

An Empirical Study On Mothers' Brand Preference For Plant-Based Baby Sunscreen: Ahmedabd City

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ABSTRACT

The Global level of growing awareness regarding infant skin health and sustainable skincare products has increased the demand for plant-based baby sunscreen products among mothers. Plant-based baby sunscreens are considered safer and eco-friendlier due to the use of natural ingredients and reduced chemical content. The research focuses on identifying key factors influencing mothers' purchasing decisions, such as including brand trust, image, quality, product ingredients, price, sun protection factor (SPF), and dermatological safety. Objective of study: To analyse mothers' awareness of plant-based baby sunscreen products to analysis authentic sources that influence mother for plant-based baby sunscreen product, to identify factors influencing brand preference, to evaluate the impact of sunscreen usage on babies' health. to study on motivation and barrier on sunscreen brand, Methodology: The study uses a Descriptive and Empirical research design. Primary Data, Structured questionnaire distributed to mothers through Google Form. The survey included respondent of 100 mothers (with children aged of 0-5 years) and Convenience sampling was collected responses from mothers in urban areas of Ahmedabad city. Findings: reveal that highly educated mothers show a strong preference for brands that emphasize safety, plant based/natural or organic ingredients, or chemical free and less harmful chemical in baby sunscreen product. Recommended baby sunscreen by paediatricians or dermatologist. The study concludes: that mothers' brand preferences are closely associated with perceived product safety and health benefits, which minimal chemical and plant-based product. Thus, Understanding the growing trend of eco-friendly, organic, plant-based baby care products in the Indian market as well as globally....

Keywords:: Baby Sunscreen, Brand Preference, Mothers' Perception, Plant-Based Baby Sunscreen, Consumer Behaviour..

INTRODUCTION:

Past few years the demand for natural and sustainable baby care products has increased significantly among Indian consumers, especially mothers who are highly conscious about their babies' health and skin safety. Major shift seen after covid period in market of baby product. Baby product in all range of product related to plant based, natural, organic has increased in demand. Baby skin is delicate, sensitive, and more prone to irritation and damage from harsh chemicals and ultraviolet (UV) radiation. As a result, parents are increasingly shifting toward plant-based baby skincare products, including baby sunscreen, that are perceived as safer, eco-friendly, and free from harmful synthetic ingredients (Indian Retailer, 2024). Sunscreens have a long history of use as effective photoprotective agents, and their use has been well studied and recorded. Sunscreens are formulated to protect users from the potentially damaging effects of prolonged exposure to the sun. Sunscreens are an essential component in the fight against human skin conditions brought on by ultraviolet radiation from the sun. (Mancuso JB, 2017) (Ngoc LT, 2019) (Kul pooja, 2023).

Plant-based baby sunscreen refers to sunscreen products formulated using naturally derived ingredients such as

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zinc oxide, aloe vera, cocoa butter, olive oil, tomato extract, and herbal oils instead of chemical-based compounds. These products are designed to provide protection against harmful UVA and UVB rays while minimizing the risk of skin allergies, irritation, and toxic exposure. Several Indian baby care brands have recently introduced plant-powered sunscreen products to address the growing preference for clean and sustainable skincare among modern mothers (Mother Sparsh, 2020). The increasing awareness regarding organic and eco-friendly baby products is influenced by factors such as rising educational levels, digital marketing, social media awareness, paediatrician recommendations, and environmental consciousness. Modern mothers are becoming more informed about product ingredients and actively seek transparency, safety certifications, and toxin-free formulations before purchasing baby skincare products (Indian Retailer, 2024). Research also indicates that parents increasingly prefer products containing natural ingredients because they believe such products are healthier and safer for infants. Ahmedabad city, being one of the rapidly developing urban centres in Gujarat, has witnessed a growing market for premium and sustainable baby care products. Working mothers, nuclear families, and higher disposable incomes have contributed to changing consumer preferences in the baby care segment.

Mothers in Ahmedabad are increasingly influenced by online reviews, influencer marketing, paediatric advice, and social media campaigns while selecting baby skincare brands. Plant-based baby sunscreen products are gaining popularity because they combine skin protection with natural and environmentally responsible ingredients (Baby Forest, 2026). Brand preference plays an important role in consumer purchasing behaviour. Mothers generally prefer brands that provide trust, safety assurance, dermatological testing, hypoallergenic formulations, and eco-friendly packaging. Factors such as product quality, price, availability, packaging, ingredients, brand image, and promotional activities significantly influence mothers' buying decisions regarding baby sunscreen products. Furthermore, the rise of sustainable parenting practices has encouraged mothers to adopt plant-based products that align with health and environmental values (Luvlap, 2026). However, for older infants and toddlers, sunscreen becomes an essential protective product., though baby skincare market has expanded significantly, with numerous brands offering baby sunscreens emphasizing safety, organic ingredients, and dermatological testing. Mothers, as primary caregivers, play a crucial role in selecting these products. Their brand preferences are influenced by factors such as product safety, ingredient composition, brand trust, price, recommendations, and digital reviews (Linos et al., 2011). At the same time, the health impact of these products is a growing concern. Studies show that most baby sunscreens are formulated with SPF 30+ and are often mineral-based (e.g., zinc oxide), aligning with dermatological recommendations (Analysis of Popular Sunscreens for Babies and Children, 2026). Therefore, improper usage, lack of awareness, and marketing claims can affect both product choice and health outcomes. The study also seeks to identify the factors influencing brand preference and purchasing behaviour among mothers in Ahmedabad city. This research will provide valuable insights for baby care companies, marketers, and researchers in understanding the growing demand for sustainable baby skincare products in India and globally.

1.1 Importance of The Study

This study holds significant importance for the following reasons:

This study helps to understand mothers' awareness

This study will show the preferences regarding plant-based baby sunscreen products.

This study helps to understand about authentic sources to buy toward plant-based baby sunscreen product.

This study helps to acknowledge about key factors influencing brand selection, such as safety, price, and trust.

This study helps evaluate the perceived and actual impact of sunscreen use on babies' health.

1.2 Significance Of The Study

Improves awareness about ingredients, SPF, and health impact.

Identifies key factors influencing brand preference.

Encourages production of safe and dermatologically tested products.

Emphasizes the importance of medical guidance in baby skincare

1.3 Research Problem

Despite the availability of a wide range of baby sunscreen brands in the market, mothers often face confusion in selecting the most appropriate product. Factors such as misleading advertisements, lack of clear knowledge about SPF and ingredients, and concerns regarding side effects create uncertainty in purchase decisions. The increasing demand for plant-based baby sunscreen products has created a need to understand mothers' brand preferences and purchasing behaviour in Ahmedabad city. However, limited research exists regarding the factors influencing mothers' awareness, perception, and preference toward plant-based baby sunscreen brands.

1.4 Objectives Of The Study

To analyse mothers' awareness plant-based baby sunscreen products

To analysis authentic sources that influence mother for plant-based baby sunscreen product.

To identify factors influencing plant-based brand preference,

To evaluate the impact of sunscreen usage on babies' health.

To study on motivation and barrier on sunscreen brand

2. LITERATURE REVIEW

Aladag (2006), This study examined about parents' knowledge and practices regarding sun exposure in infants. It found that while most parents believed sunlight was beneficial, only a small proportion (13.6%) used sunscreen for their babies, indicating limited awareness and inconsistent practices. This highlights the gap between knowledge and actual behaviour.

Burnett & Wang, (2011). This study explains about Marketing strategies, including labelling (organic, hypoallergenic, dermatologist-tested), significantly shape consumer perception. Mothers tend to prefer brands that emphasize safety, natural ingredients, and clinical validation, even when scientific differentiation between products is minimal

Stamatas et al., (2018) This researcher studied the effectiveness of plant-based skincare formulations on infants with dry skin and a risk of atopic dermatitis. The research highlighted that plant-based formulations improved skin barrier function and reduced skin dryness in infants. The findings supported the use of natural and botanical ingredients in infant skincare products because of their gentle and safe properties for sensitive baby skin

Gopinath, Manjula, and Karthikeyan, (2021) This researcher studied on botanical ingredients and allergens in skincare products available in the Indian market. The study highlighted that consumers increasingly prefer products containing botanical and herbal ingredients due to concerns regarding skin sensitivity and allergic reactions. The research emphasized the importance of safe

and hypoallergenic formulations in skincare products, especially for sensitive skin users such as infants and children

Sajinčić, Gordobil, Simmons, and Sandak (2021) This researcher conducted a study on consumers' knowledge and attitudes toward bio-based sunscreen products. The study found that consumers showed a positive attitude toward natural and environmentally friendly sunscreen products due to growing environmental and health consciousness. The research also revealed that consumers prefer plant-based sunscreen products because they perceive them as safer, healthier, and eco-friendly alternatives to chemical-based sunscreens. However, factors such as product price and SPF effectiveness influenced purchasing decisions

Engler-Jastrzębska and Wilczyńska, (2023) This researcher examined consumers' knowledge and purchasing decisions regarding organic sunscreen products. The study found that awareness about organic and natural ingredients significantly affected consumer preference for sunscreen products. Consumers who possessed higher knowledge regarding organic skincare products were more likely to purchase plant-based sunscreen brands. The study also emphasized the role of product labelling, safety concerns, and environmental awareness in influencing consumer behaviour

Hanna, Patel, and Kundu, (2023) This researcher analysed the role of cost and quality in sunscreen purchasing preferences. Their study indicated that consumers considered product quality, safety, effectiveness, and affordability while selecting sunscreen products. The research suggested that trust in ingredients and dermatological safety strongly influenced sunscreen brand preference among consumers

Mohammed Saud Alsaidan,(2023) This study describe about Parents are generally influencing the sun protection behaviors of their children, including sunscreen use. In Saudi Arabia, sunscreen use was estimated in adults but not children. The objective was to estimate the prevalence and predictors of sunscreen use among parents and their children. An observational cross-sectional study was conducted in April 2022. In multivariable analysis, predictors of sunscreen use in parents included female sex, history of sunburn, and sunscreen use by children.

Ms. Kul Pooja,(2023), This study shares about knowledge that sunscreens constitute an essential component of overall photoprotection. Sunscreens, both physical and chemical, have been used widely for the prevention and treatment of a variety of disorders caused by UV radiation, including sunburn, photoaging, skin cancer, and phototoxic responses. These conditions include sunburn, photoaging, and phototoxic reactions. Sunscreens are now offered in a variety of forms, including creams, lotions, gels, sticks, and sprays, among others. Forty clinical dermatological specialists took part in the meetings of the expert group that were held over the internet in the form of a teleconference and webinar to review definitions, diagnosis, and treatment options. This application must be done in accordance to the individual's skin type as well as their exposure pattern. The prudent use of sunscreens, the avoidance of sun exposure during

the middle of the day, and the wearing of protective apparel are all necessary components of a comprehensive sun protection program. It cannot be denied that there is a need to promote public education and understanding on the usage of sun protection products like sunscreen.

Singh, (2024)This researcher explored factors influencing Indian mothers' perceptions toward processed baby products and feeding practices. The study revealed that working mothers were highly conscious about health, safety, and ingredient quality while selecting baby-related products. Mothers preferred products perceived as natural, safe, and beneficial for children's health. The findings are relevant to plant-based baby sunscreen products because consumer awareness and trust play a major role in purchasing decisions

Dhiraj Dhoot (2025),This study describe about Ultraviolet (UV) radiation is a major contributor to photoaging, pigmentary disorders, and photo carcinogenesis. While sunscreens remain central to photoprotection, clinicians in India find it challenging to choose a sunscreen due to the wide variability in skin types, dermatologic conditions, climates, and formulation preferences. Selecting a sunscreen that balances efficacy, cosmetic acceptability, affordability, and patient adherence remains a practical dilemma. This consensus statement provides Indian clinicians with evidence-informed, context- specific guidance for recommending sunscreens, helping them streamline decision- making, improve patient compliance, and align photoprotection strategies with dermatologic and public health priorities in India.

Yaldo M, Mansour M, Olds H, Potts G, (2026), This cross-sectional study analysed the top 100 bestselling "baby" sunscreens on Amazon to evaluate ingredient composition, formulation types, and marketing claims of popular products. Among the 94 products evaluated, 100% were broad-spectrum and at least SPF 30, 76.6% were mineral-based, and 92.6% were water-resistant, consistent with American Academy of Dermatology's recommendations. Marketing labels such as "pediatrician tested," "dermatologist tested," and "non-nano" were common but lacked standardized definitions or regulatory oversight. These findings highlight the need for greater regulation in sunscreen labelling and marketing.

2.1 Research Gap

Researcher focuses on plant-based baby sunscreen, with limited attention on mothers with age of 0-5 years old child. The area of research is limited to Ahmedabad city of urban area only. Other city area can be considered in further research

3. RESEARCH METHODOLOGY

Research Design: The study uses a Descriptive and Empirical research design.

Data sources of Collection: Primary Data: Structured questionnaire distributed to mothers through Google Form. Secondary Data: Research articles, journals, and online databases.

Sample Size also considered through: the survey included 100 mothers (with children aged 0–5 years)

Sampling Technique: Convenience sampling was collected responses from mothers in urban areas of Ahmedabad city.

3.1 Scope of The Study

Focus on mothers as primary decision-makers for baby sunscreen products.

Analysis of awareness, brand preference, and influencing factors.

Study of authentic information sources such as doctors, online reviews, and advertisements.

Evaluation of health impact (perceived and reported) of sunscreen usage on babies.

Examination of motivations and barriers affecting purchase decisions.

Urban area is only considered in this study.

3.2 Limitation of the Study

Limited sample size is only 100 mothers with 0-5 infant child considered, which may not represent the entire population.

Geographical restriction, Ahmedabad city and urban area is considered in this research paper.

Dependence on self-reported responses, which may include bias or inaccuracy.

Difficulty in measuring actual medical/clinical health impact, as it depends on multiple external factors.

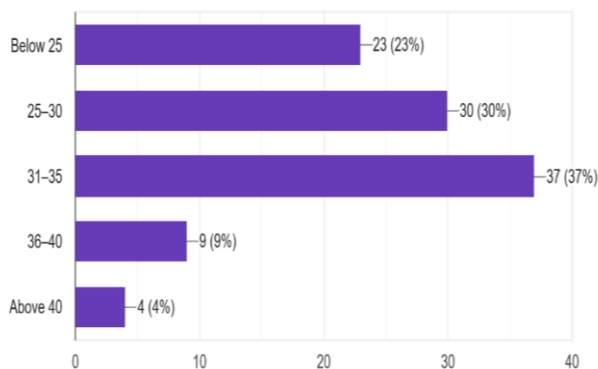
Time and resource constraints may limit depth of research.

Rapid changes in the market and new product launches may affect the long-term applicability of results.

4. RESULTS AND DISCUSSION

4.1 Demographic Profile

Table 1.1 Considering mother's Age with 0-5 yrs. of infant child.

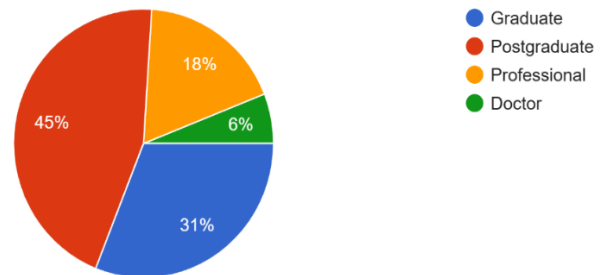


Interpretation

In this age of mother is below 25 to 35 (23 to 37%) are highly oriented to buy and usage of baby sunscreen and above 35 to 40 very less likely interested to buy or to use baby sunscreen (4 to 9 %).

Table 1.2: Mother's educational level to understand the usage of sunscreen.

Education Level:	Respondent	Percentage
Graduate	31	31%
Postgraduate	45	45%
Professional	18	18%
Doctor	6	6%
Total	100	100

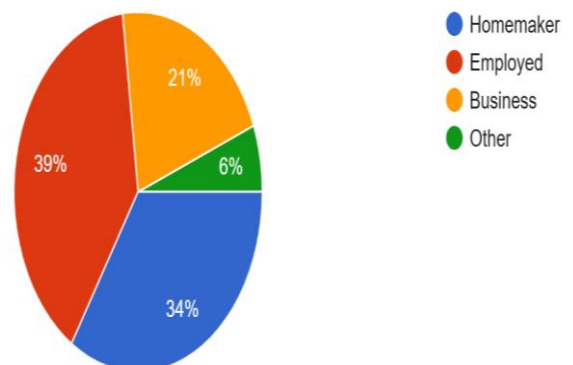


Interpretation:

This study shows highly educated mothers are more interested to buy and acknowledge about usage of baby sunscreen. Mothers like postgraduate 45 % are very highly interested and graduate are following trend or doctor recommend, professional 18 % and doctor 6 % are self-aware about usage of baby sunscreen.

Table 1.3: Mother's Occupation level to understand the usage of sunscreen on child.

Occupation:	Respondent	Percentage
Homemaker	39	39%
Employed	34	34%
Business	21	21%
Other	6	6%
Total	100	100

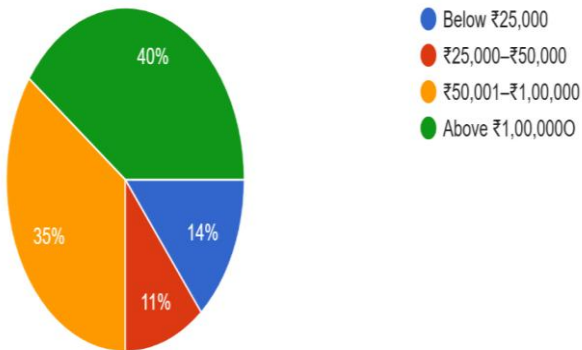


Interpretation:

This percentage describe about selection of baby sunscreen and usage on child and understand outcome of child health. Highly educated woman (39%), more selective on products usage through understating its importance to obtain. They have more likely to have decision power to buy for their child. Homemaker are also educated but less likely to use sunscreen product, other woman who are social worker or doing other kinds of activity (6%) are less user for the product. Business woman (21%) is also have their perspective of selection of product for baby.

Table 1.4: Mother’s monthly family income to understand the usage of sunscreen on child.

Monthly Family Income:	Respondent	Percentage
Below ₹25,000	40	40%
₹25,000–₹50,000	35	35%
₹50,001–₹1,00,000	14	14%
Above ₹1,00,000	11	11%
Total	100	100%



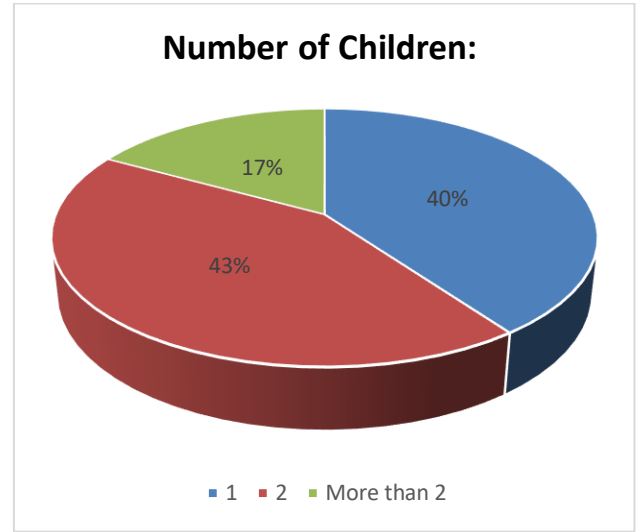
Interpretation:

In this study explain, about mother’s monthly family income, helps to understand consumer buying behaviour is not comprise and highly income (40%) is most likely to purchase and try to buy consciously about baby sunscreen product. (35%) monthly 50000- 100000 Rs, income is consciously buying usage but remaining 14% and 11% are less like to purchase and usage of baby sunscreen is less.

Table 1.5: Mother’s number ‘s of children and understand the usage of sunscreen on child.

Number of Children:	Respondent	Percentage
1	40	40%
2	43	43%

More than 2	17	17%
Total	100	100%



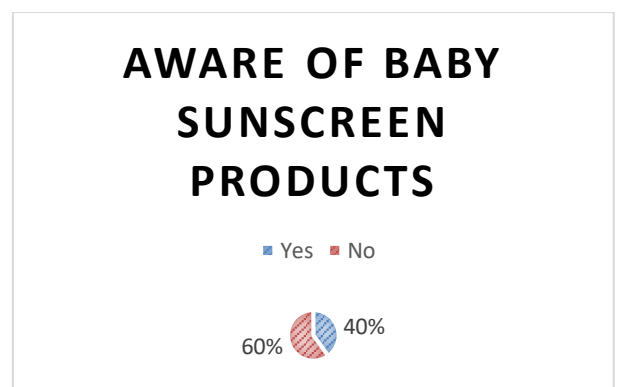
Interpretation:

This is study shows having child, using baby sunscreen which help to understand the benefits and outcomes of using baby sunscreen on child. Number of children is considered to understand baby sunscreen is used on youngest child in (43 %) and single child (40 %) some mother is using it. And more than three children (17%) are least interested using it.

4.2 Level of Awareness

Table 1.6: Mother’s level of awareness of sunscreen on child.

Aware of baby sunscreen products	Respondent	Percentage
Yes	40	40%
No	60	60%
Total	100	100%

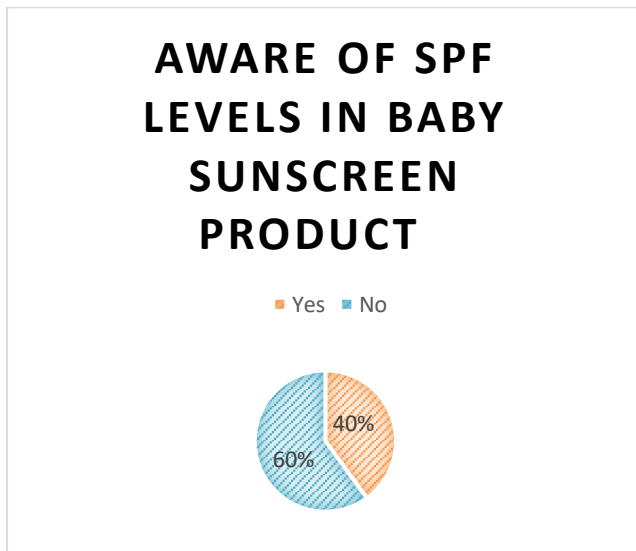


Interpretation:

This study shows having child, using baby sunscreen on them using in right way and selection of product and usage is considered. (40 %) mothers aware of sunscreen and using baby sunscreen on child and (60 %) mothers are not aware and not using on child sunscreen.

Table 1.7: Mother's level of awareness of sunscreen SPF on child.

Aware of SPF levels in baby sunscreen product	Respondent	Percentage
Yes	40	40%
No	60	60%
Total	100	100%

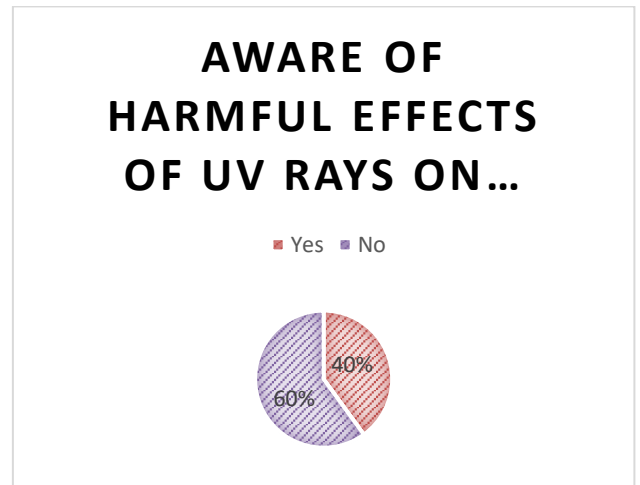


Interpretation:

This study shows having child, using baby sunscreen on them using in right way and selection of product and usage is considered. (40 %) mothers are using baby sunscreen on child are aware of SPF level which suits on baby skin, and (60 %) mothers are not aware and not using on child sunscreen.

Table 1.8: Mother's level of awareness of harmful effects of UV rays baby's skin on child.

Aware of harmful effects of UV rays on babies' skin	Respondent	Percentage
Yes	40	40%
No	60	60%
Total	100	100%

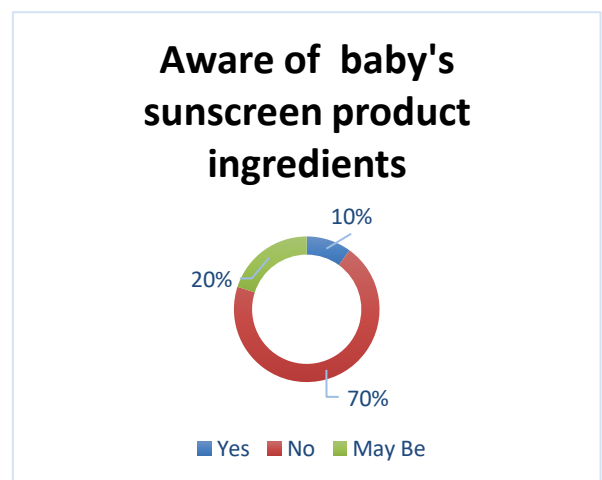


Interpretation:

This study shows awareness among mothers about harmful effects of UV rays on baby's skin, baby sunscreen using on them can protect from harmful UV rays on skin. Using in right way and amount of sunscreen on child. Need to be considered. (40 %) mothers are using baby sunscreen on child are aware of SPF level and effects of UV rays. (60 %) mothers are not aware of UV rays and its effects on baby skins.

Table 1.9: Mother's level of awareness regarding baby sunscreen product and their Ingredients.

Aware of baby's sunscreen product ingredients	Respondent	Percentage
Yes	20	10%
No	60	70%
May Be	20	20%
Total	100	100%



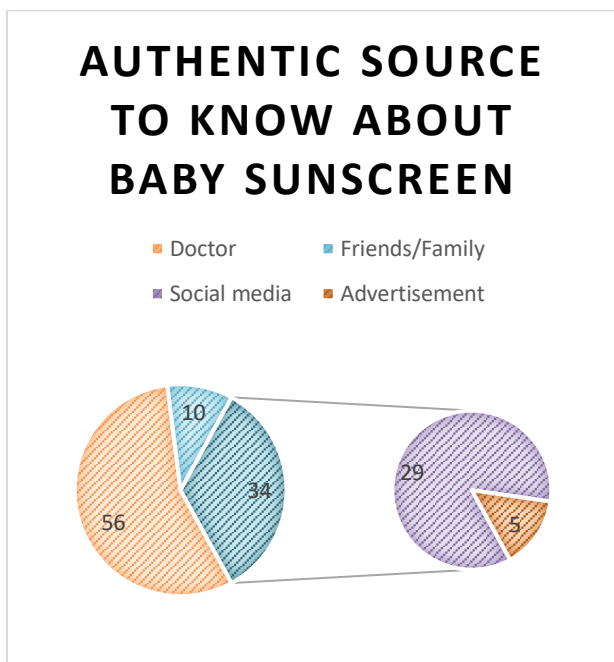
Interpretation:

This study shows awareness among mothers about baby sunscreen product ingredients and their effects. (70 %) mothers are not aware of baby sunscreen product ingredients and their effects.

mothers are not aware of sunscreen Ingredients. (20 %) mothers are using baby sunscreen on child are aware of product Ingredients (20%) some mothers are aware of product ingredients. Some are not aware of ingredients and still using baby sunscreen on child.

Table 1.10: Mother’s buying product from authentic sources.

Authentic source to know about baby sunscreen	Respondent	Percentage
Doctor	56	56%
Friends/Family	10	10%
Social media	29	29%
Advertisement	5	5%
Total	100	100%



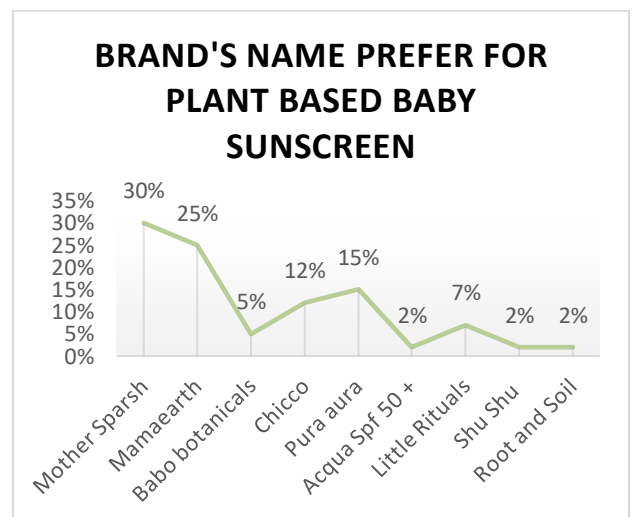
Interpretation:

This study shows mothers approaches authentic sources to considered to buy and get knowledge about baby sunscreen that how to be used on child. (56 %) doctor recommendation about sunscreen usage on child to mothers. (10 %) mothers are rely on friends and family recommendation. (29% and 5 %) some mothers get information through social media and advertainment.

4.3 : Brand Preference

Table 1.11: Mother’s brands name prefers for baby sunscreen.

Brand's name prefers forplant-based baby sunscreen	Respondent	Percentage
Mother sparsh	12	30%
Mama earth	10	25%
Babo Botanicals	2	5%
Chicco	4	12%
Pura aura	6	15%
Acqua Spf 50 +	1	2%
Little Rituals	3	7%
Shu Shu	1	2%
Root and Soil	1	2%
Total	40	100%

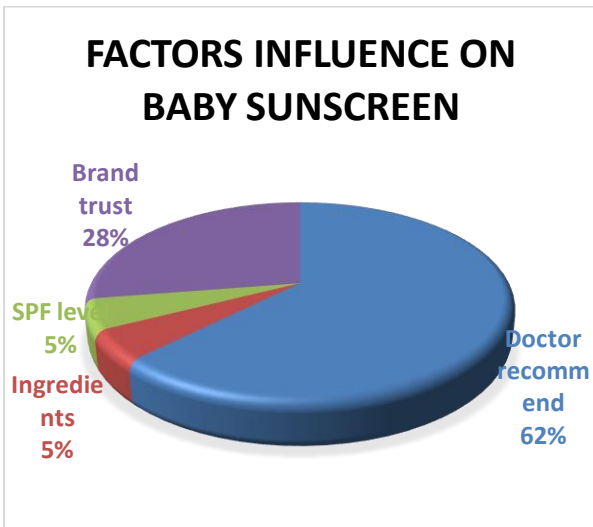


Interpretation:

This table shows mothers buys baby sunscreen from reputed brands. (30 %)Mother Sparshpreferable by mothers and Sebamed and Cetaphil also highly doctor recommendation about sunscreen usage on child but it is not plant based sunscreen. (25 %) mama earth, mothers got recommendation from friends and family, (5%) Babo Botanicals few mothers used based on babies’ skin.Chicco (12%) also recommended by doctors andstore/ onlineand Acqua spf 50+ (2%) also doctor recommended to mother andPura aura (15%), Shu Shu (2%) , Root and Soil (2%) mothers get information through, social media, online review and advertainment. Little rituals (7%) is plant-based baby sunscreen usage by mother who prefer organic and plant-based product. Doctor suggestion abut usage of baby sunscreen product on baby skin, when child is above 6 monthsallow to use sunscreen and specific for only outdoor purpose.

Table 1.12: This are the factors influence tobuy baby sunscreen product

Factors Influence	Responded	Percentage
Doctor recommend	25	63%
Ingredients	2	5%
SPF level	2	5%
Brand trust	11	28%
Total	40	100%

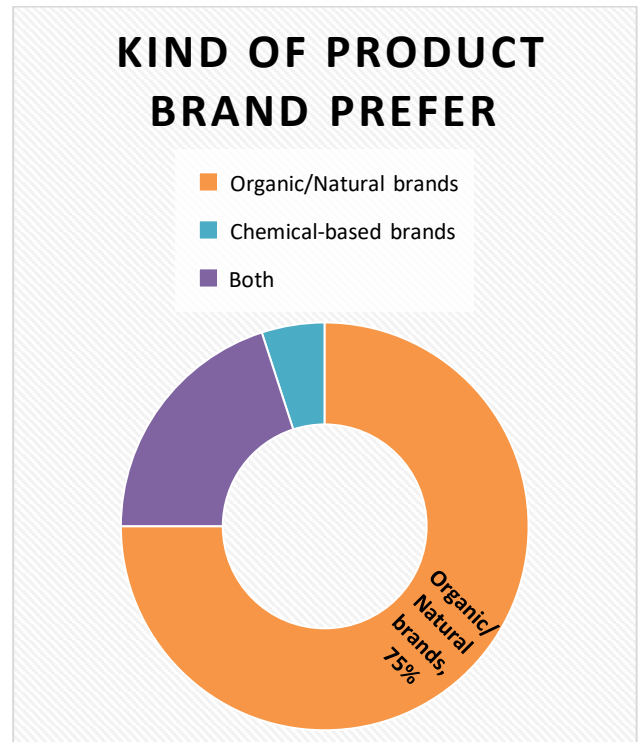


Interpretation:

This pie chart shows mothers buys baby sunscreen by getting influenced on factors like, (62 %) sunscreen are doctor recommendation about how to use and why to use, sunscreen on child. (28 %) mothers get influenced by brand trust, reputation, loyalty. Few mothers also get likely influences by SPF Level (5%) and some mother who are more concern about product usage or self-aware of product, mostly checked Ingredients (5%) that influence mother to buy, which may be suits to their baby.

Table 1.13: This kind of product brand prefer

This kind of product brand prefer	Respondent	Percentage
Organic/Natural brands	30	75%
Chemical-based brands	2	5%
Both	8	20%
Total	40	100%



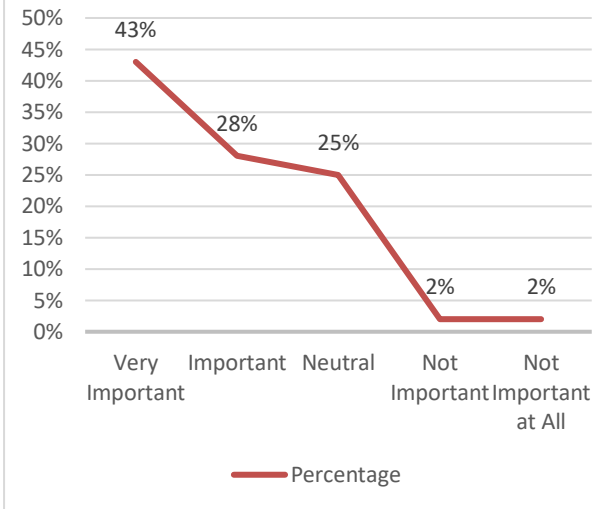
Interpretation:

This pie chart shows mothers buys baby sunscreen which are either organic or chemical. May be both. like, (75%) most mother prefer organic sunscreen for a child. (5%) mothers get influenced for chemical sunscreen which dermatology tested and recommended (20%) both can also use as mother thinks nothing is pure organic, minimal chemical is there and some are good chemical for child, which may be suits to baby.

Table 1.14: Importance of brand reputation

Importance of brand reputation	Respondent	Percentage
Very Important	17	43%
Important	11	28%
Neutral	10	25%
Not Important	1	2%
Not Important at All	1	2%
Total	40	100%

IMPORTANCE OF BRAND REPUTATION



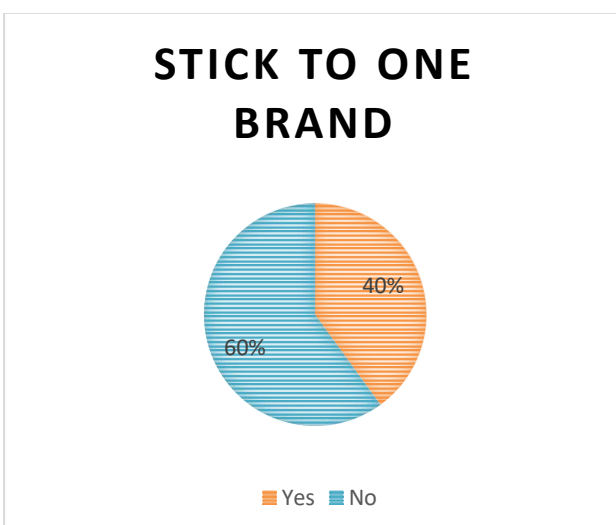
Interpretation:

Mothers think very important for sunscreen brand reputation (43%) highly importance considered. (28%) importance is shown and neutral level of is considered, product should suit to skin and product quality or quantity is more important than brand. (2%) Few mothers don't considered importance of brand reputation for child. (2%) are definitely not at all interested in brand.

Table 1.15: Stick to one brand or Switch to other brands.

Stick to one brand	Respondent	Percentage
Yes	40	40%
No	60	60%
Total	100	100%

STICK TO ONE BRAND



Interpretation:

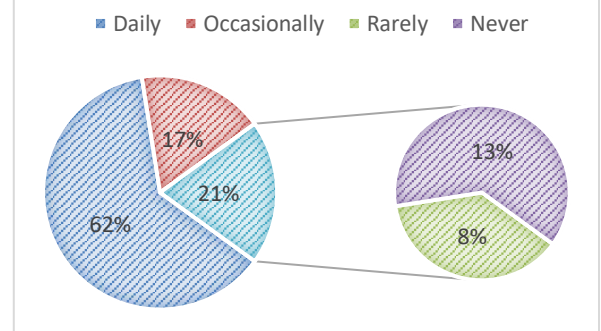
This shows mothers with (40%) tends stick to one brand, if they change they will change due to doctor recommendation. Remaining (60%) will not change or accept, they are not interested to buy or use sunscreen.

4.4: Usage & Health Impact

Table 1.16: Stick to one brand or Switch to other brands.

Often apply sunscreen on child.	Respondent	Percentage
Daily	25	62%
Occasionally	7	18%
Rarely	3	8%
Never	5	12%
Total	40	100%

OFTEN APPLY SUNSCREEN ON CHILD



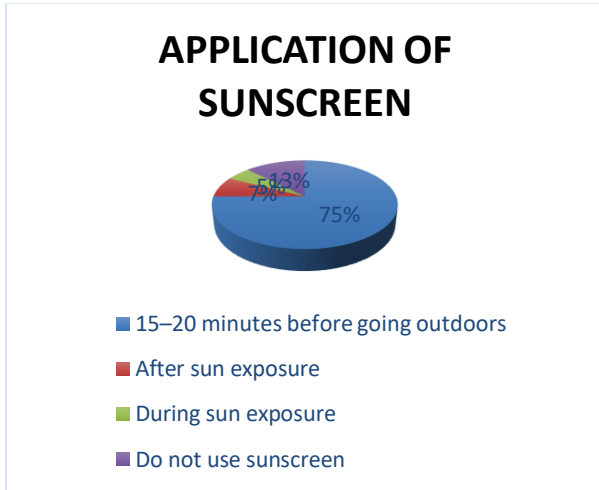
Interpretation:

This shows mothers with (62%) apply in daily due to doctor recommendation. (17%) interested to use occasionally and rarely (8%), some buy the sunscreen but avoid to use, so never use sunscreen on child (8%).

Table 1.17: Application of sunscreen.

Application of sunscreen	Respondent	Percentage
15-20 minutes before going outdoors	30	75%
After sun exposure	3	7%

During sun exposure	2	5%
Do not use sunscreen	5	13%
Total	40	100%

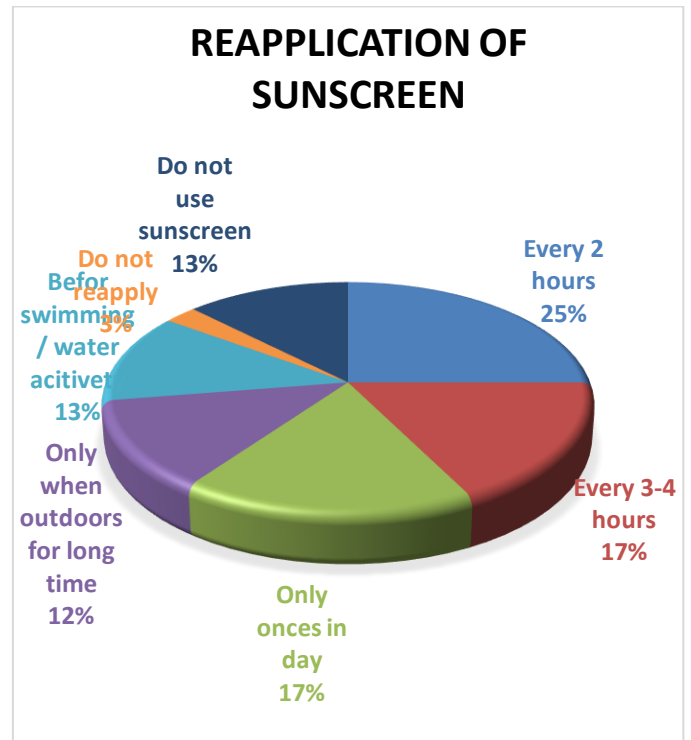


Interpretation:

This shows mothers with (75%) apply in daily, 15-20 before going outdoors, doctor recommendation. (7%) apply after sun exposure and during sun exposure (5%), (13%) don't get time to apply.

Table 1.18: Reapplication of sunscreen

Reapplication of sunscreen	Respondent	Percentage
Every 2 hours	10	25%
Every 3-4 hours	7	18%
Only onces in day	7	18%
Only when outdoors for long time	5	12%
Before swimming / water activity	5	12%
Do not reapply	1	3%
Do not use sunscreen	5	12%
Total	40	100%

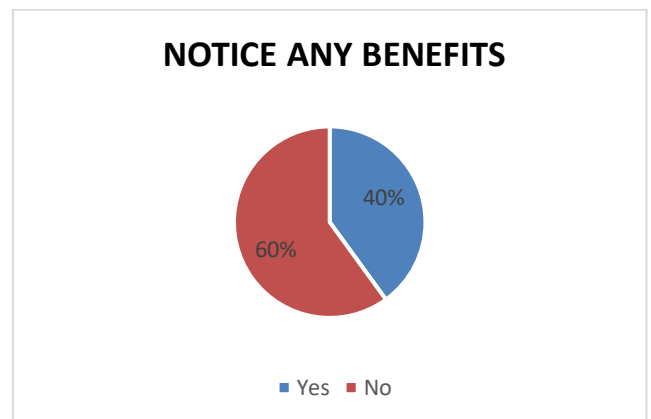


Interpretation:

This shows mothers reapply sunscreen while every 2 hours highest (25%) ,other mothers reapply sunscreen every 3-4 hrs (17%)of mothers, reapply only once in day when kids go for play or go for long time outing (12%) , some mothers apply sunscreen when kids go for play in sports/water activity like sweating, swimming, water park etc, (13%) tendency to reapply, remaining (3 given%) don't reapply and (13%) don't use sunscreen despite of recommendation by doctors.

Table 1.19: Notice any benefits

Notice any benefits	Respondent	Percentage
Yes	40	40%
No	60	60%
Total	100	100%

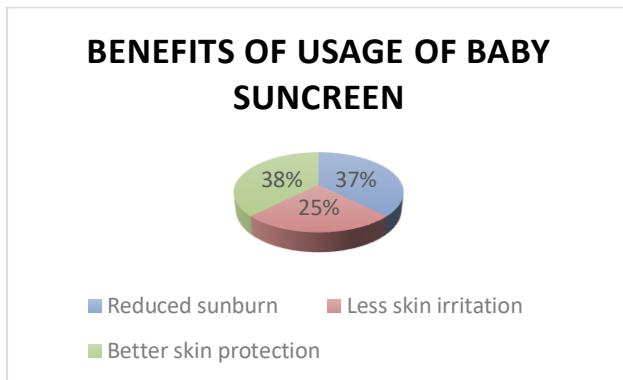


Interpretation:

Does mothers get any benefits from application of sunscreen (40%) mother agrees on usage of sunscreen, (60%) don't find any benefits, of sunscreen as they don't use sunscreen.

Table 1.20: Benefits of usage of baby sunscreen

Benefits of usage of baby sunscreen	Responded	Percentage
Reduced sunburn	15	37%
Less skin irritation	10	25%
Better skin protection	15	38%
Total	40	100%

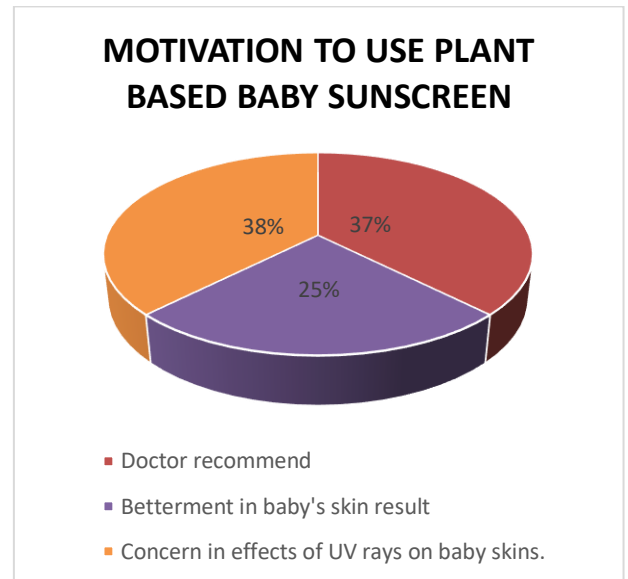


Interpretation:

This shows mothers get any benefits from usage of baby sunscreen (37%) mother agrees on usage of sunscreen, shows reduction of sunburn on child (25%) find less skin irritations, while other mothers found out better skin protection. (37%). Few mother switches to plant based brand due to white cast appear on baby skin in plant-based baby sunscreen product shows better skin protection.

Table 1.21: Motivation to use plant-based baby sunscreen

Motivation to use plant-based baby sunscreen	Respondent	Percentage
Doctor recommend	15	38%
Betterment in baby's skin result	10	25%
Concern in effects of UV rays on baby skins.	15	37%
Total	40	100%



Interpretation:

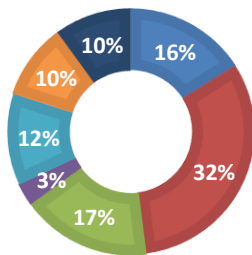
This shows mothers get motivated to use sunscreen, (38%) through doctor's recommendation, and (25%) betterment in baby's skin result effects and (37%) few mothers are more motivated due to concern in effects of UV rays on baby skins.

Table 1.22: Barrier for not using baby sunscreen

Barrier for not using baby sunscreen	Respondent	Percentage
Not aware	10	16%
Concern about chemicals	20	32%
Expensive	11	17%
Not available	2	3%
Prefer home remedies/natural care	7	12%
No recommendation from Doctor	5	10%
Difficult to Trust on Brands	5	10%
Total	60	100%

BARRIER FOR NOT USING BABY SUNSCREEN

- Not aware
- Concern about chemicals
- Expensive
- Not available
- Prefer home remedies/natural care
- No recommendation from Doctor
- Difficult to Trust on Brands



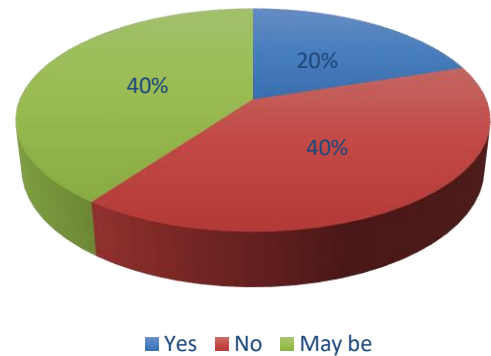
Interpretation:

This shows mothers comes into barrier while buying and usage of baby sunscreen, which led to not continue using sunscreen. Mother faces expensive price of product (17%), mother also face less availability of product in market,(3%), find difficult to trust(10%), (16%) not aware about sunscreen product, (12%) prefer home-made remedies as a natural care, some mother also fear or concern about chemical or chemical in sunscreen may be not good for baby. Remaining mother don't get any recommendation by doctor.

Table 1.23: Notice any kind of side effects of baby sunscreen

Notice any kind of side effects of baby sunscreen	Respondent	Percentage
Yes	20	20%
No	40	40%
May be	40	40%
Total	100	100%

NOTICE ANY KIND OF SIDE EFFECTS OF BABY SUNSCREEN

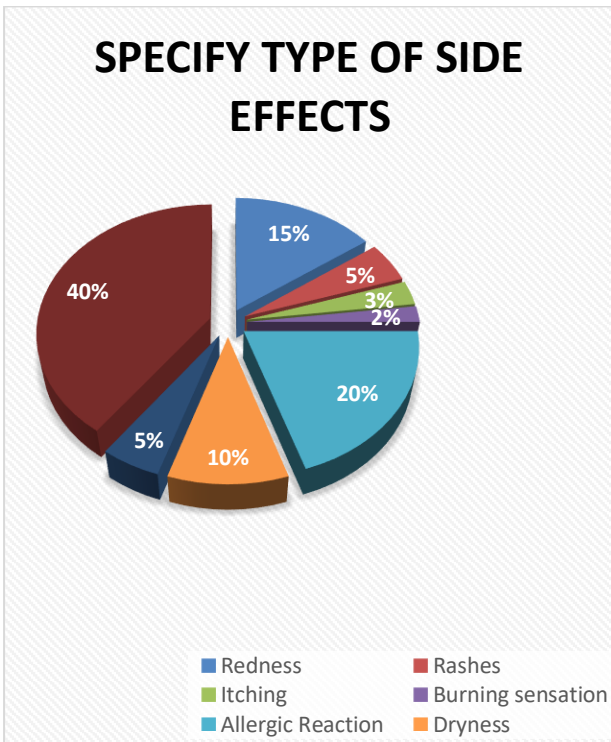


Interpretation:

This kind of mothers shares experiences of notice of side effect from sunscreen on child. (20%) they experience side effect and (40%) find no symptoms of side effects on child. Other (40%) they face side effects but still using, change of product but sunscreen using for protection of harmful rays on child.

Table 1.24: Specify type of side effects

Specify type of side effects	Respondent	Percentage
Redness	15	15%
Rashes	5	5%
Itching	3	3%
Burning sensation	2	2%
Allergic Reaction	20	20%
Dryness	10	10%
Acne or Bumps	5	5%
No side effects	40	40%
Total	100	100%



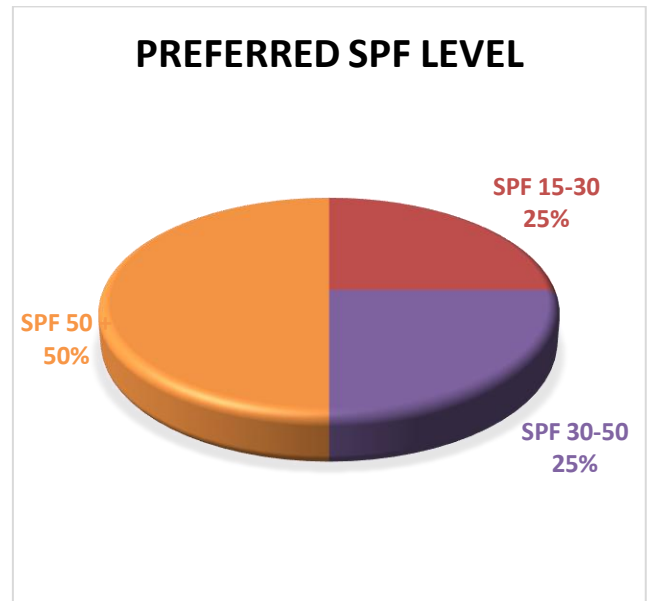
Interpretation:

This kind of mothers shares experiences of notice of side effect from sunscreen on child. (15%) they experience side effect of redness in skin and (40%) find no symptoms of side effects on child. Other (20%) they face side effects of allergic reaction, (10%) dryness after using sunscreen on child, (5%) ace and bumps on skin, (5%) rashes on skin , (3%) itching after apply sunscreen on skin , (2%) burning sensation , due to come into contact with sea water or very heat felt under sun.

4.5 : Product Factors

Table 1.25: Preferred SPF level

Preferred SPF level	Respondent	Percentage
SPF 15-30	10	25%
SPF 30-50	10	25%
SPF 50 +	20	50%
Total	40	100%

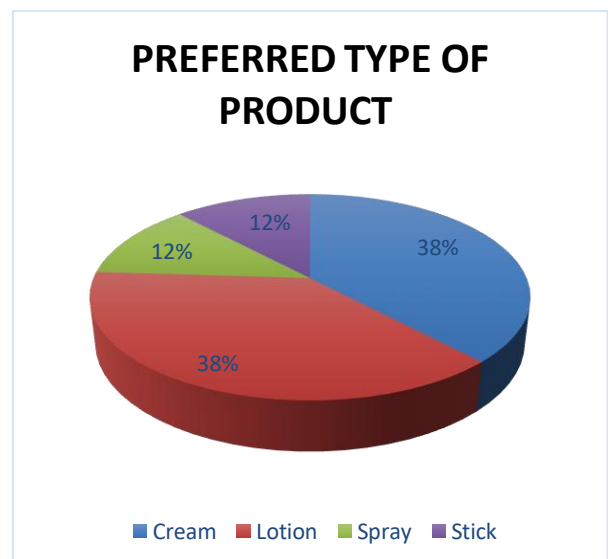


Interpretation:

This shows mothers prefer sunscreen of SPF Level on child. (50%) they use SPF 50+ baby sunscreen product by mothers on child., up to 5 years or above 5 years and (20%) find SPF 30-50 on 2-4 yrs. of kids, Other (25%) they use SPF 15-30 small child below 2 years to 3 years

Table 1.26: Preferred type of product

Preferred type of product	Respondent	Percentage
Cream	15	38%
Lotion	15	38%
Spray	5	12%
Stick	5	12%
Total	40	100%

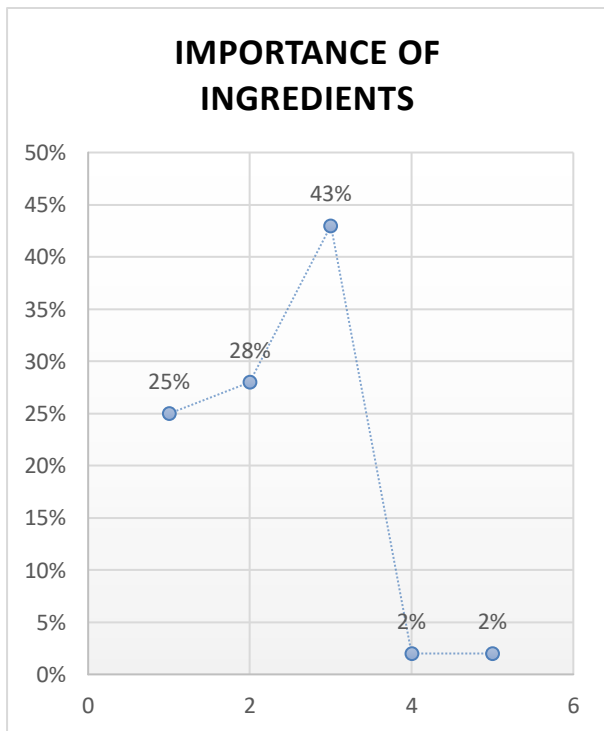


Interpretation:

This shows mothers prefer sunscreen different type of product such as cream (38%) and lotion (38%) and spray and stick (12%) mothers uses on child. Specially use in summer and near to beach area.

Table 1.27: Importance of Ingredients

Importance of Ingredients	Respondent	Percentage
Very Important	10	25%
Important	11	28%
Neutral	17	43%
Not Important	1	2%
Not Important at All	1	2%
Total	40	100%

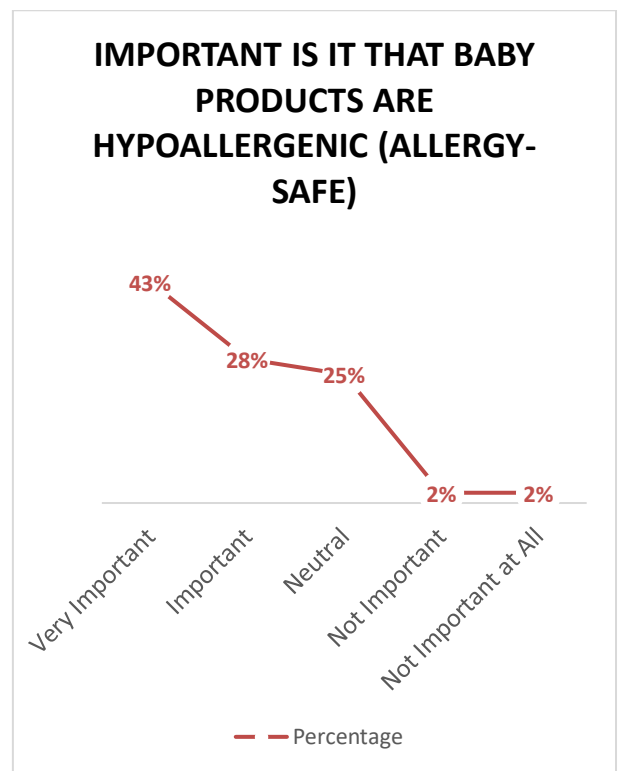


Interpretation:

This shows mothers prefer sunscreen product considered after reading ingredients, (25%) very important for them, (28%) prefer important as sometimes they rely on doctors, they don't see ingredients, (43%) mothers get influences by ingredients and sometimes not get influences, (4%) they don't consider any ingredients, they prefer trustable brands, depends upon social media, online rating, or peer recommendation.

Table 1.28: Important is it that baby products are hypoallergenic (allergy-safe)

Important is it that baby products are hypoallergenic (allergy-safe)	Respondent	Percentage
Very Important	17	43%
Important	11	28%
Neutral	10	25%
Not Important	1	2%
Not Important at All	1	2%
Total	40	100%



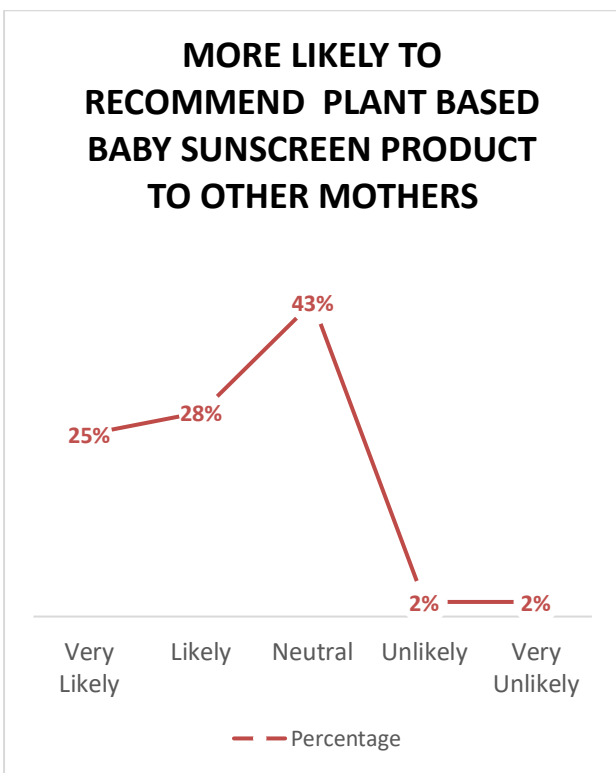
Interpretation:

This shows mothers prefer sunscreen product considered after reading allergy safe product, (43%) very important for them to have product is allergic free, (28%) prefer important as sometimes they rely on doctors, (25%) mothers get neutral influences by allergy and sometimes not get influences, (4%) they don't consider important word allergic safe, this may be use word for marketing tactics.

Table 1.29: More likely to recommend plant-based baby sunscreen product to other mothers

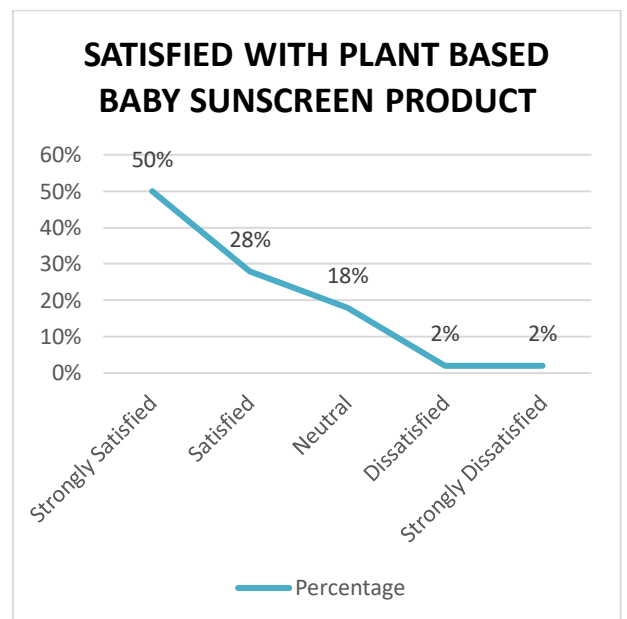
More likely to recommend plant-based baby sunscreen product to other mothers	Respondent	Percentage
Very Likely	10	25%
Likely	11	28%
Neutral	17	43%
Unlikely	1	2%
Very Unlikely	1	2%
Total	40	100%

Satisfied with plant-based baby sunscreen Product	Respondent	Percentage
Strongly Satisfied	20	50%
Satisfied	11	28%
Neutral	7	18%
Dissatisfied	1	2%
Strongly Dissatisfied	1	2%
Total	40	100%



Interpretation:

This shows mothers are interested share experiences with other mothers. So, mother very likely (25%) share or recommend to other mothers. (28%) mother likely to share with other mothers. (43%) are neutral to recommend to other mothers, they think if its required or asked than only shares their sunscreen baby product brands and awareness to other mothers., (4%) they are unlikely to very unlikely recommend to other mother, some mother don't feel comfortable to share, they think product may not suit to other mother child, may cause any side effects, Better not share with other mothers.



Interpretation:

This table shows about mothers share experiences of satisfaction after using plant-based baby sunscreen product.(50%) mother are strongly satisfied with results of sunscreen product more preferable product is Mother Sparsh and Little Rituals doctor recommendation baby sunscreen product, (28%) are satisfied with mama earth, Chicco, Pura Aura and other sunscreen product, (18%) share a neutral as they think using sunscreen the price of bottle increases and result they don't think much effective, still good to use specially in summer. (2% & 2%) are dissatisfied to strongly dissatisfied reason is they buy product for outdoor activity but they don't find that much effective on child skin. Sometimes due to white cast, they change the product for better results.

4.6 Findings

Majority of mothers prefer SPF 30+ or SPF 50+ sunscreens for better protection.

Brand trust and dermatologist recommendations are the most influential factors.

Table 1.30:Satisfied with plant-based baby sunscreen Product

Natural/organic ingredients significantly impact buying decisions.

Regular sunscreen use reduces instances of sunburn and skin damage in children.

Some mothers avoid certain brands due to fear of chemical reactions or white cast on skin.

Awareness level is high, but correct application practices are inconsistent.

Higher income groups tend to prefer premium and organic brands.

Highly educated mother and working mothers are more intend to buy product., as independent decision maker for their child comparative to home maker mothers as depend on elder mother or expert or prefers home made products.

Mostly mother 60 % are not aware of baby sunscreen product or if they are aware less likely to use as a cream, concern about chemicals may harm rather than protect to child.

40% mothers aware of sunscreen product but seek important of ingredients and compare with other products and buy for their child.

New generation of mothers are more concern about product usage for their child. Strongly satisfied with sunscreen product outcome on child health.

Mother Sparsh,MamaEarth, Little Rituals, Chicco are highly preferable brand plant-basedbaby sunscreen product usage by mothers for their child.

Few mothers change to Sebamde into little rituals sunscreen product or other sunscreen baby product due to white cast seen on baby skin.These views given by some mothers while interaction.

It has been seen plant-based sunscreen is introducing in market for baby sunscreen.

There is a significant relationship between awareness and brand preference among mother approaches towards sunscreen.

Highly importance of plant-based brands preferences in mother decision making while purchase of sunscreen.

Despite of high motivation among mothers, barriers such as high cost, lack of trust, and confusion among brands limit actual product usage

The study findings indicate that awareness, product attributes, motivation, and barriers significantly influence mothers' brand preference and sunscreen usage behavior.

Furthermore, proper and regular use of sunscreen has a positive impact on babies' skin health.

These results confirm that informed decision-making and correct usage practices are essential for improving child health outcomes.

5. CONCLUSION

The study concludes that mothers' plant-based brand preference for baby sunscreen plays a crucial role in determining children's skin health. Factors such as safety, ingredients, SPF level, and brand reputation significantly influence purchasing decisions. Proper use of sunscreen

contributes to preventing sunburn, skin irritation, and long-term dermatological issues.The study reveals that mothers' preferences for baby sunscreen are primarily driven by safety concerns, product effectiveness, and trust in the brand. A majority of mothers prefer higher SPF products such as SPF 30+ and SPF 50+ for better protection, indicating a strong focus on preventing sunburn and skin damage in children. Brand trust and dermatologist recommendations emerged as the most influential factors in decision-making, followed by the presence of natural or organic ingredients, which significantly affect purchase intentions.The findings also highlight that regular use of sunscreen contributes positively to children's skin health by reducing the risk of sunburn and don't like about white cast on baby skin or other skin-related issues. Thus, concerns regarding chemical composition and possible side effects lead some mothers to avoid certain brands or hesitate in regular usage. Either mother will use sunscreen based on doctor recommendation medicated sunscreen or organic/ plant-based sunscreen for baby skin health and their outcome will be less harmful and more protection to baby.In terms of awareness, the study presents a mixed scenario. While a segment of mothers is well-informed and actively compares ingredients before purchasing, a significant proportion (around 60%) lacks awareness or is reluctant to use sunscreen due to fear of harmful effects. On the other hand, approximately 40% of mothers shows higher awareness and make conscious purchasing decisions.Higher-income groups tend to prefer premium and organic/ plant-based or chemical and both in sunscreen brands, while educated and working mothers are more likely to act as independent decision-makers. In contrast, homemakers often rely on family advice or traditional alternatives and values.Furthermore, the study indicates that younger or new-generation mothers are more conscious about baby care products and show higher satisfaction with sunscreen outcomes on their children's health. Among the brands, Mother Sparsh,Mama earth, Chicco, Pura Aura and Little Rituals are found to be the most commonly used by mothers.The study concludes that awareness, product factors, motivation, and barriers significantly influence mothers' brand preference and sunscreen usage. Proper use of sunscreen positively impacts babies' skin health...

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