

Evaluating the Impact of Perceived Safety and Perceived Trust on Behavioural Intentions towards adoption of Generic Medicines

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Abstract

Purpose: This study aims to evaluate the impact of perceived safety & perceived trust on behavioural intentions towards adoption of generic medicines. Generic medicines, generally offered at a lesser price than name-brand medications, generic medications share the same active components, dosage form, potency, and mode of administration. They are trustworthy substitutes for costlier branded drugs since they go through stringent testing and approval procedures to guarantee their efficacy and safety. Further generic medicines are equivalent to their branded counterpart. This study is driven by the need to comprehend the variables driving consumers' reluctance to use generic medications, even in cases where they are more affordable and have demonstrated efficacy. It is imperative to investigate the effects of perceived safety and perceived trust in order to encourage a broader use of generic alternatives in healthcare.

Methodology: The research employs a Structure Equation Model to evaluate the relationship between perceived safety and perceived trust on behavioural intention towards the adoption of generic medicine. SEM technique was used for the purpose of analysing the collected data. The Structure Equation Model approach enables the robust assessment of key factors influencing adoption or usage of generic medicines. Further, SEM is also ensuring statistical validity & reliability in measuring the impact.

Findings: This research reveals that there is a significant impact of perceived trust and perceived safety on behavioural intention towards the adoption of generic medicines

Practical Implications: The outcome of this research can give pharmaceutical companies, policy makers and retailers a roadmap to form various promotional strategies for generic medicines which will increase the usage of it. The results can address issues with affordability and patient trust in healthcare by offering useful information to legislators, pharmaceutical companies, and healthcare practitioners to encourage the use of affordable generic medications.

Originality: The research is unique in showing how perceived safety & perceived trust plays a key role on behavioural intentions towards adoption of generic medicines

Keywords: Perceived Safety, Perceived Trust, Behavioural Intention, Generic medicine, Structure Equation Model – SEM, Theory of Planned Behavior (TPB)

Introduction:

Generic medications are equivalent to brand-name medications in terms of quality, safety, and efficacy. They are an essential substitute for lowering healthcare and prescription expenditures in many countries since they offer the same therapeutic benefits at a lower cost. When encouraging the use of generic medications, it is crucial to consider the opinions of patients, who are the medicines' ultimate users. Generic pharmaceuticals may have different shapes, size, colours, and inactive substances than branded ones, but they are the same in terms of effectiveness, active ingredients, pharmaceutical dosage form, and mode of administration. Generic drugs, like other pharmaceuticals, have to go through a rigorous registration procedure to make sure they fulfil high requirements for quality, safety, and efficacy. Bioequivalence, which proves clinical comparability with their branded equivalents, is a crucial prerequisite for the approval of generic medications. Generic drugs are often used to treat a variety of acute and chronic diseases and are less expensive than branded ones, according to research by Al Hussaini et al. (2018). Healthcare expenses can be decreased by encouraging the use of generics, which is advantageous for the healthcare system as a whole. Through a variety of tactics and regulations meant to lower healthcare and pharmaceutical costs, payers—both private and public—are pushing more and more for the use of generic drugs. Acceptance of generic medications by patients is a major obstacle, especially as they are the final consumers. Patients require precise information, a favourable impression, and a deep comprehension of generics.

Sharif et al. (2020) state that non-proprietary names are usually used for the marketing of generic drugs. Many ailments can be successfully treated with timely and appropriate medicine delivery, which can also help patients avoid expensive hospital stays. Early and accessible therapy is crucial for controlling diseases and their effects, and generic medications for common disorders are crucial in this regard. Crucially, people can save a great deal of money on healthcare expenses by using generic drugs, which nevertheless effectively treat a wide range of contemporary illnesses. Patients and physicians differ significantly on the safety and therapeutic results of moving from branded to generic drugs, even with the financial advantages. El-Dahiyat & Kayyali (2013) pointed out that when people are debating whether to take branded or generic pharmaceuticals, they frequently ignore consumer concerns about the risks connected to generic products. Adoption of generic solutions is fundamentally facilitated by patients' willingness to accept them. Research on how consumers in emerging nations, such as India, feel about branded versus generic drugs is still scarce. These impressions are greatly influenced by personal experiences, beliefs, and belief systems, which can result in optimistic or pessimistic perspectives.

Perceived Safety: Adoption of generic medications is often impeded by patients' perceptions that they are less safe than branded medications (Gasteiger et al., 2021). Demographic characteristics including gender and individual drug-related views are associated with unfavourable judgements of safety (Gasteiger et al., 2021).

Perceived Trust: According to Hong and Ismail (2021) higher levels of perceived trust are associated with a greater propensity to embrace generic medications. Trust is a significant factor in buying intentions. Purchase intention and customer trust are directly correlated, suggesting that building consumer trust can reduce the perceived dangers related to generics (Hong & Ismail, 2021).

The purpose of this study is to assess how people's behavioral intentions toward using generic medications are influenced by their perceptions of safety and trust. Through an analysis of these variables, the study aims to pinpoint the major influences on consumers' adoption of generic substitutes.

Review of Literature:

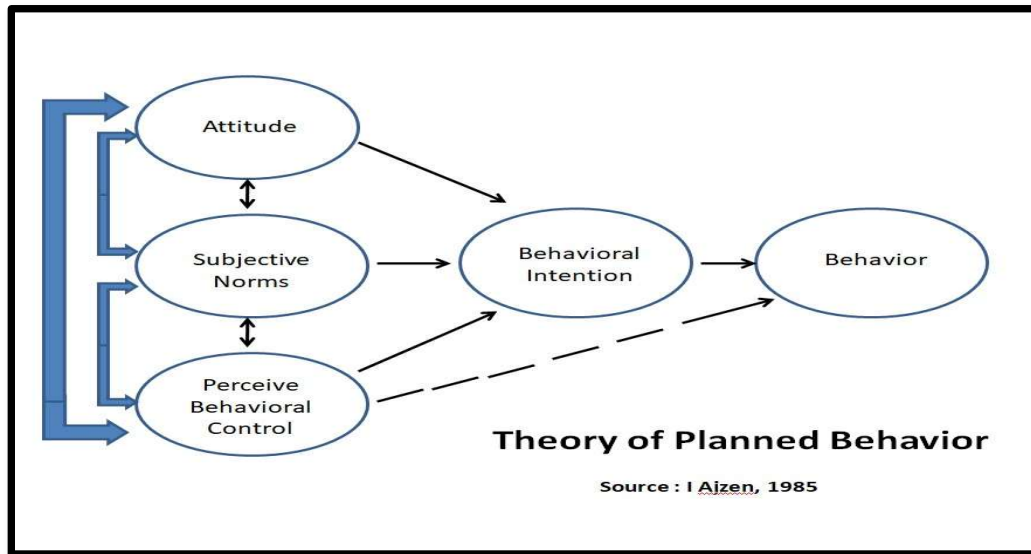
1. **M. R. Dzulkpli., et al. (2023).** The aim of this research was to investigate the impact of respondents' knowledge and the Theory of Planned Behaviour (TPB) on their intention to buy brand-name or generic medications in Malaysia, given the country's growing medical expenses. Purchase intentions for both kinds of

medications were found to be highly impacted by knowledge and perceived behavioural control. Of the respondents, just 19% and 29% said they planned to buy generic medications, whereas 27% and 45% said they planned to buy brand-name medications. In addition to highlighting the need for greater public awareness of brand-name pharmaceutical similarities and the significance of consumers' financial ability in future research, the study showed that knowledge and perceived behavioural control were important determinants of purchase intentions.

2. **A. Malathi, K. Mohamed, Jasim. (2023)** applied the TPB to examine patients' behavioural intentions towards generic medications. The findings demonstrated that the intention to buy generic medications was highly influenced by all three constructs "attitude, subjective norm, and perceived behavioural control (PBC)" with PBC exhibiting the highest correlation. Furthermore, it was discovered that the association between these constructs and behavioural intention was moderated by monthly family medical expenses. According to the study, customers like generic medications over branded ones since they are less expensive and have "comparable active components, dosages, side effects, and effectiveness."
3. **Wei, X., Peng, X., & Prybutok, V. (2022).** This study developed a theoretical model based on the Unified Theory of Acceptance and Use of Technology (UTAUT) in order to investigate consumer adoption intentions for gene repair technology. Constructs of perceived risk and trust were added to improve the model. According to the study, customer behavioural intention towards gene repair applications was significantly impacted by social influence and favourable enabling circumstances. Furthermore, significant mediators in the relationship between consumer behavioural intention and trust were found to be performance expectancy and perceived dangers. These results provide useful information for marketing new healthcare technologies and add to the body of knowledge on technology acceptability.
4. **Chiara, Gasteiger., et al. (2021).** The study sought to investigate the psychological and demographic traits linked to patients' worries about transitioning from bio-originators to biosimilar and their perceptions of safety in doing so. The patients were treated for rheumatic illnesses and were taking bio-originators. According to the study, certain sickness beliefs, short-term usage of bio-originators, being female, high perceived sensitivity to pharmaceuticals, and unfavourable views about medications were all associated with bad safety perceptions of biosimilar. The only characteristic that was independently linked to unfavourable safety perceptions was "gender. Female identity, specific illness beliefs, high perceived sensitivity, information-seeking behaviours, and a preference for innovator medications" were all linked to concerns about switching. Furthermore, poor opinions of biosimilar were associated with more intense emotional reactions to the illness. In general, views about switching to biosimilar were considerably influenced by interactions with bio-originators.
5. **Keai, Sin, Hong., Kamisah, Ismail. (2021).** This study attempts to investigate the variables that affect Malaysian consumers' intentions to purchase generic medications. The findings demonstrated a substantial relationship between the intention to buy generic medications and each of the six perceived risk factors. The biggest factor influencing perceived risk is performance risk. Additionally, the results showed that trust influences buying intention but not perceived risk. According to the findings, there is not an evident mediation effect of "perceived risk between trust and purchase intention." In their efforts to lower the rising costs of pharmaceuticals and boost the rate of generic replacement, the government, policymakers, pharmaceutical manufacturers, and marketers stand to gain a great deal from these findings.
6. **Helen, Inseng, Duh., Chuma, Diniso. (2020).** This study sought to determine the effects of "brand knowledge (brand awareness, brand image, and brand beliefs) and trust on brand satisfaction and purchase intentions" among young adults in South Africa with regard to generic anti-retroviral medications. It did this by adapting the brand knowledge structure and relationship model developed by Esch et al. (2006). The findings showed that while all variables except brand awareness positively affected "satisfaction, brand awareness, image, trust, and beliefs in efficacy positively influenced purchase intentions." 53.0% of the variation in purchase intentions and 58.5% of the variance in brand satisfaction were explained by the modified model.

Theoretical Framework:

Figure No. 1 Theory of Planned Behavior (TPB)



The Theory of Planned Behavior (TPB) predicts that planned behaviours are determined by behavioural intentions which are largely influenced by an individual's attitude toward a behaviour, the subjective norms encasing the execution of the behaviour, and the individual's perception of their control over the behaviour (Icek Ajzen, 1991).

The core components of TPB are Attitude towards the behaviour, subjective norms, and perceive behavioural control. Attitude towards the behaviour refers to an individual's positive or negative evaluation of performing the specific behaviour. Subjective Norms reflects an individual's perception of social pressure or expectations from significant others regarding performing the behaviour. Perceived Behavioural Control represents an individual's belief in their ability to perform the behavior, considering both resources and potential obstacles.

Objectives of the Study:

1. To evaluate the impact of Perceived safety and Perceived Trust on Behavioural intention towards adoption of Generic medicine.
2. To give appropriate suggestions to healthcare providers and policymakers on strategies to improve consumer trust and perception of safety of generic medicines

Hypotheses:

Perceived safety:

H₀: Perceived safety does not significantly impact Behavioural intention towards adoption of Generic medicine

H_{a1}: Perceived safety significantly impact Behavioural intention towards adoption of Generic medicine

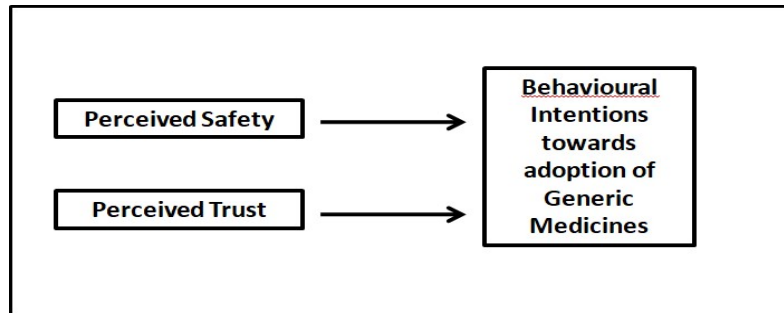
Perceived Trust:

H₀: Perceived Trust does not significantly impact Behavioural intention toward the adoption of Generic medicine

H_{a2}: Perceived Trust significantly impact Behavioural intention toward the adoption of Generic medicine

Conceptual Framework:

Figure No. 2 Conceptual Framework



Research Methodology:

The methodical process of collecting, analyzing, and interpreting the data towards achieving the research aim is known as research methodology. It deals with the selection of methodology, sampling techniques, data collection instruments, and analysis procedures to offer accurate and trustworthy findings. The research methodology used for the current study is Descriptive, the sample size is 165 buyers of generic medicines. (as seen in the below Daniel Sopri model an impact size of 0.3 with a statistical power of 0.9. It has three latent variables and fourteen observable variables at a 0.05 probability level, the required minimum sample size is 153). The study utilized a non-probability purposive sampling method. Data was gathered from both primary and secondary sources. the technique used in the current study is structural equation modeling (SEM) using SMARTPLS.

Table No. 1: Research Methodology

Research Methodology	
Aspects	Details
Samples Size	165 respondents (Minimum necessary sample size 153)
Effect Size	0.3
Statistical Power	0.9
Number of Latent Variables	3
Number of Observable Variables	14
Probability Level	0.05
Sampling Method	Non-random purposive sampling
Data Gathering	Primary & Secondary Data
Analytical Method	Structural Equation Model (SEM)
Analytical Tool	SMART PLS

Anticipated effect size: ?

Desired statistical power level: ?

Number of latent variables: ?

Number of observed variables: ?

Probability level: ?

Calculate!

Minimum sample size to detect effect: 153

Minimum sample size for model structure: 89

Recommended minimum sample size: 153

Source : SMARTPLS

Figure No. 3:

Source : SMARTPLS

Data Analysis and Interpretation:

Table No. 2 Demographic Profile:

Variable	Category	Frequency	Percentage
Gender	Male	97	58.79
	Female	68	41.21
	Total	165	100
Age Group	Under 18 years	0	0
	18-25 years	8	4.85
	26-35 years	21	12.73
	36-45 years	39	23.64
	46-55 years	40	24.24
	56-65 years	38	23.03
	More than 66 years	19	11.51
	Total	165	100
Education	SSC or Equivalent	2	1.21
	HSC or equivalent	6	3.64
	Bachelor's degree	113	68.48
	Post Graduate	44	26.67
	Total	165	100
Frequency of Generic Medicines Purchase	Weekly	2	1.21
	Fortnightly	36	21.82
	Monthly	120	72.73
	Once in every few months	7	4.24
	Total	165	100

Source : Primary data

In demographic profile of the respondents, it shows 58.9% participation of male which is more than female. While age 18-25 years compose of 4.85%, 26-35 years age (12.73%) so it shows that 17.58% of respondents are from age range of 18 to 35 years. Then 36-45 Mid age compose of (23.64%), followed by highest 46-55 years (24.24%) and senior citizens in age group of 46-55 years (23.03%) and More than 66 years (11.52%) hence it shows that Mid age and senior citizens composed highest 81.8%. When it comes to education, Bachelor's degree shows biggest share (68.48%), followed by post graduate degree (26.67%). For frequency of generic

medicines purchase, respondents purchasing generic medicines monthly is highest (72.73%) followed by fortnightly purchase (21.82%) ,Once in every few months (4.24%) & very rarely are weekly purchase (1.21%). Therefore the sample shows a fair mix of demographic categories with highest number of Middle age to senior citizen and they are well educated and most of them buy generic medicines monthly.

Table No. 3 Reliability and Validity:

Realibility & Validity			
Path	Cronbach Alpha	Composite Reliabilty	Average Variance Extracted (AVE)
Behavioural Intention	0.782	0.784	0.55
Perceived Trust	0.900	0.900	0.643
Perceived Safety	0.907	0.904	0.614

Source : SMARTPLS

As per the recommended criteria of Hair et al, the table highlights the reliability & validity of the construct based on Cronbach's Alpha, Composite reliability (CR) and Average Variance Extracted (AVE). It is been observed that all the constructs have more than 0.7 Cronbach's alpha, which is an indicator of a strong internal consistency. Further for Composite Reliability, all values are above the recommended level 0.7, it confirms the adequate reliability. Moreover Average Variance Extracted values for all the constructs are above the criteria of 0.5, leading to satisfactory convergent validity across all the constructs. All these results shows that the constructs are valid and reliable for further analysis.

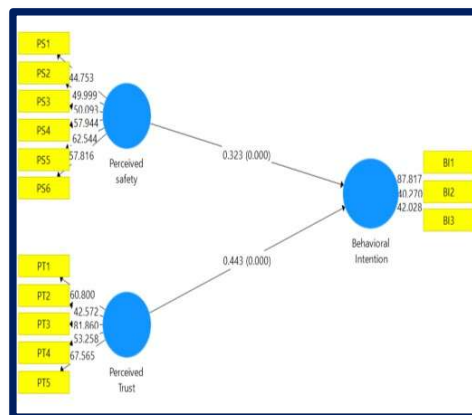
Table No. 4 Discriminant Validity:

Discriminant Validity			
Path	Behavioural Intention (BI)	Perceived Trust (PT)	Perceived Safety (PS)
Behavioural Intention (BI)	0.742		
Perceived Trust (PT)	0.691	0.802	
Perceived Safety (PS)	0.646	0.774	0.783

Source : SMARTPLS

The above table represents the discriminant validity of the constructs, assessed by comparing the square root of the Average Variance Extracted - AVE (Diagonal values) with the inter-construct correlations (off-diagonal values). From the above table all the diagonal values (0.742 for Behavioural Intention, 0.802 for Perceived Trust & 0.783 for Perceived Safety) are higher than their off-diagonal equivalents, suggesting sufficient discriminant validity. Thus, it proves that each of the above mentioned construct are use and assesses a different component, rendering the constructs appropriate for further study.

Figure No: 4 SEM Model:



Source : SMARTPLS

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Table No. 5 Hypothesis Testing:

Hypothesis Testing			
Path	Beta Coefficient	T-Statistics	P-Value
Perceived Trust $\longrightarrow$ Behavioural Intention (BI)	0.443	0.049	0.000
Perceived Safety $\longrightarrow$ Behavioural Intention (BI)	0.323	0.052	0.000

Source : SMARTPLS

The path analysis results shows that Perceived Trust ($\beta = 0.443$, $T = 0.049$, $p < 0.001$) and Perceived Safety ($\beta = 0.323$, $T = 0.052$, $p < 0.001$) significantly influences behavioural intention towards adoption of generic medicines.

Table No. 6 Summary of Hypothesis Testing:

Hypothesis	Result
H _{a1} : Perceived safety significantly impacts Behavioural intention towards adoption of Generic medicine	Accepted
H _{a2} : Perceived Trust significantly impacts Behavioural intention toward the adoption of Generic medicine	Accepted

Findings & Conclusion of the study:

The findings of this study indicated that the consumer's willingness to use generic medicines is strongly influenced by their **perceived safety and perceived trust**. It can be concluded from the findings that consumers will use generic medicine over branded medicines only when they have a strong belief that these medicines are safe for consumption, are being produced by reliable sources, and provide the same effect as the patent medicines. **Trust** is a crucial factor, mostly importantly how the customers perceive the approval from the regulatory bodies as well as the process of manufacturing these products. Likewise, **Safety** is a factor that concerns the effectiveness and the potential side effects if any of these medicines, and doubt on these medicines have a significant impact on the consumer's decision to use generic medicine. Generics can gain broader acceptance by tackling these problems with better regulation, clearer communication, and public awareness initiatives. Increased business openness and efforts to educate consumers on the effectiveness and quality of generic drugs can increase consumer trust and encourage wider use, which may eventually lead to more accessible and reasonably priced healthcare that helps more people. The result of the data analysis highlight the significance of perceived safety and perceived trust in influencing the behavioural intention towards the adoption of generic medicines.

Suggestions:

Pharmaceutical Companies:

- Start providing in signage posters/stickers to the retailers/pharmacies which displays the quality, efficacy of the generic medicines
- Maintain stringent compliance with safety and quality criteria for generic medications, and, in order to foster confidence, make regulatory data accessible to the public.

Chemist Druggist Association like Local association/MSCDA/AIOCD:

- Start encouraging the retailers to store generic medicines in their pharmacies.

- Start encouraging the retailers to sell generic medicines at discounted prices.
- Start encouraging the retailers to counsel the patients about generic medicines.

Contribution of the study:

The growth of the generic medicines depends upon the patient's understanding of their safety and trust. The study has substantial implications for Pharmaceutical companies who are selling generic medicines in the country as well as Chemist druggist association to increase the perceived safety & trust of consumers towards adoption of generic medicines. Pharmaceutical companies & chemist association may utilise this data and do the needful. This shall encourage the consumer to use generic medicines widely, which helps consumer to save their hard earned money.

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