



Factors associated with dermatitis preventive behavior: A community-based study

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ABSTRACT

Background: As the prevalence of dermatitis continues to increase in Indonesia, particularly in urban areas, preventive behavior becomes a crucial determinant. National data from the 2018 Basic Health Research (RISKESDAS) reported a prevalence of 6.8%, with some provinces including Jakarta showing rates above the national average. Preventive behavior against dermatitis is influenced by demographic characteristics, knowledge, attitudes, and access to information. **Methods:** This study employed a quantitative analytic observational design using a cross-sectional approach. A total of 106 respondents aged 15–45 years in Kemayoran District, Jakarta, were selected through quota sampling. Data were collected using a structured questionnaire that had passed validity and reliability testing (Cronbach's Alpha > 0.70). Analysis was performed using univariate and bivariate methods with the Chi-Square test. **Findings:** The results showed that respondents aged 31–45 years (60%), females (57.9%), those with higher education levels (67.4%), employed individuals (61.7%), respondents with good knowledge (66.2%), positive attitudes (60.5%), and those exposed to information about dermatitis (63%) were more likely to adopt preventive behaviors. Statistically significant associations were identified between dermatitis preventive behavior and age, gender, education level, occupation, knowledge, attitudes, and information exposure ($p < 0.05$), indicating meaningful relationships between these factors and preventive behavior. **Conclusion:** Demographic factors, knowledge, attitudes, and information exposure significantly influence dermatitis prevention behavior in urban communities. These findings highlight the importance of targeted health promotion programs, especially for groups with lower education and limited access to dermatological information. **Novelty/Originality of this article:** This study provides new empirical evidence by examining dermatitis prevention behavior in Kemayoran District, a densely populated urban area that has rarely been investigated, thereby enriching the literature on preventive health behavior in Indonesia.

KEYWORDS: attitude; demographic characteristics; dermatitis prevention behavior; knowledge; information exposure.

1. Introduction

Dermatitis is an inflammatory skin disorder that may involve both the epidermal and dermal layers as a response to a wide range of internal and external triggers. Clinically, dermatitis presents with polymorphic lesions, including erythema, edema, papules, vesicles, and scaling, and is commonly accompanied by pruritus. Among its various

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subtypes, atopic dermatitis, also referred to as atopic eczema, represents the most prevalent chronic inflammatory skin disease in childhood. Atopic dermatitis is characterized by persistent itching, xerosis, excoriation due to scratching, and a chronic relapsing course. The distribution of lesions varies according to age, typically affecting the face and extensor surfaces in infants, while flexural areas are more commonly involved in older children and adolescents (Djuanda et al., 2021; Gür Çetinkaya & Murat Şahiner, 2019). Epidemiologically, atopic dermatitis is recognized as a global health concern with substantial geographic variation. The International Study of Asthma and Allergies in Childhood (ISAAC) reported that the prevalence of atopic dermatitis in children worldwide ranges from 0.2% to 24.6%, reflecting marked heterogeneity across regions. This variation underscores the complex interaction between genetic susceptibility, environmental exposures, socioeconomic factors, and lifestyle-related determinants that influence disease occurrence and expression. The rising prevalence observed in many countries suggests that modernization, urbanization, and environmental changes may play a significant role in disease development (Gür Çetinkaya & Murat Şahiner, 2019). Recent global estimates further suggest that atopic dermatitis affects approximately 10-20% of children and 5-10% of adults, with the highest burden observed in early childhood (Langan, Irvine & Weidinger, 2020).

In Southeast Asia, a rising trend in atopic dermatitis prevalence has been observed, particularly in urbanized regions. In Singapore, ISAAC data demonstrated a pronounced increase in atopic dermatitis prevalence over time. Between 1995 and 2001, the prevalence among children aged 6–7 years increased from 2.8% to 8.9%, while in adolescents aged 13–14 years it rose from 3.4% to 9.2%. Subsequent studies have reported even higher prevalence rates, reaching up to 21.5% among adolescents aged 16 years, highlighting the growing burden of atopic dermatitis in highly urbanized settings (Cheng et al., 2021). Overall, the prevalence of atopic dermatitis in pediatric populations across the Asia Pacific region ranges from below 5% to approximately 20%, indicating substantial variability among countries. In Indonesia, the prevalence was reported at 3.7% in children aged 6–7 years and 3.1% in adolescents aged 13–14 years, according to ISAAC surveys, further underscoring the regional heterogeneity (Tsai et al., 2019).

Atopic dermatitis (AD) remains a public health concern with a relatively high prevalence in Indonesia. Several provinces, including Jakarta, have reported rates exceeding the national average; data from the Basic Health Research (RISKESDAS) indicate a prevalence of 9.99%. AD is predominantly observed in younger individuals. The pathogenesis of AD is multifactorial, involving genetic predisposition, skin barrier dysfunction, immune dysregulation, and environmental exposures. These mechanisms collectively contribute to disease chronicity, heterogeneity of clinical presentation, and frequent relapse. Given its early onset and long-term impact on quality of life, effective preventive strategies, early intervention, and comprehensive management are essential to reduce disease progression and improve outcomes in pediatric populations (Febryani et al., 2021; Gür Çetinkaya & Murat Şahiner, 2019; Sureda et al., 2023).

Biological sex and gender independently influence the risk, clinical manifestation, and management of dermatological conditions such as dermatitis. Males characteristically have higher androgen hormone levels, leading to increased sebaceous gland activity and sebum production, which contribute to a higher prevalence and distinct clinical presentations of dermatitis. Additionally, physiological differences such as skin thickness, hydration levels, and immune responses vary according to sex, affecting susceptibility and severity of dermatological diseases. Gender-related psychosocial factors substantially affect health awareness and preventive behaviors; women typically engage in more consistent skin care routines and are more inclined to seek dermatological care, thereby improving prevention and early intervention outcomes. Recognition of these sex- and gender-specific differences is critical for developing targeted preventive strategies and educational programs aimed at reducing the burden of dermatitis (Lagacé et al., 2023).

Dermatitis can be influenced by environmental factors, types of exposure, causative agents, as well as individual characteristics. The study by Ernawati et al. (2011),

demonstrated that individual risk factors and household environmental conditions are closely associated with communicable diseases such as malaria, indicating that environmental factors should also be taken into account in the context of dermatitis prevention. Pratyusha et al. (2024) conducted a cross-sectional study to examine the association between recurrent skin infections and personal hygiene practices among school going children. The study highlighted that inadequate or improper hygiene behaviors, such as infrequent bathing, irregular trimming of nails, sharing of personal items like towels and clothes, and not changing into clean garments daily were significantly associated with the occurrence of recurrent skin infections. The most common types of infections observed were fungal (44.4%), followed by bacterial (33.3%), scabies (16.7%), and viral infections (5.6%). These findings emphasize that poor hygiene practices create favorable conditions for pathogenic organisms, leading to an increased risk of dermatological complaints. Education level also plays an important role in enhancing a person's knowledge and decision-making ability. The higher the education, the greater the awareness and adoption of preventive behaviors against atopic dermatitis (Junita & Mukmin, 2022).

Preventive behavior plays a crucial role in reducing the burden of dermatitis, particularly among populations with high exposure to skin irritants Soltanipoor et al. (2017). Preventive measures such as maintaining proper skin hygiene, avoiding known irritants and allergens, regular use of emollients, and early management of skin symptoms have been shown to reduce both the incidence and severity of dermatitis (Langan, Irvine & Weidinger, 2020). Lawrence et al. (1980) explains that health behavior is influenced by three major determinants: predisposing, enabling, and reinforcing factors. Predisposing factors include individual characteristics that motivate behavior change, such as knowledge, beliefs, attitudes, and perceptions related to disease prevention. Adequate knowledge regarding risk factors, early signs of dermatitis, and appropriate skin care practices has been associated with improved preventive behavior and reduced disease recurrence. Moreover, positive attitudes toward skin health and perceived susceptibility to dermatitis have been shown to enhance adherence to preventive strategies (Asmarasari & Astuti, 2019; Erviana & Azinar, 2022).

Enabling factors refer to the availability of resources and conditions that facilitate preventive behavior, including access to healthcare services, affordable skin care products, educational materials, and supportive infrastructure. Limited access to dermatological services and preventive facilities has been identified as a significant barrier to effective dermatitis prevention, particularly in low- and middle-income settings. Strengthening health systems and improving accessibility to preventive interventions are therefore essential components of dermatitis control (Erviana & Azinar, 2022).

Reinforcing factors involve social and environmental support from health professionals, family members, peers, and the community. Continuous education and counseling provided by healthcare workers, along with family and community support, can reinforce preventive behaviors and promote sustained adherence over time. The integration of behavioral theory into preventive strategies highlights the importance of comprehensive, multi-level interventions in reducing the burden of dermatitis and improving skin health outcomes (Langan, Irvine & Weidinger, 2020; Sureda et al., 2023).

Preventive behavior refers to an individual's actions aimed at avoiding diseases, health risks, consumption of unsafe food and beverages, and exposure to hazardous environments. This behavior reflects conscious efforts to protect personal health and maintain wellbeing (Nazmi & Putri, 2022). The most crucial preventive behavior against dermatitis is maintaining proper hygiene. Strengthening and maintaining optimal skin barrier function can be achieved by frequent hand and foot washing, regularly changing clothes to minimize microbial exposure, and applying moisturizers immediately after bathing. Furthermore, bathing in warm water for no longer than 10 minutes has been shown to help prevent atopic dermatitis. The use of low-pH, hypoallergenic soaps in combination with moisturizers plays a crucial role in maintaining healthy skin hydration and protecting the skin barrier. Low-pH cleansers, typically with a pH close to the skin's natural acidic mantle (around 5.5), help preserve the skin's microbiome and prevent irritation that is commonly caused by alkaline

soaps. Harsh alkaline soaps can disrupt the lipid matrix and proteins of the stratum corneum, leading to dryness, increased transepidermal water loss, and vulnerability to irritants and allergens. The use of hypoallergenic formulations minimize the risk of allergic reactions, making such cleansers suitable for sensitive skin types. Moisturizers, often used after cleansing, work synergistically by replenishing water and lipids lost during washing. They contain humectants that attract moisture, occlusives that seal in hydration, and emollients that smooth the skin surface, all contributing to the restoration and preservation of the skin barrier function. The combined use of low-pH, hypoallergenic soaps and moisturizers therefore helps to maintain skin hydration, reduce dryness, and prevent barrier damage, which are essential for overall skin health and the management of conditions such as eczema and dermatitis (Madnani et al., 2024; PERDOSKI, 2021; Susilaningsih, 2023). Soltanipoor et al. (2017), demonstrated that skin care programs combining education with emollient use effectively reduce the severity and occurrence of occupational dermatitis.

Preventive behavior against dermatitis is influenced by various factors, including knowledge, occupation, attitude, exposure to information, and educational programs. Workplace-based interventions have been shown to be effective in reducing dermatitis incidence among workers, as demonstrated by Sakhvidi et al. (2019), who reported that targeted occupational health measures significantly decreased dermatitis cases. Similarly, Shakik et al. (2019), found that preventive actions in occupational settings contributed to lowering the prevalence of dermatitis. Recent research further supports these findings; Prakoeswa et al. (2022), highlighted occupational exposures as key risk factors and emphasized the importance of educational programs and proper use of personal protective equipment in mitigating dermatitis risk. Beyond these individual studies, systematic evidence indicates that comprehensive preventive measures, such as the use of barrier creams, emollients, moisturizers, appropriate glove use, and structured education are effective tools in reducing clinical symptoms of occupational contact dermatitis and improving workers' preventive behaviors, particularly in healthcare settings where exposure to irritants is high (Salsabila et al., 2022).

Furthermore, a recent comprehensive review by Dick, Metzger, & Dungal (2025) in *Journal of Clinical Medicine* highlights the role of skin protection creams as part of occupational dermatitis prevention strategies. This review synthesizes current evidence on how skin protection creams support the skin barrier against occupational irritants and describes emerging evaluation methods that could improve workplace prevention practices, indicating the continued need for multi-modal prevention approaches such as protective creams in combination with PPE use and education to minimize the risk of occupational dermatitis across diverse work environments.

Recent research reinforces the strong association between knowledge levels and individuals' attitudes toward preventive behavior. A study conducted in 2024 demonstrated that improved knowledge significantly correlates with positive attitudes, which subsequently enhances the likelihood of adopting preventive practices (Adam et al., 2024). This finding aligns with broader health behavior theories that emphasize the pivotal role of accurate knowledge in shaping attitudes that promote health-positive actions. Moreover, health education remains a cornerstone in raising awareness and encouraging proper skin care. Several latest studies have demonstrated that structured health education interventions, including multimedia and community outreach efforts, effectively elevate awareness and improve skin care practices (Patel & Nixon, 2022; Yüksel et al., 2022). These educational programs not only deliver critical information but also motivate behavior change through reinforcing positive attitudes, ultimately contributing to the prevention of dermatological conditions.

Educational interventions and the adoption of protective routines, such as the use of emollients and proper hand hygiene, have been proven effective in preventing contact dermatitis. Soltanipoor et al. (2017) demonstrated that a structured skin care program, which integrated education and preventive practices, successfully reduced the risk of occupational dermatitis among healthcare workers. These findings emphasize the

importance of promoting preventive behavior not only in healthcare settings but also in the broader community to mitigate the occurrence of dermatitis Soltanipoor et al. (2017). Manyullei et al. (2022), showed that counseling through material presentation and discussions with health workers improved preventive behaviors, while Aurelly & Santoso (2023), found that educational videos increased individuals' knowledge levels. Furthermore, providing education enables individuals to understand the importance of preventive measures, such as proper skin care practices and the use of appropriate products, which significantly reduce the risk of dermatitis (Nursasmita et al., 2023).

Considering these findings, the high prevalence of atopic dermatitis in Jakarta, one of the provinces with above-average national rates, may be attributed to inadequate preventive behaviors, poor personal hygiene, and limited education and knowledge regarding dermatitis prevention. Recent international evidence has highlighted the importance of knowledge, attitudes, and access to health information in shaping dermatitis preventive behavior. A scoping review by Wilken et al. (2023) demonstrated that patient education was associated with improved knowledge, self-management practices, and preventive behaviors among individuals with dermatitis. However, existing studies in Indonesia predominantly focus on the clinical aspects or prevalence of dermatitis, with limited attention to preventive behaviors, particularly in densely populated urban settings. Moreover, empirical evidence examining the combined influence of demographic characteristics, knowledge, attitudes, and information exposure on dermatitis prevention behavior at the district level remains scarce.

Kemayoran District, as one of the most densely populated areas in Jakarta, presents unique environmental and social conditions that may influence preventive health behaviors; however, this context has rarely been explored in previous studies. Therefore, this study was conducted to examine factors associated with preventive behaviors against dermatitis in Kemayoran District, Jakarta. Specifically, this study aims to describe preventive behaviors, identify respondents' demographic characteristics, knowledge, attitudes, and information exposure, and analyze their association with dermatitis prevention behaviors.

2. Methods

2.1 Research design

This research employed a quantitative observational analytic design aimed at identifying factors related to preventive behaviors against dermatitis among residents of Kemayoran District, DKI Jakarta. Specifically, the study utilized a cross-sectional approach, in which data were collected at a single point in time through structured observation and measurement of relevant variables. This design was chosen to provide a systematic assessment of the relationships between independent and dependent variables within the community setting. By applying this methodology, the study was able to obtain a representative snapshot of the population while simultaneously examining potential associations between sociodemographic characteristics, knowledge, attitudes, and preventive behaviors related to dermatitis.

2.2 Study setting

The research was conducted in Kemayoran District, Jakarta, as this area represents a densely populated urban community with diverse demographic characteristics and has demonstrated an increasing trend in skin health problems, particularly dermatitis. The selection of this location was based on its relevance as a representative urban setting where environmental, social, and behavioral factors may influence preventive health practices. Conducting the study in this district was therefore intended to generate empirical evidence

and contribute to the existing body of scientific knowledge regarding the determinants of dermatitis prevention behavior within complex urban environments.

2.3 Population and sampling

The study population consisted of individuals living in Kemayoran, with samples selected based on inclusion criteria: willingness to participate, age between 15 and 45 years, and residency in the district. The sampling technique employed was quota sampling. Quota sampling was employed to ensure proportional representation of key demographic characteristics within the study population and to facilitate data collection in a densely populated urban setting. This approach was considered appropriate given the absence of a comprehensive sampling frame and the practical constraints of community-based field research. However, the use of quota sampling may limit the generalizability of the findings beyond the study population. The number of samples was established using the Lemeshow formula to calculate the sample size for an unknown population (Syapitri et al., 2021).

$$n = \frac{Z^2 \cdot P \cdot (1-P)}{d^2} \quad (\text{Eq. 1})$$

The parameters of the Lemeshow formula are as follows: z , the Z-score from the standard normal distribution based on a 95% confidence level = 1.96; p , the maximum estimated proportion of 50% = 0.5; $1-p$, the estimated proportion of the population without the characteristic; and d , the margin of error of 10% = 0.1. Based on this calculation, the minimum required sample size was 96 respondents. To maintain sample consistency, 10% was added, resulting in a total of 106 respondents included in this study.

2.4 Data collection and instrument

This study utilized primary data collected directly from respondents. The research instrument was a structured questionnaire, consisting of multiple items designed to measure variables including knowledge, preventive behavior, attitude, and information exposure. To ensure the quality of the instrument, validity and reliability tests were conducted (Budiastuti & Bandur, 2018). Validity was assessed using the Corrected Item-Total Correlation analysis, which examines the correlation of each item with the total score. An item was deemed valid if its calculated correlation coefficient (r) exceeded the critical correlation value (r table = 0.5214) at a 0.05 significance level with a two-tailed test. All items in the questionnaire met this criterion, signifying that they were valid measures of their respective constructs. Reliability testing was performed using Cronbach's Alpha to evaluate internal consistency. The resulting coefficients were 0.811 for knowledge, 0.844 for preventive behavior, 0.845 for attitude, and 0.957 for information exposure, all exceeding the commonly accepted threshold of 0.70. These results demonstrate that the instrument exhibits high reliability and is appropriate for assessing the targeted variables. Therefore, the questionnaire is considered a robust tool for investigating the factors associated with preventive behavior toward dermatitis in Kemayoran District, DKI Jakarta.

2.5 Data analysis

All collected data were processed using the Statistical Package for the Social Sciences (SPSS). Data analysis was performed using univariate analysis and bivariate analysis. Univariate analysis is a method that focuses on examining each variable individually from the research data. This type of analysis is used to describe the research variables, which are presented in the form of frequency distributions expressed as percentages for each variable. Bivariate analysis is used to examine the relationship between an independent variable and a dependent variable. The statistical test employed for bivariate analysis in this study is the

Chi-Square test. Moreover, the Chi-Square test is utilized to determine whether there is a significant association between two categorical variables (Tunny, 2021).

3. Results and Discussion

3.1 Univariate analysis

Primary data were obtained through direct field data collection among respondents in the Kemayoran District area. Data collection was conducted using a structured questionnaire administered to 106 respondents who met the study's inclusion criteria to assess factors associated with dermatitis preventive behavior. Prior to its implementation, the research instrument used to assess respondents' knowledge, attitudes, and dermatitis prevention behaviors underwent comprehensive validity and reliability testing to ensure its methodological rigor. These procedures were performed to confirm that the instrument accurately and consistently measured the intended constructs, thereby enhancing the credibility, reliability, and overall empirical robustness of the study findings. The data analysis presented in this section is univariate analysis, which was conducted to describe the frequency and distribution of each study variable. The results are displayed in the form of tables.

Table 1. Univariate analysis (N=106)

Variables	Questions related to variables	Category	Frequency distribution (%)
Preventive behavior	Washing hands and feet before activities	Never	0
		Rarely	3.8
		Sometimes	27.4
		Often	30.2
		Always	38.6
		Total	100%
	Changing clothes regularly after activities	Never	0
		Rarely	1.9
		Sometimes	26.4
		Often	19.8
		Always	51.9
		Total	100%
	Bathing at least twice a day	Never	0
		Rarely	1.9
		Sometimes	6.6
		Often	34
		Always	57.5
		Total	100%
	Bathing with warm water	Never	17
		Rarely	30.2
		Sometimes	32.1
		Often	11.3
		Always	9.4
		Total	100%
Washing hands and feet after activities	Never	0	
	Rarely	1.9	
	Sometimes	11.3	
	Often	33	
	Always	53.8	
	Total	100%	
Bathing using low-pH soap	Never	45.3	
	Rarely	10.4	
	Sometimes	25.5	
	Often	9.4	
	Always	9.4	
	Total	100%	

		Total	100%
	Moisturizer use when skin feels dry	Never	34
		Rarely	13.2
		Sometimes	19.8
		Often	12.3
		Always	20.7
		Total	100%
	Avoidance of wearing wet clothes for a long period	Never	4.7
		Rarely	1.9
		Sometimes	15.1
		Often	23.6
		Always	54.7
		Total	100%
	Immediate washing of clothes after use	Never	2.8
		Rarely	14.2
		Sometimes	31.1
		Often	23.6
		Always	28.3
		Total	100%
	Avoidance of repeated use of the same clothes	Never	0
		Rarely	18.9
		Sometimes	20.8
		Often	17
		Always	43.4
		Total	100%
Demographic characteristics of respondents	Age	15-30 Years	38.7
		31-45 Years	61.3
		Total	100%
	Gender	Male	28.3
		Female	71.7
		Total	100%
Occupation	Employed	56.6	
	Unemployed	43.4	
	Total	100%	
Education level	Elementary School or less	0	
	Junior-Senior High School	56.6	
	> Senior High School	43.4	
	Total	100%	
Knowledge	Definition	Incorrect	42.5
		Correct	57.5
		Total	100%
	Etiology and risk factors	Incorrect	64.2
		Correct	35.8
		Total	100%
	Symptoms	Incorrect	8.5
		Correct	91.5
		Total	100%
	Prevention	Incorrect	4.7
		Correct	95.3
		Total	100%
Attitudes	Maintaining personal hygiene	Poor	0
		Moderate	27.4
		Good	72.6
		Total	100%
	Maintaining environmental hygiene	Poor	3.8
		Moderate	28.3
		Good	67.9
		Total	100%
	Maintaining skin moisture	Poor	17
Moderate		39.6	

		Good	43.4
		Total	100%
	Avoiding allergens and irritants	Poor	13.2
		Moderate	39.6
		Good	47.2
		Total	100%
Information exposure	Counseling	No	30.2
		Yes	69.8
		Total	100%
	Video counseling	No	42.5
		Yes	57.5
		Total	100%
	Written counseling materials	No	62.3
		Yes	37.7
		Total	100%
	Discussion with health workers	No	64.2
		Yes	35.8
		Total	100%

Based on the data, most respondents demonstrated good general hygiene related to dermatitis prevention. Specifically, 38.7% always washed their hands and feet before activities, 51.9% routinely changed clothes after activities, 57.5% bathed at least twice a day, and 53.8% consistently washed their hands afterward. Preventive clothing habits were also evident, with 54.7% always avoiding prolonged use of wet clothes, 31.1% sometimes washing clothes after use, and 43.4% always avoiding wearing the same clothes repeatedly. However, nearly half of the respondents (45.3%) never used low-pH soap, and 34% did not apply moisturizer when their skin was dry. This paradox underscores a behavioral gap: while general hygiene practices are relatively well maintained, specific dermatological preventive measures remain neglected. The total number of respondents was 106.

Majority of the respondents were aged above 30 years, specifically within the 31-45 year age range accounting for 65 individuals (61.3%). Female respondents constituted the majority, representing 76 participants (71.7%). Employment status showed that 60 respondents (56.6%) were employed, while educational attainment was dominated by those with junior to senior high school education, also totaling 60 respondents (56.6%). The total number of respondents answering demographic characteristic questions was 106.

Regarding the knowledge variable, the majority correctly answered the question about the definition, with 61 respondents (57.5%) answering correctly. However, 68 respondents (64.2%) gave incorrect responses related to etiology and risk factors. High correct response rates were observed in symptom recognition (97 respondents, 91.5%) and prevention measures (101 respondents, 95.3%). The total sample size remained 106 respondents. In terms of attitude, most respondents displayed positive attitudes towards personal hygiene (77 respondents, 72.6%) and environmental cleanliness (72 respondents, 67.9%). Additionally, 46 respondents (43.4%) had a good attitude towards maintaining skin moisture, and 50 respondents (47.2%) showed positive attitudes about avoiding the use of allergenic and irritating substances. The total respondents for attitude-related items also numbered 106. For the information exposure variable, 74 respondents (69.8%) reported participation in health education sessions, and 61 respondents (57.5%) acknowledged exposure through videos. Conversely, 66 respondents (62.3%) reported no exposure through material dissemination, and 68 respondents (70.8%) reported no discussion with healthcare workers. The total respondents for information exposure were 106.

3.2 Bivariate analysis

In the study entitled "Factors Associated with Preventive Behavior of Dermatitis in Kemayoran District, DKI Jakarta," the data were obtained through primary data collection involving 106 respondents. The collected data were subsequently categorized based on the

respondents' answers to the structured questionnaire, with a scoring system applied to systematically classify the levels of preventive behavior. This scoring method was used to ensure a consistent and objective interpretation of the questionnaire responses and was calculated using the following formula:

$$\text{Maximum Total Score} = (\text{Number of Questions}) \times (\text{Highest Answer Score}) \quad (\text{Eq.1})$$

$$\text{Minimum Total Score} = (\text{Number of Questions}) \times (\text{Lowest Answer Score}) \quad (\text{Eq.2})$$

$$\text{Score Interval} = \frac{\text{Maximum Total Score} - \text{Minimum Total Score}}{2} \quad (\text{Eq.3})$$

The variable Preventive Behavior was measured using 10 items on a 5-point Likert scale (1 = Never to 5 = Always). Each respondent's total score was the sum of all items, which was then classified into two categories: Applied (31–50 points) and Not Applied (10–30 points). The variable Knowledge was assessed through 4 items with binary responses: Correct (score 1) and Incorrect (score 0). Each respondent's score was the sum of these four items and categorized into two groups: Good (3–4 points) and Poor (0–2 points). The variable Attitude was measured through 4 items with three levels of responses: Good (3), Fair (2), and Poor (1). The total score was classified into two categories: Good (9–12 points) and Poor (4–8 points). The variable Information Exposure was assessed using 4 items with two possible responses: Yes (2) and No (1). Each respondent's score was the sum of all items and categorized into: Exposed (7–8 points) and Not Exposed (4–6 points). The data analysis in this study was conducted using bivariate analysis using the Chi-square test to examine the association between independent variables and dermatitis preventive behavior. The results are presented in the form of tables, with a significance level set at $p < 0.05$.

In the age variable, the percentage was found to increase in the 31–45 year age group compared to the 15–30 year age group, with 60% of respondents reporting preventive behaviors. This finding indicates that increasing age is associated with a higher likelihood of practicing dermatitis prevention behaviors. Older individuals tend to have greater life experience, increased awareness of health risks, and a stronger perception of vulnerability to occupational diseases, which may contribute to more consistent adoption of preventive measures. In addition, individuals in older age groups are more likely to have experienced previous skin problems or occupational health complaints, thereby reinforcing preventive attitudes and behaviors. The findings regarding the association between demographic characteristics, particularly age, and dermatitis prevention behaviors are consistent with previous research conducted by Asrul et al. (2021), which reported a significant relationship between age and dermatitis prevention efforts among printing workers in Makassar. These results suggest that age plays an important role in shaping health behavior and should be considered when designing targeted educational and preventive interventions, particularly for younger workers who may underestimate occupational skin health risks.

For the gender variable, a higher percentage was observed among female respondents compared to male respondents, with 57.9% of women engaging in dermatitis prevention behaviors. These findings indicate that women tend to adopt dermatitis prevention behaviors more frequently than men. This difference may be attributed to variations in health awareness, risk perception, and attitudes toward personal hygiene and skin care, as women are generally more attentive to early symptoms and preventive health practices. In addition, women are often more receptive to health-related information and more compliant with recommended preventive measures, including the use of personal protective equipment and skin care routines. This result is consistent with the study conducted by Hiller et al. (2017), which emphasized that gender plays a crucial role in shaping preventive practices in dermatology, highlighting that women are generally more proactive in adopting health-protective behaviors. Consistently, a systematic review of 23 studies across 13 countries further demonstrated that females were more likely than males

to engage in preventive health measures (Hiller et al., 2017). These findings suggest that gender-sensitive approaches may be necessary when designing educational and preventive programs for dermatitis, particularly to encourage greater participation and compliance among male workers.

Tabel 2. Bivariate analysis

Variable	Dermatitis preventive behavior				Total	<i>p-value</i>
	Not applied		Applied			
	n	%	n	%	n	%
Age						
15-30 Years	26	63.4	15	36.6	41	100
31-45 Years	26	40	39	60	65	100
Total	52	49.1	54	50.9	106	100
Gender						
Male	20	66.7	10	33.3	30	100
Female	32	42.1	44	57.9	76	100
Total	52	49.1	54	50.9	106	100
Occupation						
Unemployed	29	63	17	37	46	100
Employed	23	38.3	37	61.7	60	100
Total	52	49.1	54	50.9	106	100
Education Level						
Junior–Senior High School	37	61.7	23	38.3	60	100
> Senior High School	15	32.6	31	67.4	46	100
Total	52	49.1	54	50.9	106	100
Knowledge						
Poor	30	73.2	11	26.8	41	100
Good	22	33.8	43	66.2	65	100
Total	52	49.1	54	50.9	106	100
Attitude						
Poor	22	73.3	8	26.7	30	100
Good	30	39.5	46	60.5	76	100
Total	52	49.1	54	50.9	106	100
Information Exposure						
Not exposed	35	58.3	25	41.7	60	100
Exposed	17	37	29	63	46	100
Total	52	49.1	54	50.9	106	100

In the occupation variable, a higher percentage of dermatitis prevention behaviors was observed among employed respondents, with 61.7% reporting the adoption of preventive measures. This finding indicates that individuals who are employed are more likely to initiate and maintain dermatitis prevention behaviors. This may be attributed to increased exposure to occupational health risks, greater access to workplace health information, and the availability of structured preventive programs, such as safety training, use of personal protective equipment, and occupational health policies. Employed individuals are also more likely to receive institutional support and supervision, which can reinforce compliance with preventive practices. This result is supported by prior research, including a cohort study conducted by Shakik et al. (2019), which found that preventive behavior initiatives implemented in the workplace significantly reduced the number of dermatitis cases in Ontario over a three-month period. Similarly, a literature review by Sawada (2023) demonstrated that high-risk occupational groups, such as healthcare workers, actively engaged in dermatitis prevention measures during the COVID-19 pandemic due to heightened awareness, mandatory protective protocols, and continuous health education. These findings suggest that workplace-based interventions play a critical role in promoting preventive behavior and should be strengthened and adapted for both formal and informal employment sectors.

For the education variable, 67.4% of respondents with education levels higher than senior high school practiced dermatitis prevention behaviors. This finding suggests that a higher level of formal education is associated with a greater likelihood of adopting preventive behaviors against dermatitis. Individuals with higher educational attainment tend to have better access to health information, stronger cognitive skills to process and evaluate health messages, and a greater capacity to understand the long-term benefits of preventive actions. Education also enhances critical thinking and health literacy, which facilitate informed decision-making and adherence to recommended preventive practices. This finding is consistent with the research conducted by Ernawati et al. (2022), which demonstrated a relationship between knowledge, educational level, and the practice of Clean and Healthy Living Behavior/*Perilaku Hidup Bersih dan Sehat* (PHBS) in Jakarta, thereby contributing to the reduction of environment-related diseases. Furthermore, Tampubolon et al. (2024) reported that educational interventions delivered through video and leaflet media effectively improved students' attitudes and preventive behaviors toward skin cancer, reinforcing the critical role of education as a key determinant in shaping preventive health practices. Taken together, these findings highlight the importance of strengthening educational strategies and health promotion programs to enhance dermatitis prevention behaviors, particularly among individuals with lower educational backgrounds.

A high percentage (66.2%) of respondents with good knowledge practiced preventive behaviors against dermatitis, demonstrating that better knowledge increases the likelihood of adopting such behaviors. This finding suggests that individuals with adequate knowledge are more capable of recognizing risk factors, understanding preventive measures, and making informed decisions regarding skin protection in daily and occupational activities. Knowledge also plays a critical role in shaping attitudes and perceived benefits of prevention, which in turn facilitates consistent engagement in protective behaviors. Similarly, Nie et al. (2024) found that knowledge and attitudes significantly influence health practices among patients with atopic dermatitis. Their study highlighted that better understanding of treatment precautions, bathing practices, and skincare routines was positively associated with adherence to treatment and lifestyle management, while also promoting risk avoidance behaviors. These findings underscore the importance of enhancing knowledge and attitudes through targeted education and health promotion programs as key strategies to improve dermatitis preventive practices, particularly in populations at risk of occupational or environmental exposure.

In the attitude variable, a high percentage (60.5%) of respondents with positive attitudes engaged in dermatitis prevention behaviors. This finding suggests that the more positive an individual's attitude toward health and personal hygiene in daily life, the greater the likelihood of consistently implementing preventive measures against dermatitis. Positive attitudes reflect a stronger belief in the benefits of prevention, higher motivation to protect skin health, and a greater willingness to adopt recommended practices, such as proper hygiene, use of personal protective equipment, and avoidance of known irritants. Attitudes also play a mediating role between knowledge and behavior, translating understanding of health risks into concrete preventive actions. The relationship between attitude and dermatitis prevention behaviors observed in this study is consistent with findings reported by Amelia & Sari (2022), who identified a significant association between attitudes and the incidence of skin diseases, particularly dermatitis, in Saung Naga Village, Tanjung Agung Public Health Center, Baturaja Barat District, Ogan Komering Ulu Regency in 2021. These findings emphasize the importance of interventions aimed not only at improving knowledge but also at fostering positive attitudes to effectively enhance dermatitis prevention behaviors.

For the information exposure variable, the highest percentage was observed among respondents who were exposed to information, with 63% practicing dermatitis prevention behaviors. This finding indicates that greater exposure to health-related information increases the likelihood of adopting preventive measures, which aligns with the role of education and information dissemination in shaping health behavior. Individuals who are

frequently exposed to relevant information are more likely to develop awareness of risk factors, recognize early symptoms, and understand appropriate preventive actions, thereby facilitating behavior change. These findings are supported by research conducted by Susilaningih (2023), which reported a significant association between information exposure and dermatitis prevention behaviors among fishermen in the Batang Kapas area, Pesisir Selatan Regency, in 2022. In addition, Ariano et al. (2019) found that community behavior influenced by information and environmental factors was associated with the incidence of acute respiratory infections, underscoring the broader importance of continuous health education and information exposure in promoting disease prevention behaviors, including those related to dermatitis. These findings are consistent with Green's PRECEDE-PROCEED model, which emphasizes that predisposing factors (such as knowledge and attitudes), enabling factors (including access to appropriate hygiene facilities, soap, and moisturizers), and reinforcing factors (such as support from health workers and the community) collectively influence and sustain preventive health behaviors.

This study employed bivariate analysis to explore associations between independent variables and dermatitis preventive behavior. Multivariate analysis was not conducted due to the relatively small sample size and the exploratory nature of the study, which aimed to identify potential factors associated with dermatitis prevention rather than establish causal relationships. Therefore, the findings should be interpreted with caution. Future studies involving larger sample sizes are recommended to apply multivariate analytical approaches in order to identify independent predictors and better understand the relative contribution of each factor to dermatitis preventive behavior.

4. Conclusions

This study demonstrates that dermatitis preventive behavior among residents of Kemayoran District is significantly associated with demographic characteristics, knowledge, attitudes, occupation, education level, and exposure to health information. Respondents who were older, female, employed, and had higher educational attainment were more likely to practice preventive behaviors. Furthermore, good knowledge and positive attitudes toward personal and environmental hygiene were strongly related to the adoption of dermatitis prevention measures. Exposure to health information also played a meaningful role in encouraging preventive practices.

Although general hygiene behaviors were relatively well maintained, specific dermatological preventive measures—such as the use of low-pH soap and regular moisturizer application—remained suboptimal, indicating a gap between general hygiene awareness and targeted skin health practices. These findings highlight the importance of strengthening educational interventions, improving access to accurate health information, and implementing workplace- and community-based health promotion programs to enhance dermatitis preventive behavior. Given the study's cross-sectional design and limited sample size, the findings should be interpreted cautiously. Future research employing larger samples and multivariate analysis is recommended to identify independent predictors and develop more targeted intervention strategies.

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Author Contribution

The authors contributed proportionally to the conceptualization, development of methodology, data analysis, and writing of this review. Collectively, the authors examined and approved the final manuscript for submission as part of their academic responsibility.

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Ethical Review Board Statement

The study was conducted in accordance with the applicable ethical guidelines and approved by the Ethics Committee of Universitas YARSI (Protocol Code: No:117/KEP-UY/EA.20/III/2025, Date of Approval: 26 March 2025).

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data supporting the findings of this study are available within the article. Additional raw data are not publicly available due to privacy and confidentiality concerns but may be obtained from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflict of interest.

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