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RESEARCH ARTICLE

Mother's knowledge and practices towards self-medication of fever among children under five years in Muncar Banyuwangi, Indonesia

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Abstract

Introduction: Self-medication is the use of medicines by individuals to treat mild symptoms or minor illnesses. It can overcome minor ailments and complaints, such as fever. Fever is a sign of disease often suffered by children under five years. Knowledge and self-medication practice of fever must be mastered well by the mother to handle this symptom correctly. **Aims:** This study aimed to explore mothers' knowledge and practices toward self-medication of fever among children under five years and the relationship between knowledge and practices. **Method:** This study was observational with a cross-sectional design. It involved 385 mothers from Muncar District Banyuwangi, Indonesia. It used a validated questionnaire to collect the data, including five categories, three for knowledge and two for practice. The relationship between knowledge and practice was analyzed by the Chi-square test. **Result:** The three categories of knowledge were good (83 respondents), sufficient (206 respondents), and insufficient (96 respondents), while the two categories of practice were good (213 respondents) and insufficient (172 respondents). The chi-square test yielded a p-value <0.001. **Conclusion:** This study revealed a significant relationship between knowledge and practice. Hence, the better the knowledge, the better the practice in fever self-medication.

Introduction

Self-medication is the use of medicines by individuals to overcome mild symptoms or minor illnesses, such as dizziness, flu, cough, pain, intestinal worms, diarrhoea, stomach ulcers, skin diseases, and others (Ministry of Health, 2007). Self-medication in Indonesia increased from 61.05% in 2014 to 71.46% in 2019 (Central Bureau of Statistics, 2020).

Fever, a symptom often treated with self-medication, is the condition when the body temperature is above >38°C. It is regulated by the hypothalamus in response to pyrogens. A high temperature leads to worse conditions. Fever above 41°C (hyperpyrexia) can cause various physiological and metabolic changes. Although it is a natural and general response of the body, fever itself is not the danger, but the underlying disease is (Adam, 2013). Fever often experienced by children makes parents uncomfortable with the situation and takes up

their time and energy, especially when it is accompanied by chills, constant fussing, and crying. Several methods are used to reduce fever, from taking a fever-reducing medicine immediately to hurriedly taking the child to the doctor. Unfortunately, giving antibiotics without a precise diagnosis of the disease is common (Arifianto & Hariadi, 2017).

Handling fever with self-medication in children relies on the role of parents, especially mothers. Mother is an integral part of household management needed to take care of the children skillfully. Knowledge is a significant key, believed to have a strong relation to the practice. Raising the knowledge in fever self-medication will prevent inappropriate behavior towards the children and minimize inadequate responses to fever itself (Arica, 2011). Mothers should master knowledge about fever so that they handle it adequately.

Muncar District is part of Banyuwangi Regency with the largest population compared to other districts. It counts 133.705 people, including 9.875 children under five years old (Banyuwangi Public Health Office, 2017). A survey conducted in this region may represent other areas around. This study aimed to explore mothers' knowledge and practices toward self-medication of fever among children under five years and the relationship between knowledge and practices.

Material and method

Materials

This study used a validated questionnaire based on several studies, divided into three parts: sociodemographic, knowledge, and practice. The knowledge and practice sections were tested for validity and reliability and considered eligible (0.612 and 0.621).

Methods

This non-experimental (observational) study with a cross-sectional design involved 385 respondents from Muncar District, Banyuwangi Regency, and used convenience sampling. The data were collected at Integrated Health Post/*Posyandu* in four community health centres/*Puskesmas*. This research has received approval from the Research Ethics Committee of the Faculty of Dentistry, University of Jember (No.392/UN25.8/KEPK/DL/2019). All respondents had given their consent before participating in this study.

Data analysis

The knowledge data were divided into three categories:

- 1) Good if the respondent's value $(x) > \text{mean} + 1 \text{ SD}$.
- 2) Sufficient if the respondent's value $\text{mean} - 1 \text{ SD} < x < \text{mean} + 1 \text{ SD}$.
- 3) Insufficient if the respondent's value $(x) < \text{mean} - 1 \text{ SD}$.

The practice data were categorized into Good and Insufficient, using a T score. The formula for finding a T score is $50 + 10 (Z \text{ score})$. The Z score is obtained from the formula, $Z = \text{Mean} / (\text{Standard deviation (SD)})$:

- 1) Good if the respondent's T value $> \text{mean T}$.
- 2) Insufficient if the respondent's T value $\leq \text{mean T}$.

The Chi-square test was used to determine the relationship between variables.

Results

Sociodemographics of respondents

This study involved 385 mothers who have children under five years old in Muncar District, Banyuwangi Regency. Most of them were 25-34 years old, a productive age range, and 80% were housewives with an income level below IDR 2 million. About half of them did not have an educational experience of fever self-medication in children (see Table I).

Table I. Sociodemography of respondents

Characteristic	Frequency, n=385	Percentage (%)
Age		
18-24 years old	70	18.2
25-34 years old	215	55.8
35-44 years old	100	26.0
Education		
Did not finished elementary school	26	6.8
Graduated from elementary school	64	16.6
Graduated from Junior High School	121	31.4
Graduated from Senior High School	130	33.8
Graduated from Vocational Program (Diploma)	9	2.3
Bachelor	35	9.1
Occupation		
Government employees	7	1.8
Private Employees	15	3.9
Entrepreneur	34	8.8
Retired/ Not working	9	2.3
Housewife	311	80.8
Others	9	2.3
Income		
Less than IDR 2,000,000.-	294	76.4
IDR 2,000,000.- or more	91	23.6
Educational/Counseling Experience		
Yes	183	47.5
No	202	52.5

Overview of fever self-medication

The majority of respondents (71.2%) did not have a thermometer, measured fever by putting their hands or palm against children's foreheads (70.9%), had given nonprescription fever medication (83.4%), principally paracetamol (89.5%), bought the medicine at a pharmacy (94.3%), preferred syrup as a dosage (87%), gave traditional medicine when their kid had a fever (73.5%), mainly turmeric (146; 45.1%) and shallots (129; 39.8%) (Table II).

Table II: The overview of fever self-medication

Characteristic	Frequency, n=385	Percentage (%)
Ownership of a thermometer		
Yes	111	28.8
No	274	71.2
Way of measuring fever		
Using thermometer	111	28.8
Placing a hand against forehead	274	71.2
Giving nonprescription fever medication		
Yes	321	83.4
No	64	16.6
Medicines (Respondents can choose >1 answer)		
Paracetamol	297	89.5
Ibuprofen	17	5.1
Aspirin	18	5.4
Form of Medicine (Respondents can choose >1 answer)		
Tablet	32	9.3
Powder (Puyer)	11	3.2
Syrup	300	87.0
Suppositories	1	0.3
Others	1	0.3
A place to buy medicine (Respondents can choose >1 answer)		
Pharmacy	312	94.3
Stall or Shop	5	1.5
Drug Store	14	4.2
Giving Traditional Medicine		
Yes	283	73.5
No	102	26.5
Traditional Medicines (Respondents can choose >1 answer)		
Turmeric	146	45.1
Curcuma	4	1.2
Shallot	129	39.8
Bitter Ginger (Lempuyang emprit)	2	0.6
Water of Green Coconut	37	11.4
Others	6	1.9

Respondents' knowledge and practice

Table III presents the level of knowledge and practice of mothers in fever self-medication. Most participants (80.5%) gave wrong answers about the definition of fever, 75.3% thought that antibiotics could be used as a self-medication for fever, 50.6% have never used a thermometer to measure fever, and 52.7% have never compressed a child's forehead using ice water and prefer to use warm water (Table IV).

Table III: Respondents' knowledge based on each item of the questions

Questions	Correct n (%)	Incorrect n (%)
Definition of fever, temperature >38°C	75 (19.5)	310 (80.5)
Fever can cause dehydration	255 (66.2)	130 (33.8)
The duration of self-medication should not be more than three days	374 (97.1)	11 (2.9)
Antibiotics can't be used for the treatment of fever	95 (24.7)	290 (75.3)
Paracetamol can be used as a treatment for fever	350 (90.9)	35 (9.1)
Like an antibiotic, fever drug should be consumed until it runs out	253 (65.7)	132 (34.3)
Light clothing could help to reduce fever	291 (75.6)	94 (24.4)

Table IV. Respondents' practice based on each item of the questions

Question	Always n (%)	Often n (%)	Sometimes n (%)	Never n (%)
I use a thermometer to measure the fever in children*	67 (17.4)	45 (11.7)	78 (20.3)	195 (50.6)
Before giving medicines to my children, I read the dosage of the medicines and how to use the medicines on the packaging*	299 (77.7)	45 (11.7)	24 (6.2)	17 (4.4)
When my children have a fever, I prefer to compress my child's forehead using ice water rather than warm water†	69 (17.9)	52 (13.5)	61 (15.8)	203 (52.7)
I cover my children with a blanket when they have a fever†	38 (9.9)	36 (9.4)	87 (22.6)	224 (58.2)
If the fever is not cured after 3 days, I take the children to a health worker*	330 (85.7)	48 (12.5)	5 (1.3)	2 (0.5)

* positive statement, scoring: always=4, often=3, sometimes=2, never=1

†negative statement, scoring: never=4, sometimes=3, Often=2, Always=1

The relationship between knowledge and practice

The knowledge results were good (83 respondents), sufficient (206 respondents), and insufficient (96 respondents), while the practice results were good (213 respondents) and insufficient (172 respondents).

Table V. The relationship between knowledge and practice

Knowledge	Practice		p-value		
	Good	Insufficient			
	n	%	n	%	
Good (n: 85)	62	74.7	21	25.3	<0.001*
Sufficient (n: 206)	125	60.7	81	39.3	
Insufficient (n: 94)	26	27.1	70	72.9	
Total (n: 385)	213	55.3	172	44.7	

*statistically significant relationship

Discussion

Most respondents were housewives from low-income households because the data were collected at the integrated health post (*Posyandu*), a community-based program to maintain maternal and child health in Indonesia, usually held monthly. Mothers of higher-income had low participation at *Posyandu*. Probably, they were working mothers, so they did not have time to attend *Posyandu* every month (Nazry *et al.*, 2016).

About 70% of mothers placed their hands on their children's foreheads to measure temperature because they did not have a thermometer. It was not wise to rely on touch to measure fever. A thermometer is more preferred to give an objective measurement (CL Teng *et al.*, 2008; Singh M *et al.*, 2003).

The use of nonprescription drugs was high. It was consistent with a national survey showing that 71.76% of the population used self-medication (Central Bureau of Statistics, 2020). Paracetamol was the highest over-the-counter drug used to relieve fever, in line with a study in Pakistan that had a similar result (Aqeel *et al.*, 2014). Aspirin is not recommended in children because of Reye Syndrome risks (Chapman & Arnold, 2020). However, it is still used by the community and was approved as an antipyretic and analgesic by the drug regulatory agency in Indonesia (Drug Regulatory Agency, 2014).

Since Indonesia is known for its rich herbal biodiversity, traditional medicines were used to cure fever. Turmeric (*Curcuma domestica*) contains several active compounds, such as curcumin, rich in flavonoids known to reduce fever (Chattopadhyay *et al.*, 2004). Our results revealed that shallots were also widely used to

treat fever. A previous study showed that shallots have an anti-inflammatory effect (Mohammadi-Motlagh *et al.*, 2011).

Respondents had insufficient knowledge about fever definition. Fever is considered when body temperature is above 38°C. However, it can differ based on the location of fever measurements: rectal >38 °C, in-ear >38 °C, mouth/oral > 37.5 C, and armpit >37.5 °C. For clinical and research purposes, fever is often defined as a condition when the body's temperature reaches 38 °C or higher (Barbi *et al.*, 2017). A wrong definition of fever could lead to fever phobia and unnecessary medicine use (Gunduz *et al.*, 2016).

Self-medication for fever does not require antibiotics. Antibiotics are given to treat bacterial infections, while fever is generally caused by viral infections. The use of antibiotics can result in increased antibiotic resistance. In Jordan, a study reported that 14% of parents used antibiotics to reduce fever in their children (Athamneh *et al.*, 2014).

Respondents with good knowledge tended to have good behavior, respondents with sufficient knowledge tended to have a good practice, and respondents with insufficient knowledge tended to have insufficient practice. These results indicated that the better the knowledge, the better the practice in fever self-medication. The Chi-square test yielded a p-value <0.001 showing a statistically significant relationship between knowledge and practice.

Conclusion

This study showed a significant relationship between knowledge and practice, indicating that the better the knowledge, the better the practice in fever self-medication. A follow-up intervention study is necessary to improve knowledge and practice of fever self-medication.

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