Mapping Research Evidence on Children With Atopic Dermatitis and Quality of Life in Sub-saharan Africa: a Scoping Review Protocol

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Protocol

Keywords: y, Eczema, Inflammatory skin diseases, Paediatrics, Research evidence

Posted Date: June 16th, 2021

DOI: https://doi.org/10.21203/rs.3.rs-617015/v1

Abstract

Background: Atopic dermatitis (AD) is a chronic, debilitating disease affecting children worldwide. Several studies have explored the disease causes a significant problem leading to a diminished quality of life, for the affected children but systematic evaluation of such studies in Africa is yet to be reported. Therefore, this scoping review aims to map research evidence on children with AD and their quality of life (QoL) in sub-Saharan Africa.

Methods: The scoping review will follow the Arksey and O'Mally methodological framework. The electronic databases to be searched will include: PubMed, EBSCOhost (Academic search complete, CINAHL PsycINFO, and Health Sources), Scopus, and Google Scholar for published literature between 2000 and 2021. Only literature written in English will be included. The search strategy for the databases will include keywords, Medical Subject Headings terms and Boolean operators. The reference list of the included sources of evidence, and the WHO website will also be consulted for evidence relating to QoL of children with AD in Sab-Saharan Africa (SSA). Following title searching, two independent reviewers will conduct screening of abstracts and full text articles. Eligibility criteria will guide the screenings. This review will include studies conducted in SSA, publication focusing on quality of life and associated factors of AD in children. Data will be extracted from the included studies, analyzed qualitatively; NVIVO software V.11 will be usedand the emerging themes reported narratively. The mixed-method appraisal tool (MMAT) will be employed for quality appraisal of included studies.

Discussion: We look forward to findings of several studies that describe the QoL and associated factors among children with AD and that report on using different diagnostic criteria, severity scaling and QoL measuring scale tools used to ascertain the presence of AD, scale severity of AD and impact of AD on quality of life among children. The study findings will be disseminated through publication in a peer-reviewed journal, peer presentations, and presentations at relevant conferences.

Background

Atopic Dermatitis (AD) is a chronic, intensely itchy inflammatory skin disease that starts in childhood. It is a debilitating disease that affects up to 25% of children and 3% of adults, but varies significantly on a global scale (1, 2). While the prevalence of AD in Africa and Middle Eastern countries has generally been lower than in Europe and North America, recent trends show an increasing AD prevalence in developing countries (3, 4). Worldwide prevalence of AD for 6- to 7-year-old children was 14.2%. Also, the prevalence in age between 13 to 14 years was reportedly moderate in the eastern Mediterranean (10.8%) and Africa (15.2%) in comparison to the global prevalence of 12.8% for children in this age group. The prevalence of AD among children in different African countries Nigeria and Ethiopia (respectively 7.8% and 9.6%) varies greatly (5, 6).

AD is a multifactorial disease, and studies suggest that the development of AD may be linked to genetic susceptibility, environmental and lifestyle factors (7). The main clinical feature of AD includes intractable

itching, eczematous skin lesion that can be acute (erythema, vesicular eruption), sub-acute (ill-defined weepy crusted plaques), or chronic (well defined dry lichenified plaques) and age of onset, xerosis, family history of atopy are some of essential features of AD (8). AD is diagnosed based on a clinical presentation using standardized diagnostic criteria in the absence of any definitive laboratory test to diagnose the condition.

Treatment for AD includes frequent application emollients, avoidance of irritating factors education on the progress of the diseases and application of topical steroids which can be complicated, uncomfortable, and stressful for children, their families, or caregivers. Not only does AD increase the financial burden on the family but it is also closely associated with asthma and allergic rhinitis and results in significant morbidity, leading to school absenteeism and emotional stress in children (11). Studies have reported how AD influences the quality of life of children and their families or caregivers (11). Sleep deprivation, irritability, anxiety, poor school performance, diminished self-esteem, and psychological disorder can be experienced by children with AD (12, 13). As for their families or caregivers, studies have reported substantially greater levels of anxiety and depression due to sleep disturbance and absence from work, (12)

Quality of Life (QoL) is defined as "the individual's perception of their position in life in the context of culture and value systems in which they live concerning their goals, expectations, standards, and concerns" (14). Health-related quality of life (HRQoL) measures the quality of life only in the context of the patient's medical condition. In general, QoL comprehends impact on living circumstances, family life, and school functioning (15). Studies conducted in Western, European, and Asian countries confirmed the correlation between the severity of AD with QoL of the affected child and their families (5, 6, 11). There is, however, limited data on the QoL of AD in the African setting. It is, therefore, necessary to assess the QoL in children with AD and identify the factors that affect QoL to improve efficient treatment and understand the factors that negatively impact AD in SSA countries. Therefore, this scoping review aims to map research evidence on QoL and associated factors of AD in children in this region. It is anticipated that the review will reveal literature gaps and guide future research to inform policy-decisions in sub-Saharan Africa.

Methodology

This scoping review will constitute the first part of a large-scale study to investigate the Quality of Life in AD in children in Ethiopia. The scoping review method will allow us to systematically map literature and describe existing research relating to AD in children in SSA. Aside from this, it will enable us to identify literature gaps, and inform subsequent systematic review and primary study questions on AD in children. The scoping review will follow the steps outlined by Arksey and O'Malley(16) and Levac et. al. (17) that included the following;

1. Identifying the research question
2. Identifying relevant studies

3. Study selection
4. Charting the data
5. Collating, summarizing, and reporting on the data.

Identifying the research question

The main research question that this scoping review will address is: What research evidence exists on children (age 0 to 15 years) with atopic dermatitis and their quality of life within the last twenty years in SSA?

1. What research evidence exists on the QoL in children with AD?
2. What research evidence is available on the associated/contributory factors that impact on QoL of children with AD?
3. What instruments or assessment tools are available for assessing the QoL of children with AD?

Eligibility criteria

Table 1 presents this review's eligibility criteria as part of the Population, Concept, Context (PCC) framework defining the review question.

Table 1: The PCC framework

Criteria	Include	Exclude
Population	Children (aged from 0 to 15 years) with AD	Adolescents older than 15 years.
Concepts	QoL (Sleep disturbance, itching, mood change, emotional distress, Irritability, poor self-esteem), associated or contributory factors, and QoL assessment tools/instruments	QoL of children living with HIV/AIDS, nutritional conditions, and chronic and acute illness that has no relations to AD
Context	Sub-Saharan Africa (Countries within the World Health Organisation Africa Region).	
Study design	Primary studies, systematic reviews, and QoL assessment tools	Abstracts without full text, Editorials, Expert opinions/reviews
Time frame	Within twenty years (from 2000 to 2021)	
Publications language	English	

Identifying relevant evidence sources

Searches will be conducted on PubMed, EBSCOhost (Academic search complete, CINAHL with full text, PsycINFO, and Health Sources), Scopus, and Google Scholar from 2000 to 2021 for relevant published evidence sources to answer the review question. The search will employ keywords, Boolean terms ("AND" and "OR"), and medical subject headings to develop a comprehensive search strategy (Table 1). The syntax will be modified where needed. The team will also use the services of an experienced subject librarian to ensure that a robust review search strategy is followed. Limitations on study design and language will be removed during the search. The search records will be documented appropriately. That is search date, database, keywords, search results, and count of eligible articles. To guide the electronic search strategy, the PRESS (Peer Review of Electronic Search Strategies) statement will be used. The reference list of the included sources of evidence, and the WHO website will also be consulted for evidence relating to QoL of children with AD in SSA. To compile all relevant evidence sources, identify and remove duplicate records, we will use the EndNote X9 reference manager. AGK will search for the evidence sources assisted by the review team and import them onto an EndNote library created for this review.

Table 2: Pilot search to be conducted

Keywords searched	Date of search	Electronic database	Number of studies retrieved
((((("dermatitis, atopic"[MeSH Terms] OR "atopic dermatitis"[All Fields] OR "atopic eczema"[All Fields] OR "dermatitis, atopic"[MeSH Terms]) AND ("child"[MeSH Terms] OR "child"[All Fields] OR "children"[All Fields] OR "child s"[All Fields] OR "children s"[All Fields] OR "childrens"[All Fields] OR "childs"[All Fields])) OR ("paediatrics"[All Fields] OR "pediatrics"[MeSH Terms] OR "pediatrics"[All Fields] OR "paediatric"[All Fields] OR "pediatric"[All Fields]) OR ("paediatrics"[All Fields] OR "pediatrics"[MeSH Terms] OR "pediatrics"[All Fields] OR "paediatric"[All Fields] OR "pediatric"[All Fields]) OR ("adolescences"[All Fields] OR "adolescency"[All Fields] OR "adolescent"[MeSH Terms] OR "adolescent"[All Fields] OR "adolescence"[All Fields] OR "adolescents"[All Fields] OR "adolescent s"[All Fields])) AND ("africa south of the sahara"[MeSH Terms] OR "africa south of the sahara"[All Fields] OR "sub saharan africa"[All Fields] OR "sub saharan africa"[All Fields] OR "africa"[MeSH Terms] OR "africa"[All Fields] OR "Angola"[All Fields] OR "Benin"[All Fields] OR "Botswana"[All Fields] OR "Burkina Faso"[All Fields] OR "Burundi"[All Fields] OR "Cameroon"[All Fields] OR "Cape Verde"[All Fields] OR "Central African Republic"[All Fields] OR "Chad"[All Fields] OR "Comoros"[All Fields] OR "Congo"[All Fields] OR "Cote d'Ivoire"[All Fields] OR "Djibouti"[All Fields] OR "Equatorial Guinea"[All Fields] OR "Eritrea"[All Fields] OR "Ethiopia"[All Fields] OR "Gabon"[All Fields] OR "The Gambia"[All Fields] OR "Ghana"[All Fields] OR "Guinea"[All Fields] OR "Guinea-Bissau"[All Fields] OR "Kenya"[All Fields] OR "Lesotho"[All Fields] OR "Liberia"[All Fields] OR "Madagascar"[All Fields] OR "Malawi"[All Fields] OR "Mali"[All Fields] OR "Mauritania"[All Fields] OR "Mauritius"[All Fields] OR "Mozambique"[All Fields] OR "Namibia"[All Fields] OR "Niger"[All Fields] OR "Nigeria"[All Fields] OR "Reunion"[All Fields] OR "Rwanda"[All Fields] OR "Sao Tome and Principe"[All Fields] OR "Senegal"[All Fields] OR "Seychelles"[All Fields] OR "Sierra Leone"[All Fields] OR "Somalia"[All Fields] OR "South Africa"[All Fields] OR "Sudan"[All Fields] OR "Swaziland"[All Fields] OR "Tanzania"[All Fields] OR "Togo"[All Fields] OR "Uganda"[All Fields] OR "Western Sahara"[All Fields] OR "Zambia"[All Fields] OR "Zimbabwe"[All Fields])) AND ((clinicaltrial[Filter] OR comparativestudy[Filter] OR meta-analysis[Filter] OR observationalstudy[Filter] OR randomizedcontrolledtrial[Filter] OR systematicreview[Filter]) AND (humans[Filter]) AND (2010/1/1:2021/4/20[pdat]))	20/02/2021	PubMed	7,394

Selection of evidence source

Following the compilation of all evidence sources, the EndNote library will be cleaned by deleting all duplicate records. All tools or forms that will be used for the selection of the evidence sources will be piloted tested, and the needed amendments made to ensure their accuracy and reliability. Subsequently,

the EndNote library will be shared among the review team. To reduce selection bias, two reviewers will conduct the title and abstract, and the full-text article screening independently. Guided by this scoping review eligibility criteria, the evidence sources will be sorted into either "include" or "exclude" group by two independent reviewers. At the abstract stage, discrepancies that may arise will be discussed by the review team until a consensus is reached. A third reviewer will address at the full-text screening stage. The University of KwaZulu-Natal library services will be used to retrieve all full-text articles with closed access publications. Also, we will send emails to the original authors for e-copies of relevant full-text articles if needed. The various stages of the evidence sources selection will be appropriately documented using the PRISMA flow diagram (Figure 1).

Charting the data

A data charting form will be used to electronically capture relevant information from each included study. The extracted data will include the following fields (Table 3). The data extraction form will be piloted for consistency and reliability by two reviewers independently and amend if needed to ensure extraction of all relevant data.

Table 3: Data charting form

Author and publication year
Title of study
Type of study
Aim of study
Study setting (country); site
Study design
QoL study
Characteristics of the study population (Age; gender
AD assessment tool
Most relevant findings (Severity, sleep, social factors, poor self-esteem)
Therapy
Conclusion and/recommendations

Collating, summarizing, and reporting the results

A narrative report will be produced to summarize the extracted data around the following outcomes: region of study, clinical severity and quality of life measuring tools, quality of life of children with AD.

However, Tables and graphs will be used to present the study characteristics if essential. Thematic analyses will be used to collate, summarise and report the results in the context of the overall study purpose. The authors will read and reread the articles thoroughly noting down the initial ideas to find codes. Coding interesting features of the data systematically across the entire articles and collating data relevant to each code will be done. We will develop the codes into potential themes. The description of the coding tree and thematic content analysis will be used to analyze the data. Data related to the quality of life and AD severity scoring tools, factors related to the quality of life, and quality of life children with AD will be extracted and coded. The analysis process will use the following steps (1) Coding data from the selected articles, (2) categorizing the codes into themes, (3) displaying the data, (4) identifying key patterns in the data, and identifying sub-themes, (5) summarizing and synthesizing.

Quality Appraisal

The Mixed Method Appraisal Tool (MMAT) (20), will be adapted to assess the quality of the included primary studies. This scoping review will include study designs of qualitative, quantitative descriptive, and mixed methods studies. The specific criteria to determine the appropriateness of each included study are outlined in Appendix.

Two (AGK and WE) reviewers will retrieve data and go through assign a scores to assess each article that will assess the appropriateness of the study aims and its relevance for inclusion based on selected review criteria and then AM can verify and go through any that do not correlate and come to final list.. The overall quality for each included study will be calculated according to the following MMAT guidelines (score = number of criteria met/total score in each domain). 1 point will be given for each question and a total score out of 5 will be calculated. This will be represented as a percentage that correlates to the quality of the included studies. (Table 4) The results will use the following descriptors.

Table 4: The percentage correlates to the quality of the included studies.

Verbal Classification/rating	Description	Quality Score
Very poor	Only 1 of the 5 criteria are met	20%
Poor quality	Only 2 of the stipulated criteria are met	40%
Fair quality	Three of the 5 criteria are met	60%
Good quality	Four of the five criteria are met	80%
Excellent quality	All five criteria are met	100%

Discussion

Efficient treatment, QoL measurement in children with AD, and identification of factors that affect QoL are important for clinicians to understand that they are striving to reduce the negative impact of AD. Measuring the impact of skin disease on children is vital for clinical, case management, follow-up,

research, and audit reasons, and can guide the management and inform decisions in resource allocation during policy development (21, 22). Quality of Life (Q.O.L) measures have been studied to evaluate outcomes for children with chronic health conditions. It is also a good index to monitor patient progress and response to provided treatment (23). Parents of affected children report social difficulties and feelings of worry, guilt, blame, and frustration due to their child's skin disorder (7, 24). In most developed countries the QoL among children with AD was well researched(6, 11), and a certain limited research in the context of Africa countries. Studies for eg. in South Africa and Uganda reveals that AD has an impact on physical discomfort, low self-esteem, emotional and social isolation to children and families (25, 26).

A scoping review of the literature related to evidence related to quality of life of children with AD, factors that influence QoL, and quality of life measurement tools may help to inform future research to improve clinical practice and the QoL of children with AD in SSA.

Abbreviations

AD: Atopic Dermatitis

QoL: Quality of Life

Declarations

Ethics approval and consent to participate

Ethical approval is secured from a Biomedical Research Ethics Committee (BREC) (with protocol reference number BREC/00010720/2020) University of KwaZulu-Natal

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable

Availability of data and materials

We have duly cited all studies, and data is presented in a form of references.

Funding

Not Applicable

Authors' contributions

AGK conceptualized the study and wrote the protocol. WE, AM and JMW contributed to the writing and critically reviewed the draft protocol. AGK wrote the final manuscript, and all authors approved the final draft.

Acknowledgements

We are most grateful to Dr. Desmond Kuupiel for providing expert guidance on the study method and critically reviewing this manuscript. Also, we are thankful to the school of Medicine, University of KwaZulu-Natal, for providing us with essential research resources to complete this study protocol. We would also like to thank the staff of the Department of Dermatology, University of KwaZulu-Natal, for their diverse support.

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Appendix

Appendix I

Selection of MMAT questions: Specific criteria to determine the appropriateness for inclusion of each study

Qualitative, quantitative descriptive, and mixed methods study.The methodological quality criteria applied to evaluate qualitative studies included the following:

1. Is the qualitative approach appropriate to answer the research question?

2. Are the qualitative data collection methods adequate to address the research question?

3. Are the findings adequately derived from the data?

4. Do data sufficiently substantiate the interpretation of results?

5. Is there coherence between qualitative data sources, collection, analysis and interpretation?

The criteria to evaluate quantitative descriptive studies include the following:

1. Is the sampling strategy relevant to address the research question?

2. Is the sample representative of the target population?

3. Are the measurements appropriate?

4. Is the risk of non-response bias low?

5. Is the statistical analysis appropriate to answer the research question?

The criteria to evaluate mixed methods studies include the following:

1. Is there an adequate rationale for using a mixed-method design to address the research question?

2. Are the different components of the study effectively integrated to answer the research question?

3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?

4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?

5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?

Figures

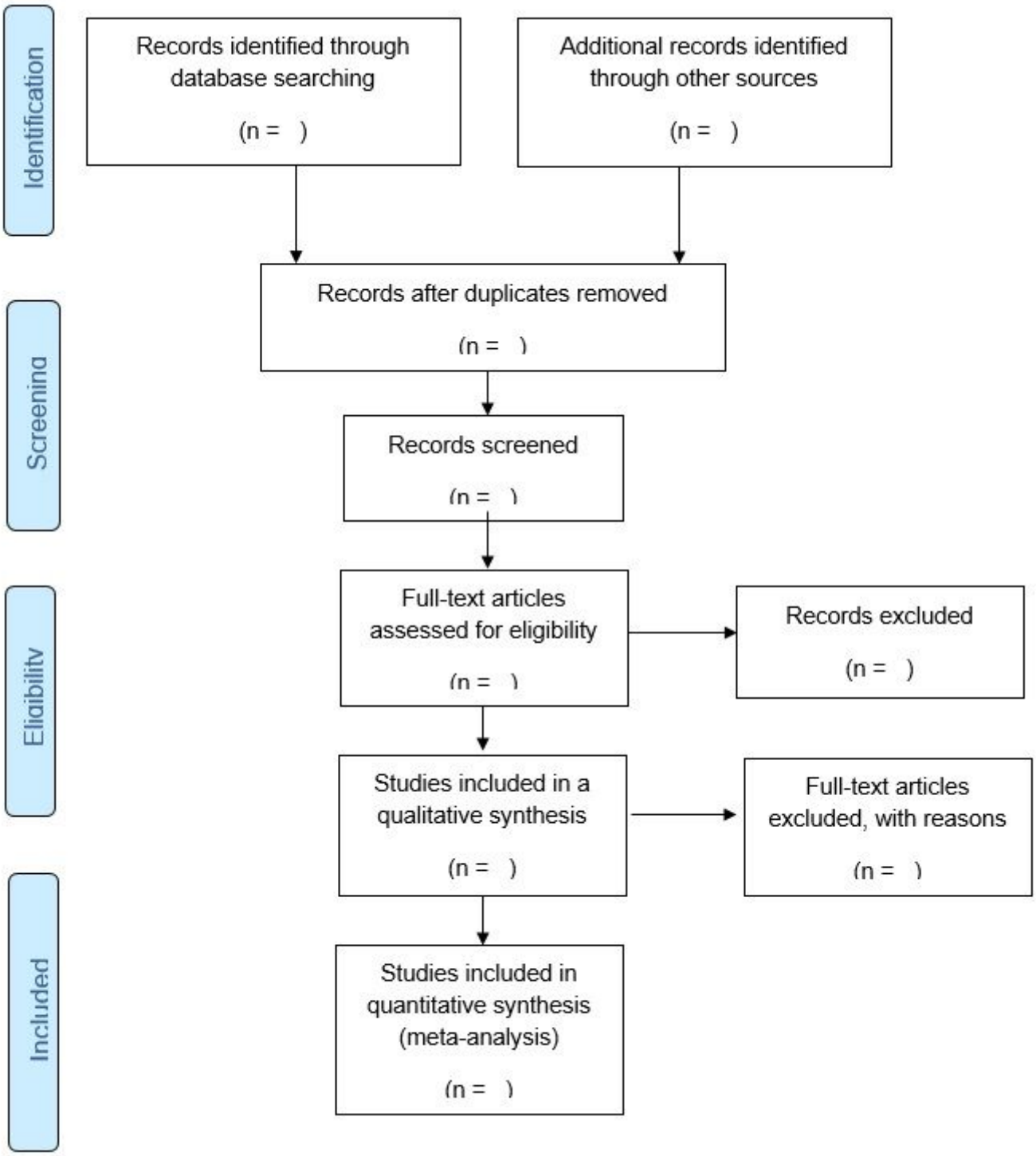

Figure 1

PRISMA 2009 Flow Diagram (19)