



Influence of Knowledge and Attitudes About Prohibited Cosmetic Substances on Generation Z's Online Purchases in Lampang

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Received 28/01/2025

Revised 29/01/2025

Accepted 25/01/2025

Abstract

Background and Aims: This study investigates how knowledge of prohibited substances in cosmetics and attitudes toward these substances influence the purchasing decisions of Generation Z consumers on online platforms in Lampang Province. Online platforms have become a dominant marketplace for cosmetics, but concerns about harmful ingredients such as mercury and hydroquinone have raised awareness among consumers. Understanding these factors can provide insights into consumer behavior and support safer purchasing practices. Lampang Province represents an emerging market with increasing online cosmetic purchases among Generation Z."

Methodology: The study employed a cross-sectional analytical research design with 390 Generation Z participants residing in Lampang Province. Data were collected through a structured questionnaire covering demographic information, knowledge of prohibited substances in cosmetics, attitudes toward these substances, and purchasing decision behavior. The data were analyzed using descriptive statistics and multiple regression analysis.

Results: The findings reveal that both knowledge and attitudes toward prohibited substances significantly influence purchasing decisions. Consumers with a higher knowledge of harmful substances tend to avoid products containing these ingredients. Similarly, negative attitudes toward prohibited substances encourage safer purchasing behavior. Regression analysis demonstrated a strong positive relationship between these variables and purchasing decisions, with attitudes having a slightly greater impact than knowledge.

Conclusion: The study concludes that knowledge and attitudes about prohibited substances in cosmetics play crucial roles in shaping purchasing decisions among Generation Z consumers in Lampang Province. These findings highlight the importance of education and transparent product labeling in promoting safer online purchasing behaviors.

Keywords: Online Consumer Behavior, Toxic Ingredients in Cosmetics, Generation Z



Introduction

Online shopping platforms have gained significant popularity in recent years, especially among Generation Z consumers (Kamkankaew, Thongyoy & Phonracharnon, 2024a). This generation is highly engaged with digital technology, making online shopping a preferred choice. Among the many products purchased online, cosmetics stand out as a popular category due to their accessibility and variety (Suwandi & Balqiah, 2023). However, concerns about prohibited substances in cosmetics have grown as consumers become more aware of their potential health risks (Park & Lee, 2023). These substances, often linked to harmful effects, pose serious threats to consumer safety. The lack of strict regulations and inconsistent information on online platforms further amplifies these concerns (Manjula et.al., 2022). Understanding how knowledge and attitudes toward prohibited substances influence purchasing decisions is crucial for promoting safer consumer behavior (Nakharin & Sompopcharoen, 2021).

In Thailand, cosmetic ingredients and prohibited substances are regulated under the Cosmetic Act B.E. 2558 (2015) and other related laws. These frameworks set standards to ensure the safety and quality of cosmetic products available in the market. Authorities such as the Thai Food and Drug Administration (FDA) are responsible for monitoring and enforcing these regulations to protect consumers (Lopngpanich & Sribundit, 2023). Consumer knowledge and attitudes toward prohibited substances play a key role in shaping their purchasing decisions (Boman et.al., 2024). When shopping online, where direct inspection of products is not possible, these factors become even more important (Ramadhani, Fauzi & Absah, 2021). A well-informed consumer is more likely to identify risks and avoid products containing harmful ingredients (Boome, 2018). Therefore, understanding how these elements influence purchasing behavior is essential for ensuring safer consumption and promoting public health.

Understanding the relationship between knowledge of prohibited substances, attitudes toward these substances, and purchasing decision behavior is important for various stakeholders (Manjula, et.al., 2022). Regulators can use this information to improve policies and enforcement related to cosmetic safety. Manufacturers can develop safer products and provide clearer information to meet consumer expectations. (Nakharin & Sompopcharoen, 2021) Online platform operators can enhance their screening processes and product labeling to protect users from unsafe products (Kamkankaew et.al, 2022). Generation Z is a tech-savvy





and socially conscious group that often values transparency and product safety (Phucharern, Rodkaew & Konkong, 2018). They are more likely to seek information and make decisions based on ethical and health-related concerns certifications (Srikhamhaeng, Thanitbenjasith & Kamkankaew, 2024). This sets them apart from other generations, who may prioritize price or brand loyalty over safety. Examining their behavior can provide valuable insights for creating strategies that cater to this unique demographic (Kamkankaew et.al., 2004).

Focusing on Lampang Province is relevant because of its unique regional characteristics (Kamkankaew, Thongyoy & Phonracharnon, 2024b). The province has seen a growing trend in online shopping, especially among younger consumers, including Generation Z. Local awareness of prohibited substances in cosmetics may vary due to differences in education, access to information, and promotional efforts by health authorities (Phucharern, Rodkaew & Konkong, 2018). These factors can influence how consumers in the region perceive product safety and make purchasing decisions. Understanding these dynamics in a specific area like Lampang can provide valuable insights for developing targeted strategies to promote safe consumer behavior.

Despite increasing awareness of prohibited substances in cosmetics, it is still unclear how much Generation Z consumers in Lampang understand about these substances. It is also uncertain how their attitudes toward prohibited substances influence their purchasing decisions on online platforms. This presents a critical problem, as understanding these factors is essential for ensuring consumer safety and guiding industry practices. Existing research has largely focused on general consumer awareness or attitudes toward cosmetic safety but has not examined Generation Z specifically in the context of online shopping (Phucharern, Rodkaew & Konkong, 2018; Ramadhani, Fauzi & Absah, 2021; Wandirah et.al., 2024). There is also a lack of studies exploring the connection between knowledge, attitudes, and actual purchasing decisions among this demographic (Sanguanwong & Khaikham, 2024). Addressing these gaps will provide valuable insights into how to better educate and protect consumers in the evolving online marketplace.

Objectives

This research aims to investigate the impact of consumers' knowledge of prohibited substances in cosmetics and the attitude of prohibited substances in cosmetics on the



purchasing decision behavior of Generation Z consumers on online platforms in Lampang province.

Literature Review

Purchasing decision behavior

Purchasing decision behavior refers to the process consumers go through when selecting, buying, and using products or services (Siagian, Lubis & Hasibuan, 2024). This behavior is influenced by various factors, including individual preferences, cultural influences, social pressures, and psychological factors. Ishak et.al. (2022) has noted that purchasing decisions are often shaped by attitudes, knowledge, and awareness of product safety and quality. In the context of cosmetics, consumers are increasingly concerned about the ingredients used in products, particularly prohibited substances that may harm their health (Bunruang, 2024). Generation Z consumers, who are more active on online platforms, tend to make informed purchasing decisions by researching product details, reviews, and safety certifications (Srikhamhaeng, Thanitbenjasith & Kamkankaew, 2024). Gunatirin et.al. (2023) suggest that attitudes toward prohibited substances and knowledge about these substances play a critical role in shaping trust and confidence in brands. Online platforms, which provide easy access to information and reviews, further enable Generation Z to evaluate and compare products before making purchasing decisions (Suwandi & Balqiah, 2023). Understanding these factors is crucial for businesses to design effective marketing strategies that align with consumer priorities and ensure product safety (Handriana, et.al. 2021).

Consumers' knowledge of prohibited substances in cosmetics

Consumers' knowledge of prohibited substances in cosmetics plays a key role in their purchasing decisions (Boome, 2018). Many studies (Ramadhani, Fauzi & Absah, 2021; Isa et.al., 2023; Boman et.al., 2024) show that consumers often lack awareness of harmful ingredients in cosmetic products, despite the potential health risks they pose. This lack of knowledge is influenced by limited access to accurate information about cosmetic ingredients and their effects. Prohibited substances, such as mercury, lead, and hydroquinone, are frequently found in unregulated products, yet many consumers remain unaware of their presence and dangers. Regulatory bodies and public health campaigns aim to educate consumers, but the information often does not reach younger consumers, such as Generation Z (Manjula et.al., 2022). This



group is highly active on online platforms, which exposes them to a wide range of products, both regulated and unregulated. Studies highlight that when consumers are better informed about harmful ingredients, they are more likely to avoid unsafe products and choose those that meet safety standards (Suwandi & Balqiah, 2023). However, the knowledge gap persists, especially in areas where consumer education on cosmetic safety is limited. Understanding and addressing this knowledge gap is essential to protecting consumers from harmful substances and promoting safer purchasing behavior. Therefore, the researcher formulates the following hypothesis:

H1: Consumers' knowledge of prohibited substances in cosmetics has an impact on the purchasing decision behavior of Generation Z consumers on online platforms in Lampung province.

Attitude of prohibited substances in cosmetics

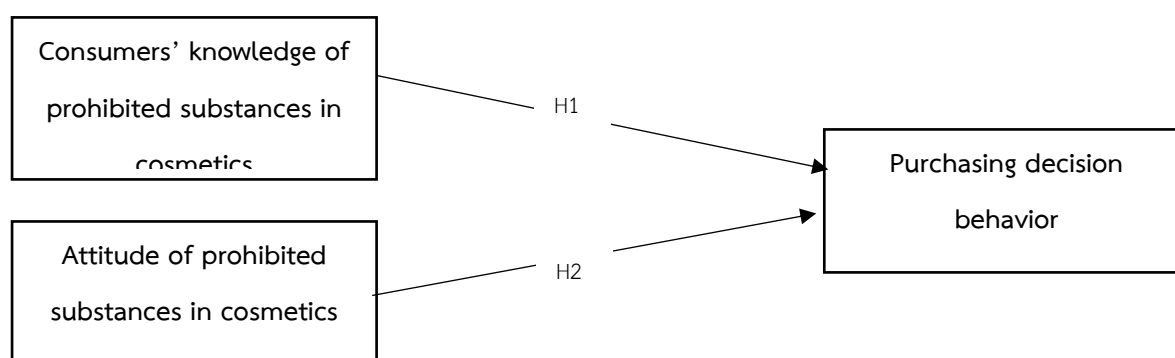
Attitudes toward prohibited substances in cosmetics play an important role in consumer behavior, especially in the cosmetics industry (Boome, 2018). Consumers with negative attitudes toward these substances are more likely to avoid purchasing products that they perceive as harmful or unsafe. Research by Rahman, Rahim & Zaid (2022) shows that awareness of the harmful effects of prohibited substances, such as mercury, hydroquinone, and steroids, influences consumers' opinions about the safety and quality of cosmetics. Generation Z consumers, in particular, are highly aware of the risks associated with unsafe ingredients due to their access to online information and social media (Septianda & Priantina, 2024). They are concerned about the potential health impacts, such as skin damage or long-term health risks, and are more likely to trust brands that advertise safety and transparency. Bogal et.al. (2024) suggest that the level of knowledge about the dangers of prohibited substances influences attitudes, and this, in turn, affects purchasing behavior. Positive attitudes toward safe and certified products encourage consumers to choose cosmetics with clear labels, certifications, and ingredient lists (Manjula, et.al., 2022). Negative experiences or knowledge of the harmful effects of using products with prohibited substances often result in strong resistance to unverified brands or low-cost options (Wandirah et.al., 2024). Furthermore, marketing strategies that educate and inform consumers about the absence of harmful substances in products can shape favorable attitudes and build trust (Park & Lee, 2023). Overall, attitudes toward prohibited substances reflect consumer priorities for health, safety, and transparency, which

are essential in influencing their purchasing decisions. Therefore, the researcher formulates the following hypothesis:

H2: Attitudes of prohibited substances in cosmetics have an impact on the purchasing decision behavior of Generation Z consumers on online platforms in Lampang province.

Conceptual Framework

Based on the literature review on the previous topics, the researcher developed the research conceptual framework as illustrated in Figure 1.



Methodology

This study employs a cross-sectional analytical research design to examine the impact of knowledge about prohibited substances in cosmetics and attitudes toward prohibited substances in cosmetics on the purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province. The study focuses on identifying factors influencing purchasing behavior within this specific population group.

Population and Sampling

The population of this study consists of Generation Z consumers, defined as individuals born between 1997 and 2012 who reside in Lampang Province and make cosmetic purchases on online platforms (Kamkankaew, Thongyoy & Phonracharnon, 2024a). The exact population size is unknown, making it an infinite population for sampling. The sample size was determined using Cochran's formula (Hasan & Kumar, 2024), with an assumed population proportion of 0.5, a confidence level of 95%, and a margin of error of 5%. Based on these parameters, the calculated sample size was 390 participants. To address practical constraints, the study utilized purposive sampling, targeting Generation Z individuals who actively shop for cosmetics on



online platforms in Lampang Province. This approach was complemented by convenient sampling, ensuring the inclusion of participants who met the study's eligibility criteria.

Research Tool

The research utilized a structured questionnaire as the primary tool for data collection. The questionnaire consisted of three main sections: demographic information, knowledge about prohibited substances in cosmetics, and purchasing decision behavior. The questions were developed based on the literature to ensure alignment with the research aims. Knowledge was measured using a nominal scale with yes/no questions, focusing on awareness of prohibited substances such as mercury, hydroquinone, steroids, and retinoic acid. Purchasing decision behavior was assessed using an ordinal scale with a six-point Likert scale ranging from "strongly agree" to "strongly disagree." This section included items on reviewing product ingredients, trust in certifications, reliance on online reviews, and preference for natural products. To ensure the quality and validity of the instrument, the questionnaire was reviewed by three experts. The validity of the questionnaire was assessed using the Index of Item-Objective Congruence (IOC), with scores ranging from 0.70 to 1.00, confirming alignment with the research objectives (Wittayapanyanond, Pityaratstian & Buathong, 2021). After validation, the questionnaire was piloted with 30 Generation Z individuals from a non-target group to test its reliability using Cronbach's Alpha Coefficient. The reliability score was 0.832, indicating a high level of internal consistency (Tavakol & Dennick, 2011), ensuring the questionnaire was suitable for collecting data on purchasing decision behavior in the study.

Data Collection

Data collection was carried out using a structured questionnaire designed to measure the participants' knowledge of prohibited substances in cosmetics, their attitudes toward these substances, and their purchasing decision behavior. The survey was distributed electronically via social media platforms commonly used by Generation Z consumers. This digital approach was chosen to ensure accessibility and convenience for the target group, aligning with their online behavior. During the data collection process, conducted between September to October 2024, participants consented to participate and completed the survey.

Data analysis

Data analysis involved calculating frequencies and percentages to describe the distribution of responses. Mean, standard deviation, kurtosis, and skewness were used to check



the normality of the data. To analyze the impact of knowledge about prohibited substances and attitudes toward these substances on purchasing decision behavior, multiple regression analysis using the enter method was conducted. The regression model identified the influence of independent variables on purchasing decisions by calculating coefficients to determine their significance and strength.

Results

Section 1 the findings of demographic information

The findings of the demographic information of the respondents are presented in Table 1. The study involved 390 participants from Lampang Province. The demographic details were categorized by gender, age, education level, social media platforms most frequently used, online platforms most frequently used for purchasing cosmetics, and factors influencing cosmetic purchasing decisions.

Gender: The majority of the respondents were female, accounting for 287 participants or 73.60% of the total. Male participants made up 18.70% (73 participants), while LGBTQ+ individuals represented 7.70% (30 participants).

Age: The largest age group was between 16 and 18 years, comprising 156 participants or 40.00%. This was followed by the 12–15 age group with 136 participants (34.90%). The 19–21 years group accounted for 10.30% (40 participants), while the 24–27 years and 21–23 years age groups had smaller proportions of 8.70% (34 participants) and 6.20% (24 participants), respectively.

Education level: Most respondents had a bachelor's degree, making up 41.80% (163 participants). Those with a vocational certificate or diploma constituted 27.20% (106 participants). Lower secondary education was reported by 20.80% (81 participants), while 8.50% (33 participants) had upper secondary education. Only 1.80% (7 participants) had primary education.

Social media platforms most frequently used: Instagram emerged as the most frequently used social media platform, with 52.10% (203 participants) using it regularly. TikTok was the second most popular platform, used by 24.40% (95 participants). Other platforms such as YouTube (6.70%, 26 participants), Facebook (8.50%, 33 participants), Discord (2.60%,



10 participants), and X (5.10%, 20 participants) were used less frequently. LINE had the lowest usage, with only 0.80% (3 participants).

Online platforms most frequently used for purchasing cosmetics: Shopee was the most popular platform for purchasing cosmetics, with 41.00% (160 participants) using it frequently. TikTok was the second most popular, accounting for 34.10% (133 participants). Official brand websites were used by 15.10% (59 participants). Other platforms such as Lazada (5.90%, 23 participants), Instagram (2.80%, 11 participants), and Facebook (1.00%, 4 participants) were less frequently used.

Factors influencing cosmetic purchasing decisions: The primary factor influencing purchasing decisions was reviews from actual users, which accounted for 54.60% (213 participants). Ingredients and product features were the second most important factor, cited by 16.40% (64 participants). Recommendations from influencers or bloggers influenced 11.00% (43 participants), while price and promotions influenced 10.30% (40 participants). Brand and image were the least influential factor, mentioned by 7.70% (30 participants).

Table 1 the findings of demographic information

Variable	Frequency	Percentage
Gender		
Male	73	18.70
Female	287	73.60
LGBTQ+	30	7.70
Total	390	100.00
Age		
12–15 years	136	34.90
16–18 years	156	40.00
19–21 years	40	10.30
21–23 years	24	6.20
24–27 years	34	8.70
Total	390	100.00
Education Level		
Primary	7	1.80



Variable	Frequency	Percentage
Lower Secondary	81	20.80
Upper Secondary	33	8.50
Vocational Certificate or Diploma	106	27.20
Bachelor's Degree	163	41.80
Total	390	100.00
Social Media Platforms Most Frequently Used		
Discord	10	2.60
Facebook	33	8.50
Instagram	203	52.10
LINE	3	0.80
TikTok	95	24.40
X	20	5.10
YouTube	26	6.70
Total	390	100.00
Online Platforms Most Frequently Used for Purchasing Cosmetics		
Official Brand Websites	59	15.10
Facebook	4	1.00
Instagram	11	2.80
Lazada	23	5.90
Shopee	160	41.00
TikTok	133	34.10
Total	390	100.00
Factors Influencing Cosmetic Purchasing Decisions		
Recommendations from Influencers/Bloggers	43	11.00
Brand and Image	30	7.70
Price and Promotions	40	10.30
Reviews from Actual Users	213	54.60
Ingredients and Product Features	64	16.40
Total	390	100.00

Section 2 The findings of hypothesis testing

Before conducting the hypothesis testing, the researcher examined the normal distribution of the data. The results of the data analysis revealed key insights into the relationship between knowledge, attitudes, and purchasing decision behavior among Generation Z consumers regarding prohibited substances in cosmetics on online platforms in Lampang Province. The normality test (Table2) indicated that all variables—consumers' knowledge of prohibited substances in cosmetics (CKC), attitudes toward prohibited substances in cosmetics (APC), and purchasing decision behavior (PDH)—exhibited acceptable levels of skewness and kurtosis, signifying normal data distribution. Consumers' knowledge of prohibited substances in cosmetics (CKC) had a mean of 0.93 and a standard deviation of 0.258, reflecting low variability and a slight positive skewness of 2.175. Attitudes toward prohibited substances in cosmetics (APC) had a mean of 4.82 and a standard deviation of 1.356, with skewness and kurtosis values well within acceptable thresholds, indicating a generally favorable attitude among participants toward awareness of prohibited substances in cosmetics. Lastly, purchasing decision behavior (PDH) showed a high mean score of 4.92, suggesting a strong inclination toward purchasing decisions influenced by knowledge and attitudes, with minimal variability as indicated by a standard deviation of 1.311. These findings suggest a consistent pattern of behavior among Generation Z consumers, where their knowledge and attitudes significantly shape their purchasing decisions in the online cosmetics market (Hair et al., 2021).

Table 2 the results of the normality test of the data distribution

Variable	Mean	Standard deviation	Kurtosis	Skewness
Consumers' knowledge of prohibited substances in cosmetics (CKC)	0.93	0.258	-3.330	2.175
Attitude of prohibited substances in cosmetics (APC)	4.82	1.356	-0.809	-0.487
Purchasing decision behavior (PDH)	4.92	1.311	-1.151	0.685



Table 3 shows a significant positive relationship between knowledge of prohibited substances in cosmetics, attitudes toward prohibited substances in cosmetics, and the purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province. The correlation coefficients demonstrate strong associations between the variables, with knowledge of prohibited substances (CKC) positively correlating with purchasing decision behavior (PDH) at a significance level of 0.01 ($r = 0.739^{**}$), and attitudes toward prohibited substances (APC) also showing a significant positive correlation with purchasing decision behavior ($r = 0.800^{**}$). Furthermore, multicollinearity diagnostics confirm that there are no significant issues, as indicated by tolerance values ranging from 0.159 to 0.655 and VIF values between 1.526 and 6.306. These findings suggest that Generation Z consumers' knowledge and attitudes toward prohibited substances in cosmetics significantly influence their purchasing decisions on online platforms (Malhotra, Nunan & Birks, 2020).

Table 3 the results of the linear relationship analysis of the variables

	PDH	CKC	APC	Tolerance	VIF
PDH	1.000				
CKC	0.739**	1.000		0.978	1.490
APC	0.800**	0.749**	1.000	0.949	1.528

Note ** Correlation is significant at the 0.01 level.

This study examines the impact of consumers' knowledge of prohibited substances in cosmetics (CKC) and their attitudes toward prohibited substances in cosmetics (APC) on purchasing decision behavior (PDH) among Generation Z consumers on online platforms in Lampang Province, in Table 4. Two hypotheses were tested using regression analysis.

For Hypothesis 1 (H1): Consumers' knowledge of prohibited substances in cosmetics has an impact on the purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province.

The regression results indicate that consumers' knowledge of prohibited substances in cosmetics (CKC) significantly influences purchasing decision behavior (PDH). The unstandardized coefficient (β) for consumers' knowledge of prohibited substances in cosmetics (CKC) is 0.704, with a standard error of 0.173. The standardized coefficient (Beta) is



0.623, and the t-value is 4.065, which is statistically significant at the 0.05 level ($p = 0.000$). These results suggest that Generation Z consumers with greater knowledge about prohibited substances in cosmetics are more likely to adjust their purchasing decisions on online platforms in response to this knowledge.

For Hypothesis (H2): Attitudes toward prohibited substances in cosmetics have an impact on the purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province.

The regression analysis also shows that attitudes toward prohibited substances in cosmetics (APC) significantly impact purchasing decision behavior (PDH). The unstandardized coefficient (β) for attitudes toward prohibited substances in cosmetics (APC) is 0.783, with a standard error of 0.030. The standardized coefficient (Beta) is 0.782, and the t-value is 5.888, which is statistically significant at the 0.05 level ($p = 0.000$). These findings highlight that positive or negative attitudes toward prohibited substances strongly influence the decision-making process of Generation Z consumers when buying cosmetics online.

The overall model demonstrates a good fit, with an R-value of 0.809, indicating a strong correlation between the independent variables, consumers' knowledge of prohibited substances in cosmetics (CKC) and attitudes toward prohibited substances in cosmetics (APC), and the purchasing decision behavior (PDH). The R^2 value of 0.655 means that 65.5% of the variation in purchasing decision behavior can be explained by consumers' knowledge and attitudes toward prohibited substances. The adjusted R^2 value of 0.653 confirms the model's reliability. Additionally, the F Change value of 67.210 is significant at the 0.05 level, supporting the overall strength of the regression model.

These findings confirm that both knowledge and attitudes toward prohibited substances in cosmetics play a crucial role in shaping the purchasing behavior of Generation Z consumers on online platforms in Lampang Province.

Table 4 Regression analysis results

Independent Variables		Dependent Variable: Y_PDH			
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	b	Std. Error	β		
Constant	0.417	0.188		2.218	0.027*
CKC	0.704	0.173	0.623	4.065	0.000*
APC	0.783	0.030	0.782	5.888	0.000*
R = 0.809, R ² = 0.655, Adjusted R ² = 0.653, F Change = 67.210					

Note ** is significant at the 0.05 level.

Based on the regression analysis results presented in Table 4, the regression equation predicting the purchasing decision behavior (PDH) from consumers' knowledge of prohibited substances in cosmetics (CKC) and attitudes toward prohibited substances in cosmetics (APC) is as follows:

$$Y_PDH = 0.417 + b1\ 0.704\ (CKC) + b2\ 0.783\ (APC)$$

Table 5 Hypothesis testing result

Hypothesis	Result
H1: Consumers' knowledge of prohibited substances in cosmetics has an impact on the purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province.	Accepted
H2: Attitudes toward prohibited substances in cosmetics have an impact on the purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province.	Accepted

Discussion

The findings from the regression analysis strongly support hypothesis 1 (H1) that consumers' knowledge of prohibited substances in cosmetics significantly impacts the



purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province. The results indicate that knowledge about harmful ingredients such as mercury, lead, and hydroquinone plays a vital role in guiding consumers' choices. When Generation Z consumers are better informed about the risks associated with these substances, they are more likely to prioritize safety and avoid products that may harm their health. This aligns with previous research (Suwandi & Balqiah, 2023; Ramadhani, Fauzi & Absah, 2021), which highlights the critical role of product knowledge in shaping informed purchasing decisions. The accessibility of information on online platforms further supports this behavior, as Generation Z consumers frequently use these channels to research product details, reviews, and certifications. However, the persistent knowledge gap, particularly among younger consumers, limits the ability of some individuals to fully evaluate the safety of products they purchase online. As noted by regulatory agencies and researchers (Manjula et al., 2022), the lack of comprehensive education on cosmetic safety continues to expose consumers to unregulated products. This emphasizes the need for targeted consumer education campaigns and stricter regulations to improve awareness and promote safer purchasing habits. Overall, the study confirms that increasing knowledge about prohibited substances can empower consumers to make healthier, more informed decisions, thereby reducing the risks associated with unsafe cosmetics.

The findings of hypothesis 2 (H2) confirm that attitudes toward prohibited substances in cosmetics have a significant impact on the purchasing decision behavior of Generation Z consumers on online platforms in Lampang Province. The regression analysis shows that attitudes toward prohibited substances (APC) strongly influence purchasing behavior, with a standardized coefficient (Beta) of 0.782 and a statistically significant t-value of 5.888 ($p = 0.000$). These results suggest that when Generation Z consumers hold negative attitudes toward prohibited substances, they are more likely to avoid purchasing products that may contain harmful ingredients, such as mercury or hydroquinone. This aligns with previous research that highlights the growing awareness of health risks and the importance of safety certifications in shaping consumer trust (Rahman, Rahim & Zaid, 2022; Manjula, et al., 2022). Generation Z's active presence on online platforms further amplifies this behavior, as they rely on product reviews, ingredient lists, and transparency from brands to make informed decisions (Septianda & Priantina, 2024; Suwandi & Balqiah, 2023). Additionally, marketing strategies that promote

product safety and emphasize the absence of harmful substances can positively shape attitudes and purchasing behavior (Park & Lee, 2023). Therefore, businesses in the cosmetics industry must address these concerns by providing transparent, accurate information and emphasizing safety to align with the values and priorities of Generation Z consumers, ultimately fostering trust and driving purchasing decisions.

Recommendation

Recommendations for Thai FDA and government agencies

Based on the findings of this study insights, the following recommendations are proposed for the Thai FDA and government agencies;

1. The Thai FDA should prioritize educational campaigns to increase awareness of prohibited substances in cosmetics. These campaigns should use simple language and highlight the risks associated with harmful substances. Interactive tools such as online quizzes, videos, and infographics can be effective in reaching Generation Z, who are highly active on social media and online platforms.
2. Government agencies should require cosmetic companies to provide clear and detailed ingredient labels on products sold online. Additionally, a user-friendly online database listing prohibited substances and their risks should be developed. This platform could allow consumers to check cosmetic ingredients and verify their safety before purchasing.
3. Attitudes toward prohibited substances greatly influence purchasing decisions. To encourage consumers to avoid harmful products, the Thai FDA should run public relations campaigns featuring testimonials from individuals harmed by these substances, supported by scientific evidence. These campaigns should focus on promoting safer alternatives and building consumer trust in the regulatory system.
4. Government agencies should integrate knowledge about prohibited substances in cosmetics into school curriculums to educate younger generations early. Lessons could focus on recognizing harmful ingredients, understanding health impacts, and making informed purchasing decisions.

Recommendations for Future Research

1. Future research could expand on the current study by exploring the impact of knowledge and attitudes toward prohibited substances in cosmetics across different age



groups. While this study focuses on Generation Z consumers, examining other demographic segments such as Millennials, Generation X, and Baby Boomers would provide a broader understanding of consumer behavior patterns. This would allow for comparisons of how different generations perceive and respond to information about prohibited substances in cosmetics.

2. Future studies should investigate the role of online platform features, such as product reviews, ratings, and certification marks, in influencing purchasing decisions related to cosmetics with prohibited substances. Understanding how these digital tools interact with consumers' knowledge and attitudes could provide insights into effective ways to promote safer purchasing behavior in the online marketplace.

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