021.

## RESULTS

Table 1 illustrates that more breastfeeding mothers were not self-medication than those who were. The distribution of respondents is dominated by the age group of 26–35 years, with a high school education level, working as a housewife, having more than one child, breastfeeding that is mostly smooth, and the mother having a history of illness when doing self-medication. Internal factors of age, occupation, parity, and breast milk production were not related to self-medication behavior ( $p > 0.05$ ), while education level and history of disease were related ( $p > 0.05$ ).

**Table 1.** The results of descriptive analysis and bivariate test of internal and external factors related to *self-medication behavior* in breastfeeding mothers in the Klaten Regency

Variable	Total	Percentage (%)	<i>p</i> value
<b>Medication use behavior</b>			
<i>Self-medication</i>	70	47	
<i>No self-medication</i>	80	53	-
Total	150	100	
<b>Internal factors</b>			
<b>Age</b>			
17 – 25 years old	39	26	
26 – 35 years old	85	57	
36 – 45 years old	26	17	0.471
Total	150	100	
<b>Education</b>			
Elementary and junior School	21	14	
High School	88	59	
University	41	27	0.012
Total	150	100	
<b>Job-status</b>			
Housewife	86	57	
Working	64	43	0.548
Total	150	100	
<b>Parity</b>			
Primipara	60	40	
Multipara	90	60	0.738
Total	150	100	
<b>Breast Milk Productivity</b>			
Not smooth	8	5	0.099

Variable	Total	Percentage (%)	<i>p</i> value
Smooth	142	95	
Total	150	100	
<b>Disease history</b>			
Have history of illness	127	85	0.001
No history of the disease	23	15	
Total	150	100	
<b>External factors</b>			
<b>Sources of Information about drugs</b>			
Friends and family	40	27	0.125
Health workers	61	41	
Previous sick experience	49	33	
Total	150	100	
<b>Information Media</b>			
Online and social media	97	65	0.042
Electronic media (TV, Radio)	22	15	
Print media	31	21	
Total	150	100	
<b>Distance to Health Facilities</b>			
<1KM	56	37	0.191
≥ 1 KM	94	63	
Total	150	100	
<b>Lower drug prices</b>			
Yes	97	65	0.000
Not	53	35	
Total	150	100	

Based in table 1 above, most respondents learned about self-medication from health workers and social media or online media; the distance from health facilities is more than 1 km; and they choose self-medication because it is cheaper. External factors of information media and lower drug prices have a relationship with self-medication behavior ( $p < 0.05$ ).

**Table 2.** Multivariate test results to determine the determinant factors that influence *self-medication* behavior in breastfeeding mothers in the Klaten Regency Region

Category	Self-medication	No self-medication	<i>p</i> value	OR
<b>Disease history</b>				
There is a history	52	75	0.014	4
No history	18	5		
<b>Drug price</b>				
Yes cheap	35	62	0.006	3
Not	35	18		
<b>Education</b>				
Base	15	6	0.024	1
Medium & high	55	74		
<b>Information Media</b>				

Category	Self-medication	No self-medication	p value	OR
Online, social, and electronic media	53	68	0.390	1.5
Print media	17	12		

Table 2 defines that disease history, drug price, and education level are determinants of self-medication behavior ( $p < 0.05$ ). The Odds Ratio (OR) value indicates that breastfeeding mothers with a history of the disease can influence self-medication behavior four times. Meanwhile, lower drug prices affect three times, and education level affects one time.

## DISCUSSION

This study illustrates that breastfeeding mothers in Klaten Regency are more likely to seek treatment from health workers or health services than those who seek treatment alone. This condition follows the data on the average monthly visit of breastfeeding mothers at the Klaten Health Center in 2021, which is 74% (BPS, 2018). Educational factors from health workers and the precautionary attitude of breastfeeding mothers toward using drugs during breastfeeding can discourage self-medication. Nursing mothers are concerned about the distribution of the active drug substance in breast milk (Kristina et al., 2007).

It is reinforced by the statement from the midwife that the provision of information on medicines and traditional medicines is a mandatory health education agenda for maternity mothers, including breastfeeding mothers. However, this condition becomes a challenge and an opportunity in pharmaceutical services. A tremendous opportunity arises from this condition in the business aspect and in increasing the existence of the pharmacist profession and pharmaceutical technical personnel in the community. Meanwhile, the challenge is the implementation of self-monitoring of drug use, especially for breastfeeding mothers (Mohseni et al., 2018).

The number of results in this study is smaller than the results of previous studies, namely 84.5% of breastfeeding mothers who do self-medication (Ummah et al., 2018). Likewise, a study showed that the behavior of pregnant women who used non-prescription drugs was 59.57% (Hartini et al., 2020). The prevalence of this study is also smaller than the number of Indonesian women who choose self-medication, as much as 62.40%, while the Central Java average is 67% (BPS, 2018). Other sources show that women who do *self-medication* are 62.75% (BPS, 2019). However, almost the same results were shown in previous studies, which founds that the prevalence of self-medication among the people of Yogyakarta was 44% (Widayati, 2013).

This study's results differ from the research conducted by Sagitaras (2016). The study illustrates that 59% of breastfeeding mothers perform self-medication, 12% more than the results of this study. It can happen because previous research shows that the level of knowledge of breastfeeding mothers is included in the good category, which means that mothers consume drugs based on limited knowledge without the need to consult a doctor, and patients will buy their medicines, so that the potential for self-medication behavior is tremendous (Sagitaras, 2016).

This study is also contrary to Ummah's research (2018), where breastfeeding mothers took more self-medication (84.5%) compared to drugs or vitamins obtained from a doctor's prescription (15.5%) (Ummah et al., 2018). This study has shown that the

indications and dosages for self-medication are appropriate. The mother does not have problems with self-medication, so the rate of self-medication is higher. However, the study stated that 67.6% of mothers had concerns about using the drug, as was the case with this study.

The age range in this study is the fertile age of pregnant and lactating women (26–35 years). The age factor has a test result that is not statistically significant, but that does not mean it is ignored. The maturity of psychological development will increase with age, including making drug decisions (Kristina et al., 2007). In addition, physiologically, there will be a degenerative process with increasing age, which will cause many health complaints, thereby increasing drug use.

According to research by Kristina et al. (2007), age > 30 years is associated with self-medication behavior. Widayati's research (2013) showed that respondents who self-medicate were 43 years old (Widayati, 2013). Education statistics for 2021 show that the majority of the highest level of education completed by Indonesians over the age of 15 is SMA (29.21%), while SMA is only 9.67% (BPS, 2021); the results of this study also show the same thing, where the level of education is related to self-medication behavior. This study is supported by previous research, which states that the level of education shows a relationship with the mother's level of knowledge (Fadila & Ramadhan, 2018).

Employment status is one of the factors that can affect behavior, but in this study, the results of statistical tests were not related. It is not in line with several previous studies that showed a relationship between work and self-medication behavior (Kristina et al., 2007). Despite the contradictions, a person's employment status will influence the experience and add insight and mindset that play a role in decision-making, including self-medication (Mohseni et al., 2018).

Married women in Indonesia, mostly in their 20s, have more than two children in their 30s (BPS, 2021). The number of children a woman had in this study was not associated with self-medication behavior. The number of children a person has can be a valuable experience for women. However, every child's condition is different, and family life changes, leading to different health problems. So even though a woman already has more than one child, the problems that arise are different, and the ways of handling them are undoubtedly different, including the problem of self-medication (Mohseni et al., 2018).

The smoothness of breastfeeding was shown to be insignificant with self-medication behavior; this indicates that breastfeeding mothers already have adequate control regarding the care of smooth breastfeeding (Ummah et al., 2018). Based on information from the local midwife, treatment for breastfeeding problems has been carried out since they were pregnant, so they are careful when buying their own medicine. The good characteristics of respondents also support it; most of them have a secondary education, and 59% and 41% seek drug information from health workers, respectively.

The source of drug information is an external factor that is not significantly related to self-medication behavior in this study. Most of the sources of drug information were obtained from health workers, which showed that the behavior of breastfeeding mothers was conscientious in deciding to buy drugs (Ummah et al., 2018). They learn from previous illness experiences, ask family and friends, and refer to health workers, a positive trend because the community control system functions well in seeking health information (Mohseni et al., 2018). So that pharmacists and pharmaceutical technical personnel must provide correct information to protect the public, especially breastfeeding mothers, from drug abuse (Mardiati et al., 2021).

Information media is an external factor related to self-medication behavior in breastfeeding mothers, and in this study, the most widely used by the public are social media and online. It is supported by other studies, which state that self-medication is mainly driven by the internet and the media (Seam et al., 2018). Social media is significant as an online place to exchange health-related information and advice. The development of the patient's condition during disease therapy can be influenced by health information obtained from the internet (Mardiati et al., 2021).

Various platforms are spread in cyberspace, such as social networking sites, microblogs, online communities, and discussion forums. Patients' most frequently asked questions online are about drug side effects, drug choices according to their condition, and drug interactions. Social media applications on the internet empower, attract, and educate patients and healthcare providers (Mardiati et al., 2021). However, it can also cause problems if the information provided is inaccurate and comes from unreliable literature, which can cast doubt on the quality of the information, so a prominent role is needed for health professionals in providing scientific information with the best clinical evidence in the media (Zhao & Zhang, 2017).

Distance to health facilities is an external factor that is not significantly related to self-medication behavior. However, the percentage of the population with a location far from a healthcare facility (> 1 kilometer) is higher. It shows that distance is not necessarily more accessible for someone to buy medicine but is based on need. Respondents prefer to buy their own medicine because of their disease history by as much as 85%, which is proven to be significant with a p-value = 0.001. It is in line with the research of Kristina et al., (2007) that there is no relationship between residence distance and self-medication behavior (Kristina et al., 2007).

The disease history in this study affects self-medication behavior and is an internal factor associated with self-medication behavior in breastfeeding mothers. This study proves that a history of illness suffered by breastfeeding mothers makes them four times more likely to self-medicate. This research is also supported by previous research that shows the leading cause of self-medication is the most dominant experience with the disease that has been felt before, as well as experience with the drugs used, and that it saves time without having to go to a doctor and go through a long process to get therapy (Jambo et al., 2018; Lei, Jiang, Liu, Ferrier, & Mugavin, 2018; Mohseni et al., 2018).

The drug price factor significantly affects self-medication behavior and is an external determinant factor in this study. The fact that the price of drugs purchased by the patient is lower than the doctor's prescription can affect him three times. People self-medicate because they think their illness is not severe enough, so they do not need to go to a doctor (Lei et al., 2018). In addition, patients feel they do not have time to meet doctors and do not want to incur high medical costs (Lei et al., 2018). It shows that the assumption that self-medication saves time and money from seeing a doctor in this study is proven true.

Higher education levels may influence self-medication behavior in this study. The higher the level of education, the more in line with the advancement of knowledge. The willingness to accept change and new things that are useful in maintaining health, preventing disease, and dealing with problems more rationally are common characteristics of highly educated people (Lindawati, 2019).

The respondent's education was shown to be significantly related to self-medication behavior. In line with Sagitaras' (2016) research, education level affects knowledge of safe drugs during breastfeeding (Sagitaras, 2016). In line with the research of

Utamingrum (2015), which stated that there was a significant relationship between education and reasons for self-medication (Utamingrum, 2015).

Education is closely related to knowledge, which plays an essential role in changing behavior. *Education* is a learning process, which means that there is a process of growth, development, or change in a more mature and superior direction. Through education, a person will gain knowledge. The higher the education, the higher the quality of life, where a person will think logically and understand the information he gets, including rational self-medication information (Sagitaras, 2016).

Although the information media were not related to this study's multivariate test, it was proven that there was a significant relationship with self-medication behavior in the bivariate test. This research shows that all respondents use information media for independent consideration of drug use, regardless of type, whether social media, online, or in print. Information media is a messaging intermediary in the form of tools or props to facilitate communication (Mardiati et al., 2021).

It is known that 68% of respondents choose social media and online; this shows that digital information is a quick and easy solution to get information before deciding to take their own medicine. However, caution for breastfeeding mothers is still a consideration, and it is shown that 41% of respondents choose health workers as a source of information on their treatment. It is in line with previous research that found that breastfeeding mothers have concerns about the side effects of drugs (2.38%) and 11.91% worry that it will affect the smoothness of breast milk (Ummah et al., 2018).

## CONCLUSION

The prevalence of *self-medication* in breastfeeding mothers was 47%. The determinant factors that affect *self-medication* in breastfeeding mothers are history of disease ( $p = 0.014$ ), education ( $p = 0.024$ ), and drug prices ( $p = 0.006$ ). Further research is needed regarding the rationality of self-medication to determine the optimization and safety of drugs used by breastfeeding mothers.

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