MEDIA PENELITIAN DAN
PENGEMBANGAN KESEHATAN
Vol 35 No 3, September 2025

e-ISSN: 2338-3445
p-ISSN: 0853-9987

EXPLORING SAFE AND HARMFUL SKINCARE INGREDIENTS IN PREGNANCY: AN UMBRELLA REVIEW

Menelusuri Bahan Perawatan yang Aman dan Berisiko Selama Kehamilan: Tinjauan Payung

Anis Novitasari[1,2], Gordianus Lelang Wejak[3], Qorinah Estiningtyas Sakilah Adnani[4, 5], Hadi Susiarno[6], Victor Abiola Adepoju[7]

[1]Master of Midwifery Program, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia

[2]Department of Midwifery, Poltekkes Kemenkes Manado, Manado, Indonesia.

[3]Master of Clinical Pharmacy Program, Faculty of Pharmacy, Universitas Padjadjaran, Bandung, Indonesia

[4]Department of Public Health, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia

[5] Midwifery Working Group, Center for Health System Studies and Health Workforce Education Innovation, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia

[6]Department of Obstetrics and Gynaecology, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia.

[7]Department of HIV and Infectious Diseases, Jhpiego (an Affiliate of Johns Hopkins University), Abuja, Nigeria

*Email: anis24002@mail.unpad.ac.id

ABSTRAK

Kehamilan menyebabkan perubahan hormonal dan fisiologis yang memengaruhi kondisi kulit, sehingga banyak ibu hamil mencari solusi perawatan kulit yang aman. Beberapa senyawa aktif, seperti retinoid dan hidrokuinon, diketahui memiliki risiko teratogenik, sedangkan senyawa lain, seperti benzoil peroksida dan asam azelat, masih memerlukan evaluasi lebih lanjut terkait keamanannya.Penelitian ini merupakan tinjauan payung (umbrella review) yang menganalisis 11 artikel berbasis tinjauan literatur yang dipublikasikan dalam bahasa Inggris atau Indonesia dan tersedia dalam teks lengkap. Sumber data diperoleh dari tiga basis data: PubMed, ScienceDirect, dan ResearchGate (periode 2011–2024). Penilaian kualitas artikel dilakukan menggunakan instrumen SANRA (Scale for the Assessment of Narrative Review Articles).Hasil menunjukkan bahwa asam azelat, klindamisin topikal, eritromisin topikal, benzoil peroksida, dan niasinamida umumnya aman digunakan selama kehamilan. Sebaliknya, retinoid, hidrokuinon, dan minosiklin oral harus dihindari karena potensi teratogeniknya. Beberapa bahan lain, seperti asam salisilat dan asam glikolat, perlu digunakan secara hati-hati. Tabir surya fisik yang mengandung titanium dioksida dan seng oksida dianggap aman, sementara ftalat sebaiknya dihindari. Pemilihan produk perawatan kulit selama kehamilan harus didasarkan pada profil keamanan berbasis bukti untuk melindungi kesehatan ibu dan janin. Konsultasi dengan tenaga kesehatan profesional sangat dianjurkan sebelum penggunaan produk kosmetik tertentu.

Kata kunci: *dermatologi dalam kehamilan, kesehatan ibu, kesehatan janin, kehamilan, perawatan kulit yang aman.*

ABSTRACT

Pregnancy triggers hormonal and physiological changes that alter skin conditions, prompting many women to seek safe skincare options. Active compounds like retinoids and hydroquinone carry teratogenic risks, while others, such as benzoyl peroxide and azelaic acid still need further safety evaluation. This study is an umbrella review that analyzed 11 articles based on a literature review, published in English or Indonesian and available in full-text format. Data sources were obtained from PubMed,

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

ScienceDirect, and ResearchGate within the period 2011–2024. The quality of the articles was assessed using the SANRA (Scale for the Assessment of Narrative Review Articles) instrument. The results show that azelaic acid, topical clindamycin, topical erythromycin, benzoyl peroxide, and niacinamide are generally safe to use during pregnancy. In contrast, retinoids, hydroquinone, and oral minocycline should be avoided due to their teratogenic potential. Other ingredients, such as salicylic acid and glycolic acid, should be used with caution. Physical sunscreens containing titanium dioxide and zinc oxide are considered safe, whereas phthalates should be avoided. Pregnant women need to choose skincare products with proven safety profiles to protect their own health and that of the fetus. Consulting healthcare professionals is strongly recommended before using any cosmetic products during pregnancy.

Keywords: dermatology in pregnancy, fetal health, maternal health, pregnancy, safety skincare

INTRODUCTION

Pregnancy marks a pivotal phase in a woman's life, bringing hormonal and physical changes that often cause skin problems such as hyperpigmentation, acne, and stretch marks [1]. These skin problems often drive pregnant women to seek effective and safe skincare products for themselves and their babies.Concerns arise when certain skincare ingredients penetrate the skin, enter the bloodstream, and potentially harm fetal development [2].

Commonly utilized active components, like retinoids and hydroquinone, have been associated with teratogenic consequences and are advised to be avoided during pregnancy [3]. Additional chemicals, such as benzoyl peroxide and azelaic acid, are considered safer, although they require more assessment to validate their safety for pregnant women [1]. Research shows that many pregnant women lack adequate knowledge about chemical safety, which leads to inappropriate use..

Health organizations, including the American Academy of Dermatology and the World Health Organization, underscore the necessity of assessing the safety of skincare ingredients based on scientific data to establish clear standards for consumers. Yet information on the safety of many skincare ingredients in pregnancy remains scarce, highlighting the need for more research to guide expectant women [1].

Given these concerns, an umbrella review is particularly relevant and appropriate for this topic. Unlike individual primary studies, an umbrella review synthesizes findings from a range of existing review articles, including high-quality narrative and systematic reviews, thereby providing a broader overview of current evidence [4]. This approach allows for a more comprehensive and contextualized understanding of the safety of various skincare ingredients used during pregnancy, especially when systematic evidence is still limited for certain compounds. Although several systematic reviews have been conducted, most of them focus on only one or a few specific ingredients, such as retinoids, hydroquinone, or sunscreen, without covering the full range of active compounds commonly found in skincare products [5], [6], [7]. At present, no umbrella review is available that integrates and compares findings from multiple systematic reviews concerning the safety of a broad spectrum of skincare ingredients during pregnancy. This highlights the urgent need for a more inclusive synthesis to develop robust, evidence-based guidelines for maternal and fetal protection. Such synthesis is crucial to support clinical decision-making and provide practical guidance to pregnant women, midwives, and other healthcare professionals in both clinical and community settings. Therefore, the objective of this umbrella review is to critically evaluate and synthesize available review-level evidence, both narrative and systematic, regarding the safety of skincare ingredients during pregnancy, in order to offer clear, evidence-informed recommendations for maternal skincare practices.

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

METHODS

Design

This study employed an umbrella review approach to synthesize evidence from various types of review articles regarding the safety of skincare ingredients during pregnancy [4], [8]. The review included publications from 2011 to 2024 and aimed to provide a comprehensive summary of the current literature to support informed recommendations for clinical and midwifery practice.

Literature Search

A structured literature search was conducted between January 1 and January 27, 2025, using three electronic databases: PubMed, ScienceDirect, and ResearchGate. Keywords were selected based on the PICO framework: Population (pregnant women), Intervention (skincare ingredients), and Outcome (maternal and fetal health), without a comparison group [9].

Inclusion and Exclusion Criteria

The study applied specific inclusion and exclusion criteria for selecting journal articles. Articles were included if they were published within the last 15 years (2011–2024), written in English, and available in full text. The exclusion criteria went beyond simply reversing the inclusion rules; they ensured the selected literature remained relevant and high quality. We excluded articles that lacked clear relevance to skincare safety in pregnancy, that were inaccessible in full text despite reasonable efforts, or that were written in languages other than English or Indonesian.

Article Quality Assessment

The quality of the eleven included articles was assessed using the SANRA (Scale for the Assessment of Narrative Review Articles) instrument. SANRA consists of six items, each scored from 0 to 2, with a maximum total score of 12. Articles scoring 9–12 were considered high quality, 5–8 moderate, and 0–4 low [10]. This tool was selected due to its suitability for evaluating narrative reviews, especially those without systematic methodologies. Each article was independently reviewed and rated based on the SANRA criteria, focusing on clarity of objectives, justification of relevance, quality of references, and scientific reasoning. The assessment results are summarized in Supplementary File 1. A total of 333 articles were initially identified. After removing 3 duplicates and screening titles and abstracts, 311 articles were excluded. Of the remaining 19 full-text articles, 11 met the inclusion criteria and were included in the final synthesis (Figure 1).

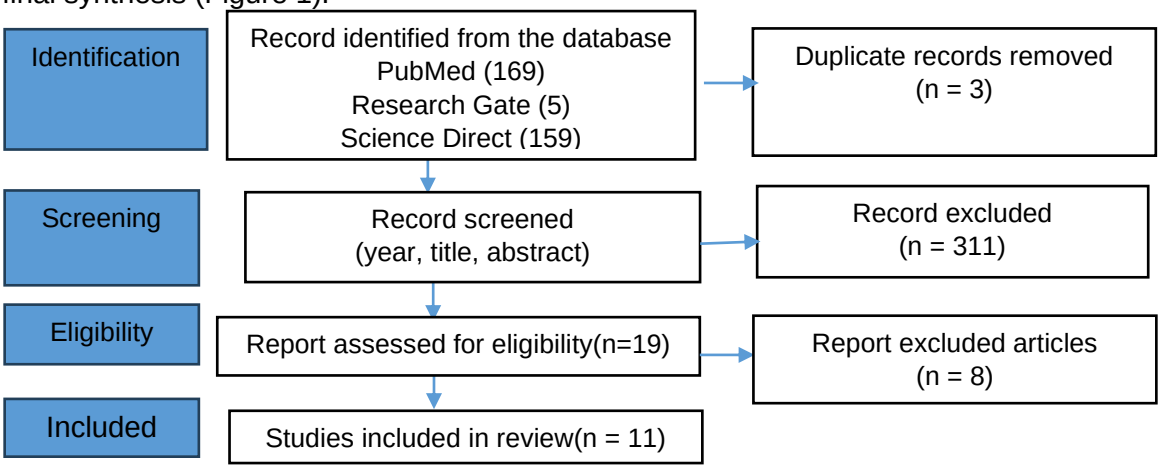

Figure 1. Diagram Prism.

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

RESULTS

Search Results

Eleven review articles are summarized in Table 1. The authors did not use the former FDA pregnancy drug categories (A, B, C, D, X), which were officially replaced in 2015 by the Pregnancy and Lactation Labeling Rule (PLLR). The PLLR provides more detailed, evidence-based information about the risks of drug use during pregnancy and breastfeeding, based on both human and animal data. This approach enhances clinical decision-making by presenting narrative summaries rather than simple letter categories [11].

Table 1. Review of Articles

No	Authors/ Year/ Title	Method	Findings	
			Indication	Skincare ingredient
1	Marita Yaghi et al./ 2024/ Acne and Pregnancy: A Clinical Review and Practice Pearls [5]	Clinical Review	Acne	The skincare ingredients reviewed include benzoyl peroxide, salicylic acid, dapsone, azelaic acid, glycolic acid, topical clindamycin phosphate, topical erythromycin, topical retinoids, clascoterone, and 4% minocycline foam.
2	Anna L. Chien et al./ 2016 /Treatment of Acne in Pregnancy [7]	Clinical Review	Acne	Azelaic Acid, Benzoyl Peroxide, Salicylic Acid, Topical Erythromycin and Clindamycin, Topical Retinoids, Adapalene, Tretinoin, Tazarotene, Topical Dapsone.
3	Imam Budi Putra et al./ 2022/ Skin Changes and Safety Profile of Topical Products During Pregnancy [12]	Narrative Review	Acne	Vitamin A/Retinol, Topical Erythromycin and Clindamycin, Benzoyl Peroxide, Azelaic Acid.
			Anti-Aging	Vitamin C (Ascorbic Acid), Vitamin E, Alpha Lipoic Acid, Topical Ferulic Acid, Topical Resveratrol Polyphenols.
			Striae gravidarum	Hyaluronic Acid, Panthenol, Vitamin E, Topical Tretinoin.
			Insect repellent	N-Diethyl-Meta-Toluamide (DEET) 10-30%, Hydroxyethyl Isobutyl Piperidine Carboxylate (Icaridin or Picaridin) 10-20%, Ethyl Butylacetlaminopropionate (EBAAP or IR3535), and Essential Oils such as Sera.
			toner	phthalates
4	Patel, Viral et al./2016 / Safety of Topical Dermatologic Medications in Pregnancy [13]	Narrative Review	retinoid	Tazarotene, Topical Tretinoin, Topical Isotretinoin, Adapalene.
			Acne	Benzoyl Peroxide, Sodium Sulfacetamide, Salicylic Acid, Azelaic Acid.
5	koh, yun pei et al./ 2019/ New changes in pregnancy and lactation labelling:Review of dermatologic	Narrative Review	Acne	Azelaic Acid, Benzoyl Peroxide, Adapalene, Tretinoin.

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

	drugs [6]			
6	Pina Bozzo et al./2011/ Safety of skin care products during pregnancy [2]	Narrative Review	Acne	Topical Retinoids, Clindamycin and Erythromycin, Benzoyl Peroxide, Salicylic Acid, Glycolic Acid.
			Skin brightener	Hydroquinone.
			Sunscreen	Titanium Dioxide / Zinc Oxide.
7	Daniela F Maluf et al./2017 / Current Cosmetic Treatments in Pregnancy [14]	Narrative Review	striae gravidarum	Hyaluronic Acid, Panthenol, Topical Tretinoin.
			melasma	Titanium Dioxide / Zinc Oxide.
			Skin brightener	Kojic Acid, Azelaic Acid, Topical Retinoids, Alpha Hydroxy Acids (AHA).
			Acne	Azelaic Acid, Niacinamide, Alpha Hydroxy Acids (AHA).
			Anti-Aging	Vitamin C, Vitamin E, Alpha Lipoic Acid, Topical Ferulic Acid, Resveratrol.
			Insect repellent	N-Diethyl-meta-Toluamide (DEET) 10%–30%.
8	Jacek Kurzeja et al./2024 / Acne vulgaris during pregnancy – management ensuring both maternal and fetal safety [15]	Narrative Review	Acne	Benzoyl Peroxide, Azelaic Acid, Salicylic Acid, Topical Erythromycin and Clindamycin, Topical Retinoids.
9	Patrick McMullan et al./2024/ Safety of dermatologic medications in pregnancy and lactation: An update - Part I: Pregnancy [16]	Narrative Review	Acne	Adapalene, Azelaic Acid, Bacitracin (Topical), Benzoyl Peroxide, Clascoterone, Clindamycin (Topical), Erythromycin Base, Ivermectin (Topical), Metronidazole (Topical), Minocycline (Topical/Oral), Mupirocin (Topical), Neomycin (Topical), Polymyxin B (Topical), Tazarotene, Tretinoin (Topical), Trifarotene (Topical).
10	F. M. Meredith dan A. D. Ormerod / 2013/ Management of Acne Vulgaris in Pregnancy [3]	Narrative review	Acne	benzoyl peroxide, topical retinoids (tretinoin, isotretinoin, tazarotene, adapalene), topical antibiotics (clindamycin, erythromycin), azelaic acid, salicylic acid, nicotinamide
11	Murase Et al/ 2014 / Safety of dermatologic medications in pregnancy and lactation Part I. Pregnancy [1]	Narrative review	Acne	Benzoyl Peroxide, Topical and Systemic Antibiotics (Erythromycin, Clindamycin), Retinoids, Salicylic Acid, Zinc.
			Anti-Aging	Retinoids, Calcipotriene, Topical Corticosteroids.

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

The synthesis of skincare ingredient safety from the eleven included studies is presented in Table 1, with additional PLLR-based information provided in Supplementary File 2. The categorization of ingredients by purpose and safety during pregnancy is outlined in Table 3.

Table 2. Classification of Skincare Ingredient Safety by Use During Pregnancy

Purpose	Safe	Use with Caution	Should Be Avoided
Acne	Azelaic acid	Salicylic acid (small area, short-term)	Retinoids (tretinoin, adapalene, isotretinoin)
	Benzoyl peroxide (2%)	Glycolic acid (low concentration)	Tazarotene (Category X)
	Clindamycin (topical)	sodium sulfacetamide (small area, short-term)	Clascoterone (limited human data)
	Erythromycin (topical)		Topical minocycline
	Niacinamide (topical)		Dapsone (avoid in 3rd trimester)
Skin Brightening / Anti-Hyperpigmentation	Azelaic acid	Glycolic acid	Hydroquinone
	Niacinamide	Kojic acid	Retinoids (topical & oral)
	Vitamin C		
	Ferulic acid		
	Resveratrol (topical)		
	Alpha hydroxy acids (AHA) <10%		
Anti-Aging	Vitamin C	–	Retinoids (topical anti-aging)
	Vitamin E (topical)	–	
	Lipoic acid	–	
	Ferulic acid	–	
	Resveratrol (topical)	–	(Avoid oral resveratrol)
Stretch Marks / Striae Gravidarum	Hyaluronic acid	–	Tretinoin (even post-delivery use)
	Panthenol	–	
	Vitamin E	–	
Sunscreens	Titanium dioxide	–	Chemical sunscreens with high irritation
	Zinc oxide	–	
Insect Repellents	DEET (10–30%)	Icaridin (picaridin), IR3535, essential oils (insufficient data)	–
Toner	–	Phthalates	–

Acne

During pregnancy, several ingredients are considered safe for acne treatment due to their minimal systemic absorption. These include azelaic acid, clindamycin, erythromycin, benzoyl peroxide, and niacinamide [6], [12], [14]. Azelaic acid is classified as category B by the FDA and is generally safe, although some experts recommend avoiding it during the first trimester due to limited human data [15]. Topical

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

clindamycin and erythromycin are widely used antibiotics that are effective and safe, although clindamycin should be avoided in the first trimester, and erythromycin estolate is contraindicated due to hepatotoxicity risk [16]. Benzoyl peroxide falls under FDA class C, meaning no well-controlled human studies exist; however, available evidence shows minimal absorption and no proven harm to the fetus [12], [16]. Benzoyl peroxide is considered safe when applied in limited areas due to its low systemic absorption [2], [13]. Niacinamide is also safe and provides anti-inflammatory effects comparable to topical antibiotics [14].

Conversely, some acne medications are contraindicated during pregnancy due to potential teratogenic or fetal risks. These include topical retinoids such as tretinoin, tazarotene, adapalene, and isotretinoin, as well as minocycline, clascoterone, and dapsone (especially in the third trimester) [2], [5], [13], [15], [16].These agents are associated with significant fetal risks, including birth defects, and should be avoided.

Some ingredients require cautious use due to limited safety data. Salicylic acid, glycolic acid, and sodium sulfacetamide fall into this category. Small-area, short-term use is probably safe, but salicylic acid may close the ductus arteriosus, and glycolic acid or sulfacetamide can be systemically absorbed depending on dose and exposure length [2], [5]. Other topical options, such as bacitracin, ivermectin, metronidazole, neomycin, and polymyxin B, are generally considered safe when used externally during pregnancy [16].

Skin Brighteners

Azelaic acid and alpha-hydroxy acids (AHAs) are safe options for managing hyperpigmentation in pregnancy. Azelaic acid helps lighten pigmentation without affecting normal melanocytes and is classified as FDA category B [14]. AHAs, used at concentrations of ≤10%, improve pigmentation and support skin renewal by promoting cell turnover and are considered safe in lotions, gels, or creams [14] However, hydroquinone and topical retinoids are not recommended. Hydroquinone has high systemic absorption (35–45%) and lacks conclusive safety data, while topical retinoids are linked to fetal risks despite mixed evidence [2], [14]. Kojic acid, although widely used for skin lightening, lacks specific pregnancy safety data and should be used with caution [14].

Anti-Aging

Vitamin C, vitamin E, lipoic acid, ferulic acid, and resveratrol are antioxidants commonly used in cosmetic formulations for their protective and regenerative skin benefits. Vitamin C neutralizes oxidative radicals, stimulates collagen production, aids wound repair, and reduces hyperpigmentation [12], [14]. Vitamin E, especially in its alpha-tocopherol form, prevents lipid peroxidation and oxidative damage through its interaction with ubiquinol, offering anti-aging effects and posing no risk during pregnancy ([12], [14]. Lipoic acid works synergistically with vitamin C to protect biological membranes, activate fibroblasts for collagen synthesis, and is safe within 0.5–5% concentrations [12], [14]. Ferulic acid, derived from plant sources, enhances UV protection especially when combined with vitamin C, while resveratrol, a phenolic antioxidant from grapes, safeguards cells by neutralizing free radicals; though topically safe in pregnancy, its oral form may be harmful to the fetus [12], [14]. Although topical retinoids such as tretinoin, Adapalene, and tazarotene are widely used for their anti-aging, they are contraindicated during pregnancy because of their potential teratogenic effects [2], [5], [13], [15], [16]

Striae Gravidarum

To prevent or reduce striae gravidarum (stretch marks), ingredients such as hyaluronic acid, panthenol, and vitamin E are commonly recommended. Hyaluronic acid helps retain skin hydration and elasticity and is considered safe during pregnancy,

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

especially in its low-molecular-weight form [12], [14]. Panthenol aids in skin healing and moisture retention, while vitamin E may help reduce the severity of stretch marks, although further research is needed to confirm its effectiveness [14]. In contrast, topical tretinoin is not recommended during pregnancy due to its FDA category C classification and associated fetal risks. However, it may be considered postpartum with medical supervision [12].

Insect Repellent

DEET, at concentrations of 10–30%, is considered safe and effective for pregnant women, particularly in the second and third trimesters. It provides essential protection against mosquito-borne illnesses like malaria and dengue fever, which are prevalent in tropical regions [12], [14]. However, alternatives such as icaridin, Ethyl butylacetylaminopropionate, and essential oils lack sufficient safety data in pregnancy and should either be avoided or used with caution [12].

Toner

Certain chemicals in toners, particularly phthalates, should be used with caution during pregnancy. Although direct evidence in humans is lacking, animal studies have suggested that phthalates may interfere with fetal development, especially male reproductive health. Pregnant women should limit the use of phthalate-containing products, especially leave-on formulations. Further research is needed to clarify the safety of other toner components in pregnancy [12].

Sunscreen

During pregnancy, sunscreens with physical (inorganic) filters such as zinc oxide and titanium dioxide are preferred due to their non-absorptive nature and low irritation potential. These filters form a physical barrier that reflects UV rays and are safe for both pregnant women and young children. An SPF of 15–30 is generally recommended, as higher SPFs may expose the skin to more active ingredients without significantly increasing protection [2], [14]. Pregnant women should avoid chemical sunscreens such as oxybenzone, octinoxate, and avobenzone due to their high irritation potential [14]. Sunscreen also plays a crucial role in preventing melasma, which commonly occurs during pregnancy [2].

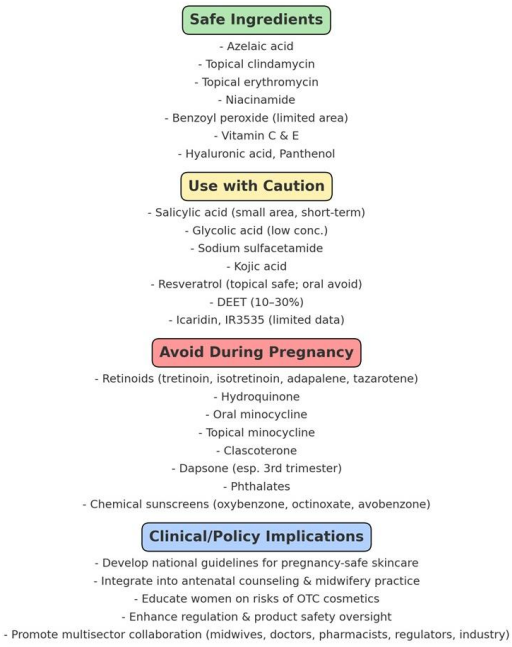

Figure 2. Pregnancy Skincare Safety Framework

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

DISCUSSION

Recent findings suggest that several skincare ingredients commonly used for acne, hyperpigmentation, and anti-aging can be safely applied during pregnancy when used appropriately. Agents such as azelaic acid, niacinamide, benzoyl peroxide (in limited areas), topical clindamycin, and vitamin-based antioxidants (e.g., vitamins C and E) demonstrate favorable safety profiles due to low systemic absorption and minimal fetal risk [6], [12], [14]. However, the practical implementation of this evidence in clinical care remains limited, particularly in antenatal counseling [17]. Midwives and other maternal health professionals have a critical role in translating these findings into safe skincare practices by providing tailored education during antenatal visits [18]. Because of over-the-counter cosmetics and aggressive digital marketing, many pregnant women encounter misinformation and remain unaware of risks from teratogenic agents such as topical retinoids and hydroquinone [2], [16], [19], [20]. Many cosmetic products, such as those containing kojic acid, are commonly available in drugstores without adequate regulatory oversight. Kojic acid, common in skin-lightening products, belongs in the “use with caution” group and animal studies show no maternal or fetal harm, but no human reproductive studies exist [12], [14]. Also, chemical sunscreen agents such as avobenzone, oxybenzone, and octinoxate have raised concerns due to their potential on sex and thyroid hormones, as well as the potential impact on fetal development, such as the risk of Hirschsprung’s disease [21]. Although widely used in commercial products, these ingredients lack conclusive reproductive toxicity data, demanding cautious use and stronger evidence-based guidance for midwives and obstetricians [22].

Midwives are widely regarded as the primary providers of antenatal health education, yet many pregnant women still express a need for more personalized and comprehensive information during prenatal care [23]. Antenatal care (ANC) visits, therefore serve as a strategic opportunity for midwives to deliver targeted education on safe skincare practices, addressing both individual concerns and evidence-based recommendations [24]. There is a critical need for the development of standardized educational guidelines on pregnancy safe skincare by healthcare professionals, supported by the Ministry of Health (Kemenkes) and the Indonesian Food and Drug Authority (BPOM), to ensure consistent, evidence-based counseling and provide a nationally recognized reference for medical personnel during antenatal care. The development of pregnancy-safe skincare guidelines is essential to support public education and raise awareness of the potential risks associated with certain cosmetic ingredients. Without proper guidance, many women rely on social media or advertisements that lack medical verification [19], [25]. Language restrictions and limited access to some publications may also have reduced the completeness of the analyzed data.[26].

Limitations

This umbrella review has a major limitation related to the number of available and relevant articles for the topic discussed. Due to this limitation, the researchers extended the search range to 15 years to obtain sufficient data. In addition, language limitations and restricted access to some publications may also affect the completeness of the data analyzed. Nevertheless, this umbrella review provides a comprehensive overview of the topic by synthesizing findings from various studies over the past 15 years.

CONCLUSION

During pregnancy, women must choose skincare products carefully to protect both maternal and fetal health. Ingredients like salicylic acid and glycolic acid need cautious use because safety data remain limited.. Conversely, substances like retinoids,

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

hydroquinone must be avoided due to their teratogenic risks. Ingredients such as salicylic acid and glycolic acid require cautious application due to limited safety data. Physical sunscreens containing titanium dioxide and zinc oxide are preferred. To ensure safe skincare practices, midwives, doctors, pharmacists, and other healthcare professionals should take an active role in screening, counseling, and educating pregnant women based on evidence-based guidelines. Pregnant women are encouraged to choose products with verified safety profiles and seek professional advice before use. Future research must generate stronger, up-to-date clinical evidence in human populations to guide recommendations and policies on skincare during pregnancy.

REFERENCES

[1] J. E. Murase, M. M. Heller, and D. C. Butler, "Safety of dermatologic medications in pregnancy and lactation: Part I. Pregnancy," *J Am Acad Dermatol*, vol. 70, no. 3, pp. 401.e1-401.e14, 2014, doi: 10.1016/j.jaad.2013.09.010.

[2] P. Bozzo, A. Chua-Gocheco, and A. Einarson, "Safety of skin care products during pregnancy," *Canadian Family Physician*, vol. 57, pp. 665–667, 2011, [Online]. Available: www.motherisk.org

[3] F. M. Meredith and A. D. Ormerod, "The Management of Acne Vulgaris in Pregnancy," *Am J Clin Dermatol*, vol. 14, no. 5, pp. 351–358, Oct. 2013, doi: 10.1007/s40257-013-0041-9.

[4] E. Aromataris, R. Fernandez, C. M. Godfrey, C. Holly, H. Khalil, and P. Tungpunkom, "Summarizing systematic reviews: Methodological development, conduct and reporting of an umbrella review approach," *Int J Evid Based Healthc*, vol. 13, no. 3, pp. 132–140, Sep. 2015, doi: 10.1097/XEB.0000000000000055.

[5] M. Yaghi, D. Baboun, and J. E. Keri, "Acne and Pregnancy: A Clinical Review and Practice Pearls," *Cutis*, vol. 113, no. 1, pp. E26–E32, Jan. 2024, doi: 10.12788/cutis.0951.

[6] Y. P. Koh, E. A. Tian, and H. H. Oon, "New changes in pregnancy and lactation labelling: Review of dermatologic drugs," *Int J Womens Dermatol*, vol. 5, no. 4, pp. 216–226, Sep. 2019, doi: 10.1016/j.ijwd.2019.05.002.

[7] A. L. Chien, J. Qi, B. Rainer, D. L. Sachs, and Y. R. Helfrich, "Treatment of Acne in pregnancy," *Journal of the American Board of Family Medicine*, vol. 29, no. 2, pp. 254–262, Mar. 2016, doi: 10.3122/jabfm.2016.02.150165.

[8] B. F. Hutchens and J. Kearney, "Risk Factors for Postpartum Depression: An Umbrella Review," *J Midwifery Womens Health*, vol. 65, no. 1, pp. 96–108, Jan. 2020, doi: 10.1111/jmwh.13067.

[9] M.-S. Hosseini, F. Jahanshahlou, M. A. Akbarzadeh, M. Zarei, and Y. Vaez-Gharamaleki, "Formulating research questions for evidence-based studies," *Journal of Medicine, Surgery, and Public Health*, vol. 2, p. 100046, Apr. 2024, doi: 10.1016/j.glmedi.2023.100046.

[10] C. Baethge, S. Goldbeck-Wood, and S. Mertens, "SANRA—a scale for the quality assessment of narrative review articles," *Res Integr Peer Rev*, vol. 4, no. 1, Dec. 2019, doi: 10.1186/s41073-019-0064-8.

[11] Food and Drug Administration (FDA), "Pregnancy and Lactation Labeling (Drugs) Final Rule," https://www.fda.gov/drugs/labeling-information-drug-products/pregnancy-and-lactation-labeling-drugs-final-rule.

[12] imam budi Putra, N. K. Jusuf, and Dewi. Kumala Dewi, "Skin Changes and Safety Profile of Topical Products During Pregnancy," *Journal Of Clinical And Aesthetic Dermatology*, vol. 15, no. 2, pp. 49–57, 2022.

[13] V. M. Patel BS, R. A. Schwartz MPH DSc, and W. Clark Lambert, "Safety of Topical Dermatologic Medications in Pregnancy," *J Drugs Dermatol*, vol. 15, no. 7, pp. 830–834, 2016.

https://doi.org/10.34011/jmp2k.v35i3.3108

e-ISSN: 2338-3445
p-ISSN: 0853-9987

[14] D. F. Maluf, "Current Cosmetic Treatments in Pregnancy," *International Journal of Medical, Health, Biomedical, Bioengineering and Pharmaceutical Engineering*, vol. 11, no. 3, 2017, [Online]. Available: https://www.researchgate.net/publication/314132056

[15] J. Kurzeja *et al.*, "Acne vulgaris during pregnancy – management ensuring both maternal and fetal safety," *European Journal of Clinical and Experimental Medicine*, vol. 22, no. 3, pp. 646–652, 2024, doi: 10.15584/ejcem.2024.3.19.

[16] P. McMullan, M. Yaghi, T. M. Truong, M. Rothe, J. Murase, and J. M. Grant-Kels, "Safety of dermatologic medications in pregnancy and lactation: An update - Part I: Pregnancy," *J Am Acad Dermatol*, vol. 91, no. 4, pp. 619–648, Oct. 2024, doi: 10.1016/j.jaad.2023.10.072.

[17] M. Bahri Khomami, H. J. Teede, J. Enticott, S. O'Reilly, C. Bailey, and C. L. Harrison, "Implementation of Antenatal Lifestyle Interventions Into Routine Care," *JAMA Netw Open*, vol. 5, no. 10, p. e2234870, Oct. 2022, doi: 10.1001/jamanetworkopen.2022.34870.

[18] C. Marie, R. Garlantézec, R. Béranger, and A. Ficheux, "Use of Cosmetic Products in Pregnant and Breastfeeding Women and Young Children: Guidelines for Interventions during the Perinatal Period from the French National College of Midwives," *J Midwifery Womens Health*, vol. 67, no. S1, Nov. 2022, doi: 10.1111/jmwh.13428.

[19] S. Aladwan, R. Issa, W. Al Safadi, L. Alnsour, and L. K. Al-Halaseh, "Perceptions and Management of Pregnancy-Related Skin Changes: A Cross-Sectional Study on Knowledge, Practices, and Use of Skincare Product.," *J Cosmet Dermatol*, vol. 24, no. 4, p. e70132, Apr. 2025, doi: 10.1111/jocd.70132.

[20] L. L. Bio and J. J. Cies, "Lack of pregnancy warnings on over-the-counter dermatologic products containing potentially harmful hydroquinone," *Journal of Perinatology*, vol. 37, no. 7, pp. 778–781, Jul. 2017, doi: 10.1038/jp.2017.35.

[21] S. Santander Ballestín and M. J. Luesma Bartolomé, "Toxicity of Different Chemical Components in Sun Cream Filters and Their Impact on Human Health: A Review," *Applied Sciences*, vol. 13, no. 2, p. 712, Jan. 2023, doi: 10.3390/app13020712.

[22] K. Ahuja and P. Lio, "An Integrative Approach to Treating Hyperpigmentation in Pregnancy," *Journal of Integrative Dermatology*, Feb. 2024.

[23] R. Baron, Q. Heesterbeek, J. Manniën, E. K. Hutton, J. Brug, and M. J. Westerman, "Exploring health education with midwives, as perceived by pregnant women in primary care: A qualitative study in the Netherlands," *Midwifery*, vol. 46, pp. 37–44, Mar. 2017, doi: 10.1016/j.midw.2017.01.012.

[24] I. Dayyani, S. Lou, and I. Jepsen, "Midwives' provision of health promotion in antenatal care: A qualitative explorative study," *Women and Birth*, vol. 35, no. 1, pp. e75–e83, Feb. 2022, doi: 10.1016/j.wombi.2021.01.010.

[25] J. Y. Lee and E. Lee, "What topics are women interested in during pregnancy: exploring the role of social media as informational and emotional support.," *BMC Pregnancy Childbirth*, vol. 22, no. 1, p. 517, Jun. 2022, doi: 10.1186/s12884-022-04842-5.

[26] C. Bandiera, S. K. Mistry, E. Harris, M. F. Harris, and P. Aslani, "Interprofessional collaboration between pharmacists and community health workers: a scoping review," *Int J Equity Health*, vol. 24, no. 1, p. 23, Jan. 2025, doi: 10.1186/s12939-025-02377-7.

https://doi.org/10.34011/jmp2k.v35i3.3108