

## **Self-Medication in the Pandemic Era: Factors to Consider Based on the Theory of Health Belief Model**

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### **ABSTRAK**

One of the factors leading people to seek treatment during the Covid-19 outbreak is a lack of access to healthcare services. Based on the Health Belief Model Theory, the purpose of this study is to investigate community self-medication and its determinants. An observational study was conducted in Bali Province, Indonesia. The study included adults who bought the medicine at a pharmacy without a prescription. Validated questionnaires were distributed in a drugstore in Gianyar Regency from January to February 2022. The variables were 4 (four) factors of health belief, demographics, socioeconomic position, and COVID-19 history. The analysis was descriptive, with 400 respondents out of 420 recruited (95.2% response rate). The affecting factors were identified as health confidence, cost reduction, and health condition prevention. There were 69.3% (n=277) of Covid-19 suspects with symptoms of fever, cough, runny nose, and headache. Indicators of socioeconomic status were also discovered. In terms of perceived susceptibilities, 54.0% (n=216) respondents reported mild symptoms; 260 (65.0%) respondents reported distance to the pharmacy as a perceived benefit; drug dose was also reported as a perceived barrier (n=229;57.25%), and 365 (91.3%) respondents reported perceived severities to prevent worsening of health conditions. The community's self-medication is still a concern. Behavior modification necessitates tactics that rely on health beliefs and target persons of lower socioeconomic levels. We believe that pharmacists should provide drug information to customers for self-medication to be effective.

**Kata kunci:** Community, health belief, self-medication, pandemic

### **Introduction**

The World Health Organisation (WHO) defined self-medication as the selection and use of medications, including herbal and traditional medicines, among people to cure diseases or symptoms of the disease. The global surge in self-medication has been driven by economic, political, and cultural forces, and it has become a major public health issue. The global improvement of self-medication has been driven by economic, political, and cultural forces, and practice is a serious global concern, particularly during the COVID-19 pandemic (Malik M *et al.*, 2020).

Self-medication can be used effectively to prevent and treat symptoms and diseases that do not necessitate continuous medical care (Oleszkiewicz P *et al.*, 2021). As a result, the load on medical services will be decreased, particularly in low-income nations with inadequate healthcare resources. However, because many people do not have a clear picture of their situation, they self-medicate, either purposefully or unwittingly (Jember E *et al.*, 2019). This can have catastrophic effects, particularly in vulnerable populations (children and the elderly) in physiological conditions such as pregnancy and lactation (Mohseni M *et al.*, 2018) (Chowdhury S *et al.*, 2017). Antibiotic self-medication leads to resistance (Amann S *et al.*, 2019), increased drug doses, prolonged therapy

duration, drug interactions, and unpleasant side effects, all of which can lead to major consequences and even death (Ghasemyani S *et al.*, 2022).

Self-medication is practiced in a variety of demographics, including students (Behzadifar M *et al.*, 2020), housewives, children, and the elderly, for a variety of ailments such as pain, fever, and antibiotic therapy (Widowati IGAR *et al.*, 2021). According to data from the Indonesian Central Bureau of Statistics (2019), there has been an increase in self-medication among Indonesians, with 69.43% in 2017, 70.74% in 2018, and 71.46% in 2019.

In health education, several methods are used to assess individual health behaviors. The Health Belief Model (HBM) is a reliable model for determining the association between health behaviors and beliefs, and it is one of the most essential models for designing prevention programs. For decades, HBM has been used to examine immunization, medication adherence, diabetes care, condom use, and other behaviors that necessitate changing patient behavior to lower health risks (Carpenter CJ, 2010). The HBM, like many other models of public health behavior, investigates behavior at the individual and societal levels by conceptualizing behavioral determinants into a variety of supporting components known as constructs (Glanz K *et al.*, 2008). Although the four

HBM constructs have been demonstrated to be related to behavior, the overall results have been inconsistent and have not provided solid evidence over the last ten years; hence, more longitudinal research is required to confirm the validity of the HBM variable (Sulat JS et al., 2018).

Research on the description of self-medication knowledge and behavior in the community during the COVID-19 pandemic has been conducted in various countries. In Indonesia, especially the city of Gianyar one of the world's tourist destinations, it is necessary to consider researching the knowledge and behavior of self-medication in the community, so that this can be used as a guide in taking preventive action or reducing the occurrence of health risks due to inappropriate self-medication behavior.

### Method

From January to February 2022, this study was conducted in Gianyar Regency, Bali Province. A cross-sectional study was carried out to evaluate respondents' self-medication efforts. This study's

sample included of participants who met the inclusion criteria and purchased medications from a pharmacy without a prescription utilising consecutive sampling.

The Health Belief Model Theory was applied to develop a survey instrument. The questionnaire was constructed by the research team, and both its reliability and validity were assessed on 30 patients selected from the study population. The validity test was performed using the product moment Pearson correlation, and the questionnaire was considered valid if  $r$  table (0.361)  $r$  count ( $r$  perceived susceptibilities = 0.862;  $r$  perceived benefits = 0.521;  $r$  perceived obstacles = 0.605;  $r$  perceived severities = 0.555). The reliability test results showed that the Cronbach's Alpha value was more than 0.6, indicating that the questionnaire was reliable and consistent.

The International Bali University Ethics Commission reviewed and approved the research protocol, and an ethical clearance letter number 02.0222/UNBI/EC/III/2022 was granted.

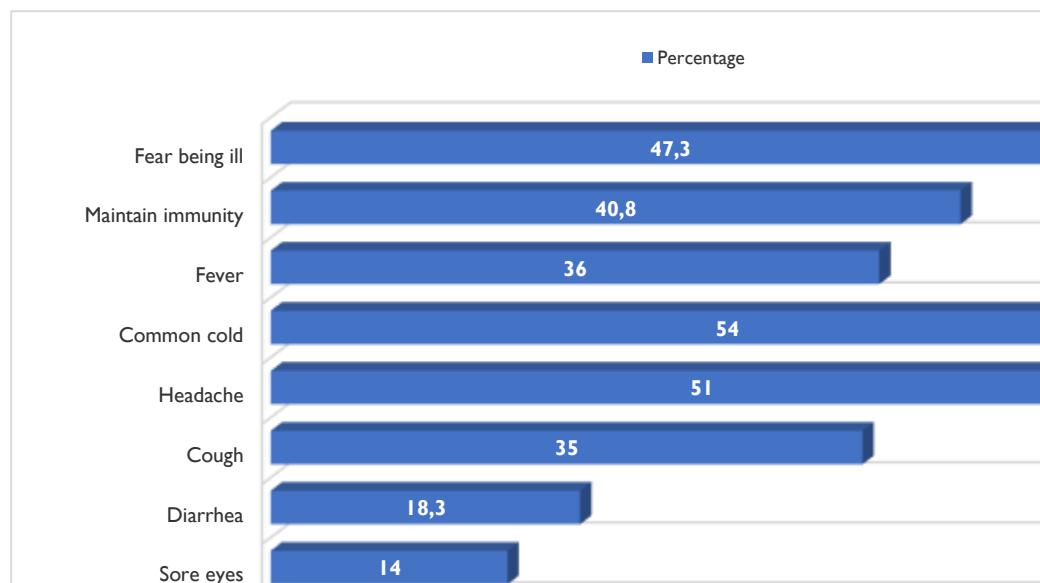
**Table 1.** Respondents' Characteristics (n=400)

Characteristics	n	%
Age groups (years)		
17-30	313	78.3
31-40	56	14.0
41-50	8	2.0
51-60	11	2.7
>60	12	3.0
Gender		
Male	274	68.5
Female	126	31.5
Education		
Primary	23	5.7
Middle	41	10.3
Diploma	67	16.8
High	269	67.2
Occupation		
Not working	18	4.5
Housewives	28	7.0
Farmer/Trade/Labor	16	4.0
Business	104	26.0
Employee	206	51.5
Government staff	20	5.0
Retired	8	2.0
Income (IDR)		
< 1.000.000,00	23	5.8
1.000.000,00-2.500.000,00	56	14.0
> 2.500.000,00	321	80.2

### Results and Discussion

Table 1 shows the characteristics of 400 respondents out of 420 recruited (response rate 95.2%). Most respondents in this study were male (n=274; 68.5%), had a higher education level (n=269; 67.3%), worked as a private employee (n=206; 51.5%), and had an income of more than Rp. 2,500,000.00 (n=321;80.3%). Respondents

described perceived susceptibility, perceived benefits, perceived barriers, and perceived severity/seriousness from the four dimensions of the Health Belief Model Concept. The presentation is explained in descriptive terms, and the proportion data is presented as a percentage, describing the respondent's self-medication behavior.

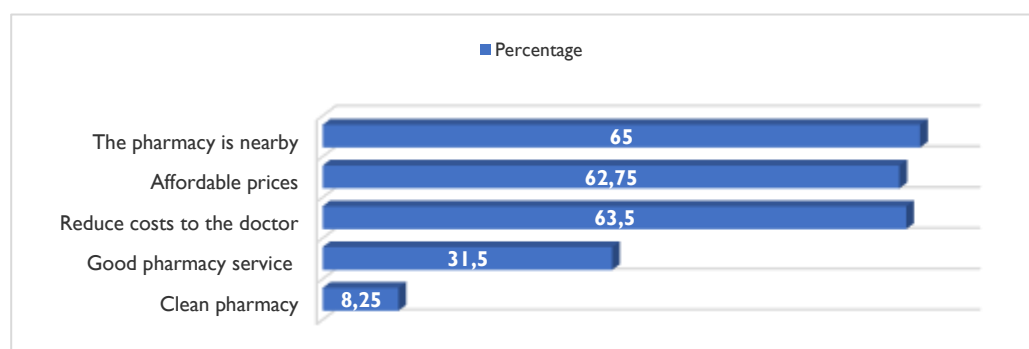


**Figure 1.** Perceived susceptibilities (n=400)

#### Perceived Susceptibilities

Individual risks that respondents experience for self-medication efforts are reflected in perceived susceptibilities. The results are shown in Figure 1. It was revealed that more than half of the respondents used self-medication to treat minor ailments, such as colds (n=216; 54%) and headaches (n=203; 51%). In terms of psychological vulnerability, respondents' preventative efforts were for fear of being ill (n=189; 47.3%) and to maintain the body's immunity (n=163; 40.8%). The findings of this study support earlier studies indicating that headaches and fever are the most common symptoms of self-medication (Mudenda S *et al.*, 2020). The most common medication categories used in self-medication are analgesics, antipyretics, and antibiotics. This is consistent with prior research in the city of Denpasar on high analgesic self-medication, with considerable awareness (Lydia

NP *et al.*, 2020). Similarly, a literature analysis showed that the prevalence of self-medication with antibiotics was concerning (Widowati IGAR *et al.*, 2021), both before and during the COVID-19 pandemic, necessitating rapid action to limit the growing threat of antibiotic resistance (Ayosanmi OS *et al.*, 2022). It was stated that respondents self-medicate for supplies (n=42; 10.50%), and respondents who obtained advice from family/friends (n=7; 1.80%). Given that most respondents are highly educated, this demonstrates that respondents are more concerned with preserving their health than purchasing drugs for home supplies, and that information can be used independently or based on previous treatment. This confirms previous research, which showed that prior experience was the most often reported reason for performing self-medication (Araia ZZ *et al.*, 2019).



**Figure 2.** Perceived benefits (n=400)

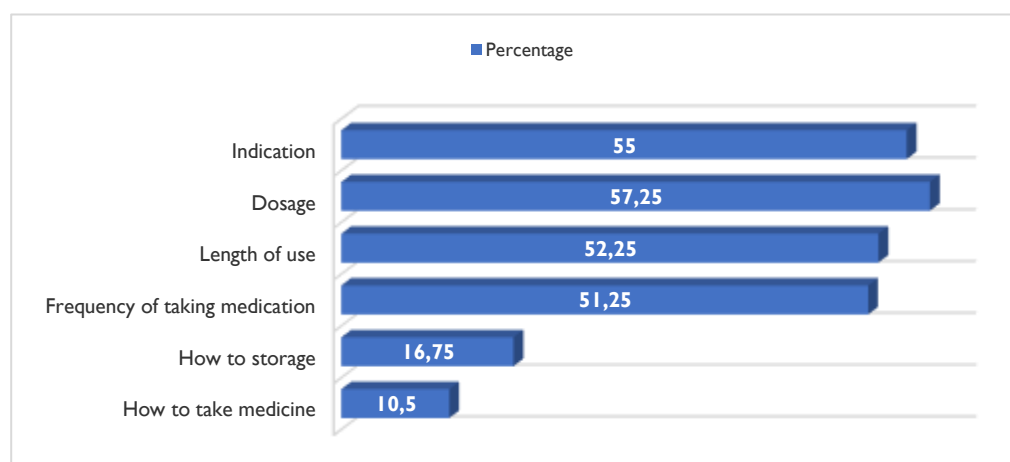
#### Perceived Benefits

Perceived benefits is an indication of the advantages observed by participants in practicing

self-medication acts. Figure 2 shows the results. Most respondents thought the benefits of self-medication were due to nearby to the pharmacy

(n=260; 65%), a lack of having to visit the doctor (n=254; 63.50%), affordable drug prices (n=251; 62.75%), service above expectations or excellent service (n=126; 31.50%), and a clean pharmacy environment (n=33; 8.25%). Self-medication has become an important field of healthcare, but the provision of self-medication services is a major global concern generally, particularly during the COVID-19 pandemic. Similar findings have been observed, indicating that self-medication can

improve health care by lowering the cost of prescribed medications (Malik M *et al.*, 2020). Inappropriate self-medication, on the other hand, can result in an incorrect diagnosis, significant side effects, drug interactions, drug habit, and germ resistance. As a result, there is an urgent need to control and supervise acceptable self-medication practices through the implementation of strict legislation and the involvement of health professionals and policymakers (Malik M *et al.*, 2020).

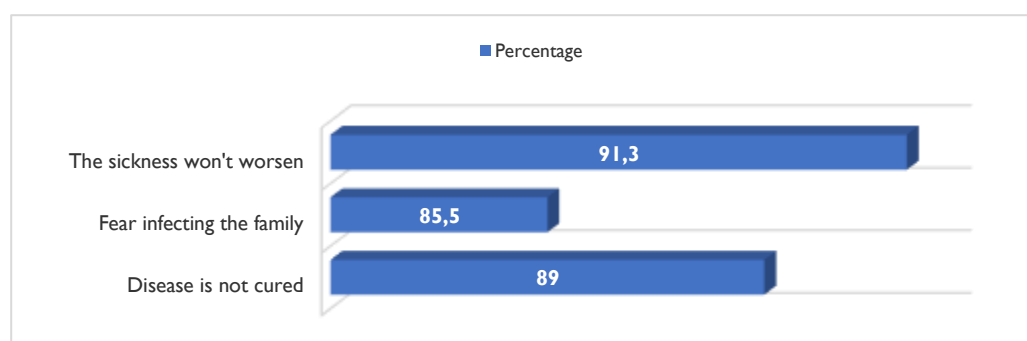


**Figure 3.** Perceived barriers (n=400)

#### **Perceived Barriers**

Perceived barriers are challenging that people perceive to overcome or experience when self-medicating. The results are shown in Figure 3. Drug indications (n=220; 55%), drug dose (n=229; 57.25%), duration of drug use (n=209; 52.25%), frequency of taking medication (n=205; 51.25%), drug storage (n=67; 16.75%), and how to drink/consume medicine (n=42; 10.50%) were

identified as obstacles to self-medication. As the general population consumes an increasing number of painkillers, there is still doubt that the usage of painkillers will benefit their condition. As a result, it is critical to instruct pharmacists in primary care pain management and pharmacist-led medicine, as well as to provide adequate training to pharmacy workers (Perrot S *et al.*, 2019) (Maharianingsih NM *et al.*, 2022).



**Figure 4.** Perceived severities (n=400)

#### **Perceived Severities/Seriousness**

Perceived severity/seriousness refers to how serious respondents perceive a disease to be, including an assessment of clinical and medical repercussions that contribute to self-medication efforts. The results are shown in Figure 4. Most respondents reported self-medication efforts

because they did not want their sickness to worsen (n=365; 91.3%), were frightened of spreading the disease to family members (n=342; 85.5%), and were afraid of the disease they were experiencing, remained unchanged (n=389; 89%). This demonstrates that respondents are self-aware of the clinical repercussions of sickness, so they weigh

their perceived seriousness and subsequently self-medicate to prevent disease (Setiadi AP et al., 2020). A multicenter study in Peru also found that the recommendation for self-medication during COVID-19 quarantine should be given more attention because it may have the potential to worsen symptoms if not observed (Quispe-Cañari JF et al., 2021).

### Conclusion

The community's self-medication is still an issue of concern. Pharmacists and other health professionals are needed to contribute to community education for various target groups, as well as impart information via social media or to promote responsible self-medication. More research is required to validate the findings in a larger cohort of members of the general public.

### Acknowledgment

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