Atopic Dermatitis Severity in Children treated at Chris Hani Baragwanath Academic Hospital and Parent/Caregiver Knowledge on the disease

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A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Medicine in Dermatology.

Johannesburg, 2022

Declaration

I, Matilda Mphahlele, declare that this research report (in a submissible format) is my own work. It is being submitted for the degree of Masters of Medicine in Dermatology at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other university.

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25-03-2022

No conflict of interest.

Declaration: Student and co-author's contribution to the article

I Matilda Ramaite Mphahlele, student number 0602022K, declare that this research report is my own work and that I contributed significantly toward research findings presented in this paper intended for publication below.

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Agreement by co-authors: By signing this declaration, the co-authors listed below agree to have contributed to this report. The co-authors also agree to the use of the article by student as part of her research report. The primary supervisor must explain why the student is entitled to use the paper for her degree purpose

Article title: Atopic Dermatitis Severity in Children treated at Chris Hani Baragwanath Academic Hospital and Parent/Caregiver Knowledge on the disease.

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Dedication

I dedicate this project to my loving family.

Acknowledgments

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Abbreviations

AD	Atopic Dermatitis
CHBAH	Chris Hani Baragwanath Academic Hospital
EASI	Eczema Area Scoring Index
ISCED	International Standard Classification of Education
POEM	Patient Oriented Eczema Measure
PO-SCORAD	Patient Oriented SCORAD
Pruritus-NRS	Pruritus Numerical Rating Scale
SCORAD	SCORing Atopic Dermatitis
TIS	Three-Item Severity
v-IGA	Validated Investigator Global Assessment

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SECTION 1: SUBMISSIBLE ARTICLE

Title:

Atopic Dermatitis Severity in Children treated at Chris Hani Baragwanath Academic Hospital and Parent/Caregiver Knowledge on the disease.

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Abstract

Background
Atopic dermatitis (AD) is an inflammatory skin condition characterized by pruritus, a relapsing course, and usually begins in infancy. AD was found to be the most common chronic inflammatory skin disease in a paediatric dermatology clinic in Cape Town, South Africa. The prevalence and incidence of atopic dermatitis is increasing worldwide. AD has an impact on the quality of life in children and has been shown to interfere with normal development and education.

Objectives
To determine the severity of AD in children at Chris Hani Baragwanath Academic Hospital, caregiver general knowledge of the disease, and the relationship between the two.

Methods
This cross-sectional prospective study was conducted on 215 paediatric dermatology patients. The children and caregiver's demographic data were collected. The children were examined, and the severity of AD was calculated using the SCORAD scale. A score was given to grade the severity of AD. The general knowledge AD questionnaire was used to assess the caregiver's knowledge of the disease. The relationship between the severity of AD and the general knowledge of the caregivers was also assessed.

Results
Approximately 98.6% of patients studied were black African. The average age of the children (n=215) was 5.51years (sd.=5.52). The average age of the caregivers (n=215) was 32 years (sd.=8.87). Sixty eight percent of the caregivers had an educational level of grade 12 and below (ISCED level X-4). Sixty-nine per cent of the children had moderate severity of AD. The average score for caregiver general knowledge of AD was 82.33% (sd.=15.54). Two thirds (n=145) of caregivers knew about the importance of moisturisers in caring for patients with AD. A weak direct relationship was found between the parent's level of education and general knowledge at r = 0.198, which was significant at level less than 0.01 [p value= 0.004]. There was no statistically significant relationship between AD severity and the caregiver's general knowledge of AD [p value= -0.873].

Conclusion
Our patients had moderate AD and relatively good caregiver AD general knowledge. There was no statistically significant relationship between AD severity and the caregiver's general knowledge about AD. However, a weak direct relationship between the caregiver's general knowledge and level of education was found in our study.

1.1 Introduction

Atopic dermatitis (AD) is one of the most common skin conditions seen in paediatric dermatology clinics, which was also seen in a study conducted in South Africa [1]. It is characterized by pruritus and a relapsing course [2]. Atopic dermatitis is increasing in both incidence and prevalence worldwide [3,4,5]. The highest prevalence of AD is in the first 16 years of life [5, 6]. Genetics, skin barrier defect, environmental factors, and immune dysregulation play a role in the pathogenesis of AD [1]. Malik et al [7] emphasized the role of a defective skin barrier (reduced ceramides) in the aetiology of AD, and how this can be a target for both prophylaxis and treatment of AD. Management of AD includes general measures (basic skin care, moisturising skin, and avoiding triggers) and specific treatment (corticosteroids, tacrolimus, phototherapy, immunosuppressants, and molecular therapy) [8]. Poor management of AD can impair the quality of life of these patients [9, 10] and educational intervention is important in the successful management of AD [12].

Clinical assessment of AD assists in selecting treatment and monitoring response [13]. There are different ways of grading the severity of AD using a score [14]. Studies have shown that the EASI (Eczema Area Scoring Index) and SCORAD (SCORing Atopic Dermatitis) are the best instruments to assess the severity of AD [15, 16, 17]. Furthermore, Al-Afif et al [4] concluded that the SCORAD index is the most sensitive method for scoring moderate to severe atopic dermatitis. Moderate and severe atopic dermatitis are the most common types of AD seen in a clinic affiliated to a tertiary center [18]. The SCORAD index is divided into sub-sections A, B, and C (see Appendix 5). Sub-sections A and B are more objective as compared to sub-section C, which is more subjective. Sub- section A looks at the total body surface area involved with the disease (the diagram in Appendix 5 is used as a guide). Sub-section B looks at the intensity of the lesions. These skin lesions include erythema, oedema, oozing, lichenification, and dryness of the skin. A score is given as follows: where 0 = absence; 1= mild; 2 = moderate; and 3 = severe. Sub-section C is the subjective score based on the patient's answers to questions (out of 10) on pruritus and sleep loss. A total score is achieved using the formula A/5 + (7B)/2 + C. The total SCORAD score classifies eczema into: Mild (<25); Moderate (25-50); and Severe (>50) [19]. Sub-section A constitutes 20% of the score; while sub-sections B and C constitutes 60% and 20% respectively. Therefore, 80% of the SCORAD score is objective, thus reducing bias in the assessment [20]. It may be difficult to assess erythema and oedema in black patients as the dark skin (Fitzpatrick IV-VI) may lead to under-scoring of the disease severity in sub-section B [21]. The methods used to mitigate this include: the use of post-inflammatory hyperpigmentation for erythema; high clinical exposure to black skin; and the development of electronic applications (Apps) for PO-SCORAD/SCORAD scale (showing pictures of lesions in dark skin and light skin) [22, 23, 24]. There is reported improvement in assessing black skin with increased exposure to this skin type [22, 23, 24].

Patient knowledge is usually assessed using a questionnaire, which is often validated by a team of professionals [20, 25, 26, 27, 28]. Most questionnaires use a multiple-choice method of assessment, with a single most correct answer or use the Likert scale [29]. The Likert scale involves grading opinions on a particular statement using the options: strongly agree; agree; neutral; disagree; or strongly disagree [29]. A Likert scale is a tool that is usually used to measure the participant's attitude in a scientifically accepted and validated manner [29]. A modified Likert scale (Likert-like) was used in this study, which used both methods to assist in grading the knowledge (single most correct answer), and assessing their understanding and attitude around certain concepts in AD. The education of caregivers and AD patients has been shown to play a major role in their treatment [12]. The use of an "eczema school" has been

shown by multiple authors to assist in the management of these patients [37, 39, 40, 41, 42, 43]. This is by ensuring appropriate use of treatment and by improving compliance. Al-Afif et al [44] looked at the factors affecting the general knowledge in caregivers of children with asthma. A high level of education, family history, and a previous history of hospitalization were associated with a good general knowledge [44].

Research done by Cork et al [25] identified poor caregiver knowledge as one of the factors that contribute to poor treatment outcome. However, we did not find a study on caregiver knowledge about AD and its severity in South Africa. Therefore, our proposed study aim was to determine the severity of AD and parental knowledge of the disease. We also wanted to determine the relationship between the severity of AD and parental knowledge of the disease. The outcome of the research could be used to design cost effective measures of improving patient care.

1.2 Ethics

Permission was obtained from the head of the Department of Internal Medicine and the chief executive officer of CHBAH. The Human Research Ethics Committee (Medical) of the University of the Witwatersrand gave clearance for the study (clearance number: M191056, see appendices). Consent and assent were obtained from the caregiver before the data was collected.

1.3 Methods

This is a cross-sectional prospective study that was conducted at the CHBAH. The CHBAH is the fourth largest hospital in the world, located in Soweto township, Gauteng, South Africa [30]. It is a tertiary hospital affiliated with the University of the Witwatersrand. The study was conducted at the Paediatric Dermatology clinic from the 13th January 2020 to the 30th August 2020. The children were from the ages of three months to 16 years. They all met the Hanifin and Rajka diagnostic criteria for AD [31]. Patients must have attended the clinic at least once in the past 6 to 24 months. Participants were given the information sheet, and both consent and assent were obtained from the parent or guardian. Consent forms were for all caregivers while assent forms were filled in for all the children by the caregiver. The primary investigator (the doctor) made the clinical assessment, translated for participants, and collected all the data. On each day of data collection, the first 40 patients attending the paediatric dermatology clinic with a confirmed diagnosis of atopic dermatitis were given a number (from 1 to 40). On day one of the data collection the patients with odd numbers were recruited to participate in the study (20 patients), and on day two of data collection 20 patients with even numbers were recruited to participate in the study. Odd numbers and even numbers were used on alternate days of data collection until data for all 215 patients was collected. The study was carried out after routine dermatology consultation. Patients had the option of proceeding to the pharmacy or staying longer to take part in the study. Only the patients that agreed to be part of the study were selected.

We used a data collection sheet to record: the demographic data of the patient and the caregiver; the clinical information; and answers to the questionnaire (see Appendix 8). The demographic data included ethnicity; age and sex of both patient and caregivers. We also obtained the caregiver's highest level of education. The caregiver's level of education was classified using both local and International Standard Classification of Education 11 (ISCED-11). The ISCED

classifies education into these levels: X-no schooling; 0-early childhood education; 1-primary education; 2-lower secondary education; 3-upper secondary education; 4-post secondary non-tertiary; 5-short cycle tertiary education; 6-bachelors/equivalent; 7-master's/equivalent; 8-doctoral/equivalent: and 9-not elsewhere classified [32].

A clinical assessment of the child's skin was done and the child was given a severity score using the SCORAD scale (see Appendix 5). A total SCORAD score classified the child's eczema into: Mild (<25); Moderate (25-50); and Severe (>50).

The caregivers answered questions about their general knowledge of AD in their preferred language (English, Isizulu, or Sesotho). The doctor translated the questions if there was a need and filled in the answers for all participants. Questions were answered using the Likert-like scale with single most correct answer used to get a score. The questions were modified and adapted with special permission from a study done by Professor Corinna Rea, an assistant Professor at Harvard Medical School (see Appendix 9). The questions were fact based, while some relied on the parent's assessment of their own understanding. The caregiver's questionnaires were marked out of eight questions (one most correct option) and converted to a percentage. These captured and graded the general knowledge of caregivers. The caregiver's total scores were divided into three groups: 0-49%; 50-69%; and >70%. The use of the Likert-like scale also assisted in capturing the feelings, actions or opinion of parents from some of the questions.

The relationship between the children's AD severity and the general knowledge of the caregivers was determined using a correlation test. The Pearson's correlation test was selected after specific assumptions were met. For the non-parametric alternative, where assumptions were violated, Spearman's Rho was used. This gave direct (positive value) or an indirect (negative value) relationship with further description of the strength of the relationship. A direct relationship means that as one increases, the other increases, while an indirect relationship means that as one increases the other decreases. The r value measures the strength of the relationship (r-0.1-0.29=weak; r-0.3-0.49=medium; r-05-1=strong) [33]. The sig (2-tailed) assesses whether the relationship is statistically significant (it is regarded as significant at <0.05).

1.4 Results

1.4.1 Demographic data

From the 215 children sampled, 212 (98.6%) were black, two (0.9%) were of mixed ancestry, and one (0.5%) was Indian. The ethnicity of the caregivers and the children were the same. The children's ages ranged from three months to 16 years. A total of 53 (24.7%) children were less than two years of age, 129 (60.8%) were from two years to 10 years, and 33 (15.3%) were from 11 years to 16 years. The majority (58.6%) of the children were males.

Out of the 215 caregivers that we interviewed, 192 (89.3%) were female and 23 (10.0%) were male. The caregiver's ages ranged from 18 to 65 years. Forty-nine (22.8%) of the caregivers were younger than 25 years, 152 (69.8%) were between 25 and 45 years, and 14 (6.5%) were older than 45 years. Only three (1.4%) of the caregivers had no formal education (ISCED X), 63 (29.3%) had an educational level below grade 12 (ISCED 0-3), and 81 (37.7%) had only

obtained grade 12 (ISCED 4). There were 34 (15.8%), caregivers with a post-grade 12 certificate (ISCED 5). There were 28 caregivers (13.0%) with a diploma (ISCED 6). Only six (2.8%) caregivers had a degree (ISCED 7).

1.4.2 Severity of AD

The severity of AD using the SCORAD scale (n=103) averaged 31.85 (sd=10.23), which is moderate AD. Out of the 215 patients, 54 (25.1%) had mild AD, 148 (69.8%) patients had moderate AD, and only 13 (6.0%) had severe AD. Figure 1 below summarises the severity of AD in the study population.

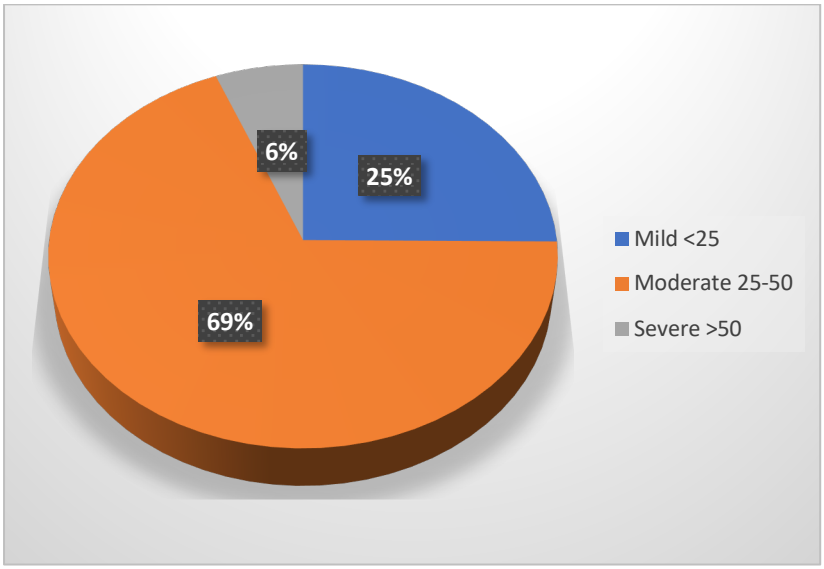

Figure 1: Severity of Atopic Dermatitis using SCORAD scale

1.4.3 Caregiver's general knowledge of AD

1.4.3.1 General knowledge score

The average caregiver knowledge score (n=8) was 82.3% (s=15.5). Only four (1.8%) caregivers scored between 0- 49%, 33 (15.3%) scored between 50% and 69%, and 178 (82.8%) scored more than 70.0%. Figure 2 summarises the general knowledge score amongst the caregivers.

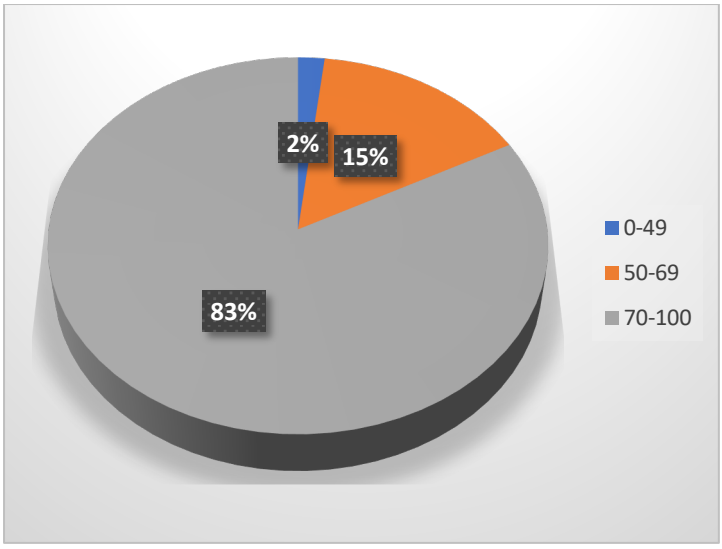

Figure 2: Parent/ caregiver general knowledge score

1.4.3.2 Review of specific questions of interest using the Likert-like scale

A total of 145 (67.4%) caregivers agreed that keeping the skin moist by applying lotions was an important part of AD skincare. Two hundred and nine (97.2%) caregivers agreed or strongly agreed that scented soaps and lotions should be avoided. A total of 202 (93.9%) caregivers agreed or strongly agreed that moisturisers should be applied generously all over the body. The majority (68.0%) of the caregivers did not think that topical steroids have side effects. Figure 3 summarises the findings.

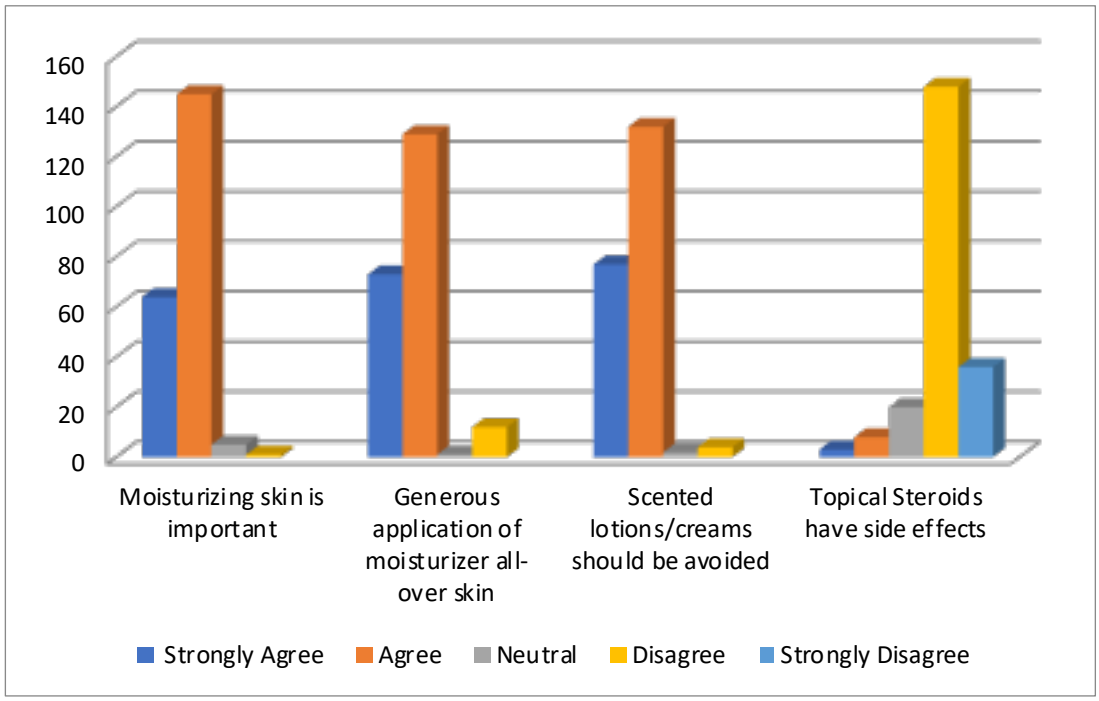

Figure 3: Review of specific general knowledge questions (Likert-like scale)

The relationship between AD severity and caregiver general knowledge

Table 1 below shows the distribution of the caregiver's general knowledge score when compared with disease severity. Most of the caregivers had good (70-100%) general knowledge, regardless of the severity of the child's AD.

Table 1: The relationship between atopic dermatitis (AD) severity and caregiver general knowledge

Severity of AD	**Caregiver's general knowledge**		
	0-49%	50-69%	70-100%
Mild AD	1	13	40
Moderate AD	1	18	121
Severe AD	2	2	17

The relationship between AD severity and the caregiver's general knowledge was investigated using the Pearson's product-moment correlation coefficient. There was no violation of the level of measurement, pairs were related, observations were independent, and normality was assumed as the number of participants was greater than 30 (n>30). There was no statistically significant relationship between AD severity and the caregiver's general knowledge (with p value of 0.87). Table 1 summarizes the findings.

Table 2: Correlation between AD severity, caregiver knowledge, and other factors

Characteristic	**Test done**	**Value**	**Result**
AD severity and Caregiver knowledge	Pearson's correlation	r = -0.01, p value =0.87	Not statistically significant
AD severity and Age of caregiver	Pearson's correlation	r =0.33, p value =0.63	Not statistically significant
General knowledge and Age of caregiver	Pearson's correlation	r =0.13, p value =0.56	Not statistically significant
General knowledge and Level of education	Spearmen's Rho correlation	r =0.19, p value =0.004	Direct statistically significant

There was no statistically significant relationship between caregiver's age and AD severity (with p value of 0.63). There was no statistically significant relationship between the caregiver's AD general knowledge and the caregiver's age at (p value = 0.56). Table 2 above summarises the findings.

The Spearmen's Rho showed a weak direct relationship between the level of education and the caregiver's general knowledge at r = 0.19. This was found to be statistically significant with p value = 0.004. Table 2 and figure 4 summarize the findings.

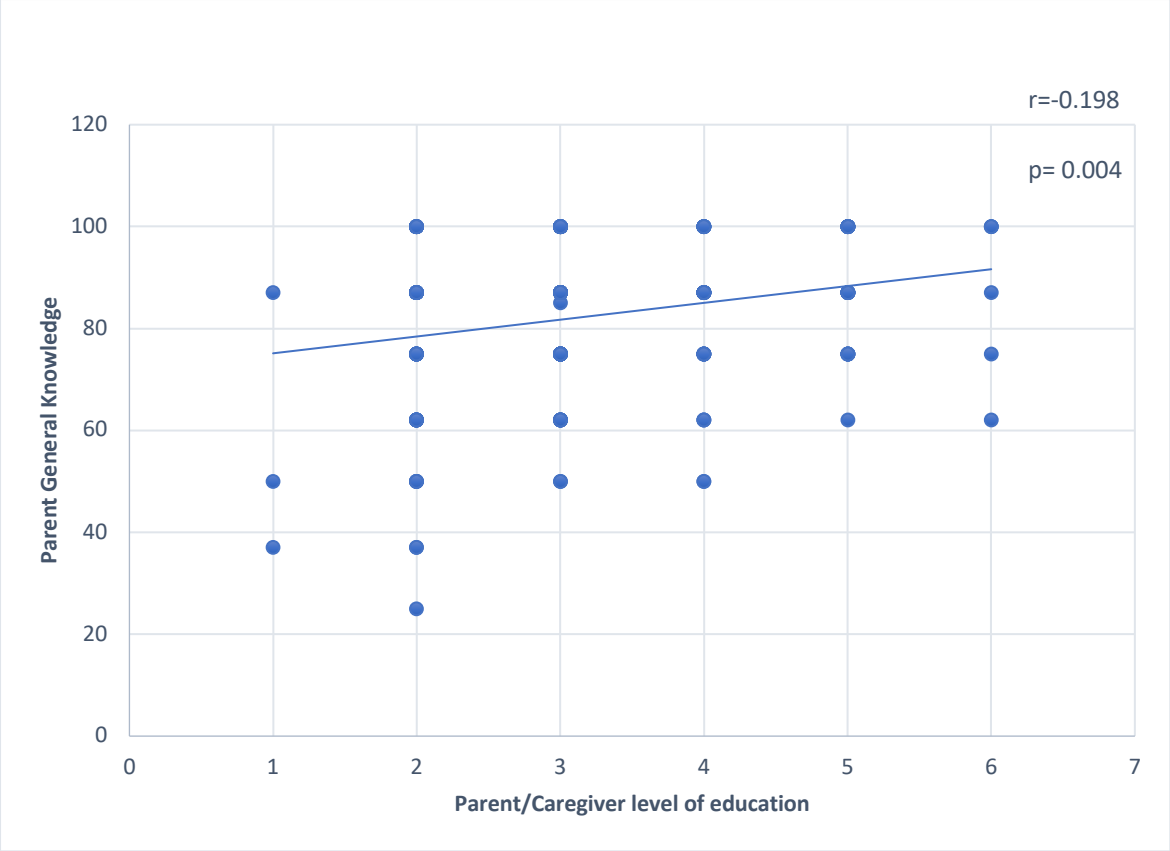

Figure 4: Simple scatter with fit line of parent general knowledge by parent/caregiver education (Correlation between caregiver's general knowledge and level of education)

1.5 Discussion

In this prospective cross-sectional study done on 215 patients at CHBAH in Soweto, Gauteng, we looked at: the severity of AD; the general knowledge of the caregivers about the disease; and the relationship between the two.

The demographics of the patients were like those found internationally [10], but in our study, 98.6% of the patient sampled were African. Just over two thirds of the caregivers had an educational level of only grade 12 and below (ISCED X-4). This was different from an international study done in USA, Boston. In their study, Rea et al [10] used the same questionnaire and found that only a third of the caregivers had an educational level of ISCED-X-4 (high school/less). The discrepancy in education levels between the two studies could possibly emanate from the fact that our patients were sampled from a more disadvantaged community. This could affect caregiver understanding during patient education.

The majority (68.8%) of the patients in the study had moderate AD, which is in line with studies done globally [10, 34]. This may also represent the pattern of local referrals to our centre. Our hospital is a tertiary centre that receives referrals of mainly moderate to severe AD [18]. In addition, the patients that we studied had attended the paediatric dermatology clinic at least once in the past 6 to 24months. This suggests better care and patient education received at the clinic.

The mean parental knowledge score was 82.0%. The findings were similar to those from international studies [10, 28]. Rea et al found a mean parental knowledge score of 79% using the same questionnaire [10]. Our questionnaire was translated into two commonly spoken languages in Soweto namely, Isizulu and Sesotho. This improved the understanding of the questions and the accuracy of the responses. Despite the majority of patients having a lower educational level than those in the Boston study, the high parental knowledge score could possibly be attributed to good counselling of patients in their home languages prior to the study. Foley A [46] from the Wits school of Education found that learning in one's native language improves understanding and performance. Sidbury et al [38] looked at the role of educational interventions in patients and caregivers of children with AD and found that the educational interventions lead to the improvement in adherence to treatment and lessen the fears and misconceptions around the disease.

The majority (94.0%) of caregivers knew about the importance of generously applying moisturizers. This could possibly be attributed to good patient education in the teaching hospital. The findings were similar to a study by Topal et al [35], where 82.0% of participants knew about the importance of moisturizers in the treatment of AD. Multiple authors have supported the importance of moisturizers in treating patients with AD [7, 8, 35]. Some have even suggested that the appropriate use of moisturizers can prevent AD in 50.0% of high-risk infants [7, 37]. Cork et al [25] showed an 89.0% reduction in AD severity just by an increasing the use of moisturizers.

About two thirds of parents/ caregivers disagreed that topical steroids have side effects. These findings are similar to those from a study done in Sestre Milosrdnice University hospital centre. According to these findings, 78.0% of caregivers thought that topical steroids could be used without side effects as long as they are prescribed by a dermatologist [36]. This could possibly indicate the need for dermatologists to spend more time explaining how treatment works and its potential side effects. Some centres have implemented an "eczema school" to improve the knowledge of caregivers and patients with AD, resulting in the better management of these patients [38, 40, 41, 42, 43, 44]. The "eczema school" is a structured multidisciplinary educational programme where both patients and their caregivers are educated about the pathogenesis, disease course, and the treatment of atopic dermatitis [38]. This can be done by having workshops, standard videos, pamphlets and other methods [38]. The standard video instruction as an educational method has been shown to be more effective than the other methods (e.g., pamphlets) [38].

There was no statistically significant relationship between AD severity and the parent/ caregiver's general knowledge. There are no similar studies that have been done locally to look at this relationship. Cork et al [25] compared disease severity and parent knowledge of the disease (focusing on topical therapy). They found an indirect relationship ($r=-0.628$) between AD severity and knowledge of moisturizer use [25]. In the same study, educational interventions focusing on the use of moisturizers resulted in major clinical improvement [25]. Grillo et al [40] found a reduction in AD severity associated with the improvement in caregiver knowledge. Moore et al [44] also found a significant reduction in AD severity with increased caregiver knowledge. These studies that looked at the relationship between AD severity and parent knowledge only compared the relationship between the two after improving their educational intervention. They looked at whether the educational intervention lessened the severity of AD. We assessed the current knowledge and AD severity in patients who had already attended the clinic previously. There was no additional improvement in our educational intervention. This could explain the insignificant result that we found.

There was a weak direct relationship between the parent's level of education and general knowledge which was statistically significant (r = 0.20, p value = 0.004 at level 0.01). To our knowledge, there is no local study that has looked at this relationship. Our findings are similar to those from a study by Topal et al [35], who found that a high level of education is associated with better parental knowledge. Shin et al [38] also found that the higher the level of education, the better the AD general knowledge. This could possibly be due to the ease in understanding and accessing information in the educated group.

The doctor made the assessment of AD severity, administered the questionnaire, and also translated the questions for some parents. This may have created some bias. There are other factors that affect the AD general knowledge of the caregivers [45]. Al-Afif et al [45] found that in addition to the high level of education, family history of AD and previous history of hospitalization were also associated with a good general knowledge. Some of these factors were not considered in our study. We did not specifically document how long each of our patients had been attending the clinic prior to the assessment of AD severity and parent knowledge. This might have affected the AD severity score in the study, resulting in fewer patients with severe AD. We also did not enquire about whether or not the caregiver had another child with atopic dermatitis. This may have affected the parent knowledge score.

1.6 Conclusion

Atopic dermatitis is one of the most common skin conditions seen in paediatric dermatology clinics. It is important to understand how to manage these patients. Most of our patients had moderate AD, and relatively good caregiver AD general knowledge. We could not find any statistically significant relationship between AD severity and the caregiver's AD general knowledge. Although our study found good caregiver's knowledge on moisturizer use in the management of AD, it found poor knowledge on topical corticosteroids side effects. This just indicates the need for improved AD education.

Our study has shown a relationship between parental knowledge of the disease and caregiver's highest level of education, however more studies still need to be done to look at this relationship and other factors that may affect patient management.

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APPENDICES
Appendix 1: Ethics approval letter

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

R14/49 Dr MR Mphahlele

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M191056

NAME: (Principal Investigator)	Dr MR Mphahlele
DEPARTMENT:	School of Clinical Medicine Department of Medicine Division of Internal Medicine Chris Hani Baragwanath Academic Hospital
PROJECT TITLE:	Atopic dermatitis severity in children treated at Chris Hani Baragwanath Academic Hospital and parental/ caregiver knowledge of the disease
DATE CONSIDERED:	2019/10/25
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr N Mvulane
APPROVED BY:	Dr N Naran, Co-Chairperson, HREC (Medical)
DATE OF APPROVAL:	2020/01/10

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the 3rd Floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.
I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to submit details to the Committee. I agree to submit a yearly progress report. When a funder requires annual re-certification, the application date will be one year after the date when the study was initially reviewed. In this case, the study was initially reviewed in **October** and will therefore reports and re-certification will be due early in the month of **October** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature Date

PLEASE QUOTE THE CLEARANCE CERTIFICATE NUMBER IN ALL ENQUIRIES

Appendix 2: South African Medical Journal authors guidelines

General guide:

- Manuscripts must be written in UK English.
- The manuscript must be in Microsoft Word format. Text must be single-spaced, in 12-point Times New Roman font, and contain no unnecessary formatting (such as text in boxes).
- Please make your article concise, even if it is below the word limit.
- Qualifications, ***full*** affiliation (department, school/faculty, institution, city, country) and contact details of ALL authors must be provided in the manuscript and in the online submission process.
- Abbreviations should be spelt out when first used and thereafter used consistently, e.g. 'intravenous (IV)' or 'Department of Health (DoH)'.
- Include sections on Acknowledgements, Conflict of Interest, Author Contributions and Funding sources. If none is applicable, please state 'none'.
- Scientific measurements must be expressed in SI units except: blood pressure (mmHg) and haemoglobin (g/dL).
- Litres is denoted with an uppercase L e.g. 'mL' for millilitres).
- Units should be preceded by a space (except for % and ºC), e.g. '40 kg' and '20 cm' but '50%' and '19ºC'.
- Please be sure to insert proper symbols e.g. μ not u for micro, a not a for alpha, b not B for beta, etc.
- Numbers should be written as grouped per thousand-units, i.e. 4 000, 22 160.
- Quotes should be placed in single quotation marks: i.e. The respondent stated: '...'
- Round brackets (parentheses) should be used, as opposed to square brackets, which are reserved for denoting concentrations or insertions in direct quotes.
- If you wish material to be in a box, simply indicate this in the text. You may use the table format –this is the *only* exception. Please DO NOT use fill, format lines and so on.

Research

Guideline word limit: 4 000 words

Research articles describe the background, methods, results and conclusions of an original research study. The article should contain the following sections: introduction, methods, results, discussion and conclusion, and should include a structured abstract (see below). The introduction should be concise – no more than three paragraphs – on the background to the research question, and must include references to other relevant published studies that clearly lay out the rationale for conducting the study. Some common reasons for conducting a study are: to fill a gap in the literature, a logical extension of previous work, or to answer an important clinical question. If other papers related to the same study have been published previously, please make sure to refer to them specifically. Describe the study methods in as much detail as possible so that others would be able to replicate the study should they need to. Results should describe the study sample as well as the findings from the study itself, but

all interpretation of findings must be kept in the discussion section, which should consider primary outcomes first before any secondary or tertiary findings or post-hoc analyses. The conclusion should briefly summarise the main message of the paper and provide recommendations for further study.

Select figures and tables for your paper carefully and sparingly. Use only those figures that provided added value to the paper, over and above what is written in the text.

Do not replicate data in tables and in text .

Structured abstract

- This should be 250-400 words, with the following recommended headings:
    - Background: why the study is being done and how it relates to other published work.
    - Objectives: what the study intends to find out
    - Methods: must include study design, number of participants, description of the intervention, primary and secondary outcomes, any specific analyses that were done on the data.
    - Results: first sentence must be brief population and sample description; outline the results according to the methods described. Primary outcomes must be described first, even if they are not the most significant findings of the study.
    - Conclusion: must be supported by the data, include recommendations for further study/actions.
- Please ensure that the structured abstract is complete, accurate and clear and has been approved by all authors.
- Do not include any references in the abstracts.

Main article

All articles are to include the following main sections: Introduction/Background, Methods, Results, Discussion, Conclusions.

The following are additional heading or section options that may appear within these:

- Objectives (within Introduction/Background): a clear statement of the main aim of the study and the major hypothesis tested or research question posed
- Design (within Methods): including factors such as prospective, randomisation, blinding, placebo control, case control, crossover, criterion standards for diagnostic tests, etc.
- Setting (within Methods): level of care, e.g. primary, secondary, number of participating centres.
- Participants (instead of patients or subjects; within Methods): numbers entering and completing the study, sex, age and any other biological, behavioural, social or cultural factors (e.g. smoking status, socioeconomic group, educational attainment, co-existing disease indicators, etc)that may have an impact on the study results. Clearly define how participants were enrolled, and describe selection and exclusion criteria.

- Interventions (within Methods): what, how, when and for how long. Typically for randomised controlled trials, crossover trials, and before and after studies.
- Main outcome measures (within Methods): those as planned in the protocol, and those ultimately measured. Explain differences, if any.

Results

- Start with description of the population and sample. Include key characteristics of comparison groups.
- Main results with (for quantitative studies) 95% confidence intervals and, where appropriate, the exact level of statistical significance and the number need to treat/harm. Whenever possible, state absolute rather than relative risks.
- Do not replicate data in tables and in text.
- If presenting mean and standard deviations, specify this clearly. Our house style is to present this as follows:
- E.g.: The mean (SD) birth weight was 2 500 (1 210) g. Do not use the ± symbol for mean (SD).
- Leave interpretation to the Discussion section. The Results section should just report the findings as per the Methods section.

Discussion

Please ensure that the discussion is concise and follows this overall structure – sub-headings are not needed:

- Statement of principal findings
- Strengths and weaknesses of the study
- Contribution to the body of knowledge
- Strengths and weaknesses in relation to other studies
- The meaning of the study – e.g. what this study means to clinicians and policymakers
- Unanswered questions and recommendations for future research

Conclusions

This may be the only section readers look at, therefore write it carefully. Include primary conclusions and their implications, suggesting areas for further research if appropriate. Do not go beyond the data in the article.

Appendix 3: Turnitin report

turnitin

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File size:	338.94K
Page count:	20
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Appendix 4: Approved protocol

Research proposal

ATOPIC DERMATITIS (AD) SEVERITY IN CHILDREN TREATED AT CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL (CHBAH) AND PARENT/CAREGIVER KNOWLEDGE ON THE DISEASE.

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Table of contents

1. INTRODUCTION

1.1 Background

Atopic dermatitis (AD) is an inflammatory skin condition characterized by pruritus, a relapsing course, and usually begins in infancy [1]. AD is the most common chronic inflammatory skin disease in a paediatric dermatology clinic [2].

The prevalence of atopic dermatitis globally is 14.2%, and both incidence and prevalence seem to be increasing worldwide [3]. In Africa the prevalence is 23.3%, which is higher than global prevalence [4]. Kakande et al, in a study done in Cape Town South Africa, found that atopic dermatitis constitutes 59.5% of cases seen in their paediatric dermatology clinic [2]. Several studies showed that despite the prevalence generally increasing globally, different countries displayed varying patterns [3,5]. The prevalence of AD in South Africa almost doubled from 1995 to 2002. Table 1 summarises the findings .

Table 1: Prevalence of AD

Country	**Change in prevalence**
South Africa	15.5%(1995) to 26.2%(2002)
Nigeria	26.1%(1995) to 18.0%(2001-2002)
East Germany	12.5%(1991) to 12.8(1997)
England	13.9%(1995-96) to 27.2%(2001-2002)
America	8.0%(1997) to 13.6%(2017)

Decker et al suggested that the increase in socio-economic wealth (change in lifestyle) contributes to the increase in prevalence of atopic dermatitis [3]. The increased socioeconomic wealth promotes increased frequency of bathing, the use of bubble baths and soaps, which removes the skin's natural barrier oils.

A study by Silverberg et al on the prevalence of AD in the different age groups showed that the highest prevalence of AD was in the first 17years of life [6]. Silverberg et al showed that children have a high prevalence of AD. This suggests that appropriate treatment in this age group is important for reducing the burden of this disease.

The pathogenesis of AD is multifactorial, including genetics, skin barrier defect, environmental factors and immune dysregulation. The environmental allergens elicit an immune reaction which leads to production of IgE specific immunoglobulins which drive the

chronicity of AD [1]. 20-30% of cases of AD do not follow this pattern. The World Allergy Organisation (WAO) thus divided AD immunologically into Ig E-associated type or non-Ig E-associated [1]. The Ig E-associated is the most common type, and it is characterized by elevated allergen specific Ig E antibodies while the non-Ig E-associated type is not associated with raised IgE [1]. Some authors suggest that the non-Ig E is in transition to becoming the Ig E-associated type [7].

AD may also be classified according to age of onset into: early onset type, late-onset type, and senile-onset types [1]. Early onset AD is the most common type, usually begins in the first 2 years of life and it is mostly Ig E-associated [1]. The late onset AD usually begins after puberty and 30% of them will fall under the non-Ig E associated type [7] .The senile onset type is unusual and uncommon and usually presents after the age of 60 years [1].

Clinically AD can present with a broad spectrum of features depending on the age of patient, site of the lesions, the duration of lesions and secondary changes. Acute lesions classically present with erythematous oedematous papules and plaques, which often have serous crusting, oozing and vesiculation [1]. Chronic lesions present with scaly lichenified plaques, and nodular prurigo from chronic scratching [7]. Other features include: pityriasis alba; exaggerated palmar creases; Dennie Morgan's-lines; keratitis pilaris; cheilitis sicca; lip-licker eczema; and others [1].

The Hanifin and Rajka criteria is the most commonly used diagnostic criteria for atopic dermatitis (See table 2) [8]. This was initially published in 1977, then reviewed in 1980. It is divided into major and minor criteria. According to this criteria a patient must have 3 or more under major , and 3 or more minor features. The minor criteria are mainly related to the type 1 allergies that these patients often get [8]

The management of AD includes general measures and specific therapy [7]. The approach to management depends on the severity, site, and impact on the quality of life [9].

General measures include:

- Avoidance of triggers: mainly environmental e.g. dust and animal fur ;and cosmetics that causes dryness of the skin.
- Basic skin care: correction of the barrier defect with emollients plays a major role.

Specific therapy includes:

- Topical: steroids and other modalities such as phototherapy.
- Systemic: short courses of steroids; immunosuppressive agents; and targeted molecular therapy.

Table 2: Hanifin and Rajka criteria for diagnosis of AD
Major -must have 3 or more features
1.Pruritus 2.Typical morphology and distribution-flexural lichenification in adult or -facial and extensor eruption in infants and children 3.Chronic or chronical relapsing dermatitis 4.Personal or family history of atopy (asthma, allergic rhinitis, atopic dermatitis)
Minor-must have 3 or more
1.Xerosis 2.Ichthyosis\ palmar hyper linearity, keratosis pilaris 3.Immediate (type 1) skin test reaction 4.Elevated serum IgE 5.Early age of onset 6.Tendency toward cutaneous infection (especially staph aureus, herpes simplex) impaired cell mediated immunity 7.Tendency toward non-specific hand or foot dermatitis 8.Nipple eczema 9.Cheilitis 10.Recurrent conjunctivitis 11.Dennie-Morgan infraorbital fold 12.Keratoconus 13.Anterior subcapsular cataract 14.Orbital darkening 15.Facial pallor, facial erythema 16.Pityriasis alba 17.Anterior neck folds 18.Itch when sweating 19.Intolerance to wool ad lipid solvent 20.Perifollicular accentuation 21.Food intolerance 22.Course influenced by environmental and emotional factors 23.White dermographism

1.2 Literature review

AD can be graded into mild, moderate, and severe based on the clinical features. Several authors have devised different ways of grading the severity of atopic dermatitis using a score. These different grading methods may look at clinical features, patient's symptoms, oor both. The most commonly used tools include: EASI (Eczema Area Scoring Index); SCORAD (SCORing Atopic Dermatitis); and POEM (Patient Orientated Eczema Measure) [10].

The EASI score is mainly objective. The patient's skin lesions are examined, and a score is given for the appearance of skin lesions and the percentage body surface involvement [11]. A final score grades the AD into: clear; almost clear; mild; moderate; severe; and very severe . The advantage of this score is that it is objective, thus reducing the risk of errors. The disadvantage is that it does not take the patient's symptoms into consideration.

The POEM score is a subjective tool used to assess AD. It is interview based, where patients are asked questions about the severity of their symptoms [10]. They are requested to grade the itchiness, cracks, flacking and oozing . A final score also grades the AD into: clear; almost clear; mild; moderate; severe; and very severe. The disadvantage of this tool is that most patients may overestimate the severity of their symptoms, thus opening room for errors[7].

The SCORAD was developed by the European Task Force on Atopic Dermatitis (ETFAD) in 1993 [12]. It has 3 sub-sections A, B, and C (see appendix 5). Section A and B are more objective, whereas section C is subjective . Section A looks at the total body surface area involved with the disease, and a total score in given (the diagram in appendix 1 is used as a guide). Section B looks at the intensity of the actual lesions. These skin lesions includes: erythema; oedema; oozing; lichenification; and dryness of the skin. A score out of 3 is given for each, where 0 = absence , 1= mild, 2 = moderate, and 3 = severe. Section C is the subjective score based on the patient's answers to questions (out of 10) on pruritus and sleep loss. The total SCORAD score classifies eczema into: mild (<25); moderate (25-50); and severe (>50) (See table 2) [12]. The major disadvantage of this tool is that it may be time-consuming, making it difficult to use in busy facilities [12]. However, since it combines both objective and subjective assessment, possibilities of errors are minimized.

Table 3 summarises some of the different severity tools that can be used to score atopic dermatitis, their advantages and disadvantages.

Table 3 : Grading tools in atopic dermatitis			
Tool	EASI	POEM	SCORAD
How it works	-It combines body surface involvement and scores for the actual lesions	-Patients are asked questions relating to severity of their symptoms	-Grades the skin clinically and symptoms by patient report
Advantages	-Objective -Reduced chances of errors.	-Subjective -It will address patient's agenda.	-Both subjective and objective
Disadvantages	-Does not address patient's feelings.	-Most patients overestimate their symptoms to be taken serious.	-Time consuming

A systematic review by Schmitt et al suggested that the EASI (Eczema Area Scoring Index) and SCORAD were the best instruments to assess clinical signs of atopic dermatitis [13]. Khalid et al concluded that the SCORAD score is the most sensitive method for scoring moderate to severe atopic eczema [4]. Moderate to severe atopic dermatitis are the main types of AD seen in a clinic affiliated to a tertiary center [14]. This is mainly because most patients with mild AD are managed at local clinics using the standard treatment guidelines and essential medicine list [14]. This suggests that the SCORAD score will be the best tool to use when assessing atopic dermatitis severity in a tertiary setting.

Factors that may be associated with poor treatment outcome include: complexity of treatment regimen; lack of knowledge; impaired quality of life; dissatisfaction with treatment strategies; infrequent follow up; corticosteroid phobia; and use of complementary medicine [15]. Lack of knowledge about the disease may lead to poor compliance to treatment, which in turn has been found to be the major contributor to treatment failure [16,17]. On the other hand, increased understanding of AD may improve quality of life and treatment outcome [18]. Several studies have shown that increased understanding of atopic dermatitis leads to improved quality of life [18,19]. Cork et al found an 89% reduction in the severity of the AD after enhancing knowledge over 1 year [16]. This was done by: giving more time to listen and to explain the causes of AD; demonstrating how to use treatment; and telling parents how to

manage infective exacerbations. The specific emphasis was on using large quantities of emollients and appropriate use of topical corticosteroids [16]. They also found that the way the information is given also plays a major role [16]. It is important not to give too much information at a time, as the patient could only assimilate a certain amount information at a time. Therefore, different information was covered in several sessions.

Patient knowledge is usually assessed using a questionnaire which is often validated by a team of professionals [16,17,19,20]. The questions asked range from: general knowledge about causes AD; common misunderstanding about AD; when and how to use treatment. Table 4 summarises some of the studies done on AD and general knowledge.

Table 4: Studies done on AD and knowledge

Study title	**Study sample**	**Study site**	**Questions focus**	**Conclusions**
1-Parental knowledge of topical therapies in the treatment of childhood atopic dermatitis. [17]	100	UK	Topical treatment knowledge in atopic dermatitis	-53% had poor understanding on how their treatment works. -Adequate information and training improves treatment outcome
2-Association of eczema severity and parental knowledge with child quality of life in paediatric primary care population. [20]	225	USA	Knowledge and understanding of atopic dermatitis	-Greater parental knowledge improves treatment and quality of life
3-Disease awareness and management behaviour of patients with atopic dermatitis: A questionnaire survey of 313 patients [19]	313	Korea	Common misunderstandings in atopic dermatitis	-A significant number had false information from the internet about atopic dermatitis and effectiveness of alternative treatment

1.3 Justification of study

AD was found to be the most common skin condition in a paediatric dermatology clinic in South Africa [2]. Research done in other countries identified parent knowledge as one of the factors that contribute to the poor treatment outcome [16]. This is possibly the case in our clinic. However, we did not find a study on parental knowledge and eczema severity in South Africa.

We would like to do a study on parent knowledge and eczema severity in a paediatric dermatology clinic at CHBAH. This proposed study may assist us in determining whether parent knowledge is indeed one of the possible gaps in patient care in our setting. The outcome of the research could be used to design cost effective measures of improving patient care.

2. STUDY OBJECTIVES

- To determine the general knowledge of AD in parents/ caregivers at CHBAH
- To determine severity of AD at CHBAH
- To determine the relationship between general knowledge of AD and severity of AD

3. METHODS

This is a prospective cross sectional study that will be done at the CHBAH paediatric dermatology clinic between 01 December 2019 to 30 November 2020. The clinical assessment and interviews will be conducted at the clinic.

Study population:

A total of 215 children will be randomly selected for the study for it to be statistically significant.

Criteria:

Inclusion criteria

- Must meet the Hanifin and Rajka diagnostic criteria for AD
- Between the ages of 3 months and 16 years

Exclusion criteria

- Does not meet the Hanifin and Rajka diagnostic criteria for AD
- Above the age of 16 years and below 3months of age

Details of study

- Patients will be randomly selected at the dermatology paediatric clinic.
- Consent will be obtained- after counselling the patient and caregiver on the details of the study (Appendix 6).
- Patient's information sheet will be handed over to participants. (Appendix 7)
- Demographics data of the patient (sex, age and race) will be recorded. (Appendix 8)
- The parent /caregiver will be asked to answer general knowledge questions about AD. (Appendix 9)
- The child will be examined and graded using the SCORAD score. A score will be given and recorded to the data sheet. (Appendix 8)
- All data for each patient will be collected on the same day. (Appendix 8)

4. DATA ANALYSIS

All data will be recorded onto a Microsoft excel worksheet prior to analysis. A computer-based analysis performed using the Statistical Product and Services Solution (SPSS) software will be done. Frequency tables, pie charts/bar graphs will be used to summarize categorical variables. The mean and range (or median and interquartile range) will be calculated to summarize continuous variables. To determine the association between the ordinal dependent (outcome) variable and other covariates we will use the appropriate parametric or non-parametric statistical test.

5. ETHICS

Permission will be requested from the CEO/ Medical Superintendent of CHBAH. Permission to conduct the study will also be sought from the Human Research Ethics Committee (Medical) of the University Of the Witwatersrand. To maintain the patient's confidentiality, the dataset will be stored in a password protected device. Unique identification will be used to identify patients.

6. TIMELINE OF ACTIVITIES

Date / Task	04/19	07/19	08/19	09/19	10/19	12/19-10/20	11/20-05/20	06/20-08/20	09/21-10/21
Literature review									
Preparing protocol									
Protocol assessment									
Ethics application									
Collecting data									
Data analysis									
Writing up-thesis									
Writing up paper									

7.FUNDING

The study will be self-funded. The total cost will be R 1500

Item	**Cost**
Printing	R700
Binding	R800
Total	R1500

8. LIMITATIONS

The exclusion criteria may make the study biased as it excludes younger children and adults. The population at CHBAH is mainly African blacks, which could make the patient selection biased. It is difficult to assess erythema in black patients, which may affect the SCORAD score. Questions answered by caregivers may also result in information bias.

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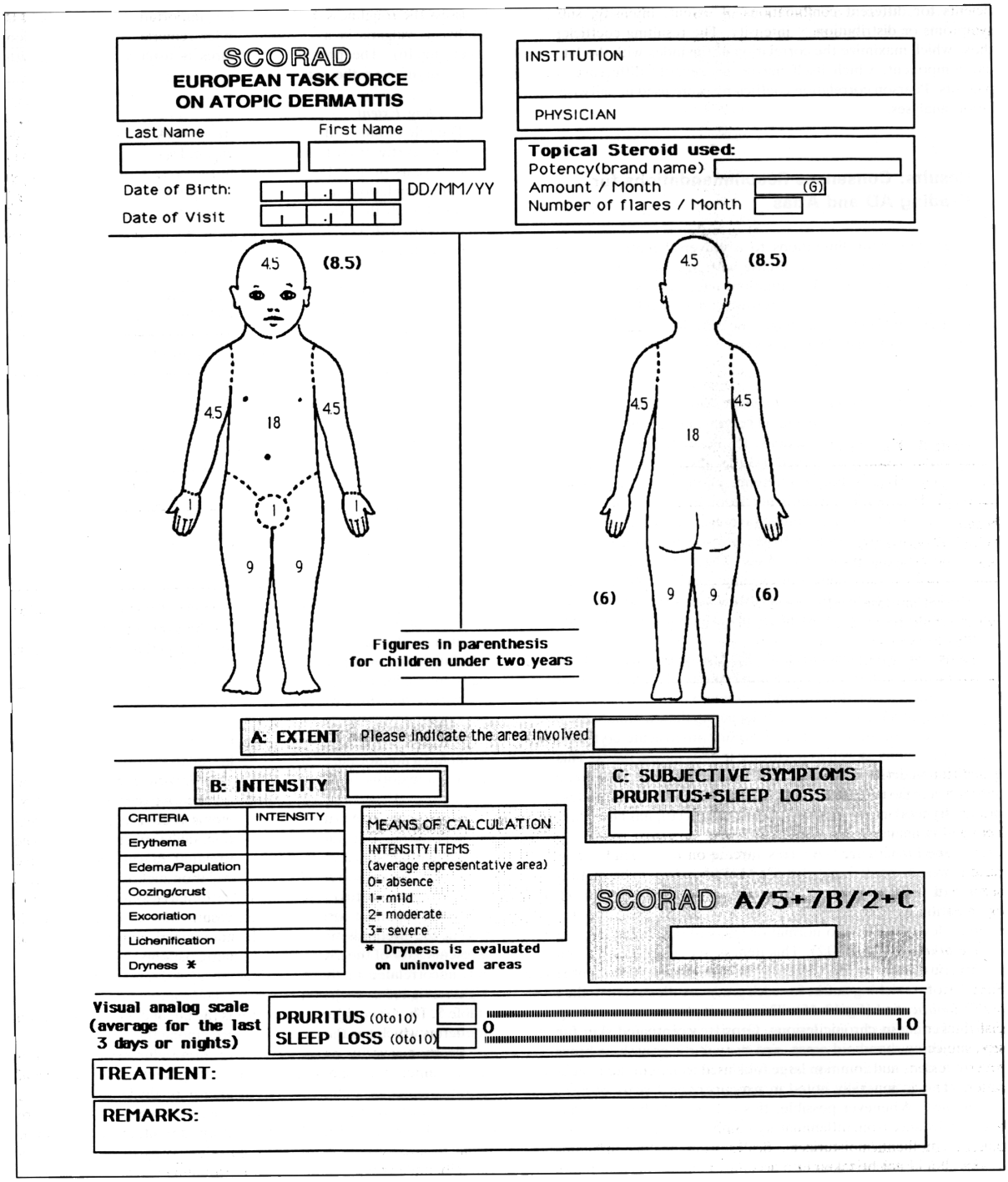
Appendix 5: SCORAD scale



Appendix 6: Consent forms

PARTICIPANT CONSENT SHEET

Title of Study: ATOPIC DERMATITIS (AD) SEVERITY IN CHILDREN TREATED AT CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL (CHBAH) AND PARENT/CAREGIVER KNOWLEDGE ON THE DISEASE

1. I have been given a Participant Information Sheet which explains the nature and processes involved in this study, which is attached hereto;
2. I was given time to read it, or had it read to me, in the language I best understand;
3. I was given time to ask any questions I wanted to and found any answers given to me to be reasonable and satisfactory;
4. I believe I fully understand why the study is being conducted and what the intended outcomes will be;
5. I understand that there will be no immediate benefit to me, should I agree to participate, nor will I receive any payment; conversely, participation will not cost me anything but my time;
6. I understand that, even if I initially consent to take part in the study, I may subsequently withdraw at any time and would not be required to give any reasons; if that happened, any data collected about me for the purposes of the study would immediately be destroyed, unless I give consent for it to be retained
7. I have been given a range of contact details, listed below. If I require further information or become concerned about any aspect of this study I am free to speak to any of these contacts.

Contact details:

Dr Mphahlele, 0721246244/0119338000, or by e-mail at matildamphahlele@gmail.com

Dr N Mvulane, Supervisor, by e-mail at nombuyiselomvulane@gmail.com

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.

Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____

PARTICIPANT ASSENT SHEET FOR MINORS*

Title of Study: ATOPIC DERMATITIS (AD) SEVERITY IN CHILDREN TREATED AT CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL (CHBAH) AND PARENT/CAREGIVER KNOWLEDGE ON THE DISEASE

1. I have been given a Participant Information Sheet for Minors, which explains what this study is about;
2. The study was explained to me and I understand what will happen if I take part;
3. I was given time to ask any questions I wanted to and was happy with the answers I was given;
4. I understand that I will not benefit from the study, should I agree to take part. I also understand that I will not be paid to take part in the study; taking part will not cost me anything either;
5. I have been given a range of contact details, repeated below, should I require further information at a later stage, or have any cause for concern over anything which is done to me during the study; and
6. I understand that even if I agree to take part in the study, I can change my mind later and stop being a part of the study
7. My parent(s) or guardian(s) know that I have been invited to take part in the study. They agree that I may do so, but the decision to take part is also mine.

Contact details:

Dr Mphahlele, 0721246244/0119338000, or by e-mail at matildamphahlele@gmail.com

Dr N Mvulane, Supervisor, by e-mail at nombuyiselomvulane@gmail.com

Professor CB Penny, Chairperson of the Human Research Ethics Committee (Medical) at the University of Witwatersrand, on telephone no. 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za.

Ms. Z Ndlovu or Mr Rhulani Mkansi, Committee Secretariat, telephone nos.: 011 717 2700 or 1234, or by e-mail at: Zanele.Ndlovu@wits.ac.za or Rhulani.Mkansi@wits.ac.za

Name of Participant: _____

Date: _____

Place: _____

Signature or mark _____

Name of Parent or Guardian: _____

Date: _____

Place: _____

Signature or mark _____

Witnessed by:

Name of Witness: _____

Signature: _____

Date: _____

* Defined as being persons under the age of 18

Appendix 7: Patient information sheet

Title of Study: ATOPIC DERMATITIS (AD) SEVERITY IN CHILDREN TREATED AT CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL (CHBAH) AND PARENT/CAREGIVER KNOWLEDGE ON THE DISEASE

Greetings sir/madam

Introduction :

We are doing research on 'eczema' severity and general knowledge of caregiver. Research is a process used in seeking new knowledge. We realised that our patients with eczema may not have been given enough information to help them understand their condition and there are also a lot of myths around eczema. We would like to find out what our patient's parent/caregivers know about eczema and also look at the extend of the condition. This will assist us to improve future patient care.

Invitation to participate :

We are inviting you to take part in a research study. We are also asking for permission to include your child in the research study as well.

The study:

Our research involves the caregiver answering 8 questions about the general knowledge of eczema. The caregiver will be given a hard copy of the questionnaire in a language they prefer (English/ Isizulu/Sesotho). The doctor will go through all questions with the caregiver and the doctor will fill in the answers on the questionnaire (preferred language). The child will also be examined clinically to score the severity of eczema. Clinical examination is part of the management of children with eczema. Answering of the questionnaire and clinical examination of the child will take place in the doctor's consultation room. All information for the study will be collected in one day. Everything is estimated to take 10-15 minutes.

Benefits and risks:

There are no risks involved during participation in the study.

There will also not be any direct benefit to you in participating in the study, however the benefit will be to future patients with atopic dermatitis 'eczema'.

Participation in the study is voluntary and refusal or withdrawal from the study will not affect the treatment you are about to receive. Consent and Assent from you will be obtained prior to commencing the study. Your inability to give consent/assent will not disadvantage the child's care.

Confidentiality :

All data will be confidential and Dr Mphahlele is the only person who can access personal information. Patients will be allocated a unique identity number. Data will be stored in a password protected computer.

You may contact the researcher if you have any queries relating to the study.

Researcher: Dr Matilda Mphahlele:

Tel 011 9335000

Email: matildamphahlele@gmail.com

Dermatology clinic CHBAH.

You may also direct queries, concerns or complaints regarding ethical activities of the study to the HREC Chair/ Administrator: Prof Penny Clement Tel 011 717 2301, email clement.penny@wits.ac.za, Ms Z Ndlovu (Administrative Officer) 011 717 2700/1234/1252 zanele.ndlovu@wits.ac.za

Appendix 8: Data collection sheet

Unique identification number :

A. Demographic data

Sex of Parent/caregiver :

Age of Parent/caregiver :

Parent/caregiver level of education :

ISCED-11 level X	**ISCED-11 level 0-2**	**ISCED-11 level 3-4**	**ISCED-11 level 5**	**ISCED-11 level 6**	**ISCED-11 level 7**

Age of patient :

Sex of patient :

Race of patient :

B. Clinical information

Atopic Dermatitis grading using the SCORAD score	**Mild**	**Moderate**	**Severe**

C. General knowledge questions

Question	**a.**	**b.**	**c.**	**d.**	**e.**
1					
2					
3					
4					
5					
6					
7					
8					

Eczema knowledge grading **:SD** (strongly disagree); **D**(disagree); **N**(neutral) ;**A** (agree) ;or **SA**(strongly agree)

Appendix 9: Eczema general knowledge questionnaire

(*Adapted with special permission from Prof Corinna Rae MD,MPH, Harvard Medical School, Boston's Children Hospital* [11])

English

Kindly answer the following questions using the Likert scale. Grade each question with: **SD** (strongly disagree); **D**(disagree); **N**(neutral) ;**A** (agree) ;or **SA**(strongly agree)

1.Which of the following statements about eczema is true?

		SA(strongly agree)	**A** (agree)	**N**(neutral)	**D**(disagree)	**SD** (strongly disagree)
a.	Eczema is always caused by allergies					
b.	Eczema is a common skin problem in children					
c.	Eczema can be passed from one person to another by touching					
d.	Eczema can be cured					

2. The most important part of eczema skincare is

		SA(strongly agree)	**A** (agree)	**N**(neutral)	**D**(disagree)	**SD**(strongly disagree
a.	Keeping skin moist by applying cream or lotion					
b.	Using steroid cream or ointment on the skin					
c.	Taking anti-itch medicines by mouth					
d.	Taking antibiotics by mouth					

3. It is important to avoid these things for children with eczema:

		SA(strongly agree)	**A** (agree)	**N**(neutral)	**D**(disagree)	**SD**(strongly disagree

a.	Scented or fragranced soaps/detergents/ lotions					
b.	Long, hot baths or showers					
c.	Dry air and sweat					
b.	All of the above					

4. How should you use your child's moisturizing cream or lotion?

		SA(strongly agree)	**A** (agree)	**N**(neutral)	**D**(disagree)	**SD**(strongly disagree
a.	Apply a generous layer all over skin					
b.	Apply a thin layer only on red, itchy areas					
c.	Moisturizing creams and lotions should NOT be used every day					
d.	Moisturizing creams and lotions should NOT be used after bathing					

5. How long should your child's bath/shower be?

		SA(strongly agree)	**A** (agree)	**N**(neutral)	**D**(disagree)	**SD**(strongly disagree
a.	Less than 10 minutes					
b.	20 minutes					
c.	30 minutes					
d.	More than 30 minutes					

6. Which of the following is true about your child's steroid cream or ointment?

		SA(strongly agree)	**A**(agree)	**N**(neutral)	**D**(disagree)	**SD**(strongly disagree
a.	You should apply a generous layer all over the skin					
b.	You should apply a thin layer only on red, itchy areas					
c.	Steroid creams and ointments do not have any side effects					

d.	Steroid creams and ointments should not be used after bathing					

7. How long after your child's bath/shower should you apply his/her moisturizing cream or lotion?

		SA(strongly agree)	**A** (agree)	**N**(neutral)	**D**(disagree)	**SD**(strongly disagree
a.	Less than 3 minutes after the bath/shower					
b.	10 to 20 minutes after the bath/shower					
c.	More than 20 minutes but less than 60 after the bath/shower					
d.	1 to 2 hours after the bath/shower					

8. When should you come to the hospital without an appointment ?

		SA(strongly agree)	**A** (agree)	**N**(neutral)	**D**(disagree)	**SD**(strongly disagree
a.	If the itchiness, dryness, redness, flakiness does not improve after 3 to 5 days					
b.	If your child develops signs of skin infection including skin oozing/warmth/redness, fever, or not acting like him/herself					
c.	If you have any concerns about your child's skin or overall health					
d.	All of the above					

Sesotho

Ka mosa araba lipotso tse latelang u sebedisa sekala sa Likert. Kereta potso e ngoe le e ngoe ka: (ha o dumellane haholo); (hana); (se nke lehlakore); (dumela); kapa (ke dumela haholo)

1. Ke efe ya tse latelang tse mabapi le eczema, eleng 'nete?

		Ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	Eczema e dula le bakoa ke dialeji (allergies).					
b.	Eczema ke bothata bo tloaelehileng ba letlalo ho bana					
c.	Eczema e ka fetisoa ho tloha ho motho e mong ho ya ho e mong ka ho ama.					
d.	Eczema e ka phekoloa					

2. Karolo ya bohlokoahali ya tlhokomelo ea letlalo la eczema ke:

		ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	Ho boloka letlalo le le mongobo ka ho tshasa mafura kapa ditlolo					
b.	Ho sebedisa mafura/ setlolo sa-steroid(prescription creams as shown) mo letlalong					
c.	Ho nwa meriana e thibelang ho longwa					
d.	Ho nka dithibela-mafu ka molomo (antibiotics)					

3. Ho bohlokoa ho qoba dintho tsena ho bana ba nang le eczema:

		Ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	Disepa/ ditlolo tse monko kapa monko o monate					
b.	Ho hlapa nako e telele ka metse a chesang.					
c.	Moya o omileng le mofufutso					
d.	Tsohle tse ka holimo					

4. O ka sebedisa mafura kapa ditlolo tsa ngoana oa hao joang?

		Ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	Tshasa ka bongata letlalo lohle					
b.	Tshasa ha sesanyane feela dibakeng tse khubedu					
c.	Mafura kapa ditlolo ha dia lokela ho sebedisoa letsatsi le leng le le leng					
d.	Mafura kapa ditlolo ha dia lokela ho sebedisoa kamora ho hlapa					

5. Ho hlapa ha ngoana wa hao ho lokela ho nka nako e kae?

		Ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	Ka tlase ho metsotso e 10					
b.	Metsotso e 20					
c.	Metsotso e 30					
d.	Ho feta metsotso e 30					

6. Ke efe ea tse latelang e le 'nete ka setlolo kapa mafura a-steroids (prescription creams as shown) a ngoana wa hao?

		Ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	O lokela ho tshasa ka bongata letlalo lohle					
b.	Tshasa ha sesanyane feela dibakeng tse khubedu					
c.	Mafura kapa ditlolo tsa-steroid ha di na ditlamorao					
d.	Mafura kapa ditlolo tsa-Steroid ha dia lokela ho sebedisoa kamora ho hlapa					

7. Ho nka nako e kae pele o ka tshasa mafura kapa ditlolo ka mora ho hlapa ha ngoana wa hao?

		Ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	Nako e ka tlase ho metsotso e 3 kamora ho hlapa					
b.	Metsotso e 10 ho isa ho e 20 kamora ho hlapa					
c.	Ho feta metsotso e 20 empa e le ka tlase ho 60 kamora ho hlapa					
d.	Hora e 1 ho isa ho tse pedi kamora ho hlapa					

8. O lokela ho tla sepetlele neng ntle le tumellano ya kopano?

		Ke dumela haholo	**Dumela**	**Se nke lehlakore**	**Hana**	**Hao dumellane haholo**
a.	Haeba ho hlohlona, ho omella, bofubedu, ho foforeha ha letlalo ha bo ntlafale kamora matsatsi a 3 ho isa ho a 5.					
b.	Haeba ngoana oa hao a ba le matšoao a tšoaetso ea letlalo ho kenyeletsa ho hohlahala ha letlalo / mofuthu / bofubelu, motsheso, kapa a sa itshwara joalo ka eena					
c.	Haeba u na le ho tshoenyeha ka letlalo la ngoana oa hao kapa bophelo bo botle ka kakaretso					
d	Tsohle tse ka holimo					

Isizulu

Phendula ngomusa imibuzo elandelayo usebenzisa isikali se-Likert. Phendula umbuzo ngamunye ngo: (**Ngiyaphika impela**) (**Ngiyaphika**) (**Mhlawumpe**) (**Ngiyavuma**) (**Ngiyavuma kakhulu**).

1. Yikuphi okulandelayo mayelana ne-eczema okuyiqiniso?

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a.	I-eczema ihlala ibangelwa yi allergy					
b.	I-eczema iyinkinga ejwayelekile yesikhumba ezinganeni					
c.	I-eczema ingadluliselwa isuka komunye umuntu iye komunye ngokuthinta					
d.	I-eczema iyalapheka					

2. Okubaluleke kakhulu ngokunakekela isikhumba se-eczema:

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a	Ukugcina isikhumba simanzi ngokusebenzisa ukhilimu noma amafutha					
b	Ukusebenzisa ukhilimu noma amafutha e-steroid (prescription creams as shown)					
c	Ukuphuza umuthi wokulwa nokulunyelwa					
d	D. Ukuphuza i-antibiotic ngomlomo					

3. Kubalulekile ukugwema lezi zinto ezinganeni ezine-eczema:

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a	Izinsipho noma okhilimu abanephunga elimnandi					
b	Ukugeza isikhathi eside noma ngamanzi ashisayo					

c	Umoya owomile kanye nokujuluka					
d	Konke okungenhla					

4. Kufanele uwusebenzise kanjani ukhilimu noma amafutha womntwana wakho?

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a.	Gcobisa ugqinsi olwanele kuso sonke isikhumba					
b.	Gcobisa ugqinsi oluncane kuphela ezindaweni ezibomvu, ezilumayo					
c.	Okhilimu kanye namafutha akufanele kusetshenziswe nsuku zonke					
d	Okhilimu kanye namafutha akufanele kusetshenziswe ngemuva kokugeza					

5. Ngabe ingane yakho kufanele igeze isikhathi esingakanani?

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a.	Imizuzu engaphansi kwelishumi (10 minutes)					
b.	Imizuzu engamashumi amabili (20 minutes)					
c.	Imizuzu engamashumi amathathu (30 minutes)					
d.	Imizuzu engaphezulu kwamashumi amathathu (>30 minutes)					

6. Yikuphi kokulandelayo okuyiqiniso mayelana nezikhathi zokugcoba ukhilimu noma amafutha e-steriods(prescription creams as shown) omntwana wakho?

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a	Kufanele ufake ungqimba efanayo esikhunjeni sonke					
b.	Kufanele ufake ungqimba oluncane kuphela ezindaweni ezibomvu, ezilumayo					
c.	Okhilimu noma amafutha e-steroids awanayo imiphumela emibi.					
d.	Okhilimu noma amafutha e-steroid akafanele ukusetshenziswa ngemuva kokugeza					

7. Kumele uthathe iskhathi esingakanani mawuqeda ukugeza ukugcobisa okhilimu noma amafutha omntwana?

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a	Ngaphansi kwemizuzu emithathu ngemuva kokugeza (<3 minutes)					
b.	Imizuzu eyishumi kuye kwengamashumi amabili ngemuva kokugeza (10-20 minutes)					
c	Ngaphezu kwemizuzu engamashumi amabili kodwa ngaphansi kwemizuzu engamashumi ayisthupha (20-60 minutes) ngemuva kokugeza					

d.	Ihora elinye kuye kumahora amabili (1-2 hours) ngemuva kokugeza					

8. Kufanele uze nini esibhedlela ngaphandle kwe-appointment?

		Ngivuma kakhulu	**Ngiyavuma**	**Mhlawumpe**	**Ngiyaphika**	**Ngiyaphika impela**
a.	Uma ukuluma, ukoma, ukuba bomvu, kungabi ngcono ngemuva kwezinsuku ezintathu kuya kwezinhlanu (3-5 days)					
b.	Uma ingane yakho iba nezimpawu zokutheleleka kwesikhumba okunjengo kwanda koku shisa / ukubabomvu, umkhuhlane, noma ukungaziphathi ngendlela ejwayelekile					
c.	Uma ngabe kukhona okukukhathazayo ngesikhumba noma ngempilo yengane yakho					
d.	Konke okungenhla					