Analysis of Factors Influencing Unbranded Generic Drugs Purchase Decisions at Semarang City

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Abstract:

The rapid development of the pharmaceutical industry presents challenges for companies. Therefore, it is necessary to analyze factors that can influence customer purchasing decisions that are crucial to enabling the establishment of businesses, promoting sales, and leading to profit enhancement. This research aims to investigate the impact of product knowledge, price perception, product quality perception, reference groups, and trust on the purchasing decisions of unbranded generic drugs in the city of Semarang. The data analysis method is Partial Least Squares Structural Equation Modeling (PLS-SEM) technique. A total of 163 respondents were gathered as the sample. The results of hypothesis testing indicate that all variables significantly influence purchasing decisions, both directly and indirectly, mediated by the variable of trust.

Keywords: Purchasing Decision; Trust; Unbranded Generic Drugs.

Introduction

In the present day, the pharmacy sector is experiencing rapid and dynamic developments, intensifying competition to a great extent. The number of companies in the pharmaceutical sector, including chemical drugs and traditional medicines, was 338 in 2019, 361 in 2020, and 412 in 2021 (Badan Pusat Statistik, 2020). This situation presents challenges for companies to maintain and secure their position in the market. Therefore, companies need to understand and analyze various factors that influence customer purchasing decisions that crucial for establishing a foothold in the market, promoting sales, and directing towards profit growth (Uzo et al., 2018).

The pharmaceutical market in Indonesia consists of two categories branded generic drugs and unbranded generic drugs. Unbranded generic drugs are required to be equivalent to branded drugs in terms of dosage, safety, efficacy, strength, stability, quality, and dosage form (FDA, 2021). This indicates that the quality of unbranded generic drugs is equivalent to both branded generic drugs and patented drugs. Despite being based on stringent standards, there is a phenomenon within society where consumers perceive generic drugs to have lower quality. Previous research conducted in Brazil and Bulgaria indicated that consumers considered generic drugs to be of lower quality (Lebanova et al., 2012; Lins Ferreira et al., 2017). In Indonesian, some individuals view generic drugs as merely cheap options with poor or questionable quality (Badan POM RI, 2015; Farmalkes Kementrian Kesehatan RI, 2014). Furthermore, even among those who are aware of the evidence, only a small percentage are willing to choose generic drugs (Keenum et al., 2012; Shrank et al., 2009).

Based on field data obtained from a pre-survey conducted with 10 consumers of unbranded generic drugs in the city of Semarang, showed that 60% of respondents disagree with purchasing unbranded generic drugs when other options are available. 70% respondents were unaware that unbranded generic drugs have equivalent quality to branded generic drugs and patented drugs. Additionally, 60% of respondents perceived that the price of unbranded generic drugs did not align with their quality and did not agree that unbranded generic drugs have therapeutic efficacy equal to or better than branded generic drugs and patented drugs. However, 100% of respondents trust doctors and pharmacists to possess good knowledge about unbranded generic drugs. These pre-survey results highlight persistent issues related to various factors influencing purchasing decisions for unbranded generic drugs and underscore the importance of research to investigate and analyze the issue.

Several previous studies have also indicated a range of factors that influence purchasing decisions (PD) for medication, including product knowledge (PK), price perceptions (PP), product quality perceptions (PQP), reference groups (RG), and trust (TR) (Hajleh et al., 2021; Kohli & Buller, 2013). Additionally, prior research suggests the presence of TR as a mediating variable between PK, PP, PQP, RG, and PD (Al-ekam, 2016; Savitri & Setyanto, 2021; Suhaily & Darmoyo, 2017; C. C. Wang et al., 2009).However, there are still differences in the findings compared to previous studies. Research on the factors influencing purchasing decisions for unbranded generic drugs in Indonesia remains relatively limited. Most studies have primarily focused on the knowledge and perceptions of patients, doctors, and pharmacists regarding generic drugs. Furthermore, Keenum et al. (2012) suggested conducting further research to analyze factors related to generic drug consumption. Therefore, this study aims to analyze the influence of product knowledge, price perceptions, product quality perceptions, reference groups, and trust on purchasing decisions for unbranded generic drugs.

Literature Review

Commitment Trust Theory

Commitment and trust serve as the foundation for inter-firm cooperation. Commitment and trust directly contribute to cooperative behaviors that are conducive to the success of relationship marketing. This theory comprises several variables, namely relationship termination costs, relationship benefits, shared values, communication, and opportunistic behavior, which serve as antecedents to the variables of relationship commitment and trust, as well as the variables of acquiescence, propensity to leave, cooperation, functional conflict, and uncertainty, which are outcome variables. The model utilized in this theory is referred to as the key mediating variable, focusing on one party, namely the relational exchange of commitment and trust (Morgan & Hunt, 1994).

Purchase Decision (PD)

Purchasing decisions are considered as potential buyers' choices to acquire products to fulfill needs or achieve desires, after evaluating the characteristics of the offerings (Al-Sulaiti, 2022). During this process, consumers evaluate various product alternatives and ultimately choose the ones that align with their requirements based on specific considerations (Rachmawati et al., 2022). Purchasing decisions are considered crucial for establishing a foothold in the market, promoting sales, and directing towards profit growth (Uzo et al., 2018).

Product Knowledge (PK)

Product knowledge encompasses all accurate information stored in consumers' minds and their perceptions of that knowledge (Rachmawati et al., 2022). Consumers with good product knowledge tend to have a better understanding of intrinsic attributes when evaluating and making purchasing decisions, because they recognize the importance of product information (Lin & Lin, 2007; Nitissusastro, 2013). A study by Hajleh et al. (2021), showed that experience and information significantly impact medication selection. Other studies investigating the influence of product knowledge on purchasing decisions have similarly found significant relationships (Ayuningsih & Maftukhah, 2020; Cacciolatti et al., 2015; Efendi, 2020; Rachmawati et al., 2022). Increasing knowledge or familiarity can reduce social uncertainty and increase in trust (Gefen et al., 2003; C. C. Wang et al., 2009). Several previous studies have also found that product knowledge significantly influences trust (C. C. Wang et al., 2009; H. Wang et al., 2019; Wiranto & Adialita, 2020). Based on these explanations, the proposed hypothesis is:

H1: Product knowledge has an influence on purchasing decisions for unbranded generic drugs.

H6: Product knowledge has an influence on trust in unbranded generic drugs.

Price Perception (PP)

Hajar et al. (2018), suggest that price perception is the effort to comprehend pricing information and imbue it with deep meaning for customers. Price also aids consumers in making purchase decisions by comparing it with the expected product value (Sudaryanto et al., 2021). From the consumer's perspective, price plays a significant role in purchasing decisions (Macall et al., 2021; Tjiptono, 2019). Hajleh et al. (2021), show that price exhibited significant impact on medication selection. Several other studies investigating the influence of price perception on purchasing decisions have similarly revealed significant relationships. (Anggita & Ali, 2017; Herawati et al., 2019; Sudaryanto et al., 2021; Suhaily & Darmoyo, 2017) Positive price perceptions can enhance consumer trust (Al-ekam, 2016). Several previous studies have also found that price perception significantly influences trust (Benhardy et al., 2020; Herlambang et al., 2020; Suhaily & Darmoyo, 2017). Based on these explanations, the proposed hypothesis is:

H2: Price perception has an influence on purchasing decisions for unbranded generic drugs.

H7: Price perception influences trust in unbranded generic drugs.

Product Quality Perception (PQP)

Product quality is the extent to which a combination of attributes and characteristics can meet customer requirements or fulfill needs based on performance evaluation (Tjiptono, 2019). Good and reliable product quality leads to positive consumer perceptions and reputation in minds of consumers, so they are more likely to trust that brand (Supardin et al., 2022). Product quality is a factor that customers consider before making a purchase (Saleem et al., 2015). A study by Kohli & Buller (2013), show that the duration of effectiveness significantly influenced the purchase of branded OTC drugs. This indicates that quality perception has an impact on purchasing decisions. Several other studies related to the influence of product quality perception on purchasing decisions have similarly shown significant relationships (Anggita & Ali, 2017; Herawati et al., 2019; Suhaily & Darmoyo, 2017; Supardin et al., 2022; X. Wang et al., 2020) and also indicates that product quality perception significantly influences trust (Al-ekam, 2016; Izzati, 2019; Nurmalita Sari et al., 2022). Based on these explanations, the proposed hypothesis is:

H3: Product quality perception has an influence on purchasing decisions for unbranded generic drugs.

H8: Product quality perception influences trust in unbranded generic drugs.

Reference Group (RG)

Reference groups are groups that serve as a basis or reference and as a guide for individuals to make purchase decisions (Kotler & Keller, 2009; Samuel et al., 2021). Hajleh et al. (2021), find role of pharmacists demonstrated statistically significant impacts on medication selection. Several other studies investigating the influence of reference group variables on purchasing decisions have similarly revealed significant relationships (Arjuna & Ilm, 2020; Harnoto & Silintowe, 2018; Nursyamsiah et al., 2022; Samuel et al., 2021; Santosa & Chayaningtyas, 2020; Shin & Dickerson, 1999; Supardin et al., 2022). In the context of medication purchase behavior, reference groups like doctors, pharmacists, and family members are presumed to have a significant influence on trust in the purchased medication. Previous research indicates that the appeal of influencers significantly influences trust

(Savitri & Setyanto, 2021). Due to the strong assumption and considering the limited prior research on this variable, it is assumed that reference groups affect trust. Based on these explanations, the proposed hypothesis is:

H4: Reference groups have an influence on purchasing decisions for unbranded generic drugs.

H9: Reference groups influence trust in unbranded generic drugs.

The Influence of Trust (TR)

Consumer trust in a brand can only be achieved when marketers create and maintain a positive emotional relationship with consumers. This trust directly impacts consumer purchasing decisions (Juniwati et al., 2023). Consumers who trust a specific brand are less likely to switch to other products and take pride in purchasing products from that brand (Al-ekam, 2016; Juniwati et al., 2023).The study by Hajleh et al. (2021), show that trust demonstrated a statistically significant impact on medication selection. Similar previous research also indicates that trust significantly influences purchasing decisions (Al-ekam, 2016; Nurmalita Sari et al., 2022; C. C. Wang et al., 2009). Based on the explanations above, the proposed hypothesis is:

H5: Trust has an influence on purchasing decisions for unbranded generic drugs.

Method

This research uses a quantitative approach to test the hypotheses. The sampling technique is non-probability purposive sampling, with a minimum of 90 respondents. Participants should be consumers of unbranded generic drugs in Semarang, aged 17 and above, willing and able to complete the questionnaire. Incomplete questionnaires are excluded. The validation and reliability testing using the SPSS software were applied to the research questionnaire. After ensuring the questionnaire's validity and reliability, data was collected from the respondents, and statistical analysis was performed using SEM-PLS (Structural Equation Modeling with Partial Least Squares). The SEM-PLS analysis comprises four key stages, namely the analysis of the outer model (measurement model), examination of the inner model (structural model), hypothesis testing, and mediation analysis.

Results

The validation and reliability assessment of the questionnaire conducted with 30 participants, demonstrated that all indicators exhibit validity (r value > r table) and reliability (Cronbach's α > 0.7) (Joseph F Hair et al., 2019). In this study included 163 respondents. The profile of the respondents indicates that 55.8% are female, aged between 17 and 25 years (41.1%), and possess a high school education (55.8%). The majority of respondents are engaged in private sector employment (32.5%) with a monthly income of ≥ Rp. 4,000,000 (49.1%). A significant proportion of respondents utilize unbranded generic drugs for addressing acute ailments (60.7%).

Analysis of the Outer Model

Convergent validity assessment employed both outer loading values and the Average Variance Extracted (AVE) scores. The outcomes of the outer loading test, as shown in Table 1, reveal the validity of constructs for all variables, as indicated by loading factor values surpassing 0.7. Additionally, the AVE scores for all variables, depicted in Table 2, exceed the threshold of > 0.50. This affirms that all constructs for the variables are indeed valid within the model (Joe F. Hair et al., 2014).

Table 1. Outer Loading Factor Analysis

	RG	PD	PK	PQP	PP	TR
PD1		0.920				
PD2		0.925				
PD3		0.906				
PD4		0.833				
RG1	0.873					
RG2	0.756					
RG3	0.819					
RG4	0.818					
PP1					0.875	
PP2					0.895	
PP3					0.864	

PP4				0.812	
PQP1			0.906		
PQP2			0.929		
PQP3			0.796		
PQP4			0.884		
PK1		0.822			
PK2		0.829			
PK3		0.859			
PK4		0.778			
TR1					0.937
TR2					0.942
TR3					0.891
TR4					0.845

Source: Data Processed, 2023

Table 2. AVE, Cronbach's Alpha, and Composite Reliability Analysis

	Average Variance Extracted (AVE)	Cronbach's Alpha	Composite Reliability
RG	0.668	0.834	0.889
PD	0.804	0.918	0.942
PK	0.676	0.840	0.893
PQP	0.774	0.902	0.932
PP	0.743	0.884	0.920
TR	0.818	0.925	0.947

Source: Data Processed, 2023

Discriminant validity utilized both square AVE and cross-loadings. Based on the test, all variables exhibit the highest squared AVE values within their respective constructs, surpassing the squared AVE values of other variables, as presented in Table 3. The results of the cross-loadings of each indicator within its construct are higher compared to the cross-loadings with other constructs, as indicated in Table 4. Consequently, it can be inferred from these test results that the discriminant validity of all variables is satisfied (Joe F. Hair et al., 2014).

Table 3. Squared AVE Values Analysis

	PD	RG	PP	PQP	PK	T
PD	**0.896**					
RG	0.683	**0.818**				
PP	0.784	0.598	**0.862**			
PQP	0.772	0.541	0.602	**0.880**		
PK	0.823	0.548	0.679	0.707	**0.822**	
T	0.884	0.656	0.739	0.718	0.821	**0.905**

Source: Data Processed, 2023

Table 4. Cross-Loadings Analysis

	PD	RG	PP	PQP	PK	T
PD1	**0.919**	0.644	0.753	0.749	0.743	0.836
PD2	**0.925**	0.684	0.741	0.672	0.730	0.798
PD3	**0.906**	0.618	0.706	0.701	0.782	0.802
PD4	**0.832**	0.489	0.602	0.643	0.697	0.729
RG1	0.655	**0.873**	0.579	0.485	0.507	0.606
RG2	0.512	**0.756**	0.441	0.458	0.458	0.513
RG3	0.497	**0.819**	0.410	0.414	0.429	0.551
RG4	0.554	**0.818**	0.510	0.407	0.389	0.466
PP1	0.685	0.480	**0.875**	0.522	0.548	0.634
PP2	0.693	0.568	**0.895**	0.529	0.594	0.645

PP3	0.693	0.511	**0.864**	0.556	0.633	0.654
PP4	0.630	0.501	**0.812**	0.465	0.564	0.615
PQP1	0.724	0.516	0.534	**0.906**	0.629	0.656
PQP2	0.722	0.521	0.562	**0.929**	0.659	0.701
PQP3	0.621	0.475	0.548	**0.796**	0.514	0.522
PQP4	0.644	0.389	0.478	**0.884**	0.677	0.635
PK1	0.596	0.363	0.462	0.513	**0.822**	0.645
PK2	0.773	0.546	0.605	0.736	**0.829**	0.733
PK3	0.685	0.418	0.557	0.513	**0.859**	0.708
PK4	0.637	0.460	0.602	0.540	**0.778**	0.601
T1	0.873	0.620	0.725	0.681	0.754	**0.935**
T2	0.824	0.612	0.657	0.684	0.755	**0.942**
T3	0.812	0.658	0.733	0.685	0.696	**0.890**
T4	0.680	0.476	0.550	0.540	0.770	**0.849**

Source: Data Processed, 2023

The composite reliability utilized both Cronbach's Alpha and composite reliability values. The examination outcomes, as presented in Table 2, indicate that all variables meet the criteria with values exceeding 0.70. Consequently, it can be determined that the constructs for all variables are reliable (Joseph F Hair et al., 2019).

Inner Model Analysis

The results of the R^2 testing for PD, revealed a value of 0.864. This indicates that the variables of PK, PP, PQP, RG, and TR can substantially explain 86.4% of the variance in the PD (Joe F. Hair et al., 2014). Similarly, the R^2 value for the TR variable was determined to be 0.776. This signifies that the variables of PK, PP, PQP, and RG can substantially account for 77.6% of the variance in the TR (Joe F. Hair et al., 2014).

Cross-Validity Redundancy (Q^2) is utilized to assess the predictive relevance of the inner model. Based on the test results, the Q^2 value for the PD variable is 0.687, while for TR, it is 0.625. These values exceed 0, indicating that the endogenous constructs hold predictive relevance (Joe F. Hair et al., 2014). Path coefficients represent the hypothesized relationships linking constructs, as depicted in Figure 1. The obtained path coefficients closely approach a value of +1, indicating a positive correlation. This suggests that all variables exhibit a positive correlation (Joe F. Hair et al., 2014).
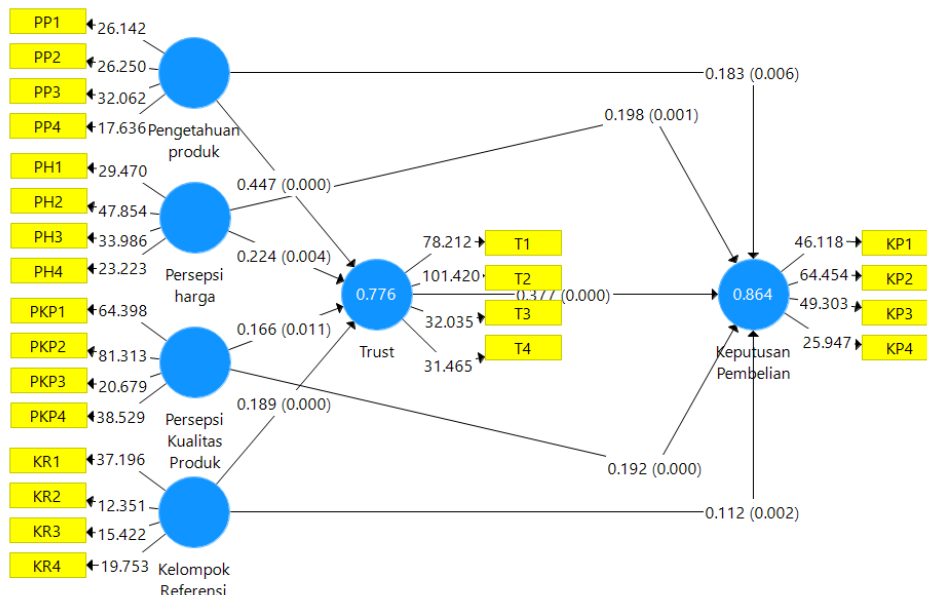

Figure 1: Path Coefficient Analysis

Source: Data Processed, 2023

The concept of effect size (f^2) measures the magnitude of relationships between constructs, indicating whether they are of minor, intermediate, or substantial importance. Based on the calculated f^2 values, as presented in Table 5, it is evident that the impact of PK on TR is substantial, with a value of 0.352. Conversely, the influence

of TR on PD is of moderate significance, as indicated by an f^2 value of 0.235. The remaining variables demonstrate low effects, falling within the range of values greater than 0.02 and less than 0.15 (Cohen, 1988).

Table 5. f^2 Analysis

	PD	TR
RG	0.050	0.092
PK	0.072	**0.352**
PQP	0.117	0.056
PP	0.120	0.101
TR	**0.235**	

Source: Data Processed, 2023

Hypothesis Testing Analysis

The significance of the estimated parameters offers valuable insights into the connections among the variables under investigation. The outcomes of the hypothesis testing, as evident from Table 6, reveal that the P-values for all hypotheses are below 0.05, thereby resulting in the acceptance of all the hypotheses (Joe F. Hair et al., 2014).

Table 6. Direct Effect Analysis

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
RG → PD	0.112	0.112	0.039	2.901	0.002
RG → TR	0.189	0.192	0.054	3.503	0.000
PK → PD	0.183	0.173	0.072	2.528	0.006
PK → TR	0.447	0.441	0.073	6.107	0.000
PQP → PD	0.192	0.185	0.055	3.511	0.000
PQP → TR	0.166	0.171	0.072	2.299	0.011
PP → PD	0.198	0.201	0.065	3.067	0.001
PP → TR	0.224	0.223	0.085	2.636	0.004
TR → PD	0.377	0.388	0.090	4.170	0.000

Source: Data Processed, 2023

Mediation Analysis

This study examines the mediating effect of the TR variable between the independent variables and the PD variable, as indicated in Table 7. The test results reveal that the TR variable mediates the influence of all dependent variables on PD, with P-values are below 0.05 (Joe F. Hair et al., 2014).

Table 7. Mediation Analysis

	Specific Indirect Effects	Sample Mean	Standard Deviation	T Statistics	P Values
RG → TR → PD	0.071	0.074	0.027	2.59	0.005
PK → TR → PD	0.169	0.172	0.052	3.272	0.001
PQP → TR → PD	0.063	0.068	0.036	1.732	0.042
PP → TR → PD	0.084	0.084	0.033	2.527	0.006

Source: Data Processed, 2023

Discussion

Product knowledge on Purchase Decision

Product knowledge was found to have a significant effect on purchasing decisions of 0.183. This finding aligns with the research by Hajleh et al. (2021), which stated that experience and information significantly impact the choice of medication. Guttier et al. (2017) also found that 77% of individuals with good knowledge of generic drugs showed a preference for purchasing generics. Meanwhile, only 18.4% possessed good knowledge of generic drugs, but after receiving education, their preference for purchasing generics increased as their knowledge improved. Furthermore, product knowledge also has an indirect effect (partial mediation) of 0.169 on purchasing decisions through the trust variable. From previous research such as Hajleh et al. (2021), demonstrated the significant impact of experience and information on medication selection. Similarly Wang et al. (2009), indicated that knowledge has both a direct and indirect effect on online shopping activities, mediated by trust, with partial mediation. Therefore, enhancing product knowledge among consumers is essential to improve unbranded generic drugs purchasing decisions. Product knowledge shapes cognitive assessment and product evaluation, which in turn contributes to the formation of trust. This trust can then mediate the relationship between product knowledge and purchasing decisions. In conclusion, increasing consumer product knowledge can play a pivotal role in enhancing purchasing decisions for unbranded generic drugs.

Price Perception on Purchase Decision
Price perception has a significant influence on purchasing decisions of 0.198. This finding is consistent with Hajleh et al. (2021), which asserts that price significantly impacts medication selection. Kohli & Buller (2013), state that affordability is one of the factors influencing the decision to purchase generic OTC drugs. Moreover, Lira et al. (2014), reporting that 88.8% of respondents considered unbranded generic drugs cheaper than originator drugs, and 80.2% chose generics due to their lower cost. Price perception also exerts an indirect effect (partial mediation) of 0.198 on purchasing decisions through the trust variable. This aligns Suhaily & Darmoyo (2017), who revealed that price perception has both direct and indirect effects on purchase decisions mediated by trust, with partial mediation. Apart from competitive pricing motivating consumer purchases, trust is also a contributing factor. When consumers trust the price of a product (unbranded generic drugs), they are more likely to make the purchase.

Product Quality Perception on Purchase Decision
The variable of product quality perception has a significant effect of 0.192 on purchasing decisions. The results are consistent with Guttier et al. (2017), which highlights that the perceived equivalence of generic drugs to branded drugs is a key determinant in the choice of generic medication. Kohli & Buller (2013), indicate that one of the influencing factors for individuals considering the purchase of generic OTC drugs is the duration of effectiveness. Around 80% respondents had considered the differences between generic and brand name versions of the same drug, with nearly 90% believing that both versions were equally safe and effective. In the mediation analysis, it was found that an indirect effect (partial mediation) of 0.063 through the trust. This aligns with the study by Al-ekam (2016), revealing that quality perception has both direct and indirect effects on purchasing behavior, mediated by trust, with a partial mediation effect. Therefore, apart from enhancing the perception of product quality to boost decisions regarding the purchase of unbranded generic drugs, there is also a need to elevate consumer trust in unbranded generic drugs.

Reference Group on Purchase Decision
Reference groups has a significant effect of 0.112 on purchase decision. These findings align with Hajleh et al. (2021), which emphasizes the significant impact of the roles of doctors and pharmacists in medication choices. In fact, the role of pharmacists is identified as a key factor influencing medication selection. The crucial role of reference groups is further underscored by the fact that nine non-medical respondents or individuals with lower education levels were more influenced by the opinions of pharmacists and doctors regarding generic and branded drugs. Guttier et al. (2017), revealed that 75.7% of respondents who are averse to generic drugs tend to opt for prescribed medications, regardless of being generic or not. However, 18% still ended up switching to generic drugs. Additionally, 55.1% of respondents who favor generic drugs are more likely to choose generics as substitutes. In the mediation analysis, it was found that trust plays a role as a partial mediator (partial mediation) between reference groups and purchase decisions, with an effect size of 0.189. This finding aligns with the study by Savitri & Setyanto (2021), which demonstrates that reference groups, in this case, influencers, have both direct and indirect effects on purchase intent, mediated by trust, with a partial mediation effect. Therefore, it can be concluded that reference groups play a significant role in the purchase decisions of unbranded generic drugs. Furthermore, enhancing trust is also necessary as it positively influences purchase decisions for unbranded generic drugs.

Conclusion

From the conducted research, it can be concluded that product knowledge (0.183), price perception (0.198), product quality perception (0.192), reference groups (0.112), and trust (0.377) have a direct and significant impact on purchasing decisions of unbranded generic drugs in Semarang city. Additionally, product knowledge (0.169), price perception (0.084), product quality perception (0.063), and reference groups (0.071) also indirectly influence purchasing decisions, partially mediated by trust.

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