



*Research Article*

## **Behavioral factor analysis of accuracy in using diarrhea medicines at Arjuno Health Center, Malang City with the Health Belief Model (HBM) approach**

Laras Hadyaning Tias<sup>[1]</sup>, Liza Pristianty<sup>[2]</sup>, Ika Ratna Hidayati<sup>[1]\*</sup>

<sup>1</sup> Department of Pharmacy, Faculty of Health Sciences, University of Muhammadiyah Malang, Malang, East Java, Indonesia

<sup>2</sup> Faculty of Pharmacy, Airlangga Universit, Surabaya, East Java, Indonesia

\* Corresponding Author's Email: [i.ratna80@gmail.com](mailto:i.ratna80@gmail.com)

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### **ABSTRACT**

Diarrhea is a bowel movement that can occur in adults and children, with a frequency of three or more times a day, accompanied by stool to liquid changes, with mucus and blood. The Health Belief Model is a theory used to help identify factors that influence individual health behavior. This study aims to analyze patient behavior factors that influence the accuracy in using diarrhea medication at Arjuno Health Center Malang City, according to the HBM approach. This study used a cross-sectional method with the sampling technique used, namely a non-probability sample with an accidental method. This study uses an approach to the theory of the Health Belief Model (HBM). The research instrument used was a valid and reliable questionnaire. There are two variables used, namely the independent variable (the factors of the Health Belief Model theory) with five constructs, namely Perceived susceptibility, perceived severity, perceived barrier, perceived benefits, self-efficacy. Furthermore, the dependent variable with one indicator is the accuracy of using diarrhea medication. The number of samples used was 80 respondents. The T-test with a significance value for each HBM component is  $0.000 < p\text{-value}$  ( $\alpha = 0.05$ ), which means an influence between each HBM component and the accuracy of drug use in patients with diarrhea. F test with a significant value for all HBM components  $0.000 < p\text{-value}$  ( $\alpha = 0.05$ ), which means that there is an effect of all HBM components on drug use accuracy in patients with diarrhea.

## **1. INTRODUCTION**

Diarrhea is one of the infectious diseases with the highest number of causes of illness and death (Mafazah, 2013). Diarrhea ranks thirteenth with an incidence rate of 35% of the causes of death for all age groups and in third place with an incidence rate of 13.2% of death causes due to infectious diseases in all age groups (Handayani & Arsiani, 2015).

Risk due to diarrhea can be reduced with the right therapy like giving ORF (Oral Rehydration Fluid), especially for acute diarrhea sufferers. Patients without dehydration are provided with other therapies, such as adsorbents (attapulgit and pectin) and antiemetics (metoclopramide, domperidone, and ondansetron). In certain circumstances, like dysentery (bloody diarrhea) or diarrhea caused by cholera, oral diarrhea with a

disease, others can be given drug therapy antibiotics (ceftriaxone) (Siswidiyasari, Astuti & Yowani, 2016).

More attention must be paid to the accuracy in administering diarrhea drug therapy. Based on research conducted by Chalik, Ratna, and Karim (2013) regarding the identification of Drug-Related Problems (DRP's) in the treatment of diarrhea at the Makassar Regional Hospital, based on the therapeutic class with the inappropriate drug category it was 23.01%, the sub-therapy category was 73.07%, and the dose too high was 3.84%. Inaccurate use of diarrhea medication can also worsen the patient's condition. Improper use of diarrhea medication can also be influenced by several perceptual factors such as the patient's lack of desire to recover quickly and patient concerns regarding diarrhea drugs' effects. Patient distrust regarding diarrhea drugs can be measured using the Health Belief Model (HBM).

HBM is one theory used to help identify the factors that influence individual health behavior. The HBM can also be interpreted as a theory used to explain changes and maintenance of health-related behavior and as a form of individual health-related behavior (Muflihah, 2015). Six components can explain the accuracy factor in using diarrhea medication: (1) the perception of vulnerability referring to one's belief in using diarrhea drugs (Perceived Susceptibility); (2) perceptions of the impact of severity when using diarrhea drugs (Perceived Severity); (3) perceptions related to benefits or consequences obtained if the use of diarrhea drugs (Perceived Barrier); (4) beliefs about an individual's ability to use diarrhea drugs (Self Efficacy); (5) the presence of external; (6) internal factors from the use of diarrhea drugs that can trigger individuals to improve quality of life (Cues to Action). These individual beliefs are felt when using diarrhea medicine (Perceived Benefit). Other variables in the HBM method are demographic variables (age, education, knowledge, gender, occupation), Psychosocial (personality, social level, peer group), and structured variables (duration of illness, knowledge of disease). These variables can also be used to support patient behavior in the appropriateness of using diarrhea medication.

## 2. MATERIALS AND METHODS

This study used a cross-sectional method, namely the observational type method; the study participants' results and exposure were carried out on study participants simultaneously (Setia, 2016). The sampling technique used in this study is a non-probability sample with the accidental method. This study population was all diarrhea patients at Arjuno Public Health Center, Malang City, East Java. The samples obtained were 80 samples that met predetermined inclusion criteria. The inclusion criteria in this study are:

- Diarrhea patients at Arjuno Health Center, Malang City
- Patients who redeem diarrhea medicine at Arjuno Health Center with age  $\geq$  18 years old
- Patients who are willing to become respondents to the study.
- Patients with BPJS and Non-BPJS prescriptions
- Diarrhea sufferers who have complications

This research's location is in Arjuno Health Center, Malang City, when the research was carried out in August 2020 - September 2020.

This study's variables are the HBM theory factors, including perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy as independent variables, and the appropriateness of using diarrhea medication as the dependent variable.

The type of instrument used in this study was a questionnaire with a Likert scale model. Data collection in this study using a questionnaire by asking the respondent's consent (Informed consent) followed by filling out the questionnaire.

The validity test aims to ensure that the questionnaire used is good at measuring symptoms and producing valid data (Donsu, 2016). The reliability test in the study used Cronbach's Alpha method. This study was conducted at the Lawang Public Health Center, with 30 respondents in patients with diarrhea symptoms in the validity and reliability test.

### Data Analysis

After the data is processed, the data analysis is carried out. In this study, the data analysis was carried out,

namely scoring, by adding up the total respondents' answers, then from the scoring results, the formula was entered:

$$P = (f/n) \times 100\% \tag{1}$$

Information :

P = percentage value

F = total correct answers

n = maximum number of scores

After scoring, the analysis was continued using SPSS version 23 for normality test, bivariate analysis (T-test), and multivariate analysis (F test).

The normality test is carried out before the data is processed based on research. This study used the T-test to know the difference between each independent variable (HBM Component) and the dependent variable (accuracy). The F test in this study was used to determine the difference in all independent variables (HBM components) with the dependent variable (accuracy).

### 3. RESULTS AND DISCUSSIONS

#### Demographic Data

**Table 1** describes the characteristics of respondents based on gender. Data from shows that the prevalence of diarrhea in men is 8.9%, and in women is 9.1%. Based on the questionnaire results, it was found that female respondents had more diarrhea than men. In some instances, gender affects the occurrence of disease, but in diarrhea cases, gender does not affect diarrhea incidence. This study is sole because the total number of samples with women's sex is more than that of men. On the characteristics of respondents based on age, the largest number of respondents in the age range 31-40 years old was 38.75%; it can be said that age influences the accuracy of using diarrhea medicine, which can be caused because at that age they do more activities outside the home so that they are more easily exposed diarrhea-causing agents (Wibisono, 2019). Respondents with other jobs have a high percentage because the average respondent is in other jobs, namely labor. On the characteristics of respondents based on the type of work, it can be concluded that there is a relationship between the type of work and the accuracy of using diarrhea medicine. The reason could be due to the habit of eating, snacking, and drinking outside the home because they have to work so that the cleanliness of food and drinks consumed is not guaranteed clean and is busy at work, which causes the patient to forget or improperly use diarrhea medication (Prawati & Haqi, 2019).

In **Table 2**, it is said to be influential if a significance value is obtained <0.05. The test results for the effect of perceived susceptibility have a significance value of 0.000 <0.05, which means that there is a significant effect between perceived susceptibility on the accuracy of drug use. The higher the perceived susceptibility, the better the accuracy of drug use in patients with diarrhea. This research follows research from Rahayu (2014), which states that the perception of susceptibility to diarrhea has a significant effect on HBM states that individuals will evaluate the possibility of diarrhea. The more individuals perceive themselves to be vulnerable to diarrhea, the

**Table 1.** Characteristics of respondents based on gender, age, and type of work.

| Characteristics   | Number of Respondents | Percentage |
|-------------------|-----------------------|------------|
| <b>Gender</b>     |                       |            |
| Male              | 21                    | 26.25%     |
| Women             | 59                    | 73.75%     |
| <b>Age</b>        |                       |            |
| 31 - 40 years old | 31                    | 38.75%     |
| 41 - 50 years old | 22                    | 27.50%     |
| 51 - 60 years old | 15                    | 18.75%     |
| 61 - 70 years old | 11                    | 13.75%     |
| 71 - 80 years old | 1                     | 1.25%      |
| <b>Profession</b> |                       |            |
| Civil servants    | 3                     | 03.75%     |
| entrepreneur      | 13                    | 16.25%     |
| Employees         | 7                     | 08.75%     |
| Etc               | 57                    | 71.25%     |

**Table 2.** Test results of the effect of each HBM component

| HBM components        | Value of Significance | A value | Information |
|-----------------------|-----------------------|---------|-------------|
| <i>Susceptibility</i> | 0.000                 | 0.05    | Take effect |
| <i>Severity</i>       | 0.000                 | 0.05    | Take effect |
| <i>Barriers</i>       | 0.000                 | 0.05    | Take effect |
| <i>Benefits</i>       | 0.000                 | 0.05    | Take effect |
| <i>Self-Efficacy</i>  | 0.000                 | 0.05    | Take effect |

more they perceive themselves as a threat and take preventive measures. The test results for perceived severity have a significance value of  $0.000 < 0.05$ , which means that there is a significant effect between perceived severity on the accuracy of drug use. The higher the perceived severity, the better the accuracy of drug use in patients with diarrhea. This study is different from the research conducted by [Rahayu \(2014\)](#), which states that there is no influence between patients' seriousness and accuracy with diarrhea. A person's perception of the seriousness of a disease or health problem depends on an individual's assessment of how serious the diarrhea is being experienced, the more the individual feels that the disease is severe, the more it will be perceived as a threat and take preventive measures. The perceived barrier effect test has a significance value of  $0.000 < 0.05$ , which means that there is a significant effect between the perceived barrier to drug use accuracy. In this study, the perception of barriers positively affected the accuracy of using diarrhea medication, which should have been higher, the lower the accuracy. This result can be because when patients take diarrhea medication, side effects often arise such as constipation, obstruction of the patient from carrying out daily activities due to diarrhea, and the distance between the health center and the house is too far away so that it takes a long time to get treatment.

This research corresponds with research by [Rahayu \(2014\)](#), where individuals perceive that there are obstacles in using diarrhea drugs, such as their discomfort and the dangers that will arise when using diarrhea drugs. The test results for perceived benefits have a significance value of  $0.000 < 0.05$ , which means that there is a significant effect between perceived benefits on drug use accuracy. This study is not the same as [Rahayu \(2014\)](#) research, which states that there is no effect between benefits and the appropriateness of using diarrhea medications. If the individual believes that diarrhea medication is beneficial for him, then the individual will do it. The self-efficacy affect test results have a significance value of  $0.000 < 0.05$ , which means a significant influence between self-efficacy on drug use accuracy. This research follows research by [Rahayu \(2014\)](#), which states that diarrhea confidence has a significant effect. In this case, the patient believes that he can make efforts to cure and prevent disease. Patients can be precise about using diarrhea drugs because patients believe that if they are used promptly, they can control excessive diarrhea and patients believe that with a healthy lifestyle, diarrhea can be controlled. Some of the questionnaire's indicators are that sufferers generate self-confidence to recover from illness and motivate themselves to achieve a better quality of life. Belief in one's ability to influence changes in outcomes (i.e., self-efficacy) is a critical component of change in health behavior.

Based on [Table 3](#), it is known that the extensive test results of the effect of perceived susceptibility on the accuracy of drug use in diarrhea patients obtained an  $R^2$  value of 0.327. This result indicates that the effect of perceived susceptibility on drug use accuracy in patients with diarrhea is 32.7%. The  $R^2$  value of perceived severity for the accuracy of drug use in patients with diarrhea was 0.330. This value indicates that the effect of perceived severity on the accuracy of drug use in patients with diarrhea is 33.0%. The  $R^2$  value of perceived barriers for the accuracy of drug use in patients with diarrhea was 0.320. This number indicates that the effect of perceived barriers on drug use accuracy in patients with diarrhea is 32.0%. Perceived benefits for the accuracy of drug use in patients with diarrhea, the  $R^2$  value was 0.313. This  $R^2$  value indicates that the effect of perceived benefits on drug use accuracy in patients with diarrhea is 31.3%. Self-efficacy for the accuracy of drug use in patients with diarrhea, the  $R^2$  value was 0.296. This number indicates that the effect of self-efficacy on drug use accuracy in patients with diarrhea is 29.6%.

Based on the research results, the overall HBM factor obtained a significance value of  $0.000 < 0.05$ . It can be seen in [Table 4](#) that the HBM factors are perceived susceptibility, perceived severity, perceived barriers, perceived benefits, and self-efficacy. The overall effect on the accuracy of drug use in patients with diarrhea. This research is in line with the research ([Nugraha & Nurhayati, 2015](#)), who discussed the relationship between HBM and Compliance behavior in chronic renal failure patients at Al Ihsan Hospital, which stated that there was a significant relationship between the HBM and compliance behavior in chronic kidney failure patients. This

**Table 3.** Results of the coefficient of determination on each component of the HBM

| HBM components | R     | R <sup>2</sup> | Adj.R <sup>2</sup> |
|----------------|-------|----------------|--------------------|
| Susceptibility | 0.571 | 0.327          | 0.318              |
| Severity       | 0.574 | 0.330          | 0.321              |
| Barriers       | 0.566 | 0.320          | 0.311              |
| Benefits       | 0.560 | 0.313          | 0.305              |
| Self-Efficacy  | 0.544 | 0.296          | 0.287              |

**Table 4.** Test results of the overall influence of the health HBM

| Model      | Value of Significance | A value | Information |
|------------|-----------------------|---------|-------------|
| Regression | 0.000                 | 0.05    | Take effect |

result illustrates that the more patients believe in the disease in the study's context, the more they will encourage patients to show respectful behavior towards the doctor's recommendations. This study is not in line with the research by [Setiawan, Iskandar, and Basari \(2019\)](#), which discusses the description of family behavior in self-medication through the theory of HBM (HBM), which states that there is no effect of perceptions of the seriousness of profit perceptions, and perceptions of action trigger on self-medicated behavior.

#### 4. CONCLUSIONS

Each of the HBM factors has a significant effect on accuracy, namely vulnerability with an effect value of 32.7%, the seriousness with an effect value of 33.0%, obstacles with an effect value of 32.0%, benefits with an effect value of 31, 3%, and confident with an effect value of influence 29.6%. The HBM factor jointly affects the accuracy of diarrhea medicine with a significant value of 0.000 <0.05. The change in accuracy is influenced by the HBM factor (vulnerability, seriousness, benefit, inhibition, self-confidence), while other factors that explain the rest are not researched.

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