

Determinants of Consumers' Willingness to Purchase Generic Medicines

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Abstract: In Malaysia healthcare costs have posed challenges to the sustainability of the country's dual healthcare system, it is crucial to learn about the factors influencing consumer preferences for generic medicines. The public healthcare system predominantly uses generic drugs, private healthcare providers often prescribe originator brands to their patients. This practice places financial burdens on patients who must fund their medication independently or through private medical insurance. Therefore, the main objective of this paper is to investigate the determinants affecting consumers' willingness to purchase generic medicine in Malaysia. Using convenience sampling, a total of 436 responses was obtained. Descriptive statistics and bivariate logistic regression analysis were employed to examine the influence of sociodemographic factors and individual knowledge on the willingness to purchase generic medicine. The results indicate that age, ethnicity, marital status, education level, household size and income significantly influence the consumers' willingness to purchase generic medicine. Notably, higher education levels and greater income were associated with a higher willingness to opt for generic medicine. Unexpectedly, variables measured by the Theory of Planned Behavior did not contribute substantially to the findings of this study. Nonetheless, individual knowledge was revealed as a significant determinant. To increase the uptake of generic medicines, this study recommends educational programs for both healthcare providers and patients, emphasizing the benefits and safety of generic medicine. This research contributes to the broader discussion on cost-effective healthcare solutions and informs policymakers and healthcare stakeholders in Malaysia.

Keywords: *Generic Medicine, Purchase Intention, Knowledge, Attitude, Subjective Norm, Perceived Behavioral Control*

1. Introduction and Background

Generic medicine has been one of the alternative medicines available for patients along with the originator's brand. In developing countries such as Malaysia, the cost of medicine has become a hindrance to the efficient reform of the heavily subsidized healthcare system. The high cost of medicine has put pressure on the dual healthcare system such as ours to sustain in the long run. Although the use of generic medicine is wider in the public healthcare system, most private healthcare providers tend to prescribe the originator's brand to their patients. While the consumers in private health care could pay with either their own out-of-pocket money or private medical insurance, in the long term, such a practice will burden those seeking to fund the cost of medicine individually. Consequently, this may force them to seek healthcare services in public healthcare settings thus increasing the number of visits to public healthcare facilities that are already in a dire state. This study seeks an understanding of determining factors influencing willingness to purchase generic medicine among consumers. By so doing, we are able to justify the private healthcare setting to start prescribing more generic medicine to their patient thus saving the consumer's pocket money to fund their medicine needs.

2. Literature Review

Willingness to purchase is a consumer readiness to consider entering purchase activity. Various individual sociodemographic factors were said to affect purchasing behavior. In a study that examines purchasing decisions towards green products, it was found that respondents' age, education, the number of children under responsibility and personal income status affect the purchase decision (Witek & Kuźniar, 2021). Age and gender are also considered common factors influencing purchase intention. In the frozen food

purchasing decision study, additional elements such as attitude, belief and values were found to affect individual decision-making in purchase activity (Sen et al., 2021). This finding is well supported by behavioral-related studies in various literatures (Bosnjak et al., 2020; Dzulklipli et al., 2019; Dzulklipli et al., 2017). In addition to the behavioral elements, individual knowledge status and awareness of issues and trends play significant roles in determining individual purchase decisions (Dangi et al., 2020). Reading the information about the products and labels also contributes to the purchase intention of the consumer, reflecting the level of awareness of the products influences purchase decisions (Coderoni & Perito, 2020). This shows how the individual's knowledge and awareness of the products and services are important elements that must be equipped to the consumer to prepare them to engage in the purchasing activity. In another study involving potential 'green housing' home buyers, it was found that there was no correlation between sociodemographic factors and the purchase intention, but an individual's behavior was statistically significant to the purchase intention as measured by a specific index (Rosner et al., 2022). The finding provides evidence of how the knowledge acquired by the individual shapes the behavioral attitude and purchasing decision.

Furthermore, the application of the Theory of Planned Behavior (TPB) is tested in the study. The theory of Planned Behavior (TPB) consists of three dimensions that are commonly cited by researchers. The three dimensions or variables in the said theory are attitude, subjective norms, and perceived behavioral control (Ajzen, 1985, 1991; Ajzen & Driver, 1992). Attitude is shaped and developed through an individual's personal experience from one or series of events in their life (Ajzen, 1991; Montano & Kasprzyk, 2008). The experience can be either positive or negative experiences which shape how the individuals decide their lives (Dzulklipli et al., 2019; Jinnah et al., 2020). For subjective norms, it is a projection of an individual's influence surrounding their relationship with family and friends (Ajzen, 1991; Bosnjak et al., 2020). For example, parents' way of raising their children may influence their children's perceived views of certain issues. Every family would have different ways of teaching their children. This is translated as a long-term relationship influenced by closest family and friends. Finally, perceived behavioral control explains individual self-measurement of their ability to perform the behavior. One way to explain the variable is our self-evaluation as to whether we have the means to commit the behavior. For example, when we are willing to purchase goods or services, the individual needs to possess the required amount of income/ money to enable us to purchase the goods or services (Ajzen, 2020; Montano & Kasprzyk, 2008).

The individual's knowledge may impact the purchase of generic medicine. Knowledge about the goods and services can be obtained via freely available information from many sources such as the Internet or consultation and recommendations from the medical practitioner. Sustainable knowledge acquisition about goods and services plays an important role in determining an individual's behavioral intention (Kong et al., 2016). In a study about consumer behavioral intention to stay in green hotels, it was evident that positive knowledge possession influences behavioral intention and willingness to engage in the purchase activity (Teng et al., 2018). A similar result has been discussed in other literature which ratifies the indirect effects of knowledge on behavioral intention (An et al., 2023).

3. Methodology

A total of 436 (87%) out of 500 potential survey respondents were obtained. Data collection took place at the retail pharmacy located in Klang Valley. Convenience sampling was used, and questionnaire forms were developed to elicit the responses from the respondents. Upon agreement to participate, the site investigator distributed the questionnaire forms to the respondents to answer on their own. For data analysis, descriptive statistics were performed on the respondent's profiles. To determine the factors affecting willingness to purchase generic medicine, a bivariate logistic regression analysis was performed. The logistic regression model included sociodemographic variables of the respondents, knowledge, attitude, subjective norms, and perceived behavioral control. These variables were regressed together with purchase intention, as an outcome variable, to produce the logistic regression estimates. All reported *p*-values were 2-tailed, and the significance level was set at $P < .05$. Stata Statistical Software: Release 14.2 (StataCorp LP, College Station, TX) was used to analyze the data.

4. Results

Demographic profiles of the respondents: Table 1 depicts the profile of respondents in the study. Most respondents in the study were 29 years old or younger (70%). Female respondents (64%) dominated the total number of the total participants with the majority of the respondents being Malay and single (74% and 70% respectively). The majority of the respondents reported having at least an undergraduate degree as their highest education certificate (39%) and reported their household sizes between 1 – 2 people (45%). None of the respondents reported having no education with at least 16% of the respondents reporting having at least a certificate as their educational background. In addition, most of the respondents reported monthly income in the range of below MYR2,500 per month (62%).

Table 1: Demographic profiles of the respondents (N=436)

Characteristics	
Age, n (%)	
≤ 29 years old	306 (70)
30 – 40 years old	74 (17)
41 – 50 years old	50 (11.5)
≥ 51 years old	6 (1.4)
Gender, n (%)	
Female	276 (64)
Male	160 (37)
Ethnicity	
Chinese	54 (12.4)
Indian	60 (13.8)
Malay	322 (73.8)
Marital status, n (%)	
Single	306 (70.2)
Married	130 (29.8)
Education, n (%)	
Certificate	70 (16.1)
Diploma	158 (36)
Undergraduate	170 (39)
Postgraduate	38 (8)
Household Size, n (%)	
1 - 2 people	198 (45)
3 - 4 people	146 (34)
≥ 5 people	92 (21)
Monthly Income, n (%)	
≤ MYR2,500	272 (62)
MYR2,501 – MYR3,500	96 (22)
MYR3,501 – MYR4,500	42 (10)
MYR4,501 – MYR5,500	16 (4)
≥ MYR5,501	10 (2)

Factors Affecting Willingness to Purchase Generic Medicine: Table 2 shows the result of logistic regression analysis which examines the influence of sociodemographic variables of the respondents on the willingness to purchase generic medicine. The model included respondents' demographic characteristics, knowledge of generic medicine as well as variables that were measured by TPB (attitude, subjective norms & perceived behavioral control). The result of the Hosmer-Lemeshow test indicates the model has an appropriate fit ($\chi^2 = 11.02$ $p = 0.2005$) (Archer & Lemeshow, 2006; Fagerland & Hosmer, 2012), with a reported r-square of 0.20.

Table 2: Factors Affecting Willingness to Purchase Generic Medicine

Factors	Odds Ratio	Standard error	z	p-value
Age				
≤ 29 years old	Ref.	-	-	-
30 – 40 years old	5.667	2.372	4.14	<0.001*
41 – 50 years old	15.515	9.087	4.68	<0.001*
≥ 51 years old	21.610	22.485	2.95	0.003*
Gender				
Female	Ref.	-	-	-
Male	1.527	0.420	1.54	0.123
Ethnicity				
Chinese	Ref.	-	-	-
Indian	0.061	0.034	-4.91	<0.001*
Malay	0.493	0.228	-1.53	0.127
Marital status				
Single	Ref.	-	-	-
Married	0.490	0.165	-2.12	0.034*
Education				
Certificate	Ref.	-	-	-
Diploma	2.867	1.112	2.72	0.007*
Undergraduate	2.886	1.118	2.74	0.006*
Postgraduate	3.759	2.221	2.24	0.025*
Household Size				
1 – 2 people	Ref.	-	-	-
3 – 4 people	1.071	0.335	0.22	0.825
≥ 5	2.156	0.753	2.20	0.028*
Income				
≤ MYR2,500	Ref.	-	-	-
MYR2,501 – MYR3,500	0.477	0.148	-2.38	0.017*
MYR3,501 – MYR4,500	0.201	0.085	-3.78	<0.001*
MYR4,501 – MYR5,500	0.740	0.579	-0.38	0.701
≥ MYR5,501	0.113	0.138	1.79	0.070
Knowledge	2.781	0.848	3.35	0.001*
Attitude	1.406	0.411	1.16	0.244
Subjective Norm	1.068	0.510	0.28	0.783
Perceived Behavioral Control	1.683	0.002	1.72	0.086

* Significant at $p < 0.05$, $R^2 = 0.2031$

The result in Table 2 shows that age, ethnicity, marital status, education level, household size, income, and individual knowledge affect respondents' willingness to purchase generic medicine. As for age, a stepwise increase in the odds ratios was observed among age groups. The older the age category, the more likely the respondents were willing to purchase generic medicine. The willingness of respondents in the oldest age group to purchase generic medicine was 21 times higher than the willingness of respondents in the youngest age category (OR 21.61, $p = 0.003$). On the contrary, Indian respondents were less willing to purchase generic medicine when compared to Chinese respondents (OR 0.061, $p < 0.001$). The finding was similar when marital status was compared. Married respondents had lower odds of purchasing generic medicine when compared to unmarried respondents (OR 0.490, $p = 0.034$). All levels of education showed statistically significant findings, and the odds ratios increased in tandem with the increase in educational level. Those with postgraduate degrees were 3 times more willing to purchase generic medicine than those with the lowest education level (OR 3.759, $p = 0.025$). Although income groups of MYR2,501 – MYR3,500 and MYR3,501 – MYR4,500 were significantly correlated to the willingness to purchase, odds ratios suggest the respondents were less willing to purchase generic medicines when compared with those respondents in the lowest income brackets (\leq RM2,500). None of the TPB variables was found to contribute to the respondents' willingness to purchase generic medicine. However, knowledge was found to significantly influence an individual's willingness to purchase generic medicine (OR 2.781, $p = 0.001$). This finding suggests that those

respondents with knowledge of generic medicine were 2 times more willing to purchase generic medicine than those without such knowledge.

Discussion: The findings of the study highlighted essential characteristics of the respondents that influence the willingness to purchase generic medicine. Factors such as age, respondent's ethnicity, education, household size and monthly income influence participant's willingness to purchase generic medicine. This is consistent with the current body of literature documenting similar evidence (Sen et al., 2021; Witek & Kuźniar, 2021). The influence of knowledge on the willingness to purchase reported in this study is also similar to the findings of previous studies that found a positive correlation with behavioral intention (Coderoni & Perito, 2020; Dangi et al., 2020; Rosner et al., 2022). However, none of the TPB variables was found to correlate with the willingness to purchase generic medicine as evidenced in a few literature reviews (Dzulkipli et al., 2017; Malathi & Mohamed Jasim, 2023; Siuki et al., 2019). This is in contrast with a few behavior-related studies conducted in the past. The differences might be attributed to the distinct personal health status of the consumer and the nature of the disease and health care needs.

5. Conclusion

More education and awareness programs should be organized to increase the population's awareness of generic medicine selection as the first choice among users of healthcare services. The healthcare stakeholders such as doctors who prescribe the medicine, and the patients who receive the medicine prescribed by the medical professionals, should be provided with sufficient training and incentives to prescribe generic medicine to their patients and educate the patients of the generic medicine regarding the consumption impact to their lives from bioequivalence safety to the cost differences they must bear between the generic and original brand medicines. It is hopeful, that by opting for a generic medicine to fulfill the population's health needs, we can further reduce the public's coffer spending on the cost of medicine in Malaysia's healthcare system. The study, however, lacks representative sampling from the population. Convenience sampling employed might have skewed the data to the younger generation leaving the older generation with a small representation. Future studies shall employ random sampling to allow for fairer and more representative sampling from the targeted population as well as to minimize the effects of sampling and selection bias.

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