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MANAGEMENT AND OUTCOME OF ATOPIC DERMATITIS IN PRIMARY HEALTH CARE IN LOW INCOME COUNTRIES : A SYSTEMATIC REVIEW

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ABSTRACT

Background: *Atopic dermatitis is a chronic inflammatory skin disorder that is complicated and recurring. It usually first appears in early childhood and might persist throughout maturity.*

Aims : *This systematic review is to review the management and outcome of atopic dermatitis in primary health care in low income countries.*

Methods: *This study demonstrated compliance with all requirements by means of a comparison with the standards established by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020. Thus, the specialists were able to guarantee that the research was as current as feasible. Publications released between 2014 and 2024 were considered for this search strategy. This was accomplished by utilizing a number of distinct online reference sites, including Pubmed, ScienceDirect, and SagePub. It was determined that reviews, previously published works, and partially completed works would not be included.*

Result: *In the PubMed database, the results of our search brought up 539 articles, whereas the results of our search on SCIENCE DIRECT brought up 9.462 articles, our search on SAGEPUB brought up 1.264 articles. The results of the search conducted for the last year of 2014 yielded a total 425 articles for PubMed, 5.474 articles for SCIENCE DIRECT and 613 articles for SAGEPUB. In the end, we compiled a total of 5 papers, 3 of which came from PubMed, 1 of which came from SCIENCE DIRECT and 1 of which came from SAGEPUB. We included five research that met the criteria.*

Conclusion: *In summary, atopic dermatitis is still a major global public health problem, especially for women and young children as well as in high-income nations. It is important to recognize the profound effects on patients, their families, and economies as well as the financial ramifications.*

Keyword: *Dermatitis atopic, primary health care, management, outcome*

INTRODUCTION

Atopic dermatitis (AD), sometimes referred to as atopic eczema, is a persistent, itchy, chronic, inflammatory skin illness that is systemic and often linked with other atopic systemic disorders such food allergies, asthma, and allergic rhinitis. The majority of AD cases worldwide are found in children under the age of five. Early diagnosis and rapid treatment are critical to reducing AD issues and improving quality of life (QoL). AD affects 15-20% of children and 2-10% of young adults; it is most prevalent in these age groups. Emerging economies, such those in Africa and the Middle East, have shown an increase in the prevalence of AD.[1]

There are significant variations in frequency between nations. For instance, adult AD prevalence was 2.1% in Japan and 4.9% in the United States. Some nations, like Sweden, have as high as a 20% childhood AD prevalence. Even though AD is occasionally thought to be rather innocuous, children who have AD often have a lower quality of life compared to those who have other major chronic conditions including renal disease and cystic fibrosis. AD patients and their family may have severe negative consequences that affect social, intellectual, professional, and economical facets of their life.[2,3]

While AD was the third most frequent dermatologic disorder (2.79%) in comparison to other major dermatoses, it was the leading cause of DALYs (0.36%) among skin dermatoses in 2017. Global DALYs from AD grew from 0.27% in 1990 to 0.36% in 2017, despite the fact that the prevalence actually fell from 3.01% in 1990 to 2.79% in 2017. Nonetheless, research has indicated a rising incidence in a number of nations, particularly emerging nations like Algeria, Kenya, and Chile. AD is linked to a number of illnesses, including obesity, cardiovascular disease, and psychological disorders like anxiety and depression, in addition to atopic ailments like allergies and asthma. This shows that AD, with its severe physical and psychological deficits, may be regarded as a chronic systemic condition.[4,5]

A number of intricate genetic, immunological, and environmental risk factors are involved in the etiology of AD. The two main pathophysiological features of the illness are inflammatory conditions in the cutaneous area and structural and functional problems in the epidermal region. These abnormalities are caused by inadequate immune responses produced against antigens that have infiltrated the skin. Additionally, AD lesions have higher concentrations of Th2 cells, which are the origins of localized inflammation.[6]

Significant differences in the frequency within and across nations (such as the urban-rural gradient of illness) point to environmental variables as the primary determinants of changing disease burden in addition to genetic factors. Various environmental risk factors have been postulated, including but not limited to climate, urban vs rural settings, food, nursing, weaning timing, obesity, physical activity, tobacco smoke, and pollution.[7]

According to the "revised" hygiene hypothesis, there is a greater risk of allergy illness due to the reduction in early childhood exposure to common diseases (such hepatitis) and, consequently, any microbial exposure. Some facts, such as the fact that the youngest sibling has the lowest risk of AD or that the risk of AD is lower in newborns receiving day care during their first year of life, have provided evidence in favor of this theory on AD. Within cohorts, the impact of a farm setting has also been the subject of much research. The findings indicated that, rather than being raised on a farm, what appeared to be protective was drinking unpasteurized farm milk for the first two years of life and having direct contact with farm animals when pregnant.[8]

The primary pathophysiologic features of AD lesions include increased epidermal thickness with sprouting nerve fibers, increased generation of immunostimulatory chemokines, and substantial infiltration.[9]

It was once thought to be a childhood illness caused by an imbalance in the T-helper-2 response and overactive IgE reactions to allergens, but today it is understood to be a lifelong disposition with a variety of clinical symptoms and expressivity, with abnormalities of the epidermal barrier playing a key role. The goal of current prevention and therapy is to restore the function of the epidermal barrier, which can best be done by using emollients. In addition to being used proactively in conjunction with topical calcineurin inhibitors to maintain remission, topical corticosteroids are still the first-line treatment for acute flares. Although tailored disease-modifying therapies are being developed, severe refractory patients are being treated with non-specific immunosuppressive medications[10]

Along with other conditions such food allergies, allergic rhinitis, allergic conjunctivitis, asthma, and bacterial, fungal, and viral skin infections, AD is characterized by incapacitating signs and symptoms. Clinical signs of AD include xerosis (dryness), widespread erythematous patches, excoriated, leaky papulovesicular, and lichenified plaques with persistent lesions, discomfort, and itching. Severe AD impairs a patient's quality of life (QoL) due to symptoms such as infrequent sleep disruptions, pain, discomfort, anxiety, sadness, and limits in everyday duties including movement and self-care.[11]

All aspects of the disease, including clinical symptoms and patient quality of life, need to be addressed in order to control and treat AD. Since AD is highly prevalent in children worldwide, primary care providers (PCPs), such as pediatricians and general practitioners, are often in charge of managing the condition; however, PCPs report having received insufficient

training on AD during residency. Some research has been done on the management of asthma, a common atopic condition with a variety of therapeutic facets, but little is known about how PCPs handle juvenile AD.[12]

METHODS

Protocol

The author of this study ensured that it complied with the standards by adhering to Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 guidelines. This is done to guarantee the accuracy of the results that are derived from the investigation. Thus, the specialists were able to guarantee that the research was as current as feasible. Publications released between 2014 and 2024 were considered for this search strategy. This was accomplished by utilizing a number of distinct online reference sites, including Pubmed, ScienceDirect, and SagePub. It was determined that reviews, previously published works, and partially completed works would not be included.

Criteria for Eligibility

In order to completse this literature evaluation, we looked at published research that discusses the management and outcome of atopic dermatitis in primary health care in low income countries.This is done to enhance the patient's therapy management and to offer an explanation. This paper's primary goal is to demonstrate the applicability of the issues that have been noted overall.

To be eligible to participate in the study, researchers had to meet the following requirements: 1) English must be used to write the paper. The manuscript must fulfill both of these conditions in order to be considered for publication. 2) A few of the examined studies were released after 2013 but prior to the time frame considered relevant by this systematic review. Editorials, submissions without a DOI, already published review articles, and entries that are nearly exact replicas of journal papers that have already been published are a few examples of research that are prohibited.

Search Strategy

We used "dermatitis atopic" and "primary health care" out using the PubMed and SAGEPUB databases by inputting the words: ((("dermatitis, atopic"[MeSH Terms] OR ("dermatitis"[All Fields] AND "atopic"[All Fields]) OR "atopic dermatitis"[All Fields] OR ("atopic"[All Fields] AND "dermatitis"[All Fields])) AND ("primary health care"[MeSH Terms] OR ("primary"[All Fields] AND "health"[All Fields] AND "care"[All Fields]) OR "primary health care"[All Fields]) AND ("developing countries"[MeSH Terms] OR ("developing"[All Fields] AND "countries"[All Fields]) OR "developing countries"[All Fields] OR ("low"[All Fields] AND "income"[All Fields] AND "countries"[All Fields]) OR "low income countries"[All Fields])) AND (controlledclinicaltrial[Filter]) used in searching the literature.

Data retrieval

After reading the abstract and the title of each study, the writers performed an examination to determine whether or not the study satisfied the inclusion criteria. The writers then decided which previous research they wanted to utilise as sources for their article and selected those studies. After looking at a number of different research, which all seemed to point to the same trend, this conclusion was drawn. All submissions need to be written in English and can't have been seen anywhere else.

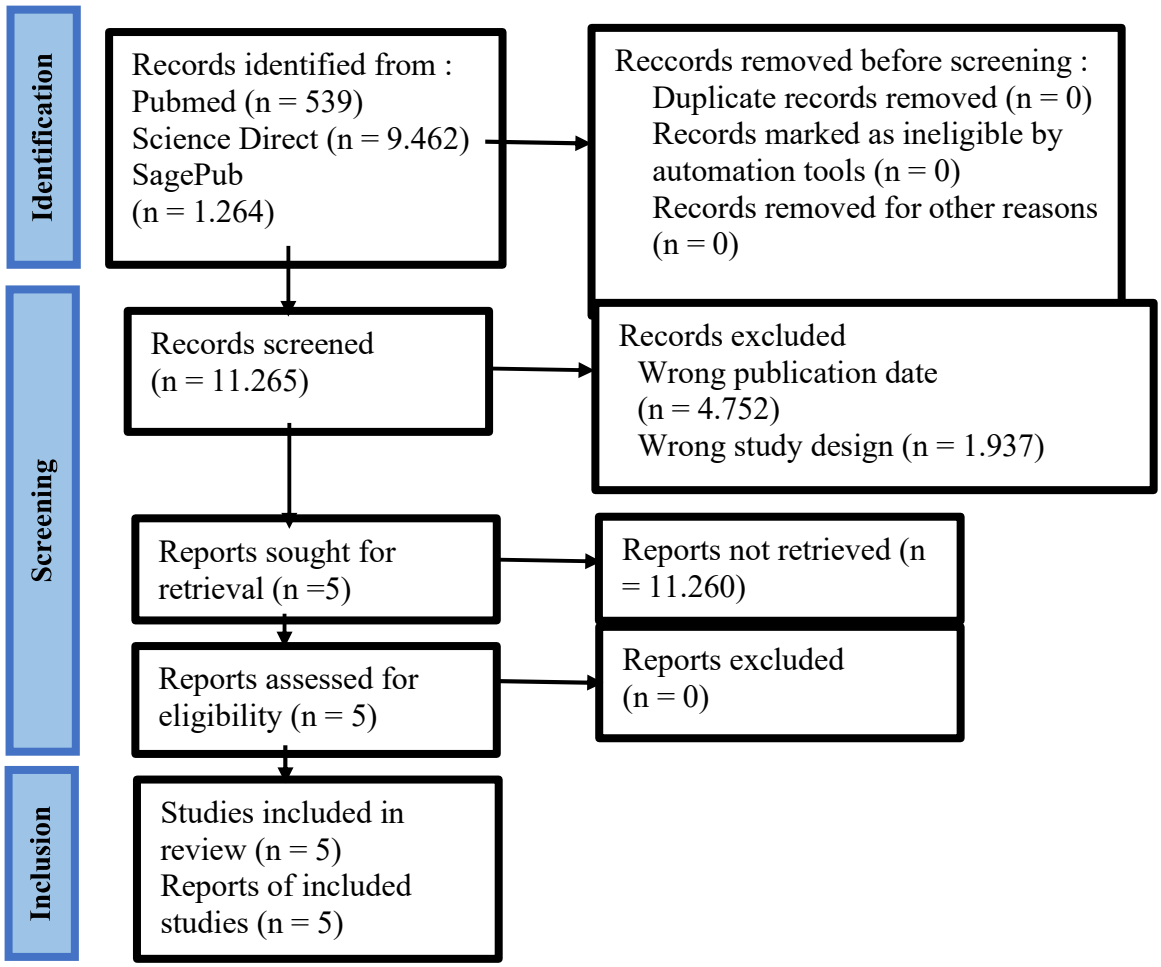

Figure 1. Prisma Flow Diagram

Only those papers that were able to satisfy all of the inclusion criteria were taken into consideration for the systematic review. This reduces the number of results to only those that are pertinent to the search. We do not take into consideration the conclusions of any study that does not satisfy our requirements. After this, the findings of the research will be analysed in great detail. The following pieces of information were uncovered as a result of the inquiry that was carried out for the purpose of this study: names, authors, publication dates, location, study activities, and parameters.

Quality Assessment and Data Synthesis

Each author did their own study on the research that was included in the publication's title and abstract before making a decision about which publications to explore further. The next step will be to evaluate all of the articles that are suitable for inclusion in the review because they match the criteria set forth for that purpose in the review. After that, we'll determine which articles to include in the review depending on the findings that we've uncovered. This criteria is utilised in the process of selecting papers for further assessment. in order to simplify the process as much as feasible when selecting papers to evaluate. Which earlier investigations were carried out, and what elements of those studies made it appropriate to include them in the review, are being discussed here.

RESULT

In the PubMed database, the results of our search brought up 539 articles, whereas the results of our search on SCIENCE DIRECT brought up 9.462 articles, our search on SAGEPUB brought up 1.264 articles. The results of the search conducted for the last year of 2014 yielded a total 425 articles for PubMed, 5.474 articles for SCIENCE DIRECT and 613 articles for SAGEPUB. In the end, we compiled a total of 5 papers, 3 of which came from PubMed, 1 of which came from SCIENCE DIRECT and 1 of which came from SAGEPUB. We included five research that met the criteria.

Table 1. The litelature include in this study

Author	Origin	Method	Sample	Result

Rea et al, 2018[13]	USA	Randomized controlled trial	211 patients	The clinicians in the intervention group were more likely to suggest wet wraps (50%) vs. 7%; P <.001, bleach baths (45%) vs. 9%; P <.001, and a thorough "step-up" plan (88%) vs. 28%; P <.001. Additionally, they were more likely to record giving families a written plan (80%) vs 2%; P <.001. Between the pre- and postintervention periods, there was an improvement in the control group's QOL and the severity of their eczema. On neither measure, though, was there a substantial difference between the groups: Differences in POEM (-0.8, 95% CI -3.2 to 1.7); IDQOL (-0.1, 95% CI -1.8 to 1.6); and CDLQI (-0.8, 95% CI -0.9 to 2.6) are reported.
Hammer-Helmich et al, 2018[14]	Denmark	Cross sectional randomzied study	9.720 patients	As children grew older, the incidence of both hay fever and asthma increased. For example, hay fever prevalence rose from 3.1% in children ages 3 to 21.3% in children ages 15, while asthma prevalence climbed from 3.2% in children ages 3 to 15.4% in children ages 15. The frequency of atopic eczema varied between 15.5% and 17.8% and was not age-related. The odds ratios for asthma, hay fever, and atopic eczema were 1.50 (95% CI = 1.17-1.91), 1.68 (95% CI = 1.35-2.10), and 0.75 (95% CI = 0.64-0.89) for children whose parents had the lowest vs. highest educational level, respectively. A substantial correlation was found between unemployment and a lower incidence of atopic eczema and its symptoms. Among all the outcomes, there was no significant correlation found in the data regarding household income.
Abdullah et al, 2023[15]	Malaysia	Cross sectional study	211 patients	A total of 141 controls and 70 patients were enlisted. The patients' age ranged from 5 to 4 years, with a median age of 5. In comparison to controls, patients had later sleep time ($p < 0.001$), longer night awakenings ($p < 0.001$), and lower sleep duration ($p < 0.001$). Patients' CSHQ total

				scores and all of its domains—aside from sleep-disordered breathing—were much higher than those of controls. Additionally, patients scored much higher on the SDQ overall difficulties in every category but peer issues. High CSHQ and SDQ scores were substantially correlated with the severity of AD. The overall CSHQ score and the total SDQ score in patients showed a somewhat good connection (r = 0.532).
Nagata et al, 2021[16]	Bangladesh	Cross sectional study	184 patients	The Eczema Area and Severity Index (EASI), Dermatology Life Quality Index (DLQI), and a structured questionnaire were used to collect data on patient characteristics, the severity of AD, and HRQoL. The overall sample's mean DLQI score was 11.29 ± 5.27 (range: 1-26) and 51.60% of respondents said the illness had a significant impact on their life. Significant variations in self-rated health indicators of DLQI scores were found by bivariate analysis for the EASI, general health, and self-reported AD severity. The self-perceived severe AD group reported substantially higher DLQI scores (coefficient = 2.72; 95% confidence interval (CI) = 0.38-5.05; p = 0.022) than the mild group in multivariable regression models adjusted for patient variables.
Stuart et al, 2018[17]	United Kingdom	Randomized controlled trial	482 patients	89.0% of the 422 individuals that were recruited for the experiment chose to complete the measures online. During the course of the 16-week period, 83% of the data points were obtained online, and there was no correlation found between the completeness of the data and sociodemographic traits. During a 16-week period, 276 (48%) and 341 (79%) of the participants completed their weekly data at least 80% of the time. 13.3 out of 16 weeks have been completed on average (SD 4.2).

Rea, et al[13] (2018) showed that compared to control group clinicians, intervention group providers reported more thorough eczema care. During the postintervention period, patients showed improvement on all metrics, but the ECP did not enhance that progress.

Hammer-Helmich, et al[14] (2014) showed that as people aged, hay fever and asthma became more common, but atopic eczema did not. While asthma and hay fever were linked to low educational levels, atopic eczema was connected with high parental education levels. There was no correlation discovered with household income.

Abdullah, et al[15] (2023) showed that compared to their healthy classmates, children with moderate-to-severe AD had noticeably more behavioral issues and sleep disturbances. Behavioral issues were positively correlated with sleep disturbances. Behavioral issues and sleep disturbances were linked to the severity of AD.

Nagata, et al[16] (2021) showed that simultaneously, we found that patients with moderate and severe EASI scores had significantly higher DLQI ratings than patients with mild EASI scores, indicating that higher AD severity had a noticeable impact on HRQoL. These results emphasize the necessity of managing AD with a more patient-centric strategy in order to reduce patient suffering and enhance HRQoL.

Stuart, et al[17] (2018) showed that high data completeness levels in this sample imply that weekly completion of the online questionnaire is manageable and doable over a 16-week duration.

DISCUSSION

Atopic dermatitis is a chronic inflammatory skin disorder that is complicated and recurring. It usually first appears in early childhood and might persist throughout maturity. Evidence-based clinical practice standards are essential for effective and secure healthcare. It is unclear if primary care physicians (PCPs) should adhere to national guidelines for managing instances of atopic dermatitis in adults and children. Hammer-Helmich, et al in their study with patients that linked on demographic, socioeconomic position employment and income showed that a substantial correlation was found between unemployment and a lower incidence of atopic eczema and its symptoms. Among all the outcomes, there was no significant correlation found in the data regarding household income.[14]

Rea, et al in their study with 211 patients that completed the pre and post intervention surveys with 100 of control group and 111 in intervention group, showed that the degree of eczema and quality of life both improved before and after the intervention. On neither measure, though, was there a substantial difference between the groups: Differences in POEM (-0.8, 95% CI -3.2 to 1.7); IDQOL (-0.1, 95% CI -1.8 to 1.6); and CDLQI (-0.8, 95% CI -0.9 to 2.6) are reported. During the postintervention period, patients showed improvement on all metrics, but the ECP did not enhance that progress.[13]

Children with atopic dermatitis (AD) may experience sleep disturbances that are not recognized and may be linked to behavioral issues. Patients had significantly higher total scores on the Children's Sleep Habits Questionnaire (CSHQ) than controls did on all of its dimensions, with the exception of sleep-disordered breathing. Additionally, patients scored much higher on the SDQ overall difficulties in every category but peer issues. High CSHQ and SDQ scores were substantially correlated with the severity of AD. The overall CSHQ score and the total SDQ score in patients showed a somewhat favorable connection.[15]

All age groups are affected by the most common non-fatal skin illness, which is atopic dermatitis (AD). In Bangladesh and other low- and middle-income nations, the physiological effects of AD are still little understood, despite the disease's rising incidence. Thus, our goal is to evaluate and define how AD affects Bangladeshi patients' health-related quality of life (HRQoL). These results emphasize the necessity of managing AD with a more patient-centric strategy in order to reduce patient suffering and enhance HRQoL.[16]

Results as reported by patients Clinical trial measures make ensuring that essential patient outcomes are the focus of efficacy assessments. Repeated assessments may provide a more accurate picture of the disease load and treatment efficacy than less frequent measures in relapsing-remitting disorders like eczema. Respondents acknowledged understanding the purpose of the weekly collection, and several expressed gratitude for this as it made it easier for them to see how their child's eczema evolved on a weekly basis. Weekly surveys were described as burdensome by some respondents, but they were described as quick and simple by others. We appreciated the reminders. Reminders by phone tended to be well-received by parents/caregivers, and it was helpful in eliciting issues with trial medicine acquisition or password issues for online data gathering.[17]

CONCLUSION

In summary, atopic dermatitis is still a major global public health problem, especially for women and young children as well as in high-income nations. It is important to recognize the profound effects on patients, their families, and economies as well as the financial ramifications.

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