

## ORIGINAL RESEARCH ARTICLE

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## A COMPARATIVE CLINICAL STUDY OF AYURVEDIC AND CONVENTIONAL TREATMENT APPROACHES FOR THE MANAGEMENT OF ECZEMA

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*Eczema; Ayurvedic Medicine; Modern Medicine; Comparative Study; Bangladesh; Itching; Atopic Dermatitis.*

### ABSTRACT

**Background:** Eczema is a chronic inflammatory disorder that profoundly affects patients' quality of life and functional capacity. In Bangladesh, both Ayurvedic and Modern (Allopathic) treatment approaches are commonly practiced; however, evidence comparing their relative effectiveness remains limited. The study aimed to compare treatment patterns and patient-perceived outcomes between Ayurvedic and Modern medical approaches among individuals diagnosed with eczema in the Pahartali area of Chattogram District.

**Methods:** A cross-sectional study was conducted among 66 previously diagnosed eczema patients. Data were collected using a structured, interviewer-administered questionnaire focusing on socio-demographic characteristics, disease duration, treatment modalities, consequences of eczema, and perceived treatment outcomes. Descriptive statistics were used to summarize findings.

**Results:** Most participants (75.76%) had been suffering from eczema for more than six months, indicating chronic illness. A majority (63.64%) used Allopathic medicine, while 36.36% relied on Ayurvedic treatment. Complete recovery was reported by only 9.09% of Allopathic users, and none among Ayurvedic users.

**Conclusion:** The findings indicate that neither Ayurvedic nor Modern treatment alone results in a complete cure for eczema. Allopathic medicine appears to provide faster relief from acute symptoms, whereas Ayurvedic therapy offers gradual yet moderate improvement. An integrative treatment strategy may yield more favorable long-term outcomes for eczema patients.

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# 1. INTRODUCTION

## 1.1. Background:

Ayurveda, derived from the Sanskrit terms meaning “science of life” or “knowledge of life,” is a traditional system of medicine that originated in India more than 5,000 years ago. It adopts a holistic approach to health, emphasizing the balance among the body, mind, spirit, and surrounding environment. The primary objective of Ayurvedic medicine is traditionally described as maintaining health, promoting well-being, and preventing disease, although Ayurvedic approaches are also used in the management of specific health conditions (WebMD, 2024).

Eczema, commonly referred to as atopic dermatitis (AD), is a chronic, relapsing inflammatory skin disorder characterized by pruritus, erythema, dryness, and inflammation. The condition can substantially affect quality of life because persistent itching, visible skin lesions, sleep disturbance, and recurrent exacerbations may cause considerable physical and psychosocial distress. Although conventional therapies can effectively control symptoms and reduce disease severity, treatment selection depends on the type and severity of eczema and may include lifestyle modifications, over-the-counter products, topical therapies, systemic medications, and newer targeted treatments (National Eczema Association, 2024). Because eczema is a chronic condition with no definitive cure, long-term management generally focuses on controlling symptoms, reducing exacerbations, restoring the skin barrier, and improving quality of life.

The term *eczema* originates from the Greek word *ekzein*, meaning “to boil over” or “to boil out,” reflecting the historical description of inflamed skin lesions. The pathogenesis of AD is complex and involves interactions among genetic susceptibility, immune dysregulation, epidermal barrier dysfunction, and environmental factors. One important genetic factor is the *filaggrin* (FLG) gene, which plays a critical role in maintaining the integrity and hydration of the epidermal barrier. Variations in the *FLG* gene have been associated with an increased susceptibility to AD and other allergic diseases, including asthma and allergic rhinitis (Weidinger et al., 2018).

Atopic dermatitis is a common dermatological condition affecting both children and adults. Epidemiological studies have demonstrated substantial variation in prevalence according to age, geographic location, ethnicity, socioeconomic conditions, and environmental exposures. In the United States, population-based studies have reported considerable prevalence of eczema among both children and adults (Hanifin & Reed, 2007; Shaw et al., 2011; Silverberg, 2017). Adult AD also represents an important clinical and public health concern, with studies demonstrating that the disease may persist beyond childhood or develop during adulthood (Abuabara et al., 2018; Chiesa Fuxench et al., 2019; Lee et al., 2019). Although AD is commonly regarded as a childhood-onset disease, a substantial proportion of adults report disease onset during adulthood, indicating that AD should not be considered exclusively a pediatric condition.

Childhood AD frequently begins during the early years of life. Approximately 80% of affected individuals experience disease onset before six years of age, although the condition may persist into adolescence and adulthood (Weidinger et al., 2018). Longitudinal research suggests that the clinical course of AD varies considerably among individuals. Younger age at onset, greater disease severity, and certain environmental factors have been associated with a greater likelihood of persistent disease, although the condition may continue regardless of initial severity (Irvine & Mina-Osorio, 2019). Adult-onset AD has also been documented, with systematic reviews indicating that a notable proportion of adults with AD develop symptoms after childhood (Abuabara et al., 2018; Lee et al., 2019).

The burden of AD extends beyond physical symptoms. Patients may experience sleep disturbance, emotional distress, impaired social functioning, and increased healthcare utilization, particularly when the disease is moderate or severe. Severe childhood eczema has been associated with multiple comorbid conditions and increased use of healthcare services (Silverberg & Simpson, 2013). Furthermore, socioeconomic and demographic factors may influence the prevalence, severity, and management of AD. Differences in prevalence have been reported across racial and ethnic groups, and environmental and climatic factors have also been associated with variations in childhood eczema prevalence (Chung & Simpson, 2019; Silverberg et al., 2013).

Despite advances in conventional dermatological management, the chronic and recurrent nature of AD has generated interest in complementary and traditional approaches. Ayurveda conceptualizes skin disorders within its own traditional diagnostic and therapeutic framework. In Ayurvedic literature, certain chronic skin disorders are discussed under the broader category of *Kushta*, and Ayurvedic texts describe various approaches to their management (Shastri, 2005; Tripathi, 2009). Ayurvedic management may incorporate dietary practices, lifestyle modification, herbal preparations, external applications, and other traditional therapeutic approaches. However, the traditional classification of *Kushta* should not be considered directly equivalent to modern biomedical diagnoses of AD, and the effectiveness and safety of individual Ayurvedic interventions require evaluation through appropriately designed clinical research.

The increasing interest in complementary approaches to eczema highlights the importance of scientifically evaluating traditional treatment practices. While some individuals seek Ayurvedic medicine because of dissatisfaction with conventional treatment, concerns regarding adverse effects, or preference for traditional healthcare systems, evidence regarding the comparative effectiveness of Ayurvedic and conventional therapies for AD remains an important area for further investigation. Therefore, systematic comparison of clinical outcomes, symptom control, treatment-related adverse effects, and quality-of-life measures may contribute to a better understanding of the potential role of Ayurvedic interventions in eczema management.

In this context, a comparative assessment of Ayurvedic and conventional approaches to eczema management is relevant to both clinical practice and research. Such investigation can help determine differences in symptom improvement, treatment response, safety, and patient-reported outcomes while recognizing the established role of evidence-based dermatological care. Rigorous comparative studies are particularly important for determining whether Ayurvedic interventions provide clinically meaningful benefits either independently or as complementary approaches to conventional management.

## 1.2. Justification of the Study

Eczema is a chronic inflammatory skin disorder that can adversely affect the physical, psychological, and social well-being of affected individuals. Conventional medical management includes various topical and systemic therapies, whereas Ayurvedic medicine is also used by some patients as a traditional approach to managing chronic skin conditions. Although both Ayurvedic and conventional medicines are used for eczema management, there is limited comparative evidence regarding their effectiveness and treatment outcomes among patients in Bangladesh. In particular, locally generated evidence comparing the effectiveness of Ayurvedic and conventional treatment and identifying socio-demographic factors associated with treatment outcomes remains limited. Factors such as age, educational status, occupation, marital status, income, family structure, family size, and area of residence may influence healthcare-seeking behavior and treatment outcomes. Therefore, the present study was undertaken to compare the effectiveness and selected treatment outcomes of Ayurvedic and conventional medicine among individuals with eczema in Bangladesh and to examine the association between selected socio-demographic characteristics and treatment outcomes. The findings may contribute to the development of locally relevant evidence concerning eczema management and provide a basis for further comparative clinical research.

## 1.3. Research Question

What are the differences in treatment effectiveness and selected treatment outcomes between Ayurvedic medicine and conventional medicine among patients with eczema in Bangladesh?

## 1.4. Research Objective

The general objective of the study is to compare the effectiveness and selected treatment outcomes of Ayurvedic medicine and conventional medicine among patients with eczema in Bangladesh. Specifically, the study aims to assess the effectiveness of Ayurvedic medicine in the management of eczema, assess the effectiveness of conventional medicine in the management of eczema, compare treatment outcomes between patients receiving Ayurvedic and conventional medical treatment, identify selected socio-demographic characteristics of patients with eczema, including age, religion, educational status, occupation, marital status, personal income, family type, family size, and area of residence, and examine the association between these socio-demographic characteristics and treatment outcomes.

## 1.5. List of Variables

The variables considered in the study include socio-demographic, treatment-related, disease-related, and outcome variables. The socio-demographic variables include age, religion, educational status, occupation, marital status, personal income, family type, family size, and area of residence. Treatment-related variables include type of treatment, duration of treatment, treatment adherence, and treatment-related adverse effects. The main treatment categories are Ayurvedic medicine and conventional medicine. Disease-related variables include the presence and duration of eczema, severity of eczema, improvement in symptoms, recurrence of symptoms, and the presence of other co-existing diseases. The primary outcome variable is treatment effectiveness, which is assessed using predefined clinical or patient-reported measures of improvement in eczema-related symptoms.

## 1.6. Operational Definitions

**Age** refers to the completed age of the patient in years at the time of data collection. **Religion** refers to the religious affiliation reported by the patient. **Educational status** refers to the highest level of formal education completed by the patient. **Occupation** refers to the principal occupation or employment status of the patient at the time of data collection. **Marital status** refers to the patient's marital status as recorded according to the study questionnaire. **Personal income** refers to the patient's average monthly income expressed in Bangladeshi Taka (BDT). **Family type** refers to the structural composition of the patient's family and may be categorized as nuclear or joint according to the study criteria. **Family size** refers to the total number of members living in the patient's household. **Area of residence** refers to the geographical location where the patient lives and may be categorized as urban or rural according to the study criteria. **Eczema** refers to a chronic inflammatory skin condition characterized by manifestations such as itching, redness, dryness, scaling, or other relevant clinical symptoms and diagnosed or documented according to the eligibility criteria of the study. **Ayurvedic medicine** refers to traditional Ayurvedic therapeutic preparations used by participants for the management of eczema during the study

period. Depending on the study protocol, these may include preparations such as *Khadirarishta*, *Panchatikta Ghrita*, and *Guruchyadi Taila*. **Conventional medicine** refers to treatment provided according to contemporary biomedical or dermatological practice for the management of eczema. **Treatment effectiveness** refers to the degree of improvement in eczema-related symptoms or clinical condition following treatment, assessed using the predefined outcome assessment method of the study. **Treatment outcome** refers to the patient's clinical or patient-reported response to treatment, categorized according to predefined study criteria. **Treatment adherence** refers to the extent to which the patient follows the prescribed or recommended treatment regimen during the specified treatment period. **Treatment-related adverse effects** refer to any unwanted or unintended symptoms or reactions reported or documented during the treatment period and considered potentially associated with the treatment.

### 1.7. Conceptual Framework

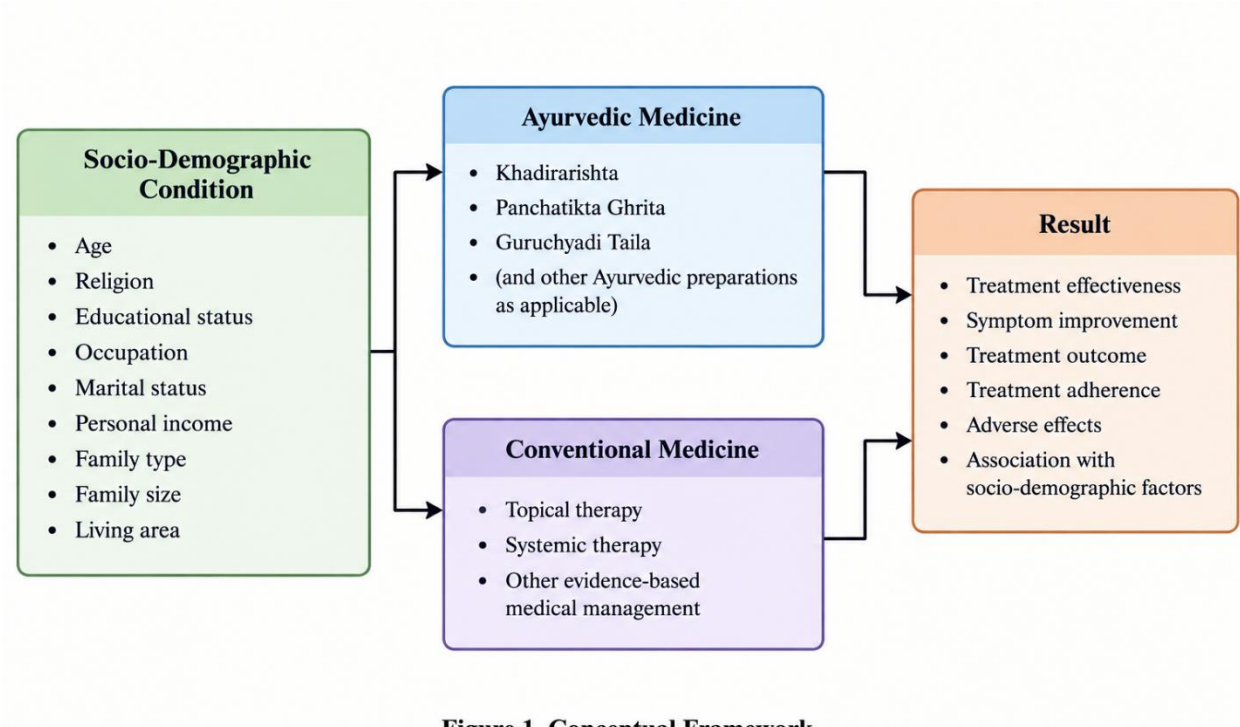


Figure 1. Conceptual Framework

## 2. LITERATURE REVIEW

### 2.1. Ayurvedic Perspective of Vicharchika (Eczema)

*Vicharchika* (eczema) is described in Ayurveda as one of the *Kshudra Kushthas* (minor skin disorders) and is also considered among the *Rakta Pradoshaja Vikaras*, which are disorders associated with vitiation of *Rakta* (blood) (Bangladesh Board of Unani and Ayurvedic Systems of Medicine, 2011). As a type of *Kushtha*, *Vicharchika* is generally characterized by a chronic and recurrent course, with periods of exacerbation and remission. Eczema in modern medicine similarly represents a group of inflammatory skin disorders characterized by persistent or recurrent skin lesions, pruritus, and a tendency toward chronicity and exacerbation. Therefore, the management of *Vicharchika* should not be limited to alleviating existing symptoms but should also address factors associated with recurrence and chronic disease progression.

In Ayurvedic practice, *Kushtha* is traditionally managed through a combination of *Shodhana* (purificatory therapy) and *Shamana* (palliative therapy), with repeated *Shodhana* considered an important component in the management of chronic and recurrent disorders (Agnivesha et al., 2006). Among the *Panchakarma* procedures, *Virechana* (therapeutic purgation) is traditionally considered particularly appropriate for disorders in which *Pitta* and *Rakta* are predominantly involved (Agnivesha et al., 2006). Thus, Ayurvedic management of *Vicharchika* emphasizes both the management of active manifestations and the prevention of recurrence through individualized therapeutic approaches

### 2.2. Impacts of Eczema

#### 2.2.1. Disease Burden and Mortality

Atopic dermatitis (AD), a common form of eczema, imposes a substantial burden on affected individuals because of persistent symptoms, recurrent exacerbations, treatment challenges, and effects on daily functioning and quality of life. Among its symptoms, pruritus is consistently reported as one of the most burdensome manifestations, followed by skin redness and sleep disturbance (Maarouf et al., 2018; Silverberg et al., 2018). In adults with moderate-to-severe AD, 60.5% have reported severe or unbearable itching during the preceding two weeks, while 86% experienced daily itching and 63% reported itching for at least 12 hours per day (Simpson et al., 2016). These findings demonstrate the considerable symptom burden associated with persistent eczema.

In addition to pruritus, skin pain has increasingly been recognized as an important symptom of AD. Approximately 61% of affected adults report experiencing pain, which may be described as burning, tingling, or stinging. Although pain may occur as a consequence of repeated scratching and skin damage, it may also occur independently of scratching (Maarouf et al., 2018; Silverberg et al., 2019; Vakharia et al., 2017; Huet et al., 2020). Furthermore, inadequate disease control remains a significant concern, with more than half of adults with moderate-to-severe AD reporting that their disease is inadequately controlled (Simpson et al., 2018; Wei et al., 2018). Treatment-related challenges are also substantial. Despite the availability of therapeutic options, many patients remain concerned about long-term treatment, perceive treatments as ineffective, or discontinue prescribed medications. Such difficulties highlight the need for effective, acceptable, and sustainable approaches to eczema management.

The impact of AD extends beyond physical symptoms to overall health and quality of life. Approximately one in four adults with AD rate their general health as fair or poor, while more than 16% report being very or somewhat dissatisfied with their lives. These negative perceptions tend to increase with disease severity (Silverberg et al., 2018). Disease exacerbations further contribute to this burden, as periods of flare are generally associated with increased itching and redness, while the frequency, duration, and average severity of flares increase with disease severity. Approximately half of patients may spend more than eight days per month experiencing a flare (Bacci et al., 2021; Smith Begolka et al., 2021).

The chronic nature of AD may also result in a perceived worsening of disease over time. Nearly half of patients (48%) report that symptom severity has worsened compared with the time of symptom onset. Approximately 64% report involvement of additional or different body areas, while 49% report an increased frequency of flares compared with the onset of the disease (Weidinger et al., 2018). Severe disease may also result in hospitalization, particularly during severe flares or secondary infections. Hospitalization related to AD has been associated with reduced life expectancy compared with the general population, while studies have also reported a modest increase in all-cause mortality among individuals with AD outside the hospitalized population (Egeberg et al., 2017; Thyssen et al., 2018).

At the population level, AD represents an important contributor to the global burden of skin disease and non-fatal disability (Laughter et al., 2021). The broader global burden of dermatitis has also been demonstrated in population-level analyses, with substantial variation according to socioeconomic development and geographic region (Xue et al., 2022). These findings emphasize that eczema is not merely a localized dermatological condition but a chronic disorder capable of affecting physical health, psychological well-being, sleep, social functioning, and overall quality of life.

## **2.2.2. Sleep Disturbances**

Sleep disturbance is another important consequence of AD, particularly among children. Approximately 67% of children with AD experience sleep disturbances, while parents caring for children with AD may be four to eight times more likely to obtain fewer than six hours of sleep per night (Fishbein et al., 2021; Meltzer & Booster, 2016). Persistent sleep disruption may have broader consequences for children's daily functioning and development, and inadequate sleep has also been associated with concerns regarding growth in children with AD (Fishbein et al., 2015).

Sleep-related problems are also common among adults with AD. Approximately one-third of adults report sleep-related difficulties, including insomnia, reduced sleep duration, daytime sleepiness, and fatigue (Silverberg et al., 2018; Silverberg et al., 2015; Yu et al., 2016; Eckert et al., 2017). Sleep disturbance is considered one of the most burdensome manifestations of AD, with approximately 15–30% of adults rating it as their most or second-most burdensome symptom (Silverberg et al., 2015; Silverberg et al., 2018; Yu et al., 2016). These findings demonstrate that the consequences of eczema extend beyond cutaneous manifestations and may substantially interfere with restorative sleep and daytime functioning.

## **2.2.3. Comorbid Conditions**

### **2.2.3.1. Atopic Conditions**

Atopic dermatitis (AD) is frequently associated with other atopic disorders, which may develop sequentially in a pattern commonly referred to as the atopic march. This progression often begins with food allergy and may be followed by allergic rhinitis and asthma. Although some atopic conditions persist into adulthood, others may improve or resolve with increasing age (Spergel, 2010; Yang et al., 2020). Children with early-onset and moderate-to-severe AD have a particularly increased risk of developing asthma and allergic rhinitis. Longitudinal studies have demonstrated a strong association between childhood AD and subsequent asthma development, with the risk increasing among children with more severe disease (Gustafsson et al., 2000; Kapoor et al., 2008; Ricci et al., 2006; van der Hulst et al., 2007).

Food allergy is also strongly associated with childhood AD. Young children with AD have been reported to have a substantially higher likelihood of food allergy than children without AD, particularly when eczema begins early in life and is more severe (Eigenmann et al., 1998; Hill & Spergel, 2018; Tsakok et al., 2016). The clinical expression of the atopic march may also vary according to demographic characteristics. For example, research has suggested differences in the patterns and risks of food allergy and asthma among different racial and ethnic groups, including potentially increased food-allergy risk among Asian children and a greater asthma burden among Black children (Biagini et al., 2021; Dunlop & Keet, 2019). In adults, AD remains associated with substantial allergic comorbidity. More than one-fifth of adults with AD may have asthma, while the risks of allergic rhinitis and food allergy are also increased (Silverberg, 2019).

#### **2.2.3.2. Autoimmune and Cardiovascular Comorbidities**

AD is associated with a range of chronic systemic conditions beyond allergic disease. In adults, studies have reported associations between AD and obesity, diabetes, autoimmune disorders, hypertension, and cardiovascular disease, with several of these associations being more pronounced among individuals with severe disease (Ascott et al., 2019; Carrascosa & Morillas-Lahuerta, 2020; Silverberg et al., 2018; Silverwood et al., 2018). Pediatric patients with AD may likewise experience increased risks of obesity, autoimmune disorders, and metabolic syndrome, indicating that the burden of AD may extend beyond the skin (Huang et al., 2021; Paller et al., 2018).

#### **2.2.4. Bone Health**

Bone health is another potential concern in individuals with AD. Evidence summarized in clinical guidance from the American Academy of Dermatology indicates that AD is associated with an increased risk of osteoporosis and bone fractures, with the association potentially becoming more pronounced as disease severity increases (Davis et al., 2022). These findings emphasize the importance of considering broader systemic health when assessing patients with persistent or severe AD.

#### **2.2.5. Infections**

Impaired skin-barrier function and immune dysregulation in AD may increase susceptibility to infection. Adults with AD, particularly those requiring hospitalization, have been reported to experience higher rates of serious cutaneous, respiratory, and systemic infections than individuals without AD (Narla & Silverberg, 2018). Both children and adults with AD are also at increased risk of serious bacterial, viral, and fungal skin infections, highlighting the importance of maintaining adequate disease control and monitoring for infectious complications (Huang et al., 2021; Paller et al., 2018; Simpson, 2012).

#### **2.2.6. Ocular Conditions**

Ocular comorbidities are relatively common among individuals with AD. Both adults and children may have an increased risk of conjunctivitis, blepharitis, cataracts, keratitis, and keratoconus. The likelihood of several ocular complications appears to increase with greater AD severity (Hsu et al., 2019; Thyssen et al., 2017). Consequently, patients with persistent or severe AD may benefit from awareness of ocular symptoms and appropriate ophthalmologic evaluation when clinically indicated.

#### **2.2.7. Neuropsychiatric Conditions**

The psychosocial burden of AD is substantial and may adversely affect emotional and psychological well-being. AD has been associated with depression, anxiety, psychological distress, and suicidal ideation, with evidence suggesting that these associations occur in both adults and children (Patel et al., 2019; Rønnstad et al., 2018; Sandhu et al., 2019). Adults with AD have been reported to have approximately two- to threefold higher risks of anxiety or depression, while children with AD may have a two- to sixfold increased likelihood of experiencing depression or anxiety compared with children without AD (Silverberg et al., 2019; Yaghmaie et al., 2013).

AD may also be associated with behavioral and neurodevelopmental difficulties. Children and adolescents with AD have demonstrated increased rates of attention-deficit/hyperactivity disorder (ADHD) and other behavioral problems in population-based studies (Manjunath & Silverberg, 2021; Strom et al., 2016; Tsai et al., 2013). The psychological impact can become particularly pronounced during periods of severe disease. Patient-reported studies have documented substantial depressive symptoms during the worst phases of eczema, with some individuals describing these symptoms as moderate or severe (Zuberbier et al., 2006). Furthermore, childhood AD can affect the emotional and social well-being of parents and other caregivers, contributing to stress and reduced family quality of life (Datta et al., 2021; Yang et al., 2019).

### **2.2.8. Lifestyle Impact on Patients and Caregivers**

AD can substantially interfere with everyday functioning and quality of life. Approximately half of patients with moderate-to-severe disease report significant lifestyle limitations, while individuals with milder disease may also experience meaningful restrictions (Zuberbier et al., 2006). Visible skin lesions may contribute to embarrassment, anger, dissatisfaction with appearance, and reduced perceived overall health. These effects generally become more pronounced as disease severity increases.

The burden of AD also extends to caregivers. Parents and caregivers of children with AD may spend considerable time managing bathing, topical treatments, medical appointments, insurance-related issues, and treatment procurement. Qualitative and observational studies have described feelings of frustration, helplessness, sadness, guilt, and emotional exhaustion among caregivers of affected children (Capozza et al., 2020; Capozza et al., 2022; Yang et al., 2019). Thus, pediatric AD should be considered a condition affecting not only the child but also the wider family environment.

AD can also interfere with education and employment. Adults with AD have reported difficulties in academic and occupational settings, including missed opportunities and job avoidance (Holm et al., 2006; von Kobyletzki et al., 2017). Some individuals report declining employment or educational opportunities because of their disease. Among children and adolescents, the effects may include impaired self-perceived health and limitations related to clothing choices and social activities, with some studies reporting particularly pronounced effects among pre-adolescent girls (Ballardini et al., 2014; Hon et al., 2008; Paller et al., 2002).

### **2.2.9. Impact on Social and Personal Relationships**

The visible nature of AD can affect interpersonal relationships and social participation. Adults with AD may avoid social interactions because of concerns about their appearance, while the condition may also interfere with intimate relationships and sexual health (Ludwig et al., 2020; Misery et al., 2007, 2019; Sampogna et al., 2017). These effects demonstrate that the consequences of AD extend beyond physical symptoms and may influence social confidence, intimacy, and interpersonal functioning.

Children, adolescents, and young adults with eczema may experience social isolation and stigma. Children with more severe AD may have fewer friendships and spend more time alone than those with less severe disease. Appearance-related teasing and bullying have also been reported among school-aged children and adolescents with AD (Halvorsen et al., 2014; Magin et al., 2008; Stingeni et al., 2021). In addition, parents and caregivers may experience embarrassment concerning their child's appearance, together with frustration, helplessness, sadness, and guilt (Capozza et al., 2020; Chamlin et al., 2004). The practical demands of treatment, including bathing routines, medication administration, healthcare appointments, and purchasing treatments, may further increase the time and financial burden on families (Capozza et al., 2022).

### **2.2.10. Economic and Societal Impact**

Beyond its clinical and psychosocial consequences, AD imposes a considerable economic burden on patients, families, employers, and healthcare systems. Eczema has been associated with substantial work absenteeism and productivity loss, while disease-related impairment tends to increase with disease severity (Andersen et al., 2020; Holm et al., 2006; Silverberg, 2015). Pediatric AD may also contribute to school absenteeism and parental work absence, thereby affecting both children's education and household productivity (Cheng & Silverberg, 2021).

Healthcare utilization is also increased among individuals with AD. Compared with people without AD, patients with AD may require more outpatient consultations, urgent and emergency care, and hospitalizations, with healthcare utilization generally increasing with disease severity (Drucker et al., 2018; Singh & Silverberg, 2019; Silverberg et al., 2019; Wang et al., 2022). Hospital-based studies have additionally demonstrated substantial healthcare expenditures among both adult and pediatric patients with AD (Narla et al., 2018).

The financial burden on patients can be considerable. Individuals with AD may incur substantial out-of-pocket costs for medications, physician visits, and other disease-management needs. A proportion of patients report delaying or avoiding healthcare because of cost concerns or difficulty paying for prescriptions (Chovatiya et al., 2021a, 2021b; Silverberg, 2015). The economic burden is often greater among individuals with more severe disease and among those requiring multiple therapies (Chovatiya et al., 2021a, 2021b).

Overall, AD represents a substantial clinical, psychological, social, and economic burden. Its consequences extend beyond cutaneous symptoms to include allergic and systemic comorbidities, infections, ocular complications, mental-health problems, impaired social functioning, caregiver burden, educational and occupational disruption, and increased healthcare expenditure. The overall burden increases with disease severity, emphasizing the importance of comprehensive and sustained management of AD (Drucker et al., 2017; Paller et al., 2018; Silverberg, 2019).

## **3. Materials and Methods**

### **3.1. Study Design and Setting**

A descriptive cross-sectional study was conducted from April to July 2025 in Pahartali, Chattogram, Bangladesh. The study population comprised men and women aged 18 years and above with a previous history of eczema residing in the selected study area. The sample size was calculated using the formula  $n = Z^2pq/d^2$ , considering a proportion of 10%, a 95% confidence level ( $Z = 1.96$ ), and a 5% margin of error.

### 3.2. Sampling and Participants

Participants were selected using a simple random sampling technique through a lottery method. Individuals aged  $\geq 18$  years with a history of eczema who were willing to participate were included, while those unwilling to participate or unable to provide reliable information were excluded.

### 3.3. Data Collection and Analysis

Data were collected through face-to-face interviews using a pre-designed, pre-tested, and modified structured questionnaire. Interviews were conducted at the participants' residences after explaining the study objectives. Completed questionnaires were checked daily for completeness and consistency, followed by data entry and analysis using SPSS according to the study objectives.

### 3.4. Ethical Considerations

Ethical approval was obtained from the appropriate Ethics Committee before commencement of the study. The study involved questionnaire-based data collection only, with no invasive procedures or experimental interventions. Before each interview, the participants were informed about the aims and objectives of the study, and their participation was entirely voluntary. Written or verbal informed consent was obtained from each participant, as applicable.

Participants were informed of their right to refuse participation or withdraw from the study at any stage without any consequences. They were assured that all information provided would remain confidential and would be used solely for research purposes. No names or other personally identifiable information were disclosed in any report or publication. The privacy, dignity, and rights of all participants were respected throughout the study.

## 4. RESULTS

### 4.1. Results of Sociodemographic characteristics of the respondents

The sociodemographic characteristics of the respondents are presented in Table X. A total of 66 respondents were included in the study. The age distribution showed that respondents were equally distributed among the age groups of 18–25 years, 26–35 years, and 36–45 years, each accounting for 27.27% ( $n = 18$ ) of the participants. Respondents aged 46–55 years represented 4.55% ( $n = 3$ ), whereas 13.64% ( $n = 9$ ) were aged above 55 years.

Regarding the place of residence, the majority of respondents were from urban areas (63.64%,  $n = 42$ ), while 36.36% ( $n = 24$ ) were from rural areas. Most participants were Muslim (92.42%,  $n = 61$ ), and the remaining 7.58% ( $n = 5$ ) were Hindu.

In terms of educational status, the largest proportion of respondents had completed secondary education (40.91%,  $n = 27$ ), followed by primary education (36.36%,  $n = 24$ ). A smaller proportion had attained higher secondary education (13.64%,  $n = 9$ ), while 9.09% ( $n = 6$ ) had no formal education.

With respect to marital status, the majority of respondents were married (72.73%,  $n = 48$ ), whereas 27.27% ( $n = 18$ ) were unmarried. Regarding family type, most respondents belonged to nuclear families (75.76%,  $n = 50$ ), while 24.24% ( $n = 16$ ) lived in joint families.

The distribution of respondents according to monthly family income revealed that 59.09% ( $n = 39$ ) reported no regular family income. Among respondents with reported income, 27.27% ( $n = 18$ ) had a monthly family income between Tk 10,000 and 20,000, whereas only 4.55% ( $n = 3$ ) reported an income below Tk 10,000 and 4.55% ( $n = 3$ ) reported an income above Tk 20,000.

Regarding occupation, housewives constituted the largest group (45.45%,  $n = 30$ ), followed by service holders (31.82%,  $n = 21$ ) and students (18.18%,  $n = 12$ ). Only 4.55% ( $n = 3$ ) of respondents were farmers.

Concerning family size, the majority of respondents belonged to families with five or more members (90.91%,  $n = 60$ ), while only 9.09% ( $n = 6$ ) reported having 3–4 family members.

**Table 4.1. Sociodemographic characteristics of the respondents (n = 66)**

| <b>Sociodemographic characteristic</b> | <b>Frequency (n)</b> | <b>Percentage (%)</b> |
|----------------------------------------|----------------------|-----------------------|
| <b>Age group (years)</b>               |                      |                       |
| 18–25                                  | 18                   | 27.27                 |
| 26–35                                  | 18                   | 27.27                 |
| 36–45                                  | 18                   | 27.27                 |
| 46–55                                  | 3                    | 4.55                  |
| >55                                    | 9                    | 13.64                 |
| <b>Place of residence</b>              |                      |                       |
| Urban                                  | 42                   | 63.64                 |
| Rural                                  | 24                   | 36.36                 |
| <b>Religion</b>                        |                      |                       |
| Islam                                  | 61                   | 92.42                 |
| Hindu                                  | 5                    | 7.58                  |
| <b>Highest educational level</b>       |                      |                       |
| Illiterate                             | 6                    | 9.09                  |
| Primary                                | 24                   | 36.36                 |
| Secondary                              | 27                   | 40.91                 |
| Higher secondary                       | 9                    | 13.64                 |
| <b>Marital status</b>                  |                      |                       |
| Married                                | 48                   | 72.73*                |
| Single                                 | 18                   | 27.27                 |
| <b>Type of family</b>                  |                      |                       |
| Nuclear family                         | 50                   | 75.76                 |
| Joint family                           | 16                   | 24.24                 |
| <b>Average monthly family income</b>   |                      |                       |
| None                                   | 39                   | 59.09                 |
| < Tk 10,000                            | 3                    | 4.55                  |
| Tk 10,000–20,000                       | 18                   | 27.27                 |
| > Tk 20,000                            | 3                    | 4.55                  |
| <b>Occupation</b>                      |                      |                       |
| Housewife                              | 30                   | 45.45                 |
| Farmer                                 | 3                    | 4.55                  |
| Service holder                         | 21                   | 31.82                 |
| Student                                | 12                   | 18.18                 |
| <b>Number of family members</b>        |                      |                       |
| 3–4 persons                            | 6                    | 9.09                  |
| ≥5 persons                             | 60                   | 90.91                 |
| <b>Total</b>                           | <b>66</b>            | <b>100.00</b>         |

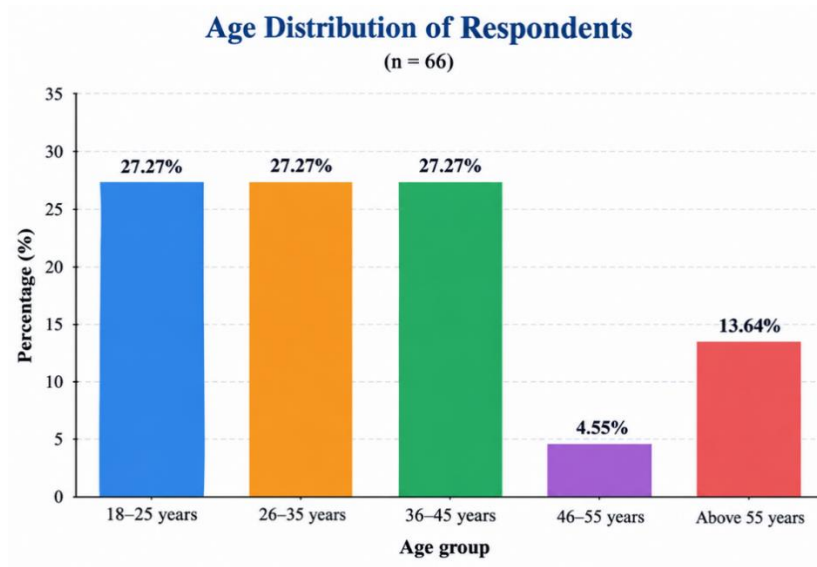


**Figure 4.1: Age of the respondent**

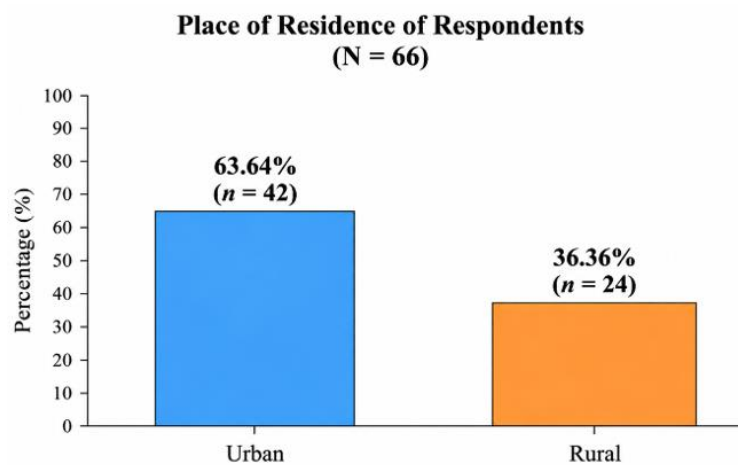
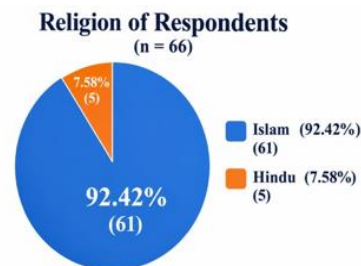
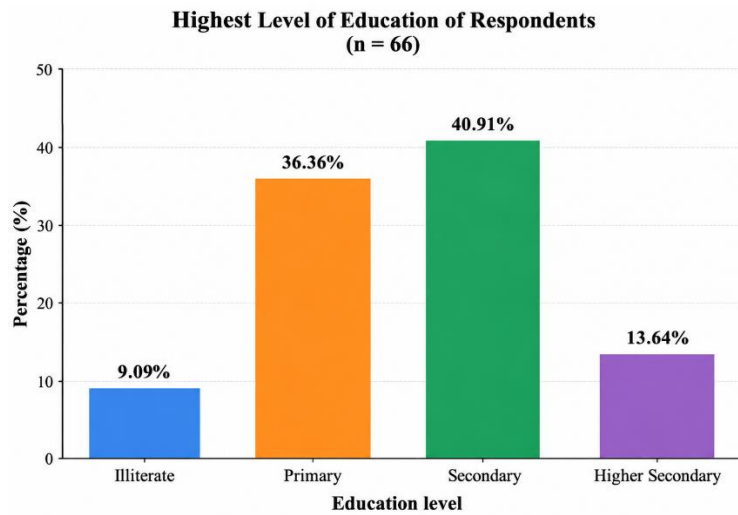


**Figure 4.2: Place of residence of the respondent**



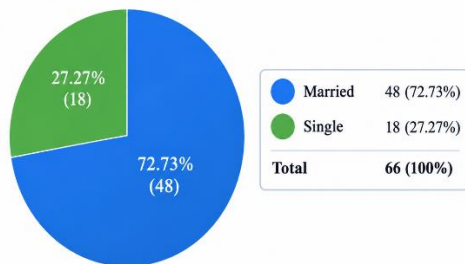
**Graph 4.3: Religion of the respondent**



**Graph 4.4: Highest level of education of the Respondent**

#### Marital Status of the Respondents

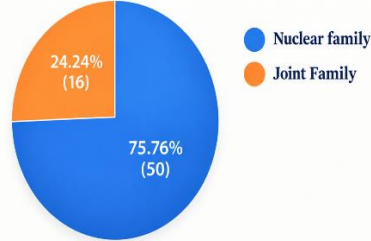
Distribution of respondents by marital status (n = 66).



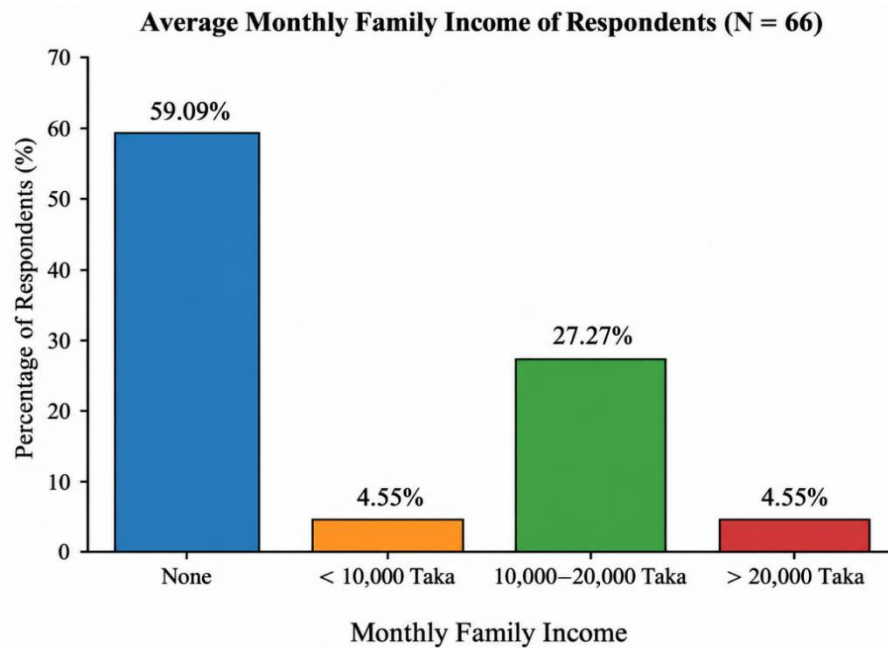
**Graph 4.5. Marital status of the respondent**

#### Type of Family of the Respondents

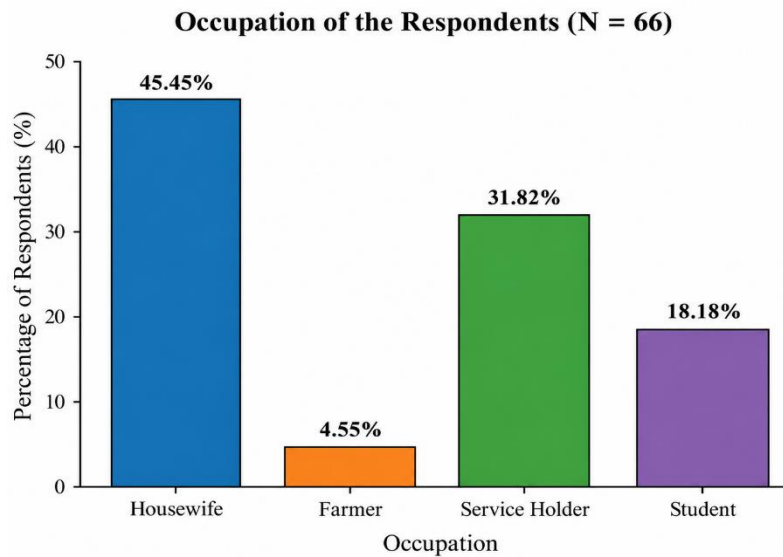
Distribution of respondents by type of family (n = 66).



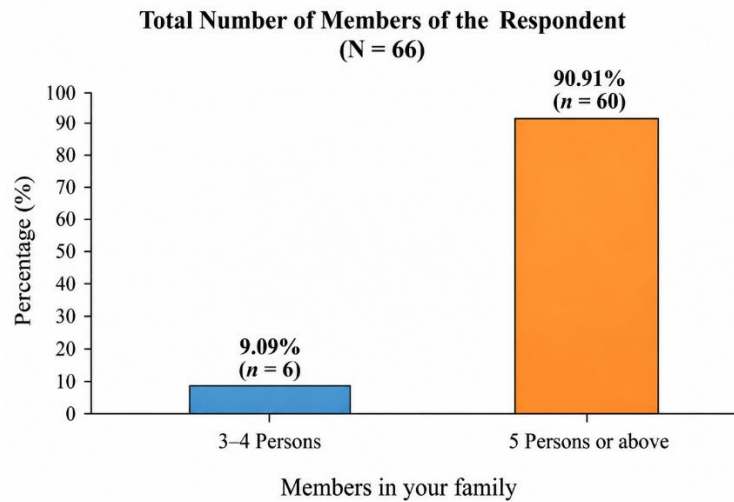
**Graph 4.6: Type of family of the responden**



**Graph 4.7: Average monthly family income of the respondent**



**Graph 4.8: Occupation of the respondent**



**Graph 4.9: Total number of members of the Respondent**

#### **4.2. Results of Clinical characteristics of respondents with eczema**

The clinical characteristics of respondents with eczema are presented in Table 4.2. Among the 66 respondents, the majority had been experiencing skin problems for more than 6 months (75.76%, n = 50), whereas 24.24% (n = 16) reported a duration of  $\leq 6$  months, indicating that most participants had a relatively chronic course of eczema.

Regarding the pattern of itching occurrence, most respondents reported experiencing itching at any time of the day (72.73%, n = 48). Night-time itching was reported by 22.73% (n = 15) of respondents, while only 4.55% (n = 3) experienced itching mainly during the daytime.

Seasonal variation in itching was commonly reported among respondents. The highest proportion of participants experienced worsening of itching during the summer season (45.45%, n = 30), followed by the rainy season (30.30%, n = 20) and winter season (24.24%, n = 16).

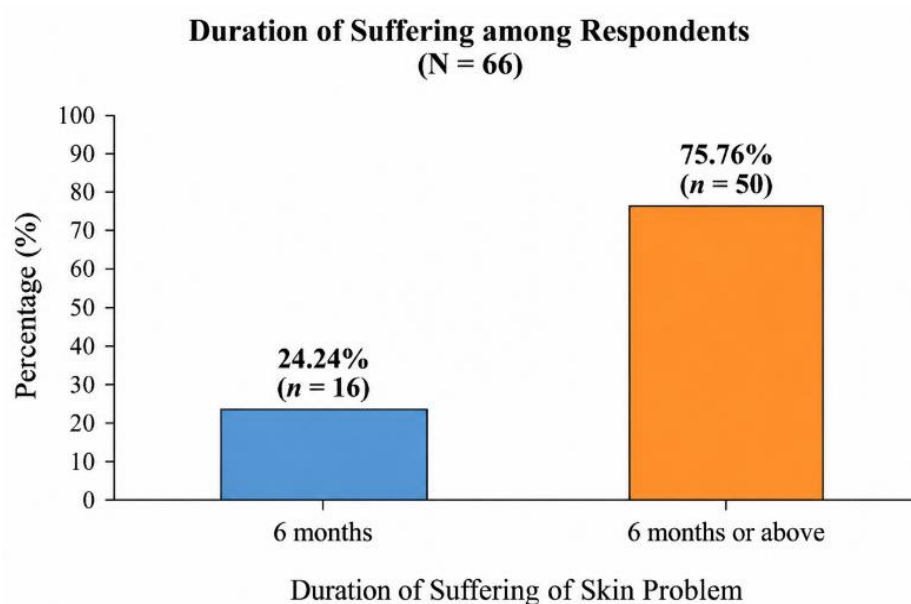
Among self-reported dietary factors associated with increased itching, beef/shrimp consumption was the most frequently reported trigger (50.00%, n = 33), followed by beef alone (27.27%, n = 18). Other reported food-related triggers included mutton/shrimp (9.09%, n = 6), beef/mutton (4.55%, n = 3), shrimp-fish (4.55%, n = 3), and other allergic foods (4.55%, n = 3).

Regarding clothing preferences, the majority of respondents reported feeling comfortable wearing cotton/synthetic clothing (45.45%, n = 30), followed by cotton/linen clothing (40.91%, n = 27). A smaller proportion preferred linen/synthetic (4.55%, n = 3), silk/synthetic (4.55%, n = 3), and cotton-only clothing (4.55%, n = 3).

Overall, the findings indicate that most respondents had long-standing eczema symptoms, with itching occurring throughout the day and showing seasonal variation, particularly during warmer months. Dietary triggers and clothing materials were also reported as potential factors influencing symptom severity among participants.

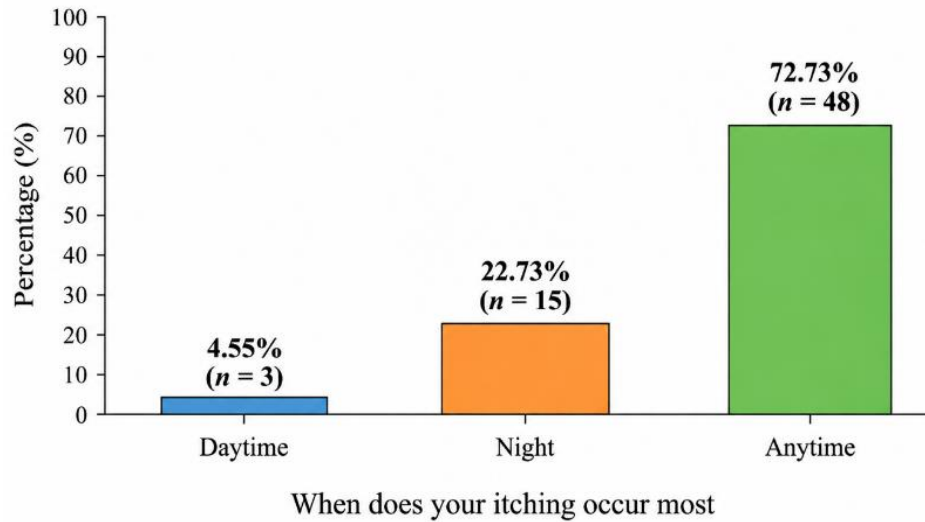
**Table 4.2. Clinical characteristics of respondents with eczema (n = 66)**

| Clinical characteristic                                 | Frequency (n) | Percentage (%) |
|---------------------------------------------------------|---------------|----------------|
| <b>Duration of skin problem</b>                         |               |                |
| ≤6 months                                               | 16            | 24.24          |
| >6 months                                               | 50            | 75.76          |
| <b>When itching occurs most</b>                         |               |                |
| Daytime                                                 | 3             | 4.55           |
| Night                                                   | 15            | 22.73          |
| Anytime                                                 | 48            | 72.73          |
| <b>Season when itching worsens</b>                      |               |                |
| Summer                                                  | 30            | 45.45          |
| Rainy season                                            | 20            | 30.30          |
| Winter                                                  | 16            | 24.24          |
| <b>Food reported to increase itching</b>                |               |                |
| Beef/shrimp                                             | 33            | 50.00          |
| Beef                                                    | 18            | 27.27          |
| Mutton/shrimp                                           | 6             | 9.09           |
| Beef/mutton                                             | 3             | 4.55           |
| Shrimp-fish                                             | 3             | 4.55           |
| Allergic foods                                          | 3             | 4.55           |
| <b>Type of clothing that makes you feel comfortable</b> |               |                |
| Cotton/synthetic                                        | 30            | 45.45%         |
| Cotton/Linen                                            | 27            | 40.91%         |
| Linen/synthetic                                         | 3             | 4.55%          |
| Silk/Synthetic                                          | 3             | 4.55%          |
| Cotton                                                  | 3             | 4.55%          |
| <b>Total</b>                                            | <b>66</b>     | <b>100.00</b>  |



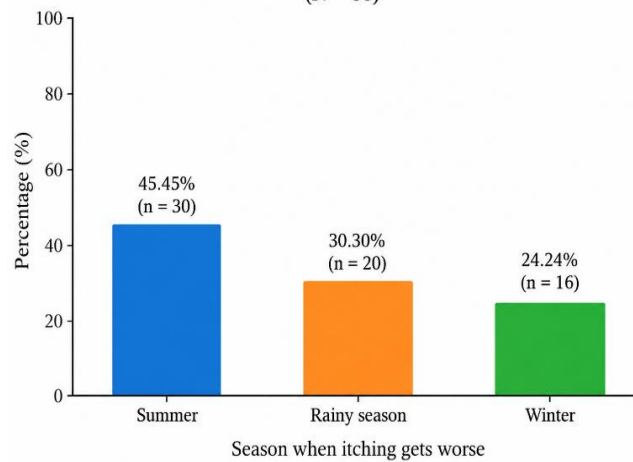
**Graph 4.10: Duration of suffering among respondents**

### When Does Your Itching Occur Most? (N = 66)



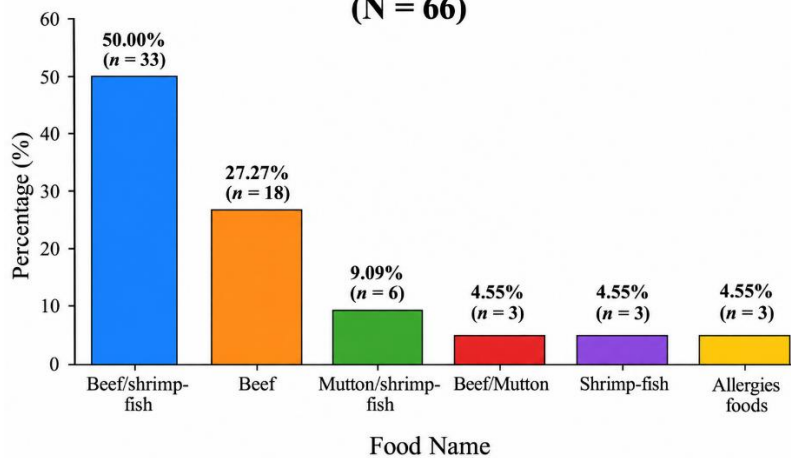
**Graph 4.11: Itching occurs most of the time**

### Season When Itching Gets Worse Among Respondents (N = 66)

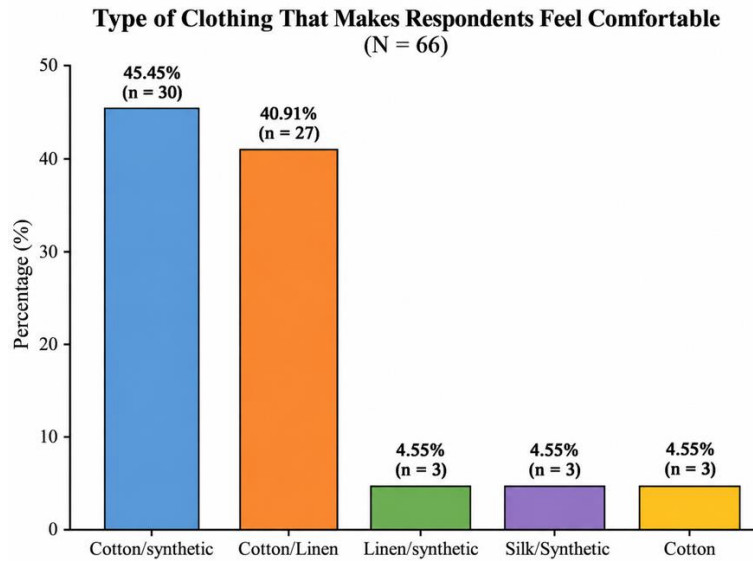


**Graph 4.12: Itching gets worse in which season.**

### Which Foods Increase Itching? (N = 66)



**Graph 4.13: Which foods increase itching**



**Graph 4.14: Types of clothing that make respondents feel comfortable.**

#### **4.3. Results of Treatment-related characteristics of respondents with eczema**

The treatment-related characteristics of respondents with eczema are presented in Table 4.3. Among the 66 respondents, the majority were using modern (allopathic) medicine (63.64%, n = 42), while 36.36% (n = 24) reported using Ayurvedic medicine for eczema management.

All respondents (100.00%, n = 66) reported receiving treatment from a qualified doctor, indicating complete healthcare-seeking behaviour among the study participants.

Regarding treatment outcomes, only 9.09% (n = 6) of respondents reported that they had benefited from treatment, whereas more than half (54.55%, n = 36) reported no improvement. A further 36.36% (n = 24) experienced partial benefit from treatment, suggesting that symptom control remained inadequate for a considerable proportion of participants.

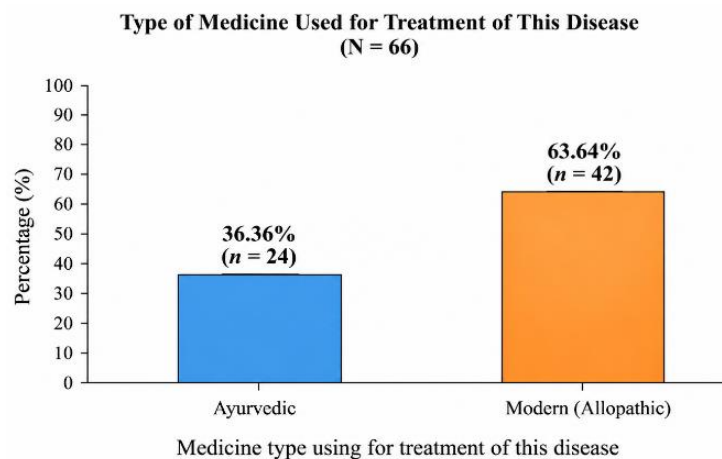
The use of complementary or alternative therapy was reported by 13.64% (n = 9) of respondents, while the majority (86.36%, n = 57) did not use any complementary treatment alongside their prescribed therapy.

Sleep-related problems were common among respondents. A high proportion (81.82%, n = 54) reported experiencing insomnia, whereas 18.18% (n = 12) did not report sleep disturbances.

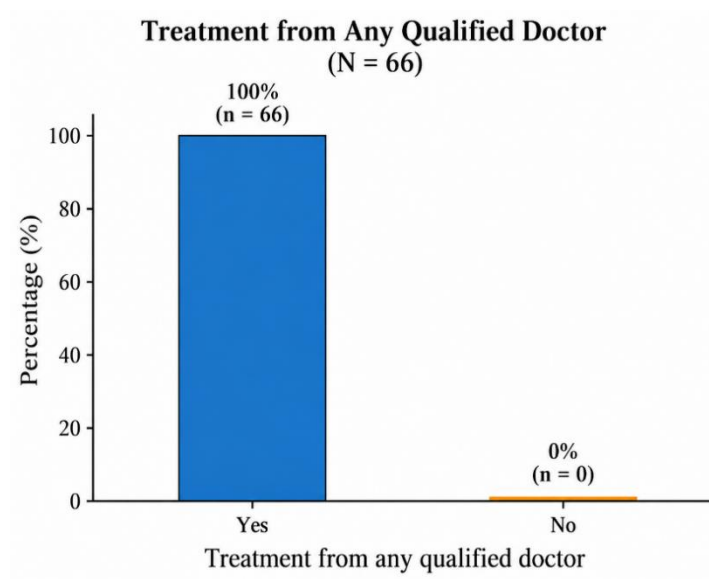
**Table 4.3. Treatment-related characteristics of respondents (n = 66)**

| Treatment characteristic                        | Frequency (n) | Percentage (%) |
|-------------------------------------------------|---------------|----------------|
| <b>Type of medicine used</b>                    |               |                |
| Ayurvedic                                       | 24            | 36.36          |
| Modern (Allopathic)                             | 42            | 63.64          |
| <b>Treatment from a qualified doctor</b>        |               |                |
| Yes                                             | 66            | 100.00         |
| No                                              | 0             | 0.00           |
| <b>Benefited from treatment</b>                 |               |                |
| Yes                                             | 6             | 9.09           |
| No                                              | 36            | 54.55          |
| Partial                                         | 24            | 36.36          |
| <b>Use of complementary/alternative therapy</b> |               |                |
| Yes                                             | 9             | 13.64          |
| No                                              | 57            | 86.36          |
| <b>Insomnia</b>                                 |               |                |

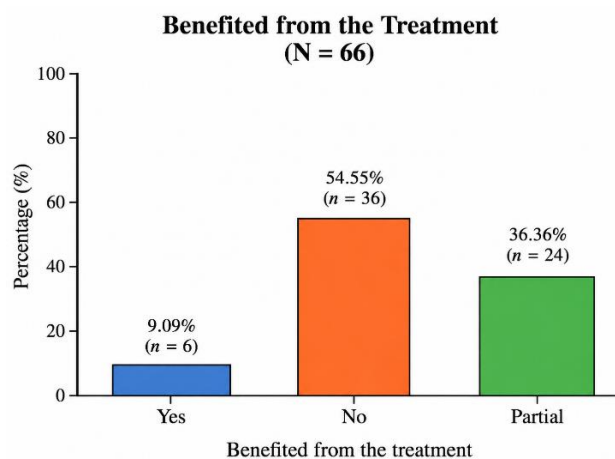
|            |           |              |
|------------|-----------|--------------|
| <b>Yes</b> | <b>54</b> | <b>81.82</b> |
| <b>No</b>  | <b>12</b> | <b>18.18</b> |



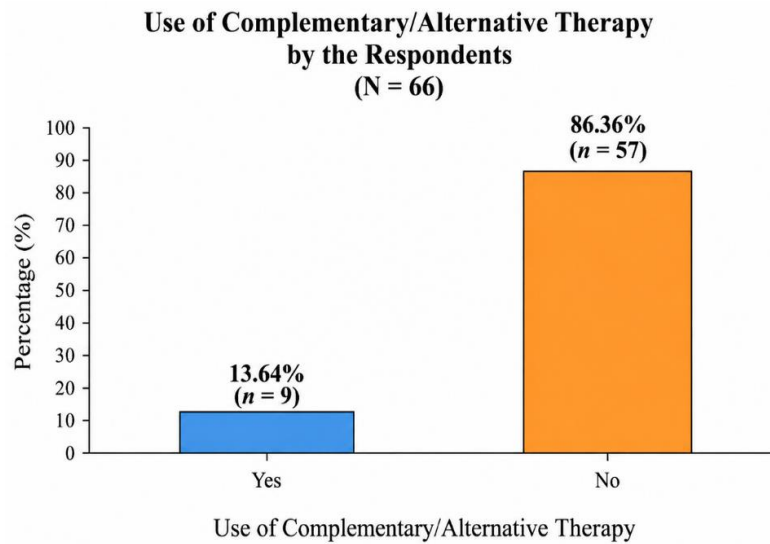
**Graph 4.15: Type of medicine used for treatment of this disease**



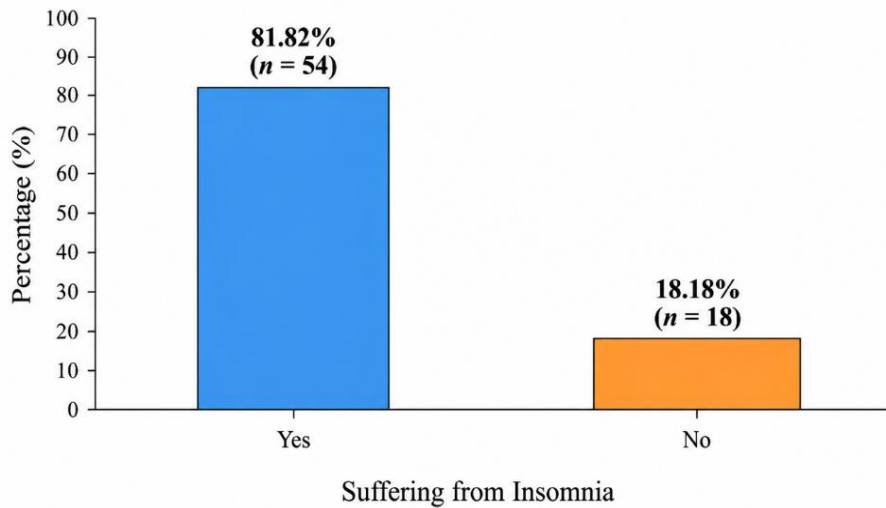
**Graph 4.16: Treatment from any qualified doctor**



**Graph 4.17. Benefited from the treatment**



**Graph 4.18: Use of any complementary/alternative therapy by the respondent  
Suffering from Insomnia Among Respondents  
(N = 66)**



**Graph 4.19: Suffering insomnia**

#### **4.4. Results of Social, occupational and psychological impact of eczema**

The social, occupational, and psychological impacts of eczema among respondents are presented in Table 4.4. Among the 66 respondents, 36.36% (n = 24) reported experiencing social problems due to eczema, while 63.64% (n = 42) did not report any social difficulties related to their condition.

Occupational impairment was commonly reported among the respondents. A large majority (90.91%, n = 60) stated that eczema caused occupational problems, whereas only 9.09% (n = 6) reported no occupational impact. This finding suggests that eczema symptoms may interfere with work-related activities and productivity.

Regarding family history, 63.64% (n = 42) of respondents reported having a family member with eczema or a similar skin disease, while 36.36% (n = 24) reported no such family history.

Eczema was found to have a considerable effect on daily activities. The majority of respondents (85.94%, n = 55) reported that eczema affected their daily life activities, whereas 14.06% (n = 11) reported no significant effect.

In terms of the effect of eczema on study, work, or family life, half of the respondents (50.00%, n = 33) reported a mild effect, followed by 40.91% (n = 27) who experienced a moderate effect. Only 9.09% (n = 6) reported that eczema had severely affected their study, work, or family life.

Sleep disturbance was a common complaint among participants. A high proportion (83.33%, n = 55) reported sleeping problems due to eczema, while 16.67% (n = 11) did not experience sleep-related difficulties.

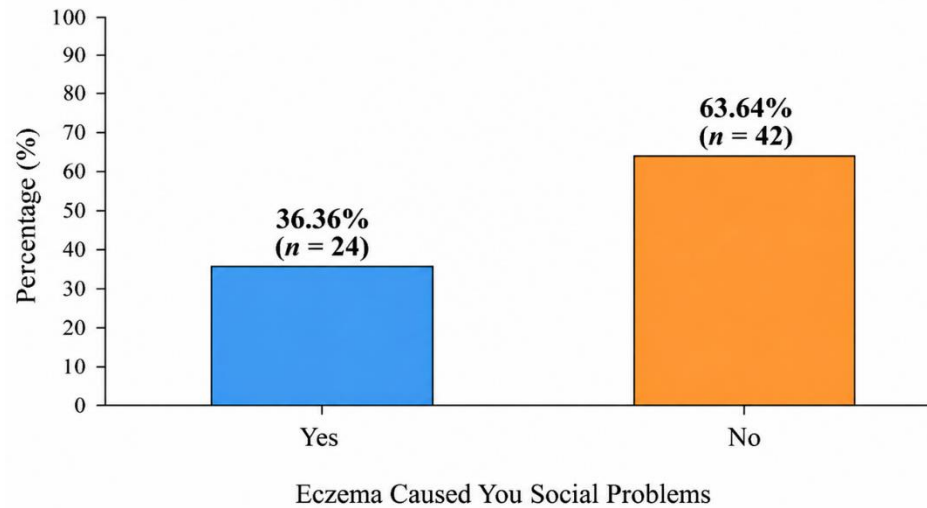
Psychological distress associated with eczema was also frequently reported. More than four-fifths of respondents (81.82%, n = 54) experienced mental stress due to the disease, whereas 18.18% (n = 12) did not report psychological stress.

Additionally, 81.82% (n = 54) of respondents reported having other health problems along with eczema, while 18.18% (n = 12) did not have any associated health problems.

**Table 4.4: Social, occupational and psychological impact of eczema (n = 66)**

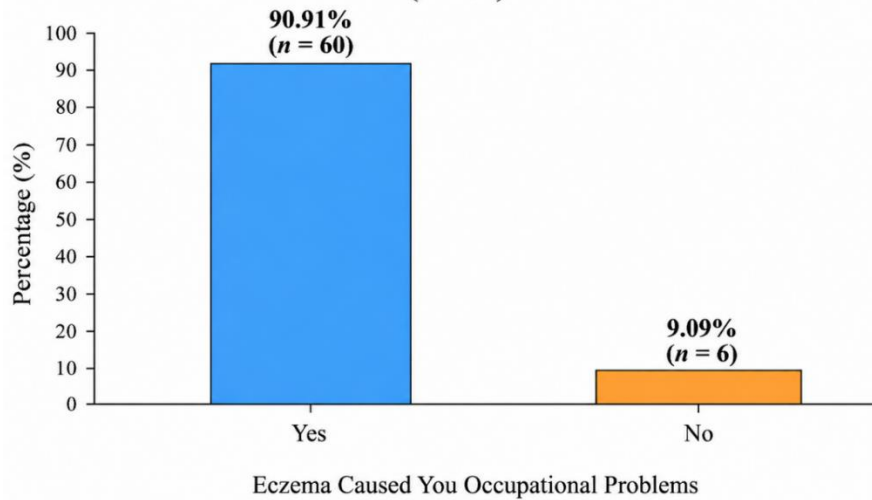
| <b>Impact characteristic</b>                      | <b>Frequency (n)</b> | <b>Percentage (%)</b> |
|---------------------------------------------------|----------------------|-----------------------|
| <b>Social problems due to eczema</b>              |                      |                       |
| Yes                                               | 24                   | 36.36                 |
| No                                                | 42                   | 63.64                 |
| <b>Occupational problems due to eczema</b>        |                      |                       |
| Yes                                               | 60                   | 90.91                 |
| No                                                | 6                    | 9.09                  |
| <b>Family member with eczema/similar disease</b>  |                      |                       |
| Yes                                               | 42                   | 63.64                 |
| No                                                | 24                   | 36.36                 |
| <b>Eczema affects daily life activities</b>       |                      |                       |
| Yes                                               | 55                   | 85.94                 |
| No                                                | 11                   | 14.06                 |
| <b>Effect of eczema on study/work/family life</b> |                      |                       |
| Severely affected                                 | 6                    | 9.09                  |
| Moderately affected                               | 27                   | 40.91                 |
| Mildly affected                                   | 33                   | 50                    |
| <b>Sleeping problems due to eczema</b>            |                      |                       |
| Yes                                               | 55                   | 83.33                 |
| No                                                | 11                   | 16.67                 |
| <b>Mental stress due to disease</b>               |                      |                       |
| Yes                                               | 54                   | 81.82                 |
| No                                                | 12                   | 18.18                 |
| <b>Other health problems along with eczema</b>    |                      |                       |
| Yes                                               | 54                   | 81.82                 |
| No                                                | 12                   | 18.18                 |

**Social Problems Due to Eczema Among Respondents  
(N = 66)**

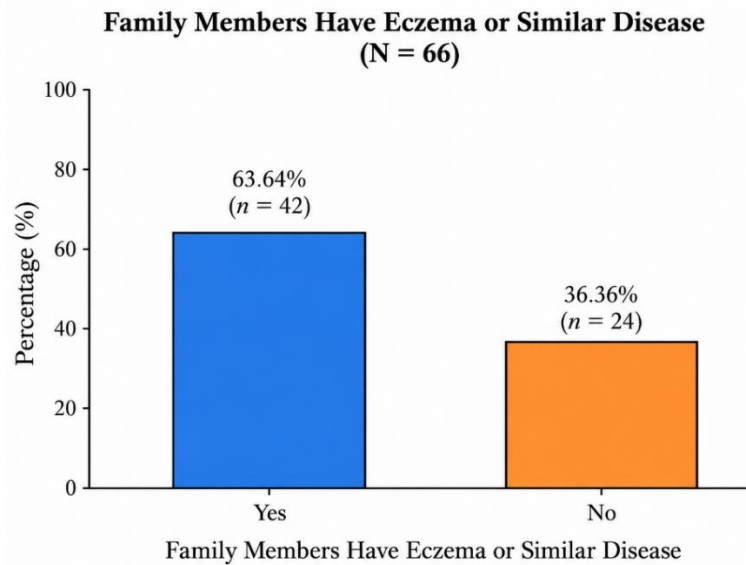


**Graph 4.20: Social problems for eczema**

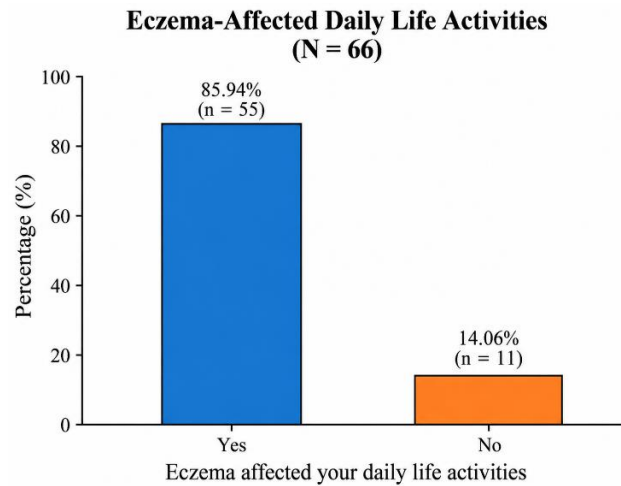
**Occupational Problems Due to Eczema Among Respondents  
(N = 66)**



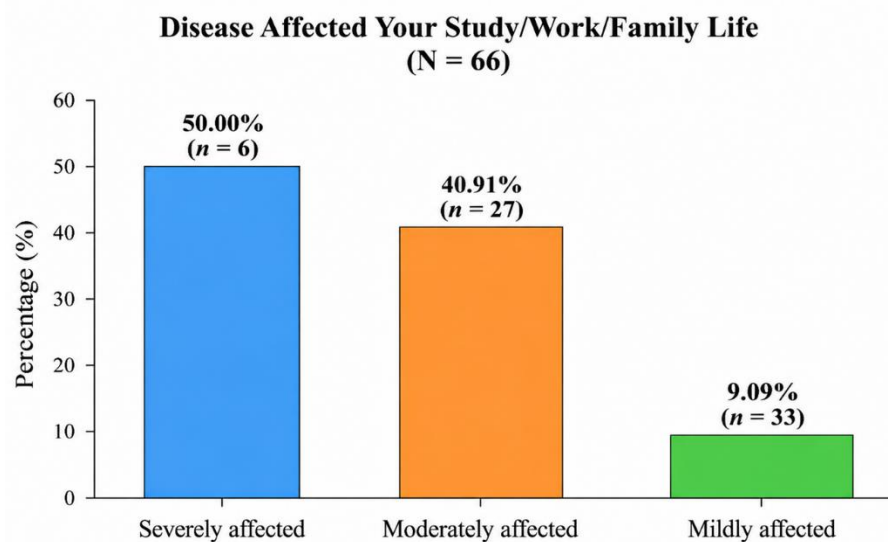
**Graph 4.21: Occupational problems for Eczema**



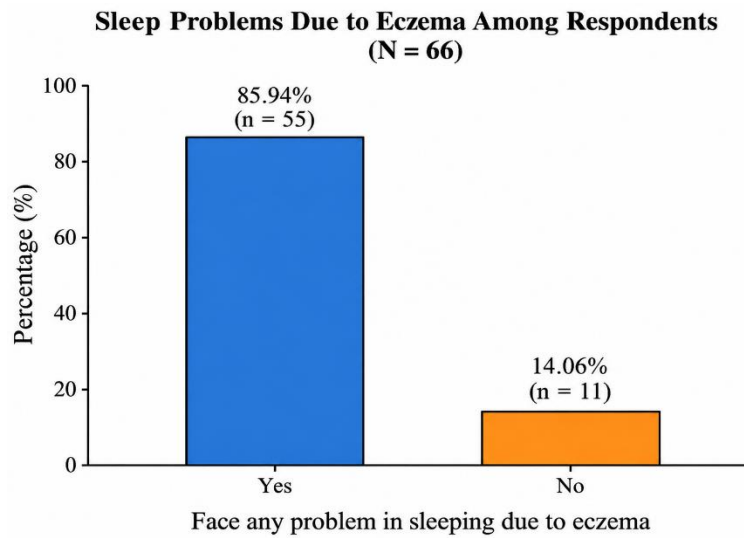
**Graph 4.22: Family members have eczema or a similar disease**



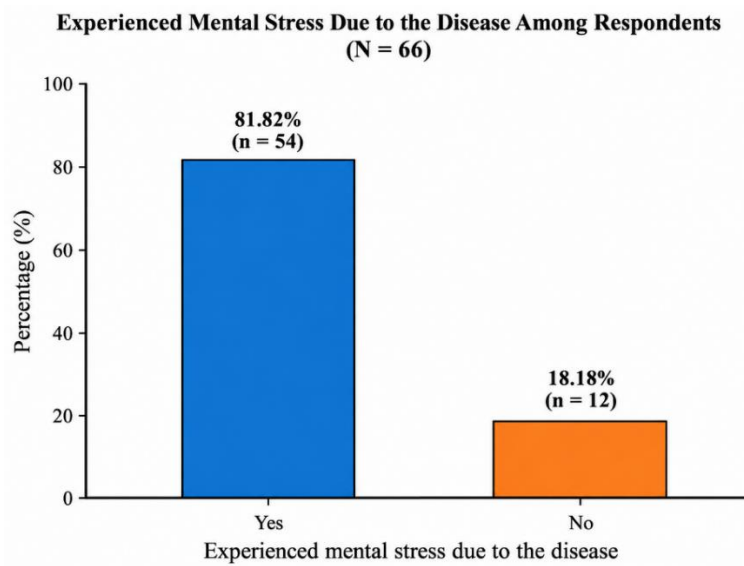
**Graph 4.23: Eczema-affected daily life activities**



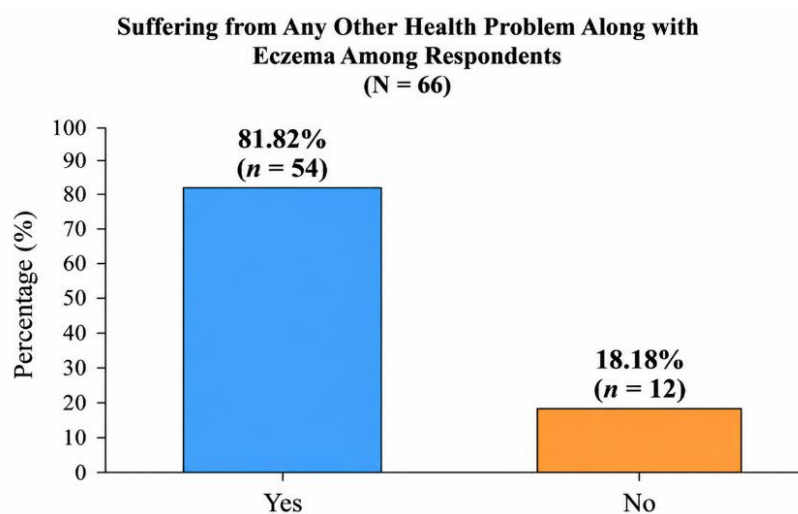
**Graph 4.24: Disease affected your study/work/family life**



**Graph 4.25: Face any problem in sleeping due to eczema**



**Graph 4.26: Experienced mental stress due to the disease**



**Graph 4.27: Suffer from any other health problem along with eczema**

#### 4.5. Results of Association between medicine type and treatment benefit among respondents with eczema

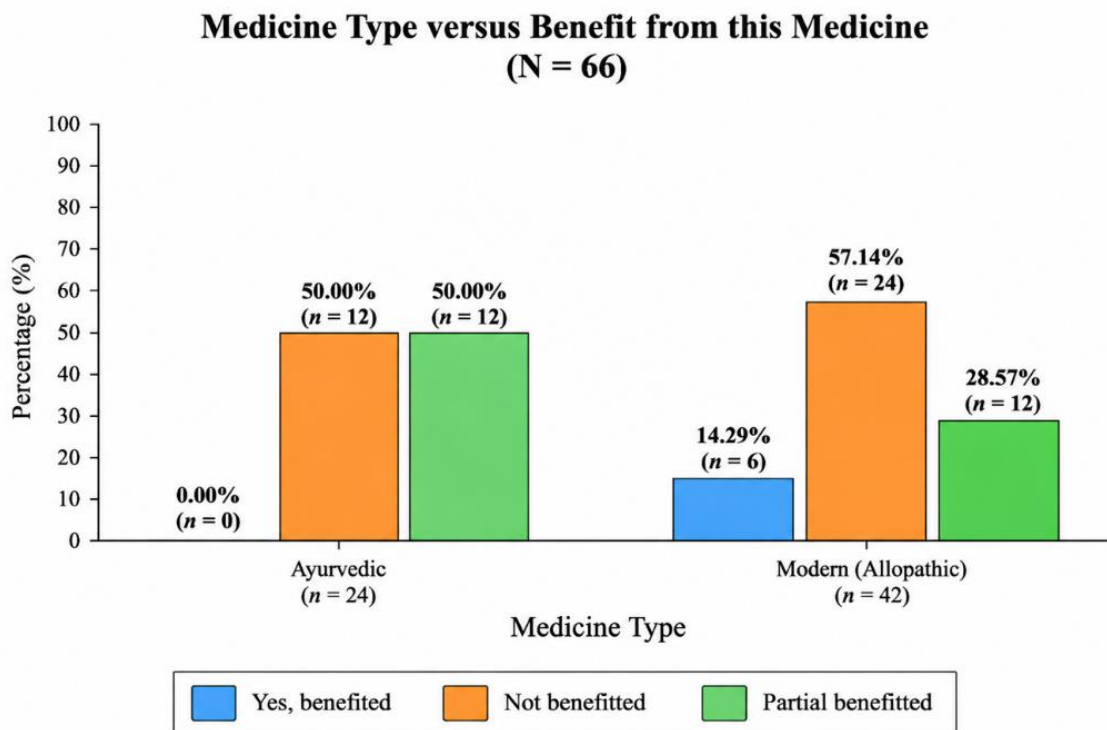
The relationship between the type of medicine used and perceived treatment benefit among respondents with eczema is presented in Table 4.5. Among the 66 respondents, 24 (36.36%) used Ayurvedic medicine, while 42 (63.64%) used modern (allopathic) medicine. Among respondents using Ayurvedic medicine, none reported complete benefit from treatment (0%, n = 0). Half of the Ayurvedic medicine users reported no benefit (50.00%, n = 12), while the remaining 50.00% (n = 12) experienced partial benefit.

Among those using modern (allopathic) medicine, 14.29% (n = 6) reported complete benefit, whereas 57.14% (n = 24) reported no benefit and 28.57% (n = 12) reported partial benefit from treatment.

Overall, complete treatment benefit was reported only among respondents receiving modern (allopathic) medicine (6/42, 14.29%) and was not observed among Ayurvedic medicine users. However, a considerable proportion of respondents in both treatment groups reported either no improvement or only partial improvement, indicating persistent treatment challenges in eczema management.

**Table 4.5. Medicine type versus treatment benefit**

| Medicine type       | Benefited, n | Not benefited, n | Partially benefited, n | Total |
|---------------------|--------------|------------------|------------------------|-------|
| Ayurvedic           | 0            | 12               | 12                     | 24    |
| Modern (Allopathic) | 6            | 24               | 12                     | 42    |
| Total               | 6            | 36               | 24                     | 66    |



**Graph 4.29: Medicine Type versus Benefit from this Medicine**

## 5. Discussion

### 5.1. Demographic and Socio-economic Characteristics of Respondents

The present study aimed to compare the effectiveness of Ayurvedic medicine and conventional medicine in the management of eczema among Bangladeshi individuals. All findings were derived from the quantitative data presented in the main thesis file. The study provides insight into the demographic characteristics, clinical manifestations, treatment patterns, and psychosocial burden associated with eczema among patients receiving different treatment approaches.

The study included 66 respondents, with the majority (81.81%) belonging to the 18–45 years age group, indicating that eczema predominantly affected young and economically productive individuals in this population. This finding is consistent with previous epidemiological studies demonstrating that atopic dermatitis is common during childhood and early adulthood, although it may persist or recur throughout adult life (Hanifin & Eczema Prevalence and Impact Working Group, 2007; Silverberg & Hanifin, 2013; Abuabara et al., 2019). Adult eczema represents an important public health concern because it contributes to long-term disease burden, healthcare utilization, and impaired quality of life (Silverberg, 2017; Weidinger et al., 2018).

In the present study, 63.64% of respondents were urban residents. Previous research suggests that environmental and lifestyle factors associated with urbanization, including air pollution, climate variation, allergen exposure, and altered microbial environments, may influence eczema prevalence and severity (Silverberg et al., 2013; Silverberg et al., 2013). Climatic conditions, particularly temperature and humidity variations, have also been associated with eczema exacerbation, which may partly explain the observed distribution of patients in this study (Silverberg et al., 2013).

Regarding socio-demographic characteristics, most respondents were Muslim (92.42%), married (72.73%), and belonged to nuclear families (75.76%). These findings mainly represent the socio-cultural characteristics of the study population from the Chattogram region. Additionally, 59.09% of respondents had no regular income, which is an important observation because eczema imposes considerable financial and healthcare burdens. Previous studies have reported that patients with atopic dermatitis experience increased direct medical costs, treatment-related expenses, and reduced access to healthcare services, particularly among economically disadvantaged groups (Chung & Simpson, 2019; Smith Begolka et al., 2021).

## **5.2. Disease Duration and Clinical Presentation**

The majority of respondents (75.76%) reported suffering from eczema for more than six months, demonstrating the chronic nature of the disease in this population. Chronicity is a characteristic feature of atopic dermatitis, with many patients experiencing persistent or relapsing symptoms over several years (Weidinger et al., 2018). Systematic reviews have also demonstrated that eczema frequently follows long-term disease trajectories rather than representing only a transient childhood condition (Kim et al., 2016; Margolis et al., 2014).

Pruritus (itching) was the most prominent symptom reported by participants. In this study, 72.73% experienced itching throughout the day, highlighting the substantial symptom burden associated with eczema. Previous studies have identified itching as the hallmark symptom of atopic dermatitis and a major contributor to sleep disruption, psychological distress, and reduced quality of life (Maarouf et al., 2018; Silverberg et al., 2018). The continuous presence of itch may also contribute to the itch-scratch cycle, leading to skin barrier damage and worsening inflammation (Weidinger et al., 2018).

Seasonal variation was observed among participants, with summer being the most frequently reported aggravating season (45.45%). This finding is consistent with previous studies showing that climatic factors, including heat, sweating, temperature changes, and humidity, can influence eczema severity (Silverberg et al., 2013). Increased sweating during warmer months may impair skin barrier function and trigger inflammatory responses, leading to worsening symptoms in susceptible individuals.

Diet-related triggering factors were also reported, with 50% of respondents identifying beef or shrimp/fish consumption as associated with increased itching. Food allergy and food-triggered exacerbation are recognized concerns, particularly among individuals with atopic dermatitis. Previous studies have reported an association between eczema and food sensitization, especially in patients with more severe disease (Tsakok et al., 2016; Hill & Spergel, 2018; Eigenmann et al., 1998). However, dietary triggers should be interpreted carefully because food avoidance without confirmed allergy testing may result in unnecessary dietary restriction.

## **5.3. Treatment Pattern: Ayurvedic vs Conventional Medicine**

In the present study, 63.64% of respondents received modern (allopathic) medicine, whereas 36.36% used Ayurvedic treatment for eczema management. This distribution indicates a greater preference for conventional healthcare services among the study population. Similar patterns have been reported globally, where patients with atopic dermatitis frequently seek conventional medical treatment because of the availability of evidence-based topical and systemic therapies (Weidinger et al., 2018). However, dissatisfaction with treatment outcomes remains common because eczema is a chronic inflammatory disorder that often requires long-term disease control rather than permanent cure (Weidinger et al., 2018; Simpson et al., 2018).

In this study, treatment outcomes varied considerably between the two groups. Among respondents receiving modern medicine, only 6 participants (9.09%) reported complete recovery, while 54.55% reported no significant benefit and 36.36% experienced partial improvement. These findings suggest that although conventional therapies may provide symptom control, many patients continue to experience persistent symptoms or inadequate disease control. Previous studies have similarly reported that patients with moderate-to-severe atopic dermatitis frequently experience unmet therapeutic needs, inadequate symptom control, and dissatisfaction despite receiving available treatments (Simpson et al., 2018; Wei et al., 2018; Bacci et al., 2021).

The limited complete recovery observed in the present study is also consistent with the current understanding of eczema as a chronic relapsing inflammatory disease. Conventional treatments, including topical corticosteroids, calcineurin inhibitors, and newer biologic therapies, are primarily aimed at reducing inflammation, restoring skin barrier function, and controlling symptoms rather than eliminating the underlying predisposition to eczema (Weidinger et al., 2018). Therefore, recurrence or incomplete improvement may occur despite appropriate treatment.

From the Ayurvedic perspective, eczema is described as “Vicharchika”, classified under Kshudra Kushtha in classical Ayurvedic texts. It is traditionally associated with imbalance of physiological elements (*doshas*), particularly involvement of *Pitta* and *Rakta* (Charaka Samhita; Sushruta Samhita). Ayurvedic management approaches include purification procedures (*Shodhana*) such as Virechana, internal medications, and external applications. The Ayurvedic formulations mentioned in the thesis, including Khadirarista, Panchatikta Ghrita, Rohitakarista, and Guruchayadi Taila, are traditionally described for skin disorders (Agnivesha, Dridhabala, & Charaka Samhita; Bangladesh National Ayurvedic Formulary).

In this study, Ayurvedic treatment resulted in 0% complete recovery, but 50% of respondents reported partial improvement, which was higher than the partial improvement observed among modern medicine users (28.57%). This finding suggests that Ayurvedic therapy may provide symptomatic improvement for some patients; however, the results should be interpreted cautiously because of the limited sample size, non-randomized treatment selection, and absence of standardized disease severity measurements. Although Ayurvedic approaches emphasize individualized treatment and long-term balance, further controlled clinical studies are required to establish their comparative effectiveness and safety in eczema management.

Overall, the findings indicate that neither treatment system achieved complete cure among respondents. This is consistent with international evidence that eczema is a chronic condition requiring continuous management rather than a one-time curative intervention (National Eczema Association, 2024; Weidinger et al., 2018). Conventional medicine may provide faster control during acute exacerbations, whereas some patients may experience gradual symptomatic improvement with complementary approaches. Future research should investigate whether integrative approaches combining evidence-based conventional therapy with complementary interventions can improve long-term outcomes.

#### **5.4. Psychological, Social, and Occupational Impact**

The present study demonstrated a substantial psychosocial burden among individuals with eczema. A large proportion of respondents (81.82%) experienced mental stress, indicating that eczema affects psychological well-being beyond physical symptoms. Previous studies have consistently reported increased rates of anxiety, depression, psychological distress, and reduced mental health among individuals with atopic dermatitis (Rossnstad et al., 2018; Patel et al., 2019; Silverberg et al., 2019).

Sleep disturbance was another major concern, affecting 85.94% of respondents in this study. Sleep impairment is a recognized consequence of eczema, mainly due to persistent itching, nocturnal scratching, and discomfort. Previous population-based studies have demonstrated that patients with eczema frequently experience reduced sleep quality and fatigue, which further negatively influences daily functioning and quality of life (Fishbein et al., 2021; Fishbein et al., 2015; Silverberg et al., 2015).

Social difficulties were reported by 36.36% of respondents, highlighting the impact of visible skin lesions, stigma, and altered self-image. Previous research has shown that individuals with eczema may experience embarrassment, social avoidance, appearance-related concerns, and discrimination because of visible skin changes (Zuberbier et al., 2006; Roosta et al., 2010; Stingeni et al., 2021). Such social consequences may further increase psychological distress and reduce overall quality of life.

Occupational problems were reported by 90.91% of participants, demonstrating the considerable functional burden of eczema. Chronic itching, sleep disruption, frequent medical visits, and reduced concentration may negatively influence work performance and productivity. Previous studies have reported that increasing eczema severity is associated with reduced workplace productivity, increased absenteeism, and greater healthcare utilization (Andersen et al., 2020; Eckert et al., 2017).

Overall, these findings reinforce that eczema is not merely a skin disorder but a chronic inflammatory disease with multidimensional consequences affecting physical comfort, psychological health, social participation, and occupational functioning. Comprehensive eczema management should therefore address not only skin symptoms but also mental health, sleep quality, social support, and quality-of-life concerns (Silverberg et al., 2018; Eckert et al., 2017).

#### **5.5. Familial and Hereditary Patterns**

A notable finding of this study was that 63.64% of respondents reported a positive family history of eczema, suggesting a considerable hereditary component among the studied population. This finding supports previous evidence demonstrating that genetic susceptibility plays an important role in the development of atopic dermatitis. Several studies have highlighted the contribution of genetic factors, particularly abnormalities affecting skin barrier function, immune regulation, and susceptibility to allergic diseases (Barnetson & Rogers, 2002; Spergel, 2010).

One of the most extensively studied genetic factors associated with eczema is mutation in the filaggrin (FLG) gene, which contributes to impaired epidermal barrier function and increased penetration of allergens and irritants into the skin (Barnetson & Rogers, 2002). Individuals with a family history of eczema also have an increased likelihood of developing other atopic conditions, including asthma and allergic rhinitis, as part of the broader concept of the atopic march (van der Hulst et al., 2007; Yang et al., 2020).

The high proportion of participants reporting familial eczema in this study indicates that hereditary predisposition may contribute significantly to disease occurrence among Bangladeshi individuals. However, environmental exposures, lifestyle factors, climate conditions, and individual immune responses may interact with genetic susceptibility to influence disease expression and severity (Ricci et al., 2006; Silverberg, 2017).

## **5.6. Comparative Interpretation: Ayurvedic versus Conventional Medicine**

### **5.6.1. Effectiveness of Treatment**

The findings of this study demonstrate that both Ayurvedic and conventional treatment approaches provided some degree of symptom improvement; however, neither approach resulted in complete recovery among all patients. This observation reflects the chronic and relapsing nature of eczema, where treatment goals generally focus on disease control, reduction of symptoms, prevention of exacerbations, and improvement of quality of life rather than permanent elimination of disease (Weidinger et al., 2018).

Conventional medicine was associated with a higher proportion of complete recovery (9.09%), suggesting that evidence-based therapies may provide relatively rapid symptom control in some patients. Modern treatments, including topical corticosteroids, immunomodulators, and newer targeted therapies, have demonstrated effectiveness in reducing inflammation and improving disease severity when appropriately used (Weidinger et al., 2018).

However, a substantial proportion of respondents using conventional treatment reported either no benefit (54.55%) or only partial improvement (36.36%). Similar challenges have been reported internationally, where many patients with atopic dermatitis continue to experience inadequate disease control despite available therapies (Simpson et al., 2018; Wei et al., 2018).

Ayurvedic treatment users showed no complete recovery, but a relatively higher proportion reported partial improvement (50%). This finding may indicate potential symptomatic benefits among some patients. However, because treatment selection was not randomized and the sample size was limited, these results cannot establish superiority of one treatment system over another. Further randomized controlled trials with validated eczema severity scores and long-term follow-up are required.

### **5.6.2. Side Effects, Safety, and Sustainability**

Patients frequently consider safety and long-term tolerability when choosing eczema treatments. Conventional therapies, particularly prolonged or inappropriate use of topical corticosteroids, may raise concerns regarding adverse effects such as skin thinning, although these risks are generally associated with improper use rather than medically supervised treatment (Weidinger et al., 2018).

The present study did not quantitatively assess adverse effects; therefore, conclusions regarding comparative safety between Ayurvedic and conventional medicine should be interpreted cautiously. Although Ayurvedic treatments are traditionally considered holistic and individualized, scientific evaluation of their safety, active components, dosage standardization, and potential interactions remains necessary.

Therefore, future comparative studies should include standardized assessment of treatment-related adverse effects, adherence, cost-effectiveness, and long-term outcomes to determine the sustainability of different therapeutic approaches.

### **5.6.3. Patient Satisfaction and Treatment Challenges**

More than half of the respondents receiving treatment reported inadequate improvement, reflecting persistent unmet needs among eczema patients. Previous studies have shown that inadequate symptom control, treatment dissatisfaction, and persistent disease burden remain major challenges in eczema management (Simpson et al., 2018; Bacci et al., 2021).

Patient satisfaction is influenced not only by clinical improvement but also by expectations, treatment duration, cost, side effects, accessibility, and the psychological burden of living with chronic skin disease. Therefore, effective eczema management requires patient-centered care that considers both medical and psychosocial aspects.

### **5.6.4. Overall Comparative Interpretation**

The findings of this study suggest that conventional and Ayurvedic treatments may have different roles in eczema management rather than being direct substitutes for each other. Conventional medicine appears more suitable for rapid control of acute inflammatory symptoms because of its established anti-inflammatory mechanisms and evidence-based therapeutic approaches. Ayurvedic medicine may provide symptomatic improvement for some individuals, particularly those seeking complementary approaches; however, stronger clinical evidence is required before confirming its comparative effectiveness.

Given the chronic and multifactorial nature of eczema, an integrative management approach combining evidence-based dermatological care with appropriate complementary strategies may be beneficial. Such an approach should emphasize individualized treatment, patient education, trigger avoidance, psychological support, and long-term disease monitoring.

## 6. Conclusion

The present study was conducted to compare the effectiveness of Ayurvedic medicine and Modern (Allopathic) medicine in the management of eczema among 66 respondents in the Chattogram region of Bangladesh. The findings reveal that eczema continues to be a significant chronic dermatological condition that affects individuals physically, socially, psychologically, and economically.

The socio-demographic distribution showed that eczema predominantly affects younger to middle-aged adults, with the majority living in urban settings. A considerable portion of respondents had limited or no regular income, highlighting that eczema imposes a substantial financial strain on affected individuals and families.

Clinically, most participants (75.76%) had been suffering for more than six months, confirming the chronic nature of the disease. Itching the hallmark of eczema was persistent throughout the day for the majority, and symptoms worsened mainly during the summer season. Dietary items such as beef and shrimp/fish were found to be major triggers for itching among half of the respondents.

Regarding treatment efficacy, 63.64% of respondents used modern medicine, while 36.36% used Ayurvedic medicine. However, outcomes indicated that only 9.09% experienced complete improvement through modern medicine, while a large proportion (54.55%) reported no benefit. Ayurvedic treatment resulted in 0% full cure, yet 50% of users achieved partial improvement, suggesting a slower but more holistic relief pattern.

The psychosocial impact of eczema was profound. A large majority experienced sleep disturbance (85.94%), mental stress (81.82%), occupational problems (90.91%), and limitations in daily activities (85.94%). Family history was also significant, with 63.64% reporting eczema in other family members, reinforcing the hereditary component of the condition.

Overall, the study concludes that neither Ayurvedic nor modern medicine provides a complete cure, which is consistent with global dermatological evidence. Modern medicine appears more effective for rapid symptom relief, while Ayurvedic medicine offers gradual, moderate improvement, potentially addressing underlying imbalances described in traditional Ayurvedic texts. An integrative approach combining both systems may therefore offer the most balanced and sustainable management strategy.

## 7. Recommendations

The findings of the present study highlight the need for a comprehensive and patient-centered approach to eczema management among Bangladeshi individuals. Since eczema is a chronic and relapsing inflammatory skin condition, treatment strategies should focus not only on controlling physical symptoms but also on improving psychological well-being, sleep quality, social functioning, and overall quality of life. Healthcare providers should provide appropriate counseling regarding the chronic nature of eczema, adherence to prescribed treatment, regular skin care practices, and avoidance of individual triggers such as environmental factors and dietary allergens. Considering that a considerable proportion of participants experienced financial limitations, efforts should be made to improve access to affordable and evidence-based dermatological services, particularly for economically disadvantaged patients.

Although conventional medicine was more commonly used among participants and provided symptom improvement in some cases, many patients reported inadequate treatment outcomes. Similarly, Ayurvedic treatment demonstrated partial symptomatic improvement among some users; however, its effectiveness requires further scientific evaluation through well-designed clinical studies. Therefore, future comparative studies should include larger sample sizes, randomized controlled designs, standardized treatment protocols, validated eczema severity assessment tools, and long-term follow-up to determine the relative effectiveness, safety, and sustainability of Ayurvedic, conventional, and integrative treatment approaches.

The substantial psychological and social burden observed in this study indicates the importance of incorporating psychosocial support into routine eczema care. Screening for stress, anxiety, sleep disturbance, and social difficulties should be considered as part of comprehensive disease management. A multidisciplinary approach involving dermatologists, primary healthcare providers, mental health professionals, and trained healthcare workers may improve treatment outcomes and patient satisfaction.

Further large-scale multicenter research is recommended to explore the epidemiological characteristics, risk factors, economic burden, treatment preferences, and long-term outcomes of eczema in Bangladesh. Such evidence will support the development of locally appropriate clinical guidelines and improve healthcare strategies for individuals suffering from eczema.

## 8. Limitations of the Study

The present study has several limitations that should be considered when interpreting the findings. First, the study included a relatively small sample size of 66 respondents, which may limit the statistical power and generalizability of the findings to the broader eczema population in Bangladesh. Additionally, data were collected from a single geographical area (Pahartali, Chattogram), and variations in eczema prevalence, healthcare-seeking behavior, environmental exposure, and treatment preferences across other regions may not be reflected. The cross-sectional study design restricted the ability to assess temporal changes, long-term treatment outcomes, or

establish causal relationships between potential risk factors and eczema-related outcomes.

Furthermore, treatment effectiveness was primarily assessed based on participants' self-reported experiences rather than objective clinical evaluation. The study did not include standardized dermatological assessments, validated disease severity scoring systems such as SCORAD or EASI, laboratory investigations, or confirmation of specific allergy triggers. Although Ayurvedic and conventional medicine were compared, variations in medication type, dosage, treatment duration, adherence, and quality of formulations could not be fully controlled. Therefore, the comparative findings should be interpreted cautiously.

The relatively short data collection period (April–July 2025) may have limited assessment of seasonal variations in eczema symptoms. Moreover, the exclusion of children, who represent a major proportion of eczema cases globally, restricts the understanding of disease patterns across different age groups. Psychological impacts such as stress, anxiety, depression, and sleep disturbance were assessed through self-reported information without the use of validated assessment tools. Finally, some potential confounding factors, including environmental exposures, personal hygiene practices, moisturizer use, occupational irritants, climatic conditions, and genetic predisposition, were not evaluated. Future multicenter longitudinal studies with larger samples, objective clinical assessments, standardized treatment protocols, and comprehensive evaluation of confounding factors are recommended to provide stronger evidence regarding the comparative effectiveness of Ayurvedic and conventional approaches for eczema management.

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