

Assessment of Knowledge, Perception, Experience, and Phobia Toward Corticosteroids Among the General Public in Two Southeast Asian Countries

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Abstract

The widespread use of corticosteroids, particularly during the COVID-19 pandemic, has emphasized their therapeutic benefits while also raising public concerns regarding their safety and side effects. This study aims to assess the public's knowledge, perceptions, experiences, and corticophobia related to corticosteroid use in Indonesia and Malaysia. A cross-sectional study was conducted using a pre-validated online questionnaire distributed to the general public. Descriptive statistics, knowledge and corticophobia score computations, and linear regression analysis were performed to analyze the data. A total of 553 participants were included in the study, with a majority being female ($n=403$, 72.9%) and a median age of 22 ± 5 years. The results revealed inadequate knowledge among participants, with a median score of 7 (interquartile range [IQR] ± 4) out of 14. The corticophobia score was moderate, with a median of 3 (IQR ± 1.8) out of 5. Age demonstrated a significant positive association with knowledge ($\beta = .141$, $P = .022$). Additionally, individuals from the health sector exhibited significantly higher knowledge and lower corticophobia compared to those from non-health sectors ($\beta = -.427$, $P < .001$). This study identified significant knowledge gaps and moderate levels of corticophobia regarding corticosteroid use in Malaysia and Indonesia. These findings underscore the need for enhanced public education and targeted healthcare interventions to address misconceptions and improve awareness of corticosteroids.

Keywords

corticosteroids, knowledge, phobia, far-east, COVID-19

Highlights

- This cross-sectional study assessed public knowledge, perception, experience, and corticophobia regarding corticosteroid use in Indonesia and Malaysia.
- A total of 553 participants completed the survey; the majority were female (72.9%) and from Indonesia (70.9%).
- The study found inadequate knowledge, with a median score of 7 out of 14, and moderate corticophobia, with a median score of 3 out of 5.
- Age and health-related educational background were positively associated with better knowledge and lower phobia levels.
- Nearly 50% of participants had used corticosteroids, primarily in tablet or topical form, with dermatological and respiratory diseases being common indications.
- The internet was the most common source of corticosteroid information (used by ~80% of respondents), highlighting the influence of digital media on health perceptions.
- The study identifies a critical need for targeted educational interventions to address misinformation and reduce irrational fears regarding corticosteroid use in Southeast Asia.



Introduction

Corticosteroids, either naturally occurring or synthetic, mimic cortisol to regulate metabolism, immune response, and stress.¹ Corticosteroids are widely used in clinical practice owing to their potent anti-inflammatory and immunosuppressive properties.² They are a cornerstone in the management of various inflammatory conditions, such as asthma, allergic reactions, and rheumatoid arthritis, as well as autoimmune diseases, such as lupus and inflammatory bowel disease.²

Corticosteroids played a critical role during the COVID-19 pandemic by reducing mortality in patients with severe disease characterized by cytokine storms and acute respiratory distress syndrome (ARDS).³ Clinical trials, most notably the RECOVERY trial, demonstrated that administering corticosteroids, such as dexamethasone, significantly reduced mortality in patients with severe COVID-19 by dampening the excessive inflammatory response and reducing the severity of ARDS.⁴ This led to the inclusion of corticosteroids in the treatment guidelines for managing severe COVID-19 cases by the World Health Organization (WHO) and various national health agencies.⁵

Corticosteroid therapy is a critical component in the management of various medical conditions but is often misunderstood by the general public.⁶ Public fears of corticosteroid side effects, including weight gain, infections, and osteoporosis, contribute to steroid phobia and treatment hesitancy.^{7,8} However, misinformation on social media during the COVID-19 pandemic fueled corticosteroid misuse and public hesitancy.⁹⁻¹¹ Conversely, fear of side effects led others to avoid corticosteroids even when medically indicated.¹² Recognizing the potential for both underuse and misuse, health agencies issued clear guidelines to ensure safe corticosteroid use during COVID-19.¹³ These guidelines emphasize that corticosteroids should be reserved for patients with severe and critical COVID-19, whose benefits in reducing mortality outweigh the risks, and should be administered under strict medical supervision to ensure safety and efficacy.¹³ Several studies have demonstrated the widespread use of corticosteroids in managing severe COVID-19 cases.¹⁴⁻¹⁷ It's important to note that the use of corticosteroids varied depending on disease severity. For instance, Bruse et al (2024) reported that patients with severe COVID-19 were more likely to receive

corticosteroid therapy compared to those with non-severe disease (52.6% vs 15.3%).¹⁷

Steroid phobia, particularly the fear of corticosteroids, is a significant barrier to effective treatment in many populations, including those in Southeast Asian countries such as Indonesia and Malaysia.¹³ This phobia often stems from concerns about potential side effects such as weight gain, skin thinning, osteoporosis, increased susceptibility to infections, and fear of long-term consequences such as adrenal suppression. These concerns can lead to a reluctance to initiate corticosteroid therapy or cause patients to discontinue treatment prematurely, even when such therapy is medically necessary.¹⁸

There is a gap in the literature concerning public knowledge and perceptions of corticosteroids in Southeast Asian countries, compared to Western nations. As the use of corticosteroids is well-documented and public attitudes are better understood¹⁹⁻²², Southeast Asian countries have seen limited investigation into the factors that shape public perceptions and the use of these drugs. This lack of research is problematic given the unique cultural, societal, and healthcare contexts of these regions, which can significantly influence corticosteroid-related behaviors, including steroid phobia and adherence to prescribed therapies.²³⁻²⁵ Understanding these localized factors is crucial for developing effective public health strategies. Without this knowledge, efforts to improve corticosteroid use and mitigate irrational fears may be less effective, potentially leading to poorer health outcomes.

The primary aim of this study was to rigorously assess public knowledge, perception, experience, and phobia regarding corticosteroid use in Indonesia and Malaysia. This study sought to identify key factors contributing to corticosteroid phobia, including the influence of independent variables, particularly during the COVID-19 pandemic, when corticosteroids became a critical element of severe disease management.

Methodology

Study Design and Population

This observational cross-sectional study was conducted between April 2022 and March 2023 among the general

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population of 2 Southeast Asian countries, Malaysia and Indonesia, two culturally diverse and developing Southeast Asian nations. Participants were invited to complete a self-administered online questionnaire in English, which was distributed via Google Forms. Participants eligible for this study were adults aged 18 years or older, residing in Malaysia or Indonesia, and capable of reading and understanding English. Only individuals who voluntarily consented to participate and completed the online questionnaire were included. Participants who were under 18 years old, did not reside in either Malaysia or Indonesia, or submitted incomplete or invalid responses were excluded from the study. Additionally, individuals with professional expertise in corticosteroid research or extensive pharmacological knowledge were excluded to minimize potential bias in responses. Data collection was facilitated through co-investigators based in each country.

This study was conducted in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines to ensure comprehensive and transparent reporting. The STROBE checklist was completed and is provided as a Supplemental File.

Sampling Technique

A snowball convenience sampling technique was employed to recruit participants. The questionnaire was distributed through social media platforms such as Facebook, WhatsApp, and LinkedIn to reach a diverse audience. Participants were encouraged to share the survey link with others in their networks.

Sample Size

The sample size for this study was determined following the recommendation by Tabachnick et al.²⁶ for regression analysis, which suggests having 5 to 20 participants per predictor variable. This range is commonly used to ensure sufficient statistical power and reliable estimation of regression coefficients. Considering the 9 predictor variables included in the study, we opted for a conservative estimate of 10 participants per predictor, resulting in a minimum required sample size of 90 participants per country. This approach aligns with established guidelines and ensures robust data analysis while accommodating the practical constraints of participant recruitment across the 2 study locations.

Study Tool

The study utilized a previously developed and validated questionnaire by Barakat et al.^{20,21} The questionnaire comprised 19 multiple-choice questions and was designed to be completed within 7 to 10 min. It was divided into 4 main sections: The first section included 10 questions covering the participants' sociodemographic details and their COVID-19

history with severity of infection; Severity of infection; mild (may exhibit a variety of signs and symptoms, but without shortness of breath or abnormal imaging), moderate (with evidence of lower respiratory disease during clinical assessment or imaging, with $\text{SpO}_2 \geq 94\%$ at room air), severe (have $\text{SpO}_2 < 94\%$ on room air and administered oxygen therapy). The second section contained 5 questions focused on participants' experiences with corticosteroid use. The third section consisted of 3 questions assessing participants' knowledge about corticosteroids. The final section had 1 question with 12 statements aimed at evaluating the level of corticophobia among the participants.

Data Analysis and Management

The total knowledge score was calculated based on 14 items, each offering 2 response options: yes or no. Correct answers were assigned a score of 1, while incorrect answers were given a score of 0, resulting in a total knowledge score ranging from 0 to 14. Although no cut-off score was defined to indicate an acceptable level of knowledge, a score above 50% was considered indicative of a good level of knowledge. A higher score within each category corresponded to a higher level of knowledge.

For the corticophobia score, participants responded to statements using a 5-point Likert scale (1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly agree). The reliability of the scale was measured using Cronbach's alpha, which yielded a value of .83, indicating a high level of internal consistency. The results of the 5-point Likert scale were analyzed and categorized into 3 ranges: a low score (1.00-1.66), a moderate score (1.67-3.32), and a high score (3.33-5.00).

Statistical Analysis

The study data was analyzed using the 24th version of the Statistical Package for Social Science (SPSS®). The median \pm interquartile range (IQR) was reported for continuous variables, while categorical variables were summarized using frequencies (or percentages). Linear regression analyses were conducted to identify predictors of corticophobia. Simple linear regression was first used to screen the independent variables associated with knowledge and phobia scores. Predictors with a P -value $< .25$ from the simple linear regression analysis were then included in the multiple regression analysis. Spearman's correlation coefficient (r) was calculated to ensure independence between predictors, with values less than .4 indicating no multicollinearity in the multivariable regression analysis. The multiple regression analysis then identified the independent variables associated with knowledge and phobia scores. Statistical significance was determined at a P -value of $< .05$.

Ethical Statement

Participation in this study was entirely voluntary and anonymous. Informed consent was obtained from all participants. At the beginning of the survey, participants were presented with a written consent statement: "Participation in this study is entirely voluntary, and all responses will remain anonymous and confidential. By proceeding with this survey, you acknowledge that you have been informed about the study's purpose, procedures, potential risks, and benefits. You also understand that you may withdraw at any time without penalty. If you agree to participate, please continue with the questionnaire." Consent was considered granted if the participants chose to proceed with the survey.

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. The research protocol, including objectives, procedures, and participant consent processes, was reviewed and approved April 8th 2022, by the Ethics Committee of Universitas 17 Agustus 1945 Jakarta, under approval number No.58/KEPK-UTA45JKT/EC/EXE/01/20. All participants were informed about the purpose of the study, and written informed consent was obtained before their inclusion. The confidentiality of all participant data was maintained throughout the study.

Results

Demographic and Lifestyle

Table 1 provides a comprehensive overview of the demographic and lifestyle characteristics of the 553 participants involved in the study. The median age of the participants is 22 ± 5 years. In terms of gender distribution, the sample is skewed toward females, who constitute 72.9% ($n=403$) of the participants. Educational attainment among participants varies, with 66.2% ($n=366$) holding a bachelor's degree, and 23.1% ($n=128$) having completed school-level education. The majority of participants reside in Indonesia (70.9%, $n=392$), followed by Malaysia (29.1%, $n=161$). Additionally, 82.1% ($n=454$) of the participants live in urban areas, and 42% ($n=232$) were working in non-health sectors. A total of 14.3% ($n=79$) of participants reported having a chronic disease, with respiratory and dermatological diseases being the most common. In terms of COVID-19, 43.8% ($n=242$) of participants reported having been infected, with the majority experiencing mild to moderate symptoms, and a significant proportion (94.6%, $n=229$) reported only 1 infection. Finally, nearly $n=453$ of participants only received their COVID-19 vaccination.

Knowledge and Phobia Scores

Table 2 shows the knowledge and phobia scores related to corticosteroid use among participants from Indonesia and

Table 1. Demographical and Lifestyle Information of Participants.

Variable	Number of participants (n)	Percentage of participants (%)
Age (years)	Median 22	IQR 5
Gender		
- Female	403	72.9
- Male	150	27.1
Educational level		
- School level	128	23.1
- Diploma	19	3.4
- Bachelor	366	66.2
- Postgraduates	40	7.2
Residential country		
- Indonesia	392	70.9
- Malaysia	161	29.1
Residential area		
- Urban	454	82.1
- Rural	99	17.9
University Major		
- Health sector	179	32.4
- Non-health sector	232	42
- Unemployed/retired	4	0.7
- Students	138	25
Do you have a chronic disease?		
- Yes	79	14.3
- No	474	85.7
Types of chronic disease:		
- HTN	18	3.3
- DM	9	1.6
- Obesity	26	4.7
- CVS	2	0.4
- Kidney disease	7	1.3
- Osteoporosis	4	0.7
- Depression	38	6.9
- Rheumatoid arthritis	6	1.1
- Immune disorder	16	2.9
- Respiratory disease	42	7.6
- Dermatological disease	44	8
- Others	26	4.7
Have you been infected with COVID-19?		
- Yes	242	43.8
- No	311	56.2
How many times have you been infected with COVID-19? ^a		
- Once	197	81.4
- Twice	42	17.4
- More than 3 times	3	1.2
Severity of infection? ^a		
- Mild (may exhibit a variety of signs and symptoms, but without shortness of breath or abnormal imaging).	169	69.8
- Moderate (with evidence of lower respiratory disease during clinical assessment or imaging, with $SpO_2 \geq 94\%$ at room air)	60	24.8
- Severe (have $SpO_2 < 94\%$ on room air and administered oxygen therapy)	13	5.4
Did you take your COVID-19 vaccination?		
- Yes	453	81.9
- No	100	18.1

Note. $n=553$.

^aPercentages have been calculated based on the reported history of COVID-19 infection ($n=242$).

Table 2. The Knowledge and Phobia Scores Related to Corticosteroids Use Among the General Public in 2 Southeast Asian Countries.

Country	Knowledge score/14 ^a	Phobia score/5
Indonesia and Malaysia (Southeast Asian countries)	7 (± 4) Low level	3 (± 1.8) Moderate level

^aThe scores of knowledge (out of 14) and phobia (out of 5) recorded as median (\pm IQR) with each showing its interpretations with 5-point Likert scale (phobia) categorized into 3 ranges: a low score (1.00-1.66), a moderate score (1.67-3.32), and a high score (3.33-5.00), and anything above 50% is considered good level.

Table 3. Experience of Participants with Corticosteroids Among the General Public in 2 Southeast Asian Countries.

Questions	Number of participants (n)	Percentage of participants (%)
Did you (or any of your relatives/friends) ever use Corticosteroids for any reason?	204	50.5
- Yes	200	49.5
- No		
How long did you use it?		
- <1 week	141	29.4
- 1-4 weeks	44	9.2
- 1-3 months	13	2.7
- >3 months	281	58.7
What was the dosage form used? (more than one answer is allowed)		
- Topical (eg, cream or ointment)	146	26.4
- Inhaler or nebulizer	43	7.8
- Tablets	154	27.7
- Injection	25	4.5
- Drops (eg, eye drops)	55	9.9
What was the main indication for corticosteroid use? (more than one answer is allowed)	89	16.1
- Respiratory disease (eg, Asthma, COPD)	51	9.2
- COVID-19	141	25.5
- Dermatological disease (eg, eczema)	65	11.7
- Joint or Rheumatological diseases	38	6.9
- GIT immunological diseases (eg, Crohn's disease, ulcerative colitis)	37	6.7
- Systemic immunological disorders (eg, multiple sclerosis)	69	12.5
- Others		
Did you ever suffer from any of the following side effects (more than one answer is allowed)?		
- Increased appetite—potentially leading to weight gain	56	10.1
- Acne	46	8.3
- Thinned skin that bruises easily	45	8.1
- Increased risk of infections	24	4.3
- Mood changes, mood swings, and depression	57	10.3
- Diabetes	9	1.6
- High blood pressure	19	3.4
- Osteoporosis (weak and brittle bones)	15	2.7
- Others	25	4.5

Malaysia. The median knowledge score is 7 out of 14, with an interquartile range (± 4), indicating varying levels of understanding among participants. The phobia score median 3 out of 5, with an interquartile range (± 1.8).

Experience of Participants and Sources of Knowledge

Of the respondents, 50.5% (204 individuals) reported corticosteroid use, with 58.7% of those using them for more than

3 months, Table 3. The most common dosage form was tablets (27.7%), followed by topical forms (26.4%) and eye drops (9.9%). The main indications for use included dermatological diseases (25.5%), respiratory conditions such as asthma or COPD (16.1%), and joint or rheumatological diseases (11.7%). Regarding side effects, mood changes and depression were reported by 10.3%, followed by weight gain from increased appetite (10.1%), and acne (8.3%), indicating significant physical and psychological impacts from corticosteroid therapy.

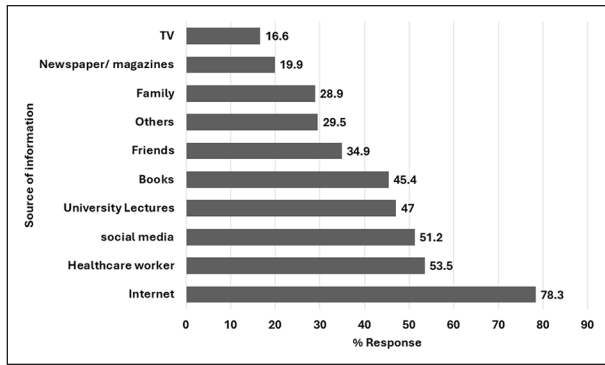


Figure 1. Sources of knowledge of corticosteroids for the participants in this study represented as a percentage.

The sources of knowledge about corticosteroids drug and use, the internet was the most common source used to attain information about corticosteroids, utilized by nearly 80% of respondents. Figure 1 shows other significant sources, including healthcare workers (around 40%), books, and family, each contributing to over 30% of participants' knowledge. Social media, TV, and newspapers/magazines were also mentioned, though to a lesser extent than the previous ones. University lectures and friends had a more minor role, with less than 20% of participants indicating these as less important sources of information. This highlights the critical role of digital platforms in disseminating health information in Indonesia and Malaysia.

Multiple Linear Regression

The multiple linear regression analysis reveals several essential associations between demographic factors and participants' knowledge and phobia regarding corticosteroids, Table 4. Age showed a significant positive association with knowledge ($\beta = .141$, $P = .022$), as older individuals tend to have better knowledge of corticosteroids, although it had no significant effect on phobia ($P = .972$). In addition, a significant negative association ($\beta = -.427$, $P < .001$) indicates that individuals from the health sector have significantly higher knowledge compared to those from non-health sectors. The presence of chronic disease did not affect phobia scores, and participants who had been infected twice with COVID-19 showed lower knowledge scores ($\beta = -.149$, $P = .008$). Lastly, COVID-19 vaccination status was not significantly associated with phobia ($P = .334$).

Discussion

This study highlights the significant knowledge gaps and moderate levels of phobia surrounding corticosteroid use in Malaysia and Indonesia. The median knowledge score of 7 (IQR ± 4) out of 14 reflects a relatively low understanding of corticosteroids, which is consistent with findings from

similar studies conducted in other regions. For instance, a study in the UAE found that only 32.6% of the general population could correctly identify corticosteroids and their appropriate uses, highlighting widespread knowledge deficits across various populations.²² Similarly, a study conducted in Egypt among healthcare professionals revealed insufficient knowledge about corticosteroid side effects, with many respondents exhibiting cautious attitudes toward prescribing these medications.²³

In this study, moderate corticophobia was observed with an median score of 3 (IQR ± 1.8) out of 5. This finding is comparable to other studies, such as Boulet,¹² which identified corticosteroid phobia as a significant barrier to adherence among asthma patients. Their reluctance to use inhaled corticosteroids, driven by concerns about side effects like weight gain and osteoporosis, contributed to poor treatment outcomes.^{12,25,27} Similarly, in Saudi Arabia, corticophobia was found to be prevalent, particularly among patients who feared the long-term effects of corticosteroid use, such as adrenal suppression and mood changes.^{19,28}

One key finding of this study was the positive correlation between age and knowledge of corticosteroids, where older individuals demonstrated better understanding. This is consistent with research from Jordan, which also showed that older participants had more knowledge about medications, likely due to greater healthcare exposure over time.^{21,25} However, similar to our findings, age did not appear to reduce corticophobia in most studies. For instance, older participants in the Egyptian study also harbored significant concerns about corticosteroids despite their better knowledge, indicating that fear of side effects persists regardless of understanding.²³ Furthermore, participants from health-related educational backgrounds in this study demonstrated higher knowledge and lower corticophobia compared to those with non-health-related backgrounds. This finding was expected, as healthcare professionals are generally assumed to have better knowledge and less fear of medications. However, previous research has shown that healthcare workers may be more cautious about corticosteroids due to their greater awareness of potential side effects, which may lead to certain fears. This was reported on a study among Egyptian healthcare professionals, where the high level of knowledge about corticosteroids' adverse effects led to greater reluctance to prescribe them.⁷ This underscores the complexity of corticophobia, where professional experience may paradoxically contribute to increased fear due to a heightened understanding of the risks.^{12,19,25,27,28}

Lack of knowledge plays a critical role in shaping public perception of corticosteroids, especially in the context of the COVID-19 pandemic.^{29,30} In our study, the internet was identified as the primary source of knowledge for 80% of participants, which aligns with findings from a multinational study in the Middle East, where social media played a significant role in shaping public attitudes toward corticosteroid use.²⁰ The proliferation of misinformation on these

Table 4. Multiple Linear Regression of the Variables Affecting Participants' Knowledge and Corticophobia Levels with a Significance of P -value $< .05$.

Variable	Knowledge		Phobia	
	Beta	P -value	Beta	P -value
Age	0.141	.022	0.003	.972
Gender	−0.011	.839		
- Female				
- Male				
Educational level	−0.008	.898	0.130	.113
- Non-University				
- University ^a				
Residential area	0.057	.304	−0.072	.368
- Urban				
- Rural				
University major ^a	−0.427	<.001	−0.198	.023
- Non-health sector ^a				
- Health sector				
Do you have a chronic disease?			−0.042	.614
- Yes				
- No				
How many times have you been infected with COVID-19?	−0.149	.008		
- Once ^a				
- Twice				
Did you take your COVID-19 vaccination?			0.078	.334
- Yes				
- No				

Note. Significant values were presented in bold P -value $< .05$.

^aFor the reference measure.

platforms likely exacerbates corticophobia. Similar concerns have been raised in studies from Europe and the United States, where reliance on online sources for health information has been linked to medical misinformation, resulting in heightened fear and hesitancy toward medications like corticosteroids.^{9,10}

Clinical Implications

The moderate level of corticophobia observed in this study is concerning, as it may lead to poor adherence to corticosteroid therapy, particularly in the management of chronic conditions such as asthma, rheumatoid arthritis, and dermatological disorders. Similar studies conducted in the Middle East and Europe have also demonstrated that corticophobia can be a significant barrier to treatment adherence. For example, Boulet¹² found that asthma patients who feared corticosteroids were less likely to adhere to their prescribed inhaled treatments, which resulted in poorer health outcomes. In Saudi Arabia, patients frequently discontinued corticosteroid therapy due to fears of severe side effects, even when such treatment was medically necessary for conditions like lupus and rheumatoid arthritis.^{28,31-35} It is recommended that public knowledge about corticosteroids be improved to help reduce corticophobia. Educational interventions targeting the public, particularly younger

individuals and those with limited healthcare exposure, may play a crucial role in achieving this goal.

Limitations

Several limitations must be acknowledged. First, the cross-sectional design provides only a snapshot of participants' knowledge and corticophobia at a single point, limiting our ability to infer causality. Future studies should adopt a longitudinal approach to assess how public knowledge and attitudes evolve, particularly in response to public health interventions. Second, this study relied on self-reported data via online surveys, which may introduce response biases, as participants may provide socially desirable answers or not fully comprehend the questions. Additionally, the study was conducted exclusively in Malaysia and Indonesia, which may limit the generalizability of the findings to other Southeast Asian countries with different healthcare systems or cultural attitudes toward corticosteroid use. Cultural factors have significantly influenced medication-related behaviors, including corticosteroid use. Finally, although the study assessed levels of corticophobia and participants' experiences with corticosteroid use, it did not directly evaluate the relationship between corticophobia and adherence to corticosteroid therapy, which limits the ability to draw conclusions on this important aspect.

Conclusions

This study identified significant gaps in public knowledge and moderate levels of corticophobia related to corticosteroid use in Malaysia and Indonesia, findings consistent with those from other regions. Age and educational background were key predictors of knowledge, while misinformation—particularly from online sources—emerged as a major contributor to corticophobia. These results underscore the urgent need for public health interventions to improve knowledge and reduce fears about corticosteroids, which could enhance treatment adherence and improve clinical outcomes in chronic disease management. Future research should expand to other Far-East countries and employ longitudinal designs to track changes in public perceptions over time. Addressing these issues is critical for optimizing corticosteroid use, especially in light of the ongoing challenges posed by the COVID-19 pandemic.

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Ethical Considerations

Participation in this study was entirely voluntary and anonymous. Informed consent was obtained from all participants. At the beginning of the survey, participants were presented with a written consent statement: “Participation in this study is entirely voluntary, and all responses will remain anonymous and confidential. By proceeding with this survey, you acknowledge that you have been informed about the study’s purpose, procedures, potential risks, and benefits. You also understand that you may withdraw at any time without penalty. If you agree to participate, please continue with the questionnaire.” Consent was considered granted if the participants chose to proceed with the survey. This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. The research protocol, including objectives, procedures, and participant consent processes, was reviewed and approved April 8th 2022, by the Ethics Committee of Universitas 17 Agustus 1945 Jakarta, under approval number No. 58/KEPK-UTA45JKT/EC/EXE/01/20. All participants were informed about the purpose of the study, and written informed consent was obtained before their inclusion. The confidentiality of all participant data was maintained throughout the study.

Author Contributions

MB, SHA, LFZ, DLR, RFM, and MHE contributed to the study’s conception, design, and execution. DLR, RFM, and MHE led the methods and data collection. MB, SHA, LFZ wrote the manuscript draft. MB and MHE led the project administration, and reviewing and editing of the final manuscript. All authors reviewed and approved the final manuscript.

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Declaration of Conflicting Interests

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Data Availability Statement

All data are presented within the manuscript, and datasets are available on reasonable request from the corresponding authors.

Supplemental Material

Supplemental material for this article is available online.

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