KNOWLEDGE, ATTITUDES, AND AWARENESS OF EPILEPSY AMONGST STUDENTS AT A SELECTED HIGHER EDUCATION INSTITUTION OF LEARNING IN LIMPOPO, SOUTH AFRICA

BY

ANDANI EDNA NDOU

Student number: 16001713

A mini-dissertation submitted in partial fulfilment of the requirements for the degree:

Master of Public Health

UNIVERSITY OF VENDA

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC HEALTH

Supervisor	*Co-Supervisor*
Prof L Makhado	**Dr OP Netshisaulu**

January 2025

©University of Venda

© University of Venda

DECLARATION

I, **Andani Edna Ndou**, hereby declare that this thesis by me titled *"**Assessing Knowledge, Attitudes, and Misconceptions About Epilepsy Among University of Venda Students: A Call for Enhanced Education and Awareness",*** has not been submitted previously for a degree at this or any other institution, that it is my own work in design and in execution, and that all reference material contained therein has been duly acknowledged.

NDOU AE **Date:12 November 2024**

© University of Venda

DEDICATION

This mini dissertation is dedicated wholeheartedly to my dear mother, who has been a source of inspiration and strength when the thoughts of giving up came about.

My daughter Wamashudu Diana Seabela is my motivation.

© University of Venda

ACKNOWLEDGEMENT

- I would like to thank God for allowing me this opportunity to study and giving me the wisdom to complete this research.
- To my supervisor, Professor L. Makhado, I would like to express my heartfelt gratitude for your invaluable guidance, commitment and input towards my study.
- To my co-supervisor, Dr OP Netshisaulu, thank you for supporting and guiding my study.
- To Dr T.G Makhado, I am grateful for the support and encouragement throughout my study.
- To my family and close friends, I am thankful for your unwavering encouragement and support.
- To all participants who generously shared their time and insight in making this study successful.

© University of Venda

ABSTRACT

Background: Epilepsy, a neurological disorder that affects individuals of all ages, is often surrounded by stigma and misconceptions. Despite the prevalence of epilepsy, public knowledge and awareness about the condition are limited, particularly among university students. This study explored the perceptions, knowledge, and attitudes of students at the University of Venda regarding epilepsy to identify gaps in awareness and contribute to better educational strategies.

Objectives: The purpose was to assess the level of knowledge, attitudes, and awareness regarding epilepsy among students at the selected university in Limpopo province.

Methods: A cross-sectional study design was utilised following a quantitative research approach, surveying students from various faculties at the University of Venda. The study employed purposive sampling to select the institution, and Raosoft sample size calculator was utilized to determine the total sample size of 326 participants who participated in the study. Participants were asked to complete a structured questionnaire covering demographic information, knowledge about epilepsy, attitudes towards people with epilepsy, and perceptions of public attention given to the condition. The survey included questions such as whether participants had heard about epilepsy, their understanding of its causes and management, and their views on the rights and abilities of people living with epilepsy. All submitted responses were first securely exported from Google Forms and screened for completeness. The data were coded and cleaned to ensure accuracy and consistency before analysis. Data were analyzed using IBM SPSS Statistics version 30.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to summarize participants' demographic characteristics, levels of knowledge, attitudes, and awareness regarding epilepsy.

Results: The survey revealed that most students (approximately 92.9%) had heard of epilepsy, but significant misconceptions persisted. Many respondents believed epilepsy is untreatable or that people with epilepsy should not be allowed to engage in activities such as driving and should be supervised. Only a minority of participants (18.7%) knew the correct management practices during a seizure. Notably, most students (67%) felt that insufficient attention was being given to epilepsy. At the same time, participation in the study spurred increased interest in learning more about the disorder, with over 92.9% expressing a desire for more information.

Conclusion: The study highlights a critical need for enhanced education about epilepsy among university students, mainly to dispel myths and encourage informed and compassionate attitudes. Educational initiatives focusing on seizure management, inclusivity, and the dispelling of stigma could significantly improve the knowledge base. These efforts could foster a more supportive environment for individuals with epilepsy within the University of Venda and broader society.

Keywords: Epilepsy, University students, Knowledge and awareness, Misconceptions, Attitudes, Seizure management, Stigma, Health Education, Public Awareness.

© University of Venda

LIST OF ACRONYMS AND ABBREVIATIONS

PWE : People with epilepsy.

WHO : World Health Organization.

UNIVEN : University of Venda.

HCTREC : Health and Clinical Trial Research Ethics Committee.

SPSS : Statistical Package of Social Science

© University of Venda

Preface

This mini dissertation is presented in an article form and comprises three sections: A, B and C. The content of the sections is described below:

Section A: The mini dissertation overview

This section entails the study overview, which includes an introduction and background of the study, research purpose and objectives, conceptual framework, rationale and significance of the study, methodology and ethical considerations.

Section B: Manuscript

This section contains two manuscripts:

The First manuscript is titled: **What is already known? Assessing the Knowledge, Attitude, and Awareness amongst students of higher institutions of learning towards epilepsy: a scoping review**.

The Second manuscript is titled **Assessing Knowledge, Attitudes, and Misconceptions About Epilepsy Among University of Venda Students: A Call for Enhanced Education and Awareness**.

Section C: Conclusion, Recommendations and Dissertation Limitations

This last section presents the study conclusions for this mini-dissertation, recommendations, and limitations.

© University of Venda

University of Venda
Creating Future Leaders

TABLE OF CONTENTS

DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENT iv
ABSTRACT v
LIST OF ACRONYMS AND ABBREVIATIONS vi
PREFACE vii
SECTION 1: 1
OVERVIEW OF THE STUDY 1
INTRODUCTION 2
CONCEPTUAL FRAMEWORK 3
RATIONALE FOR THE STUDY 5
SIGNIFICANCE OF THE STUDY 6
PROBLEM STATEMENT 6
AIM AND OBJECTIVE OF THE STUDY 7
STUDY AIM 7
OBJECTIVES 7
DEFINITION OF TERMS 7
METHODOLOGY 8
STUDY DESIGN 8
STUDY SETTING 8
TARGET POPULATION 8
SAMPLE SIZE AND SAMPLING 9
INCLUSIVE AND EXCLUSIVE CRITERIA 9
PRE-TEST 9
DATA COLLECTION INSTRUMENTS AND PROCESS 9
DATA ANALYSIS 10
ETHICAL CONSIDERATION 10
DATA MANAGEMENT 11
DISSEMINATION OF DATA 11
REFERENCES 12
SECTION TWO 14
MANUSCRIPTS/ARTICLES 14
2.1 manuscript 1: submitted to Seizure - European Journal of Epilepsy 15
Abstract 15

© University of Venda

Introduction 16
2. Objectives 17
3. Methodology 17
3.1. Defining the scoping review Questions 17
3.2. Setting up inclusion and exclusion criteria 17
3.3. Search strategy 18
Step 4. Data extraction and quality review 19
Data extraction from available studies 20
Step 5. Data Analysis, synthesis and presentation of Results 30
Results 31
Knowledge of Epilepsy 31
Attitudes Towards Epilepsy and People with Epilepsy (PWE) 34
Awareness and Education about Epilepsy 36
Factors Influencing Knowledge and Attitudes 38
Discussion 40
Implications of the Study 43
Conclusion 44
Reference 44
2.2 SECOND MANUSCRIPT: SUBMITTED TO ELSEVIER JOURNAL SEIZURE–EUROPEAN JOURNAL OF EPILEPSY (UNDER REVIEW) 50
ABSTRACT 51
INTRODUCTION 52
METHODOLOGY ..... **Error! Bookmark not defined.**
Research Design 53
Research setting 53
Study population 54
Sampling technique and Sample size ..... **Error! Bookmark not defined.**
Data collection. 54
Exclusion and Inclusion criteria ..... **Error! Bookmark not defined.**
Data analysis 54
RESULTS 55
Demographic Characteristics 55
Educational Level and Cultural Background 55
Knowledge and Awareness of Epilepsy 56
Perceptions and Misconceptions about Epilepsy 59
Attitudes Towards Epilepsy 59
Desire for Further Information 61

© University of Venda

DISCUSSION 61
Limitation 63
Conclusion 63
REFERENCES 64
SECTION THREE 68
CONCLUSION, LIMITATION AND RECOMMENDATIONS 68
Introduction 69
Conclusions from the manuscripts 69
Article 1: Understanding Epilepsy: A Scoping Review of Knowledge, Attitudes, and Awareness Among University Students 69
Article 2: Assessing Knowledge, Attitudes, and Misconceptions About Epilepsy Among University of Venda Students: A Call for Enhanced Education and Awareness 69
General Conclusion for the study 70
Recommendation 70
Educational 70
Policymakers 70
Practical 70
Research 70
Limitations 71
Summary of the Mini Dissertation 71
ANNEXURE A: ETHICAL CLEARANCE 72
ANNEXURE B: INFORMATION SHEET 73
ANNEXURE C: CONSENT FORM 76
ANNEXURE D: LETTER TO CONDUCT RESEARCH IN THE UNIVERSITY. 77
APPENDIX E: DATA COLLECTION QUESTIONNAIRE 78
APPENDIX F: LANGUAGE EDITING CERTIFICATE 85

© University of Venda

SECTION 1:

OVERVIEW OF THE STUDY

© University of Venda

INTRODUCTION

Epilepsy is one of the most chronic neurological and non-infectious conditions worldwide (World Health Organization, 2019). The estimations show that epilepsy affects more than seventy million people globally, 80% of whom live in low- and middle-income countries (World Health Organization, 2019). Although epilepsy is one of the most common neurologic conditions, individuals still carry stigmas, misconceptions, and incorrect attitudes toward the condition. Many authors have noted that in addition to the anxiety of seeing and dealing with the condition's symptoms, a significant amount of discrimination is driven by the erroneous belief of helplessness, fragility, and mental incapacity associated with people living with epilepsy (Souza et al., 2018)

Epilepsy continues to be a serious health issue in emerging countries. The lack of knowledge and understanding about the cause of epilepsy has influenced negative attitudes, stigma and discrimination towards people living with epilepsy. In Western parts of Asia, there is still a belief that epilepsy results from evil spirits and may be treated with spiritual ceremonies (Adamu et al., 2023). According to Mewes (2020), in a study at a German university, the students possessed primary knowledge and showed a positive attitude towards epilepsy. However, scant knowledge was still available regarding the measurements needed during the seizure attack. Several people in previous studies considered epilepsy as a mental illness, congenital disease, and infectious and evil spirits (Wubetu, 2020). Students living with epilepsy find it hard to get involved with others because of the embarrassment they get after a seizure attack. Culturally, people living with epilepsy are rejected and regarded as witches (Wubetu, 2020).

There are numerous studies done describing the knowledge and attitude of people towards epilepsy in the whole world, including African countries. Despite that, a lack of studies focuses on students at higher learning institutions. The study that was done in Nigeria showed that epilepsy is regarded as an evil spirit possession and can be transmitted to the next person through saliva, urine, blood, and faeces (Ekeh et al., 2015). Additionally, children with epilepsy undergo social isolation and learning disabilities and develop poor self-esteem. For example, a student with epilepsy may be denied access to school because parents are anxious about their family name being brought into disgrace. However, even if the students attend school, due to the stigma and discrimination they suffer when their epilepsy is uncontrolled, they perform poorly and drop out of school. As a result, this leads to poor educational achievements and unemployment (Eze, 2015).

Everyone can get epilepsy, although elderly persons or children are more vulnerable. In older adults, epilepsy may be diagnosed because of another neurological condition, such as a tutor in the brain or stroke as well as dementia. Additional risk factors of epilepsy may include developmental issues, previous brain infections, prenatal traumas, or genetic abnormalities and seizures in childhood that are associated with high fever. However, in approximately half of cases, the aetiology is unknown (Mayo Clinic, 2023).

© University of Venda

Although epilepsy is not curable, there are several treatments used to minimize the symptoms or seizure attacks such as anti-epileptic medication that is taken daily. This medication differs according to the type of seizure one has, age and other health conditions (Mayo clinic, 2023). There are also alternative treatments that are considered when medications are unable to control seizures, such as therapy and surgery where the part of the brain that causes seizures is removed. Additionally, there is also a ketogenic diet that is considered to reduce seizure attacks, where people living with epilepsy are expected to eat food high in fats and low in carbohydrates. However, it is not fully known how it reduces seizures (Mayo Clinic, 2023).

According to Eze (2015), health interventions for epilepsy were delivered to the population through audio and visual material presentation. The awareness of epilepsy education focuses on the implications that students living with epilepsy experience, the risk factors, causes and symptoms. In addition, it also touched on the first aid management of epileptic attacks. Therefore, this intervention lecture led to discussion and participants received clarity from questions they had. (Eze, 2015). However, no study in South Africa focuses on the intervention of epilepsy as a disease.

Although some people have shown positive attitudes and knowledge about epilepsy in previous studies, comparing a study that was done in 2005 and 10 years later, it still shows that people lack knowledge and have negative attitudes towards people living with epilepsy. This agrees with the study on teachers in the middle belt of Nigeria, which showed that almost all the teachers had heard about epilepsy but never experienced seizure attacks (Rahman, 2005). The study in Saudi Arabia showed that lack of community understanding, awareness, cultural attitude, and stigma are vital roles that people with epilepsy face (Alkhotani, 2022). In Uganda, the study showed negative attitudes among community members (Kaddumukasa et al., 2021). Similarly, the study done on public perception of epilepsy revealed that participants in Limpopo (58.4%) and Mpumalanga (48.2%) displayed low levels of knowledge (Musekwa, 2022). The scant knowledge concerning the epilepsy condition in our communities is horrible and requires corrective measures. Therefore, this study explored the knowledge, attitude, and awareness of epilepsy among students in a selected higher education institution.

CONCEPTUAL FRAMEWORK

This conceptual framework outlined the key components that have guided the investigation into the knowledge, attitudes, and awareness of epilepsy among students at a higher education institution in Limpopo, South Africa. The study aimed to provide a comprehensive understanding of these aspects and their interplay within the context of this specific community. The findings potentially inform targeted interventions to enhance knowledge, raise awareness, and promote a supportive and inclusive environment for students living with epilepsy and the general student population. Critical Components of the Conceptual Framework:

© University of Venda

1. ***Social and Cultural Influence***

- Cultural perspectives on epilepsy vary significantly and may influence how epilepsy is perceived and treated.
- Cultural norms related to family structures and social support systems impact the treatment and support received by individuals with epilepsy.
- The role of social and cultural factors in shaping knowledge, attitudes, and awareness of epilepsy among students was assessed.

2. ***Knowledge and Awareness about Epilepsy***

- Investigation into students' knowledge about epilepsy, encompassing its causes, symptoms, and potential treatments.
- Consider variables influencing knowledge, including formal education, healthcare resources, and prior exposure to information about epilepsy.
- Assessment of students' awareness of epilepsy as a health condition and its impact on individuals and communities.

3. ***Attitude Towards Epilepsy***

- Assessment of how perceptions, beliefs, and culture shape students' attitudes toward epilepsy.
- Recognition of negative attitudes and misconceptions, particularly regarding university attendance of children with epilepsy.
- Evaluation of awareness campaigns, educational programs, and initiatives to enhance awareness about epilepsy within the university setting.

4. ***Misconceptions and Myths***

- Assessment of the various causes of misconceptions and myths surrounding epilepsy and their impact on individuals living with epilepsy and their families.
- Determination of beliefs, such as restrictions on marriage and social exclusion, contributing to self-blame and shame among those with epilepsy.

5. ***Stigma and Discrimination:***

- Examining stigma and discrimination within the university community, considering how knowledge, attitudes, and awareness levels influence stigmatizing behaviours.
- Acknowledgment of potential consequences for students with epilepsy, including anxiety and fear resulting from discrimination and misunderstanding.

© University of Venda

6. ***Care-Seeking Behaviour:***

- Evaluation of actions, knowledge, and attitudes related to managing epileptic attacks.
- Understanding the potential link between inadequate education on epilepsy and poor health-seeking behaviour, which can lead to suboptimal healthcare.

7. ***Treatment Gap:***

- Analysis of factors contributing to the treatment gap, including belief in spiritual causes and socioeconomic status.
- Determination of the delay in accessing evidence-based biomedical care for people with epilepsy who initially seek traditional or pastoral (Faith-based) healing.

This conceptual framework provided a structured approach for investigating the knowledge, attitudes, and awareness of epilepsy among students at a higher education institution in Limpopo, South Africa. By examining these key components, the study aimed to generate insights that can inform targeted interventions and policies to improve understanding, reduce stigma, and enhance support for individuals with epilepsy within the university community. The findings have contributed to a more inclusive and informed educational environment for all students.

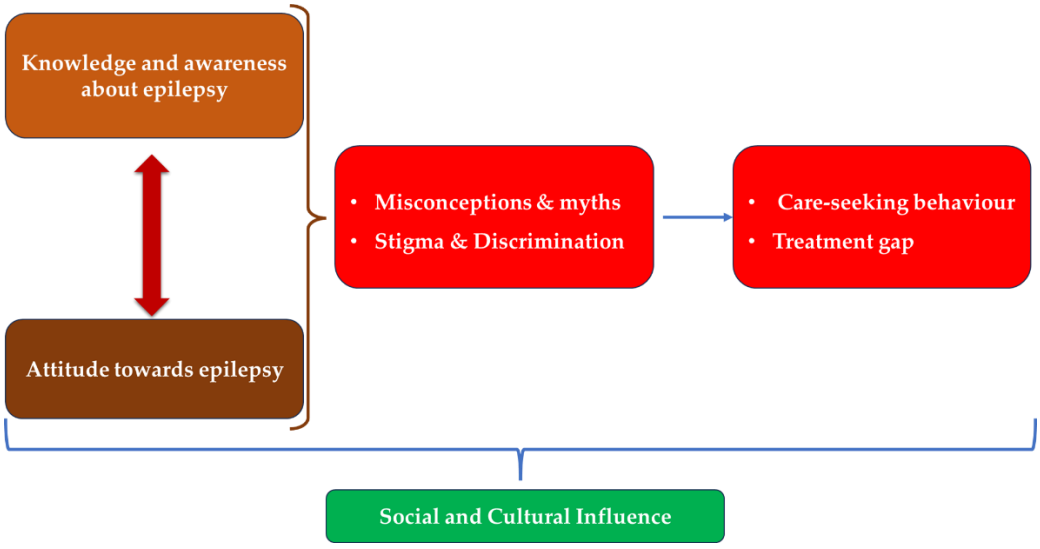


Figure 1: Conceptual Framework

RATIONALE FOR THE STUDY

The study's rationale incorporated the knowledge gap, impact on students, stigma reduction, health care access, cultural context, and public health impact.

- ***Knowledge Gap***

There is a lack of studies focusing on the knowledge, attitudes, and awareness of epilepsy among students in higher education institutions in Limpopo, South Africa. Understanding these factors is crucial for developing effective interventions and support systems for students with epilepsy.

© University of Venda

- ***Impact on Students and Public Health***

Epilepsy can significantly impact students' academic performance, social interactions, and overall quality of life. By determining students' knowledge, attitudes, and awareness of epilepsy, the study has identified areas where support and education were needed. In addition, Epilepsy is a significant public health issue globally. By focusing on students who represent a key demographic group, the study contributed to broader public health efforts to improving epilepsy management and awareness.

- ***Stigma Reduction***

Stigma and misconceptions surrounding epilepsy can lead to social isolation and discrimination. By increasing awareness and understanding among students, the study aimed to reduce stigma and create a more inclusive environment for individuals with epilepsy.

- ***Healthcare Access***

Lack of knowledge about epilepsy can lead to delays in seeking healthcare and accessing appropriate treatment. By improving knowledge and awareness, the study may help students with epilepsy receive timely and effective care.

- ***Cultural Context***

In many African communities, including those in Limpopo, cultural beliefs and practices can influence attitudes towards epilepsy. Understanding these cultural factors is essential for developing culturally sensitive interventions.

SIGNIFICANCE OF THE STUDY

The Findings from the study can inform the development of targeted interventions to improve epilepsy management among students in higher education institutions. Social support may be enhanced by increasing awareness and understanding of epilepsy, and the study can help create a more supportive environment for individuals with epilepsy, reducing social stigma and isolation. The study's findings can inform policy decisions related to epilepsy education and awareness campaigns in educational settings, leading to more effective and sustainable interventions. The study has contributed to the existing literature on epilepsy by focusing on a unique demographic group. It provided valuable insights that have guided future research in the area. By raising awareness about epilepsy and its impact, the study has contributed to a broader public health effort aimed at promoting health and well-being among individuals with epilepsy.

PROBLEM STATEMENT

The concern of non-communicable diseases, particularly epilepsy, persists globally, including in South Africa and other countries. Cultural beliefs and misconceptions about epilepsy impact care-seeking behaviour, leading to a treatment gap in developing countries like Cameroon and South Africa. Furthermore, cultural beliefs issues and increased misconceptions have been documented in the communities of Limpopo and Mpumalanga provinces (Makhado et al., 2020; Musekwa et al., 2020; Makhado et al., 2022a, 2022b, 2023;

© University of Venda

Chabangu et al., 2022; Nemathaga et al., 2023). Students with epilepsy face challenges interacting with peers due to fear of seizures, leading to stigma and discrimination. Understanding the knowledge, attitude, and awareness towards epilepsy among higher education students is crucial in dispelling misconceptions and reducing stigma. Despite previous studies on knowledge and awareness in adults and school children, there is a lack of research on higher education and training students. Therefore, this study assessed the knowledge, attitude, and awareness towards epilepsy among students in higher education institutions.

AIM AND OBJECTIVE OF THE STUDY

STUDY AIM

The study aimed to explore the knowledge, attitude, and awareness of epilepsy among students in a selected higher education institution in Limpopo province, South Africa.

OBJECTIVES

In this study, the researcher focused on the following objectives:

- To describe the knowledge of epilepsy amongst students at a selected higher education institution of learning in the Limpopo province, South Africa.
- To describe the attitude of epilepsy amongst students at a selected higher education institution of learning in the Limpopo province, South Africa.
- To describe the epilepsy awareness amongst students at a selected higher education institution in Limpopo province, South Africa.

DEFINITION OF TERMS

Epilepsy- The World Health Organization (2019) defined Epilepsy as a chronic, non-communicable disease of the brain characterized by recurrent involuntary seizures and sometimes accompanied by loss of unconsciousness and loss of bowel control, affecting around fifty million people worldwide.

Attitudes- Attitudes are evaluation statements, either favourable or unfavourable, concerning people or events. They often reflect how people feel about something. In this study, the attitude referred to the feelings that students have towards people with epilepsy, whether it's negative or positive and how it impacts their daily living.

Awareness- relates to comprehending or realising problems, difficulties, or social issues, such as environmental or social awareness, which involves knowing and caring about these specific subjects. In this study, awareness was assessed to assess whether students are aware of epilepsy as a health condition and its impact on individuals and community members.

Knowledge- refers to the facts, information, and comprehension that someone has regarding a variety of topics, themes, or ideas. It entails acquiring knowledge through education, experience, or research and can be applied in theoretical and practical contexts. In this study, the researcher investigated students' knowledge of epilepsy, including its causes, symptoms, and available treatments.

© University of Venda

Misconceptions are the views, ideas, or opinions that people have that are incorrect or true and based on thinking and understanding. The researcher in the present study assessed the causes of misconceptions surrounding epilepsy and people living with epilepsy and its impact on individuals.

Myths- a customary story or narrative handed down through the ages to explain natural phenomena, cultural beliefs, or practices. These tales shed light on a culture's origins, beliefs, and worldviews through the frequent inclusion of gods, heroes, and other elements (Witzel, 2012). In this study, the researcher assessed how culture and perceptions shape students towards epilepsy, which leads to restrictions on studying and making friends.

METHODOLOGY

STUDY DESIGN

The study employed quantitative research, specifically focusing on a cross-sectional study design to assess knowledge, attitudes, and awareness regarding individuals living with epilepsy among higher education students. The study used a cross-sectional descriptive research design, particularly emphasizing students from a higher education institution in Limpopo province. This choice stemmed from the similarity of this group of students despite their diverse geographic origins.

Quantitative research involves collecting and analysing numerical data to describe and control the outcomes of interest. This study used the quantitative approach to establish general behavioural patterns and generate statistics that can transform quantitative data into valuable information for decision-making (McLeod, 2019). The selection of a cross-sectional design was motivated by its capacity to gather a substantial amount of data at a specific time, making it highly manageable and cost-effective (Botma et al., 2022).

STUDY SETTING

The research took place at a selected institution of higher education in Limpopo province, known for housing multiple higher learning institutions, including the University of Venda and the University of Limpopo, as well as several colleges. The researcher has observed that despite nursing students learning about epilepsy in their classes, their knowledge of the topic remains incomplete. The chosen institution is home to a diverse community with various cultural beliefs, highlighting the significant influence of cultural perceptions on individuals' experiences. Moreover, most students at the institution come from underprivileged backgrounds. Although the medium of instruction is English, the predominant spoken languages at the institution are Tshivenda, Xitsonga, Sepedi, and SiSwati.

TARGET POPULATION

In this study, the researcher focused on all students (undergraduate and postgraduate students) in higher education in selected institutions. Therefore, the target population was registered students attending the selected higher education institutions in Limpopo province, South Africa. The institution consists of about +-15000 students that are registered, and most of the students in the selected higher institution of learning

© University of Venda

are from rural villages of Limpopo province, followed by Mpumalanga as the neighbouring province and other provinces with a limited number of students. The researcher chose to conduct a study on all students (undergraduate and postgraduate students) at a selected higher institution of learning due to a lack of studies. The researcher assessed the knowledge and attitude that the students have towards people living with epilepsy, as some of them spend time and attend classes together.

SAMPLE SIZE AND SAMPLING

Purposive sampling was employed to select an institution of higher learning in Limpopo province. In this study, all students (Undergraduate and postgraduate students) registered in the selected higher education institution were randomly selected to participate. This is because students display a higher level of behavioural, emotional, and cognitive engagement, which means they form a stronger sense of connection with their community members and have a more positive sense of social-emotional well-being.

The Raosoft Sample Size Calculator determined the sample size, and the total population in the selected institution was about 15,000. The recommended sample size was 375 participants at a 5% margin of error and confidence level of 95%. In addition, this research provided an opportunity for mutual learning between the researcher and the students, where students could provide valuable feedback on educational programs.

INCLUSIVE AND EXCLUSIVE CRITERIA

In this study, all students at the selected higher education institution in Limpopo province who are registered and attending courses and willing to participate were included. The study excluded all staff members of higher education institutions.

PRE-TEST

The pre-test was not performed because the study was a continuous assessment, as the collection tool had been validated and tested in the study's population.

DATA COLLECTION INSTRUMENTS AND PROCESS

This study used an electronic Google form questionnaire to obtain responses from participants. The questionnaire was formulated in English as the language of communication for ease of understanding. The questionnaire consisted of three (3) sections: Section 1: Demographical profile of the participant; Section 2: Participants' knowledge and attitude towards epilepsy; and Section 3: Awareness towards epilepsy.

The researcher established a connection with the participants by introducing herself and fostering trust. Subsequently, the researcher has requested permission from the University of Venda students to conduct a health study and gather data by answering electronically the questionnaire. The researcher has used a social media platform and an online discussion board to recruit relevant participants. The participants were asked to respond truthfully to all the questions in the questionnaire. The questionnaire was available in English

© University of Venda

and the length was determined by the total number of questions included, however the participants spent 20-30 minutes to complete the questionnaire.

DATA ANALYSIS

The collected data was analysed using Statistical Package of Social Science (SPSS) software version 30. The data analysis for this study aimed at describing the knowledge, attitude, and awareness of epilepsy among students at a higher education institution in Limpopo province, South Africa. To assess knowledge, a structured questionnaire was used to gather data on various aspects of epilepsy, such as its causes, symptoms, and treatments. Descriptive statistics were calculated, revealing the level of understanding among participants.

For attitude assessment, the same questionnaire explored students' perceptions and empathetic attitudes toward epilepsy. Responses were coded and analysed to determine the overall attitude of the participants. To measure awareness, the questionnaire included inquiries about awareness campaigns, educational programs, and information sources regarding epilepsy. Descriptive statistics were employed to summarise the awareness levels among students. Cross-objective analysis included correlation analysis to identify potential relationships between knowledge, attitude, and awareness scores and demographic analysis to explore variations based on participant demographics. The findings were presented through tables, charts, and narratives, providing insights into the participants' understanding, attitudes, and awareness of epilepsy, aiding in fulfilling the study's objectives.

ETHICAL CONSIDERATION

- ***Ethical clearance and permission to conduct the study.***

The researcher obtained ethical clearance and permission from the University of Venda Health and Clinical Trial Research Ethics Committee (HCTREC) to conduct the study from the selected higher education institution in Limpopo province. The participants have received the relevant study information to ensure proper informed consent processes.

- ***Voluntary participation***

The researcher has ensured that participants are not pressured or forced to participate in the study. The participants could decide whether to participate and were given a consent form to sign. No threats were used to influence their decision.

- ***Privacy, Anonymity and Confidentiality***

The data used for concluding this study is treated with utmost privacy, following principles that respect individuals' right to privacy and personal information. No personal details were disclosed or exposed in a way that could identify the study participants. The study was and is committed to upholding the right to privacy for all individuals and aimed at preventing any actions that might violate or disrespect this right.

© University of Venda

The researcher has ensured that the participants' real names are kept confidential. Instead, they used codes like "Participant 1" to protect the participants from potential harm or risk. By maintaining anonymity and confidentiality, the participants were allowed to feel more comfortable expressing their views without fear of negative consequences on their reputation or knowledge.

- ***The risk-benefit ratio***

The researcher and reviewers have assessed the balance between the benefits and risks involved. As Botma et al. (2022) stated, the researcher should balance the potential benefits and risks. While all research carries some risk, the researcher is responsible for ensuring that the participants' benefits exceed any potential risks in the study.

- ***Beneficence***

The study has significantly enhanced participants' understanding of epilepsy, fostering greater awareness and knowledge about the condition. Additionally, the researcher prioritized the protection of participants' rights and well-being throughout the study process. By focusing on university students as the participant group, the researcher effectively selected individuals who were not only willing to engage but also less vulnerable, thereby ensuring that ethical considerations were upheld in the research design. This thoughtful approach contributes to the integrity of the study and the reliability of its findings.

- ***Non-maleficence***

The researcher prioritized participants' safety by carefully assessing the balance between potential benefits and risks associated with the study. By ensuring that the benefits significantly outweighed the risks, the researcher upheld the participants' right to give informed consent. This approach not only demonstrated respect for the autonomy of the participants but also reinforced the commitment to maintaining their safety throughout the duration of the study.

DATA MANAGEMENT

The researcher has ensured that the data collected was maintained and secured to prevent loss or falling into the wrong hands. Data collected by the researcher in the study was stored electronically and is to be kept for five years as evidence to support that the research has been done for the case of a query that may arise within five years after the research is done. The researcher is responsible for keeping all the information gathered safe from unauthorized access through password-protected documents.

DISSEMINATION OF DATA

The researcher will present the findings and publish the results as an article in accredited peer-reviewed journals. A final report will be sent to the University of Venda's research and publication committee.

© University of Venda

REFERENCES

Ab Rahman, A.F. (2005). Awareness and knowledge of epilepsy among students in a Malaysian university. Seizure: European Journal of Epilepsy, 14(8), 593-596.

Adamu, A., Chen, R., Li, A. et al. (2023). Epilepsy in Asian countries. Acta Epileptologica 5, 25. https://doi.org/10.1186/s42494-023-00136-1.

Alkhotani, A. M., & Alkhotani, A. M. (2022). Effect of health education on female primary school teachers' knowledge of seizure first aid: An interventional study. *Epilepsy & Behavior*, *127*, 108523.

Botma, Y., Greeff, M., Makhado, L., & Mulaudzi, M.F. (2022). Research in health science. 2nd edition. Pearson South Africa (Pty) Ltd.

Chabangu, Q., Maputle, M. S., Lebese, R. T., & Makhado, L. (2022). Indigenous practices for management of epilepsy by traditional healers in South Africa. *Эпилепсия и пароксизмальные состояния*, *14*(3), 267-275.

Ekeh, B.C., & Ekrikpo, U.E. (2015). The knowledge, attitude, and perception towards epilepsy amongst medical students in Uyo, Southern Nigeria. Advances in Medicine.

Epilepsy – Risk factors. Mayo Clinic. Published April 28, 2023. Accessed January 19, 2024. https://www.mayoclinic.org/diseases-conditions/epilepsy/symptoms-causes/syc-20350093

Eze, C.N., Ebuehi, O.M., Brigo, F., Otte, W.M., & Igwe, S.C. (2015). Effect of health education on trainee teachers' knowledge, attitudes, and first aid management of epilepsy: An interventional study. Seizure, 33, 46-53.

Kaddumukasa, M., Smith, P. J., Kaddumukasa, M. N., Kajumba, M., Almojuela, A., Bobholz, S., & Koltai, D. C. (2021). Epilepsy beliefs and misconceptions among patient and community samples in Uganda. *Epilepsy & Behavior*, *114*, 107300.

Makhado, L., Makhado, T. G., Lebese, R. T., Maphula, A., Maputle, M. S., Mabunda, J. T., & Mashau, N. S. (2020). GladAfrica Epilepsy Research Project (GERP): initiation, launch and community interest report. *Africa Journal of Nursing and Midwifery*, *22*(2), 5-pages.

Makhado, T. G., Lebese, R. T., & Maputle, M. S. (2022). Perceptions of teachers regarding the inclusion of epilepsy education in life skills for primary learners and teachers in Limpopo and Mpumalanga provinces (South Africa). *Эпилепсия и пароксизмальные состояния*, *14*(4), 334-343.

Makhado, T. G., Lebese, R. T., & Maputle, M. S. (2023). Inclusion of epilepsy in life skills education of primary school learners: the perceptions of life skills advisors in Mpumalanga and Limpopo Provinces (South Africa). *Epilepsy and paroxysmal conditions*, *15*(2), 125-134.

© University of Venda

Makhado, T.G., Lebese, R.T., Maputle, M.S., & Makhado, L. (2022). Epilepsy life skill education guidelines for primary school teachers and learners in Limpopo and Mpumalanga Provinces, South Africa: Multiphase mixed methods protocol. PloS One, 17(7), e0271805.

McLeod, S.A. (2019, July 30). Qualitative vs. quantitative research. Simply Psychology. https://www.simplypsychology.org/qualitative-quantitative.html

Mewes, S., Jeschke, S., Bertsche, T., Neininger, M.P. and Bertsche, A. (2020). Knowledge of and attitudes towards epilepsy among first-and second-year students at a German university. Epilepsy & Behavior, 112, p.107490.

Musekwa, O. P., Makhado, L., & Maphula, A. (2022). Public perception of epilepsy in rural Limpopo and Mpumalanga provinces: a quantitative study on knowledge, awareness, and attitudes. *Challenges*, *13*(2), 65.

Musekwa, O. P., Makhado, L., Maphula, A., & Mabunda, J. T. (2020). How much do we know? assessing public knowledge, awareness, impact, and awareness guidelines for epilepsy: A systematic review. *The Open Public Health Journal*, *13*(1).

Nemathaga, M., Maputle, M.S., Makhado, L., & Mashau, N.S. (2023). Diagnosis of Epilepsy by Traditional Healers and Its Implications on Management in the Selected Rural Communities of Limpopo and Mpumalanga Provinces: A Qualitative Study. Neuropsychiatric Disease and Treatment, 19, 973-983. https://doi.org/10.2147/NDT.S392479

Souza, P., Portes, L. A., Thomas, R. K., Bonito, J. R., Rua, M., Pacheco, F. J., ... & Oliveira, N. C. (2018). Knowledge about epilepsy in university health students: a multicenter study. *Epilepsy & Behavior*, *79*, 112-116

Witzel, E. M. (2012). *The origins of the world's mythologies*. Oxford University Press.

World Health Organization. (2019). Epilepsy: a public health imperative. World Health Organization.

Wubetu, A.D., Admasu Basha, E., & Alemnew Engidaw, N. (2020). Public knowledge and attitude towards epilepsy and its associated factors: community-based cross-sectional study, Ethiopia. Journal of Environmental and Public Health.

© University of Venda

SECTION TWO

MANUSCRIPTS/ARTICLES

This section includes two manuscripts currently under review in the Seizure - European Journal of Epilepsy, focusing on the literature review through a scoping review approach and the study purpose via a quantitative cross-sectional study:

- **The First Manuscript** is titled: *What is Already Known? Assessing the Knowledge, Attitude, and Awareness Amongst Students of Higher Institutions of Learning Towards Epilepsy: A Scoping Review*. This manuscript provides an overview of existing literature and evaluates the general understanding and perceptions of epilepsy among higher education students.

- **The Second Manuscript** is titled: *Assessing Knowledge, Attitudes, and Misconceptions About Epilepsy Among University of Venda Students: A Call for Enhanced Education and Awareness*. This manuscript presents original research findings that delve into the specific knowledge, attitudes, and misconceptions regarding epilepsy among students at the University of Venda, highlighting the need for improved educational initiatives and awareness programs.

© University of Venda

2.1 MANUSCRIPT 1: SUBMITTED TO SEIZURE - EUROPEAN JOURNAL OF EPILEPSY (UNDER REVIEW)

Author Guidelines Followed: https://www.seizure-journal.com/content/authorinfo

Understanding Epilepsy: A Scoping Review of Knowledge, Attitudes, and Awareness Among Higher Education and Training Students.

Ndou AE*[1], Makhado L[1], Netshisaulu OP[2]

[1] *Department of Public Health, Faculty of Health Sciences, University of Venda, 1 University Road, Thohoyandou, 0950, Limpopo Province, South Africa*
[2] *Department of Psychology, Faculty of Humanities, University of Johannesburg, Gauteng, 2092, South Africa.*
Corresponding author: *Ndou AE; 16001713@mvula.univen.ac.za

ABSTRACT

Epilepsy is a widespread chronic neurological disorder affecting millions globally, particularly in low- and middle-income countries. Despite improvements in treatment and advocacy efforts, stigma, misconceptions, and discrimination against individuals with epilepsy (PWE) continue to be significant issues, often stemming from cultural beliefs and a lack of knowledge. This scoping review examines research on the knowledge, attitudes, and awareness of epilepsy among students in higher education institutions worldwide, highlighting the effects of educational interventions.

The review includes studies published in English between 2019 and 2023, utilising both qualitative and quantitative methods. Key databases such as Google Scholar, EBSCOhost, Science Direct, and PubMed were searched for relevant studies using Boolean terms. Findings indicate that while many students have a good understanding of epilepsy's causes and symptoms, misconceptions persist, particularly regarding its hereditary and contagious nature.

Educational interventions have been shown to enhance knowledge and alter attitudes toward epilepsy, though the impact varies by region, field of study, and demographic factors like gender. The review emphasizes the need for culturally sensitive educational programs and recognizes university students as potential change agents who can help reduce stigma in their communities. Overall, it advocates for comprehensive educational strategies within higher education to foster informed, empathetic, and supportive responses to epilepsy.

Keywords: Epilepsy, awareness, stigma, educational interventions, higher education.

© University of Venda

INTRODUCTION

Epilepsy is one of the most chronic neurological and non-infectious conditions worldwide (WHO., 2019). The estimations show that epilepsy affects more than 70 million people globally, 80% of whom live in low- and middle-income countries (WHO., 2019). Although epilepsy is a common neurologic condition, individuals still carry stigmas, misconceptions, and incorrect attitudes toward the condition. Many authors have noted that in addition to the anxiety of seeing and dealing with the condition's symptoms, a significant amount of discrimination is driven by the erroneous belief of helplessness and mental incapacity associated with people living with epilepsy (Natarajan & Prabu, 2019).

Epilepsy continues to be a severe global burden in developing countries. The lack of knowledge and understanding about the cause of epilepsy has influenced negative attitudes, stigma and discrimination towards people living with epilepsy. In Western parts of Asia, there is still a belief that epilepsy results from evil spirits and may be treated with spiritual ceremonies (Adamu et al., 2023). The students at the University of Germany showed primary knowledge and a positive attitude towards epilepsy. However, the measures to be taken during seizure attacks were limited (Mewer, 2020).

Most studies done which showed a lack of knowledge regarding epilepsy have been found in African countries. In sub-Saharan countries, both in rural and urban, epilepsy is labelled as a condition that results from evil and witchcraft (Munyadziwa, 2022). In Saudi Arabia, the study showed negative attitudes among community members (Kabel, 2020). Similarly, the study on public perception of epilepsy revealed that participants in Limpopo and Mpumalanga displayed low levels of knowledge (Musekwa, 2022).

It would be a lie to say that people with epilepsy experience equal chance of social support. People living with epilepsy face rejection socially for as long as they are diagnosed with epilepsy, regardless of whether they have a seizure attack; the stigma behind the condition causes discrimination (Kaculini et al., 2021). This discrimination affects the individuals in many aspects, such as marriage, employment and delay in receiving first aid care during the seizure attack. Unfortunately, the feeling of being discriminated against may lead to individuals with epilepsy isolating themselves, which results in depression (Yeni, 2023). The study in Saudi

© University of Venda

Arabia showed that lack of community understanding, awareness, cultural attitude, and stigma play a vital role in people with epilepsy (Alkhotani,2022).

The knowledge and attitude of the higher institution students are essential in every aspect as they significantly influence the community. The students can go back to the community and teach what they have learned and know. Understanding the knowledge and attitude that the students have towards people living with epilepsy will enhance developing awareness. It will assist the students who are living with epilepsy to get the support they need from other students. There is a lack of studies focusing on or aiming to reduce the stigma and discrimination in individuals living with epilepsy (Yeni, 2023). Therefore, there is a drastic need to conduct more studies focusing on enforcing positive attitudes and stigma reduction.

2. OBJECTIVES

In this study, a scoping review was conducted to locate the studies done on epilepsy and to establish the gap in knowledge, attitude and awareness towards epilepsy. The researcher formulated the research question based on what is already known. The review question is: *What is the level of knowledge, attitude, and awareness among students of higher education institutions regarding epilepsy?*

3. METHODOLOGY

The following steps were used in this scoping literature review.

3.1. DEFINING THE SCOPING REVIEW QUESTIONS

This study is guided by knowledge, attitude, and awareness.

- What is the level of knowledge of epilepsy
- What is the level of attitude towards epilepsy
- What is the level of awareness towards epilepsy

3.2. SETTING UP INCLUSION AND EXCLUSION CRITERIA

Inclusion criteria

The peer-reviewed articles or journals were included if they were written in English, published between 2019-2023, reviewed and involved knowledge, attitude, and awareness towards epilepsy. The papers talking about the treatment available in managing epilepsy were

© University of Venda

also included. Quantitative and qualitative studies were involved to find different aspects of measuring knowledge.

Exclusion criteria

The excluded papers did not fit into the inclusion criteria. This study also excluded the studies done before 2019 and after 2023.

3.3. SEARCH STRATEGY

The search strategy used the combination of the following keywords: Epilepsy, Knowledge, Attitude and Awareness. AND/OR (Boolean) terms were also used to separate the search keywords. The data were extracted from Google Scholar, Science Direct, EBSCOhost and PUBMED. The identified studies were published literature in the English language from the period 2019 to 2023. Table 1 shows the database used and the key or index terms.

Table 1. List of databases used and search key terms, index terms and Boolean search

Database	Keywords search
Google Scholar	Knowledge, attitude and awareness of epilepsy in university students and college students.
PubMed	(((((knowledge) AND (attitude)) AND (Awareness)) AND (Epilepsy)) AND (students)) AND (university students).
Science Direct	knowledge, attitude, and awareness of epilepsy in university students.
EBSCOhost	Knowledge AND Awareness AND Attitude AND epilepsy AND University students

3.3.1 Selection of eligible studies

Many studies were found to be conducted on the knowledge, attitude and practices of epilepsy in professionals, school children and the community. The researchers reviewed the study titles and abstracts to find studies relevant to this scoping review. Once the study was relevant, the full article was reviewed. The researcher and the supervisors discussed the differences and reached an agreement. The flow chart was developed using a PRISMA diagram to show the details of the article selection process (Fig. 1). The PRISMA chart flow presented in Fig. (1) is a four-phase diagram summarising a checklist that gives a clear data report. The version used has been adapted from (Page et al., 2020). The initial search provided 16,417 studies. After the review of the abstract and title, 16,064 studies were excluded. This includes duplicates and studies not in line with the study's aim. The final 36 articles were included and critically analysed for their reliability.

© University of Venda

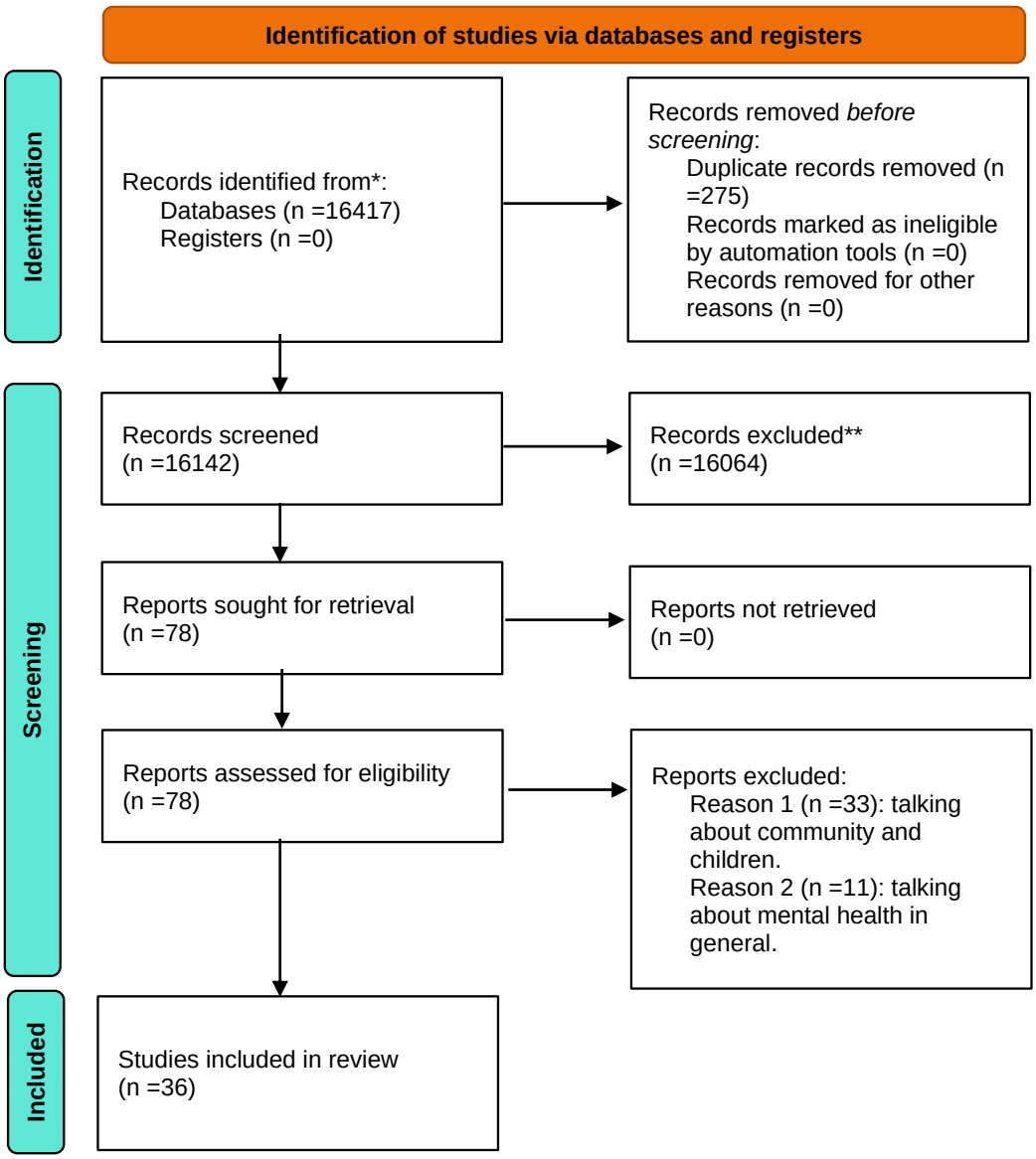


Figure 1: PRISMA 2020 flow diagram.
Source: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021; 372:n71. doi:10.1136/bmj.n71 for more information, visit: http://www.prisma-statement.org/

STEP 4. DATA EXTRACTION AND QUALITY REVIEW

The studies were appraised using the Critical Appraisal Skills Programme (CASP) to ensure that the studies included in the review are of good quality to assess their trustworthiness and to agree that they match their methods and findings. Out of all included studies, most (n=29) scored 75% and above, and the remaining (n=7) scored between 50% and 74%. Thirty-five studies underwent a cohort (cross-sectional) checklist, one being qualitative and two Quasi-experimental.

© University of Venda

Table 2: CASP with scores and percentages

Authors	Study Design	CASP score	Percentage (%)
Abbasi et al. (2019)	Descriptive cross-sectional	9/12	75%
Alkhotani & Alkhotani (2022)	Cross-sectional descriptive	9/12	75%
Hakami et al. (2021)	Observational cross-sectional	8/12	67%
Halawani et al. (2019)	Cross-sectional	9/12	75%
Ibrahim et al. (2021)	Descriptive cross-sectional	10/12	83%
Jebur et al. (2021)	Descriptive cross-sectional	11/12	92%
Kabel et al. (2020)	Cross-sectional study	11/12	92%
Iannone et al. (2021)	Descriptive	6/11	55%
Lurita--Córdova et al. (2023)	Observational cross-sectional	9/12	82%
Mewes et al. (2020)	Cross-sectional	6/12	50%
Mustafa et al. (2022)	Observational cross-sectional	8/12	67%
Natarajan & Prabu (2019)	Descriptive study	9/12	75%
Rajab et al. (2021)	Cross-sectional	9/12	75%
Shihata et al. (2021)	Descriptive cross-sectional	10/12	83%
Jing Tu et al. (2023)	Cross-sectional	9/12	75%
Vodougnon et al. (2019)	Cross-sectional	10/12	83%
Yeni et al. (2021)	Quasi-experimental study	9/11	82%
Žuvela, et al. (2023)	Cross-sectional	12/12	100%
Abuawad et al. (2023)	Observational cross-sectional	11/12	92%
Akça & Kurt et al. (2020)	Cross-sectional	8/12	67%
Algahtani et al. (2022)	Cross-sectional	11/12	92%
Alyazidi et al. (2022)	Exploratory cross-sectional	9/12	75%
Aksoy & Büyükbayram. (2022)	Descriptive cross-sectional	11/12	92%
Durmaz et al. (2022)	Descriptive cross-sectional	11/12	92%
Erdem et al. (2023)	Descriptive cross-sectional	9/12	75%
Pietruszka et al. (2023)	Qualitative snowball	8/10	67%
Quadras et al. (2021)	Cross-sectional	10/12	83%
Shawahna & Jaber. (2020)	Observational cross-sectional	9/12	75%
Shawahna et al. (2021)	Cross-sectional	9/12	75%
Turan et al. (2022)	Descriptive cross-sectional	7/12	58%
Unsar et al. (2020)	Descriptive cross-sectional	10/12	83%
Yıldız et al. (2022)	Descriptive cross-sectional	9/12	75%
Shawahna. (2020)	Cross-sectional	10/12	83%
Berjaoui et al. (2022)	Cross-sectional-cohort study	11/12	92%
Alomar et al. (2010)	Cross-sectional study	9/12	75%
Abdulrahman et al. (2022)	Observational cross-sectional	10/12	83%

DATA EXTRACTION FROM AVAILABLE STUDIES

The data was extracted based on author, year, study title, research aim, study setting, study design, sample size, key findings, and study limitations. The articles were downloaded from different databases. The table below shows the summary of the included data. Only relevant data was extracted following citation, methodology, key findings, and limitations, as shown in Table 3.

© University of Venda

Table 3: characteristics of included studies

Author and year of the study	Study title	Research aims	Study setting	Study design & Sample size	Findings	Limitations
Abbasi et al., 2019	Awareness and attitudes toward epilepsy in Ardabil medical and non-medical university students	To evaluate the knowledge and attitudes of medical and non-medical students toward epilepsy in Ardabil City, Iran.	Ardabil City, Iran	Descriptive cross-sectional study. 150 students	Of all students, 47.3% displayed moderate knowledge, and 44.7% showed a sound attitude. Most boys, 46.7% and most girls, 43.8%, had good attitudes toward epilepsy, but no significant difference between the two sexes. Most medical and non-medical university students had high and moderate awareness of epilepsy, respectively, and the difference between the two groups was significant (p = 0.001)	
Yeni et al, 2021	The effect of a seminar on medical students' information acquisition of and attitudes toward epilepsy	To evaluate the effect of a brief seminar focusing on medical and social aspects of epilepsy on information acquisition of and attitudes toward epilepsy among medical students		Quasi-experimental study. A total of 52 students	In a survey, 50.9% of students reported encountering epileptic seizures, but only 12.3% had provided first aid. Before education, many students struggled to recognize seizure symptoms. After educational sessions, the percentage of students who correctly understood that a patient's jaw should not be opened during a seizure increased from 38.6% to 68.4%. Additionally, the number of students who felt competent in administering first aid for epilepsy rose dramatically from 12.3% to 91.2%. There was a strong response regarding the social aspects of epilepsy, and while the overall increase in positive attitudes after education was minimal, it was still significant.	
Shihata et al, 2021	Knowledge, perception and attitudes toward epilepsy among medical students at King Abdulaziz University	To assess the knowledge, awareness level and attitudes toward epileptic patients among King Abdulaziz University (KAU) medical students.	Jedda, western region of Saudi Arabia King Abdulaziz University	Observational cross-sectional study. 455 students. However, the sample size was sampled at 326 using Raosoft	Students generally had a good understanding of epilepsy, with 95.8% believing that medication is the most effective treatment. Clinical students tend to view individuals with epilepsy positively, particularly regarding their potential for success and parenthood, with 92.1% holding this view. However, only 44.6% would consider marrying someone with epilepsy. Misunderstandings about the causes and symptoms of epilepsy negatively affect attitudes toward the condition. Additionally, pre-clinical students held more	The study focused exclusively on medical students from the second to sixth year at one medical college, which limits its generalizability. Unfamiliar terminology may have influenced some students' responses, and limited exposure to epilepsy cases

© University of Venda

					negative attitudes than clinical students due to a lack of knowledge and practical experience.	could have impacted their attitudes.
Lurita-Córdova et al, 2023	Sociodemographic factors associated with the level of knowledge about management of epileptic patients in Peruvian dental students: a cross-sectional study under a multivariable analysis	To assess the sociodemographic factors associated with the level of knowledge about care management of epileptic patients in Lima and Ica, Peru;	Peru, Peruvian University	Analytical, observational, cross-sectional and prospective study. 312 students were included	Dental students in their third and fourth years displayed significantly better knowledge of the dental management of epileptic patients than fifth-year students, with a 61% and 57% reduced likelihood of poor knowledge, respectively. Among the 312 surveyed students, 28.8% had inadequate knowledge, 36.2% had fair knowledge, and 34.9% had good knowledge, indicating a general lack of understanding of the topic. Additionally, knowledge levels were significantly associated with gender ($p = 0.013$), academic year ($p = 0.012$), and place of origin ($p = 0.015$).	Only dental students in their 3rd to 5th year were included in the study, as 1st and 2nd-year students do not engage in preclinical and clinical courses. The questionnaire was administered virtually and asynchronously and had a 10-minute time limit with no option for repetition to minimize bias.
Natarajan & Prabu et al, 2019	knowledge, attitude, and awareness about epilepsy among dental students	Finding the defect in knowledge about epilepsy and the factors that might influence their attitude toward epileptic patients.	Saveetha dental college	Descriptive cross-sectional study. 100 students Randomly selected	- Only 28% of participants were fully aware of the procedures necessary for treating patients with epilepsy; More than 30% knew to stop the procedure and remove objects around the patient during a seizure. A negative attitude was noted, with 29% believing that individuals with epilepsy should not be employed. Overall, the participants had inadequate knowledge about epilepsy and displayed some negative attitudes toward affected patients. Many respondents were unaware of the prevalence of epilepsy, with misconceptions that it is contagious and that it primarily affects those with mental illness. Further study is needed to explore dentists' attitudes toward patients with epilepsy and how these beliefs may affect access to dental care.	
Hakami et al, 2021	Knowledge of and attitude towards epilepsy among university students in Saudi Arabia: Misconceptions of the next generation	Examine the knowledge of epilepsy and attitudes toward people with epilepsy and their predictors among the undergraduate students at Jazan University.	Jazan University, Soudi Arabia	Observational cross-sectional study. 511 students. The sample was first stratified according to 3 sectors. 2	A survey of 511 students revealed the following about epilepsy: - 90.1% had heard of epilepsy; 37% knew someone with it; 57% had witnessed a seizure; 27.2% knew how to manage a seizure; 27% felt adequately informed, while 73% did not; 46.1% believed spiritual rituals might be a treatment; About two-thirds sought information from specialist doctors; 22% would marry	

© University of Venda

				Colleges were randomly selected.	someone with epilepsy; 24% believed people with epilepsy should have equal job opportunities; 54.1% would allow their children to play with those who have epilepsy; and 16.5% thought children with epilepsy should attend schools for individuals with disabilities.	
Mewes et al, 2020	Knowledge of and attitudes towards epilepsy among first- and second-year students at a German university		Germany University, Germany	Survey. 497 students	- 40.6% of respondents felt that people with epilepsy are not more excitable than others, while 42.9% believed they are not more withdrawn. The remaining participants were uncertain about these perceptions; 67.3% would want to know if a fellow student has epilepsy, 43.7% would disclose their epilepsy status if applicable, 76.1% would welcome a person with epilepsy into their social circles, and 53.7% would date someone with epilepsy. Notably, more female students than male students would include a person with epilepsy in their friend group. Despite these positive sentiments, less than half of the participants would disclose their epilepsy status due to concerns about stigma. Additionally, 60% of students reported knowing first aid management for epilepsy.	As participation was voluntary, participants were interested in the subject might be overrepresented in this study.
Jebur et al., 2021	Knowledge, Awareness and Attitude of Pharmacy Students Towards Epilepsy in Iraq	To assess the knowledge, Awareness and Attitude of pharmacy students towards epilepsy in Iraq	College of Pharmacy University of Baghdad, Iraq	Descriptive cross-sectional study. 206 pharmacy students Google form questionnaire	The knowledge and awareness of epilepsy among respondents was moderate but revealed some misconceptions. A significant portion, 75.4%, reported understanding the causes of epilepsy, yet 82.3% mistakenly believe it is contagious, and 54.6% consider it an inherited condition. Misunderstandings also extended to beliefs about its origins and treatment: 68.1% do not associate epilepsy with evil spirits, while 58% view it as a mental illness. Furthermore, 72.4% acknowledge that a person with epilepsy (PWE) can die from a seizure, and 45% think it is curable. Despite this, 53.5% of respondents feel confident performing seizure first aid. In terms of awareness, while 93.1% have heard about or attended seminars on epilepsy, many still lack direct experience; 51.9% have not had epileptic patients in their families but have encountered one,	

© University of Venda

					and only 43.5% have witnessed a seizure. Notably, just 10.8% have administered first aid during such an event. On a positive note, attitudes towards people with epilepsy are largely affirmative, with 92.3% believing PWE can access education, 89.6% affirming they can carry out daily activities, and 69.6% supporting their participation in sports. A remarkable 96.2% agree that PWE should not be isolated.	
Vodougnon et al., 2019	Knowledge, attitudes, and practices of health sciences students regarding epilepsy at the end of their curriculum in Benin	To determine the level of knowledge of health sciences students about epilepsy at the end of their curriculum in Benin	Abomey-Calavi University in Benin	Cross-sectional study. 187 students Questionnaire	30% of respondents believed epilepsy is hereditary, while 6.7% considered it contagious. All participants recognized that divine punishment, curses, or witchcraft do not cause epilepsy. Everyone agreed that a person with epilepsy (PWE) can have children and that parents should not prevent their child from marrying a PWE. However, 11.4% of midwifery students felt parents should discourage such marriages. In the workplace, prejudices were evident, with 4.7% of nursing students, 3.1% of medical students, and 2.9% of midwifery students expressing disfavor towards hiring individuals with epilepsy.	
Kabel et al., 2020	Knowledge, perceptions, and attitudes of students of health-related science colleges towards epilepsy in Taif, Saudi Arabia	To assess knowledge, perceptions and attitudes of students of health-related science colleges toward epilepsy in Taif, Saudi Arabia	Health-related Science College, Taif, Saudi Arabia	Cross-sectional study. 403 respondents, 51 male and 352 females. The questionnaires were distributed to 3 health science college	**Knowledge:** Most participants (84.1%) recognized epilepsy as a neurological disorder. Nearly all (97%) identified convulsions as a common symptom of epilepsy. About 48.1% suggested that the best way to assist someone having an acute seizure is to move them away from danger. Additionally, 77.7% believed that ongoing medical treatment and follow-up are essential for managing epilepsy. However, 39.7% thought that surgery is ineffective for cases of epilepsy that do not respond to medication. While most participants demonstrated a solid understanding of epilepsy, some held misconceptions, such as attributing the condition to the evil eye. **Attitude:** A substantial 85.9% of participants do not consider epilepsy a form of madness and agree that people with epilepsy should have equal employment opportunities. Moreover, 90.6% expressed a	

© University of Venda

					willingness to work with epileptic patients. About 76.4% believed individuals with epilepsy can get married, and 87.3% affirmed that they can have children. Overall, students exhibited a positive attitude toward epilepsy and those affected by it. Knowledge and attitude of students towards epilepsy were accepted. However, there are still negative attitudes and misconception	
Ibrahim et al., 2022	Awareness and attitude of first-year medical students toward epilepsy in the University of Khartoum, Sudan	To assess knowledge and attitudes towards epilepsy among first-year medical students as it is likely that most of their knowledge and attitude about diseases -before entering the medical schoolstems from beliefs held in their communities.	University of Khartoum, Sudan	Facility-based descriptive cross-sectional. 320 undergraduate medical students who were studying their first year. Data collected using Google form	**Awareness:** 85.4% of participants have read about epilepsy; 28.8% know someone with epilepsy; 19.2% believe seizures take time to end. **Attitude:** 82.2% find it acceptable for individuals with epilepsy to marry; 47% of students have a positive attitude towards marriage for people with epilepsy, particularly among females and those in urban areas; Female students feel their community discriminates against people with epilepsy (PWE). **Knowledge of Causes:** 62.2% attribute epilepsy to head or birth trauma; 58.9% cite brain tumours as a potential cause; 53% mention genetic factors; 35.9% believe fever can cause epilepsy; 15.7% think evil spirits are a cause, especially in rural areas; 5.1% view epilepsy as a punishment from God; Females also consider accidents (29.3%) and metabolic disorders (12.1%) as possible causes.	Restriction to online data collection only using Google Forms, and the lack of face-to-face interaction could invite social desirability bias.
Alkhotani & Alkhotani., 2022	Epilepsy Stigma Among University Students in Makkah: A Cross-Sectional Study	To assess the knowledge and attitude of university students in the city of Makkah about epilepsy.	University in Makkah, Saudi Arabia	Descriptive cross-sectional study. A stratified random sampling of 394 students	A survey of university students indicated a high level of awareness about epilepsy. Of those surveyed, 381 (96.7%) had heard of the condition, and 130 (33%) had a family member with it. Most respondents recognized epilepsy as a neurological disorder (326 or 82.7%) and not contagious (374 or 94.9%). However, misconceptions remained. Nearly half (194 or 49.2%) denied that epilepsy impacts daily activities. Additionally, 215 participants (54.6%) overlooked its effects on relationships, and 153 (38.8%) felt no difference in treatment compared to other patients. Stigmas persisted as well, with 271 respondents (68.8%) rejecting	

© University of Venda

					the idea that epilepsy is contagious and 356 (90.4%) disagree that those with epilepsy are aggressive. Despite this, 316 (80.2%) believed that people with epilepsy could live normal lives, indicating a need for further education to dispel lingering misconceptions.	
Rajab et al., 2021	knowledge and attitudes toward epilepsy among Libyan people with and without epilepsy in a tertiary medical centre.	To assess the knowledge and attitudes toward epilepsy among Libyan people with and without epilepsy.	Benghazi Medical Center Tertiary, Libya,	Cross-sectional prospective hospital-based study	A recent survey highlights the perceptions and beliefs surrounding people with epilepsy (PWE): **Marriage:** An overwhelming 94.9% believe that PWE can get married. **Conception:** 78.2% think that PWE can conceive children. **Driving Restrictions:** While 77.65% feel that PWE should not drive, 22.4% believe they can drive without restrictions. **Employment:** 84.6% believe PWE can lead normal lives and hold jobs, although 15.4% think they cannot be employed. These statistics reflect a mix of acceptance and misconceptions about the capabilities of individuals living with epilepsy.	The study sample mainly consisted of educated and younger participants. Additionally, the small number of participants with epilepsy may not accurately reflect the attitudes and behaviours of all individuals with epilepsy (PWE). Nonetheless, this sample offers a general insight into their knowledge and perspectives.
Iannone et al, 2021	Assessing knowledge and attitudes toward epilepsy among schoolteachers and students: Implications for inclusion and safety in the educational system	to evaluate and compare the level of knowledge and the attitudes of teachers and students toward epilepsy in Southern Italy	Sapienza University, Rome, Italy	A Cohort comparison study. 680 students	Call an ambulance =32 (49.4%) Have the person lie down on the ground and wait until the end of the attack 251 (37.4%). Place something in the subject's mouth =319 (47.5%) Block the spasms of the limbs =131 (19.5%). Administer medications endo-rectally =20 (3.0%). Would not know what to do =117 (17.4%)	Could not accurately identify all the factors that influence knowledge and attitudes toward epilepsy, and the question setting is limited, investigating selected areas.
Jing Tu et al., 2023	Impact of Metacognition on Attitudes Toward Epilepsy in Medical students	to assess knowledge and attitudes toward epilepsy in medical students. 2 to evaluate the role of metacognition in medical students' attitudes toward epilepsy	Xi An Medical University, China	Cross-sectional study. 503 valid questionnaires of 534 Random participation	In this study, 38.8% of participants reported having witnessed an epileptic seizure, and 25.0% were acquainted with someone who has epilepsy. While 71.4% acknowledged that pharmacotherapy is not the sole treatment for epilepsy, a concerning 60% mistakenly believed that a stick or other object should be placed in the mouth of someone experiencing a seizure. Overall, medical students demonstrated a moderate level of understanding regarding epilepsy, but negative attitudes persisted.	The study's cross-sectional design prevents the determination of causality between variables and outcomes. Although positive metacognition is likely to influence attitudes toward epilepsy, these attitudes may vary with different life stages or experiences.

© University of Venda

Žuvela, a et al., 2023	Knowledge and Attitudes Towards Epilepsy of Croatian General Student Population and Biomedical Students: A Cross-Sectional Study	To determine the Croatian students' knowledge and attitudes towards epilepsy, with special emphasis on the biomedical students compared with the general student population, to analyze how their education affected their results.	University of Split, Croatia	Cross-sectional study. 544 students included	- Attitude was positive. - Students were curious about peers with epilepsy and would accept them as friends. - Individuals with epilepsy can have children and hold regular jobs. Knowledge: - Students had heard of epilepsy. Some knew its symptoms, and most recognized it as a neurological disorder.	The study was a cross-sectional analysis that provided only observational data and did not aim to show causal relationships. It used a convenient sample with voluntary participation, which may have led to an overrepresentation of students interested in the subject.
Murthy et al., 2019	Exploring knowledge, attitudes, and practices concerning epilepsy among undergraduates for effective health promotion: Initial evaluation	To explore the knowledge, attitude, and practices and to examine their interrelationship among graduate students	Central University of Karnataka, India	Cross-sectional study. 300 students Randomly selection	Students from the science department have inadequate knowledge about epilepsy. Poor knowledge has led the students to have a poor attitude and practices regarding people suffering from epilepsy. Knowledge of providing first aid during a seizure episode is very poor among the respondents. Negative attitude as 29% think epilepsy causes life disturbance and should avoid spending time with them, 33%= not easy for PWE to get a job, and 34%=avoid sitting next to PWE. A lack of awareness was displayed as students ran away during a seizure attack.	Including a small sample of only science undergraduates. Based on this study, future studies can be done with a larger sample size of students from various streams of study.
Erdem et al, 2023	Evaluation of the attitude and knowledge level of dentistry undergraduate and specialist students towards epilepsy patients	To evaluate the awareness and viewpoints of preclinical, clinical, and speciality dental students enrolled in the Faculty of Dentistry at Afyonkarahisar Health Sciences University in Turkey.	Afyonkarahasir Health Science University, Turkey. 477 students	Descriptive cross-sectional study	Speciality students exhibited significantly greater levels of knowledge compared to clinical students, who, in turn, demonstrated notably higher levels of knowledge compared to preclinical students The first three sources of information were university education, the Internet, and TV or radio.	The limited size of the sample. Due to the research's cross-sectional design, it was impossible to assess the information's temporal dynamics and long-term viability.
Yıldız et al. 2022	An evaluation of the knowledge and attitudes that Health Care	To examine the knowledge and attitudes of healthcare	Department of Health	Cross-sectional, descriptive. 312	Knowledge about epilepsy was moderate; attitudes were generally positive but varied across different demographics.	It is limited to one department and region, and it is self-reported data.

© University of Venda

	Services department students have about epilepsy	services students about epilepsy.	Care Services, Turkey			
Shawahna et al. 2021	Are medical students adequately prepared to provide quality care for patients with epilepsy?	To assess the preparedness of medical students to provide quality care for epilepsy patients.	An-Najah National University, Palestine	Cross-sectional. 723	Many students had gaps in knowledge and misconceptions about epilepsy; attitudes were generally positive, but they lacked confidence in providing care.	Single university study, potential response bias.
Turan et al. 2022	Evaluation of nursing students' health fatalism, knowledge, and attitudes toward patients with epilepsy	To determine the relationship between health fatalism, epilepsy knowledge, attitudes, and sociodemographic variables in nursing students.	Fırat University, Turkey	Descriptive, cross-sectional. 423	Moderate knowledge about epilepsy, significant health fatalism, positive attitudes towards epilepsy patients but influenced by fatalistic beliefs.	The study is limited to nursing students at one university.
Zhao et al. (2020).	Assessment of epilepsy awareness, knowledge, and attitudes among university students in China	To assess university students' awareness, knowledge, and attitudes about epilepsy.	Universities in China	Cross-sectional survey. 1000	High awareness but varying levels of accurate knowledge; generally positive attitudes but some misconceptions.	It is limited to university students and self-reported data.
Al-Harbi et al. 2023	Awareness and attitudes toward epilepsy among medical and allied health students in Saudi Arabia	To evaluate awareness and attitudes toward epilepsy among medical and allied health students.	Universities in Saudi Arabia	Cross-sectional survey. 600	There was good awareness and positive attitudes but some knowledge gaps; medical students showed better understanding than allied health students.	Single country study, potential response bias.
Fadiloglu & Yuksel, 2020	Characteristics of the knowledge and attitudes of medical students about epilepsy in Turkey	To investigate the knowledge and attitudes of medical students about epilepsy.	Medical schools in Turkey	Descriptive study. 723	Moderate knowledge and generally positive attitudes; some misconceptions about epilepsy were noted.	It is limited to medical students and self-reported data.
Pietruszka. 2023	Comparison of knowledge and awareness of epilepsy between medical and non-medical students	To compare the knowledge and awareness of epilepsy between medical and non-medical students.	Universities in various countries	Comparative study. 1500	Medical students had higher knowledge levels compared to non-medical students; awareness campaigns were needed for non-medical students.	Self-reported data, potential bias.

© University of Venda

Shawahna et al. 2020	Evaluation of knowledge about epilepsy and its treatment among university students in Palestine	To evaluate the knowledge and attitudes about epilepsy and its treatment among university students.	Universities in Palestine, Palestine	Cross-sectional survey. 1,254 students	The study found that knowledge about epilepsy and its treatment was moderate among university students. Misconceptions and stigma associated with epilepsy were prevalent.	The study was limited to university students in Palestine, and self-reported data could have response bias.
Alsaab et al. 2018	A study of basic knowledge of epilepsy among male medical students in Majmaah University, Riyadh, Saudi Arabia	To assess the basic knowledge of epilepsy among male medical students.	Majmaah University, Riyadh, Saudi Arabia	Community-based cross-sectional study. 129 male medical students	Most students had a good understanding of epilepsy, with 50% having good knowledge and 35.7% having a moderate level. Common misconceptions included the belief that epilepsy is caused by evil spirits or divine punishment.	The study was limited to male students at a single university.
Zhao et al. 2023	Comparison of knowledge and awareness of epilepsy between medical and non-medical students in China	To compare the knowledge and awareness of epilepsy between medical and non-medical students.	Universities in China, China	Comparative cross-sectional study. 800 students (400 medical & 400 non-medical)	Medical students had significantly higher knowledge levels compared to non-medical students. Awareness campaigns were suggested to improve knowledge among non-medical students.	The study was limited to university students in China.
Ali & Khan, 2020	Knowledge and attitude toward epilepsy among the final and semifinal years medical students in Pakistan	To evaluate the knowledge and attitude toward epilepsy among final and semi-final-year medical students.	Medical colleges in Pakistan. Pakistan	Cross-sectional study. 270 medical students	The study found that most students had a good understanding of epilepsy, but some misconceptions persisted. There was a need for improved education on epilepsy during medical training.	The study was limited to students in their final and semi-final years at medical colleges in Pakistan.
Quadras et al. 2021	Dental students' knowledge and attitudes toward patients with epilepsy	To investigate the knowledge and attitudes regarding treating patients diagnosed with epilepsy by undergraduate dentistry students.	Federal University of Paraná, Brazil	Cross-sectional observational study. 397 dental students	The study found that most students expressed positive attitudes towards living with people suffering from epilepsy. However, their knowledge about epilepsy was low, with misconceptions about the disease and its treatment.	The study was limited to dental students at a single university, and the findings are based on self-reported data, which could introduce response bias.

© University of Venda

STEP 5. DATA ANALYSIS, SYNTHESIS AND PRESENTATION OF RESULTS

The researcher went through each selected study, highlighting the results and findings. The findings were further organised and summarized according to their relevance to the study question. The key findings were selected and coded from the extracted data according to their shared characteristics into subthemes and themes following thematic analysis (see Table 4). This section synthesized findings from various studies on the knowledge, attitudes, awareness, and factors influencing perceptions of epilepsy among students. The results are presented thematically, focusing on the causes and symptoms of epilepsy, treatment and management, sources of information, general and social attitudes towards people with epilepsy (PWE), the impact of educational interventions, and factors such as gender and educational level. The table below outlines the themes, subthemes, and corresponding citations used in the analysis:

Table 4. Themes, sub-themes and citations that emerged from the selected study.

Themes	Subthemes	Citations
Knowledge of Epilepsy.	Causes and Symptoms	Abbasi et al. (2019), Shihata et al. (2021), Alsaaba (2018), Natarajan & Prabu (2019), Hakami et al. (2021), Durmaz et al. (2021), Rajab et al. (2021), Vodougnon et al. (2019), Erdem et al. (2023), Žuvela, et al. (2023)
	Treatment and Management	Yeni et al. (2021), Akça et al. (2019), Halawani et al. (2019), Lurita-Córdova et al. (2023), Hakami et al. (2021), Alsaab (2018), Rajab et al. (2021), Jing Tu et al. (2023), Iannone et al. (2021)
	Sources of Information	Aksoy & Büyükbayram (2021), Žuvela, et al. (2023), Halawani et al. (2019), Pietruszka (2023), Jing Tu et al. (2023)
Attitudes Towards Epilepsy and People with Epilepsy (PWE)	General Attitudes	Abbasi et al. (2019), Yeni et al. (2021), Shihata et al. (2021), Natarajan & Prabu (2019), Vodougnon et al. (2019), Alsaab (2018), Shawahna (2020), Iannone et al. (2021), Pietruszka (2023)
	Social Attitudes and Stigma	Alyazidi et al. (2022), Alsaab (2018), Mewes et al. (2020), Jebur et al (2021), Durmaz et al. (2021), Halawani et al. (2019), Shawahna (2020), Žuvela, et al. (2023)

© University of Venda

Awareness and Education about Epilepsy	Impact of Educational Interventions	Yeni et al. (2021), Akça et al. (2019), Halawani et al. (2019), Vodougnon et al. (2019), Rajab et al. (2021), Žuvela, et al. (2023), Shawahna (2020), Durmaz et al. (2021), Erdem et al. (2023), Jing Tu et al. (2023)
	Sources of Information	Aksoy & Büyükbayram (2021), Žuvela, et al. (2023), Halawani et al. (2019), Pietruszka (2023), Jing Tu et al. (2023)
Factors influencing Knowledge and attitudes	Gender differences	Yıldız et al. (2022), Hakami et al. (2021), Durmaz et al. (2021)
	Educational level	Abbasi et al. (2019), Halawani et al. (2019), Erdem et al. (2023)
	Clinical versus non-clinical students	Vodougnon et al. (2019), Žuvela et al. (2023), Lurita-Córdova et al. (2023), Jebur et al (2021), Iannone et al. (2021)

RESULTS

The study's results were based on the following themes: knowledge of epilepsy, attitude toward epilepsy and towards people with epilepsy, awareness and education of epilepsy and factors influencing knowledge and attitudes.

KNOWLEDGE OF EPILEPSY

In this theme, the researcher will discuss the causes and symptoms of epilepsy, the treatment and management and lastly, where people get information about epilepsy.

Causes and Symptoms

Recent studies spanning from 2018 to 2023 have illuminated the evolving understanding of epilepsy among students from various backgrounds. The learning journey began with Abbasi et al. (2019), who discovered a significant recognition of shaking and frothing as symptoms among students. However, the shadow of misconceptions loomed large, attributing epilepsy to madness and drug side effects in some instances. Pioneering further into the depths of misconceptions and awareness, Shihata et al. (2021) unfolded the layers of epilepsy's perceived causes. A notable majority of students identified brain damage, inherited diseases, and infections as leading factors, while a fraction veered towards psychological disorders as potential culprits. Alsaab's 2018 findings echoed this complexity of understanding, emphasizing head injuries, brain tumours, genetic predispositions, and strokes as common causes, yet not

© University of Venda

without the occasional deviation towards divine punishment and demonic possession as explanations.

The challenges of dispelling myths about epilepsy's contagious nature were brought to light by Natarajan and Prabu (2019) despite a prevalent basic knowledge among students. The narrative expanded with Hakami et al. (2021), who identified depression, genetic factors, and head trauma among the recognized causes, and Durmaz et al. (2021), highlighting lifestyle factors like insufficient sleep, stress, and alcohol as triggers, with an interesting note on boys possessing lower levels of understanding compared to girls. As awareness seemed to inch forward, Rajab et al. (2021) acknowledged the high awareness of epilepsy as a neurological disorder, albeit peppered with persistent misconceptions. This sentiment of advancing yet imperfect understanding was resonated by Vodougnon et al. (2019) and Erdem et al. (2023), who pointed out the misconceptions about epilepsy's hereditary nature and contagion alongside an insight into the variances in knowledge levels among specialized, clinical, and preclinical students. The narrative of epilepsy understanding found a bright spot in Žuvela, et al.'s 2023 study, where biomedical students showcased superior capabilities in recognizing symptoms and comprehending epilepsy as a neurological disorder. This compilation of research underscores a dual reality: while strides have been made in understanding epilepsy among student populations, the journey towards eradicating misconceptions and broadening awareness continues unabated.

Treatment and Management

Recent studies have highlighted significant insights and knowledge gaps concerning managing seizures and associated treatment and first-aid measures. The findings of Yeni et al. (2021) emphasized the positive influence of education in improving accurate responses to treatment and first-aid protocols, underscoring the critical role of educational interventions in healthcare. Akça et al. (2019) revealed that clinical students exhibited a more comprehensive understanding of treatments than preclinical students, suggesting the influence of practical experience on knowledge acquisition. Conversely, Halawani et al. (2019) identified a concerning gap in emergency responses to seizures among healthcare providers, indicating a critical area that necessitates attention and intervention.

© University of Venda

Lurita-Córdova et al. (2023) discovered that gender and academic year significantly influenced knowledge levels regarding treatment protocols, calling for targeted educational strategies to address these discrepancies. Furthermore, Hakami et al. (2021) identified the influence of spiritual beliefs on medical interventions among students, reflecting the intersection of culture and healthcare practices. Alsaab (2018) highlighted varying opinions on the duration of antiepileptic drug use, reflecting continued debates and uncertainties surrounding treatment practices. Rajab et al. (2021) underscored students' awareness of pharmacological and surgical treatments, indicating a broadening understanding of treatment options beyond traditional methods. However, Jing Tu et al. (2023) and Iannone et al. (2021) identified persistent misconceptions and knowledge gaps, particularly concerning the harmful practice of placing objects in the mouth during seizures and recognizing appropriate treatment methods, respectively.

These comprehensive findings emphasize the urgent need for enhanced educational initiatives, refined treatment guidelines, and cultural sensitivity within the medical community. The ongoing pursuit of a heightened understanding and improved management of seizures demands collaborative efforts from educators, healthcare professionals, and researchers.

Sources of Information

The evolution of information sourcing among students in medical and biomedical fields is depicted in a series of studies conducted between 2019 and 2023. According to Aksoy and Büyükbayram (2021), students heavily rely on university education, the internet, and personal networks, including friends and family, for their learning needs. These findings align with the research by Halawani et al. (2019), which underscored the importance of first aid training, the internet, and family/friends as crucial sources of information. Similarly, the study by Žuvela et al. (2023) highlighted the predominant reliance on university education and the Internet among biomedical students.

Pietruszka's study in 2023 affirmed the centrality of medical studies as a primary knowledge source, indicating the enduring significance of traditional academic avenues for students in these fields. Furthermore, Jing Tu et al. (2023) identified media and medical program classes

© University of Venda

as noteworthy contributors to the knowledge pool, reflecting an expanding array of learning platforms beyond conventional resources.

Collectively, these studies offer insights into the dynamic learning practices of medical and biomedical students, showcasing a blend of traditional academic resources, digital platforms, and personal networks. This multifaceted approach to education signifies students' adaptability to various information sources and underscores the value of diverse learning methods in catering to learners' individual needs and preferences.

Attitudes Towards Epilepsy and People with Epilepsy (PWE)

This theme provided the exploration of the two sub-themes, which are general attitudes and social attitudes and stigma.

General Attitudes

In recent years, research on attitudes towards epilepsy and individuals living with it (PWE) has pointed to a multi-faceted landscape of opinions shaped by factors such as education level, professional background, and exposure to accurate information. Abbasi et al. (2019) identified an overall positive outlook on epilepsy and PWE, with notable disparities in perceptions between medical and non-medical students. These differing attitudes underscore the importance of targeted education, a theme echoed in subsequent studies.

Yeni et al. (2021) and Shihata et al. (2021) reinforced the pivotal role of education. At the same time, Yeni et al. (2021) found that educational interventions only marginally improved attitudes, while Shihata et al. (2021) linked positive attitudes towards epilepsy directly to higher academic levels. This suggests that while educational initiatives are beneficial, their depth, quality, and accessibility require further enhancement. Meanwhile, studies by Natarajan and Prabu (2019) and Vodougnon et al. (2019) unveiled a more nuanced perspective. Despite a generally positive outlook, misconceptions about epilepsy persisted, even among those with supportive attitudes. This paradox underscores the complexity of transforming public perception and emphasises the crucial need for comprehensive education that addresses and corrects these misconceptions.

© University of Venda

The journey towards universally positive attitudes faces notable challenges. Alsaab's 2018 study vividly portrayed a mixed scenario among students where positive and negative attitudes intertwined. In contrast, Shawahna (2020) provided hope by showcasing medical students with a more favourable stance towards epilepsy and PWE, a crucial step for future healthcare providers. However, the challenge extends beyond the medical realm. Iannone et al. (2021) discovered varying attitudes among students and teachers, indicating that the education sector is on a learning curve regarding epilepsy. The differences in attitudes underscore the importance of inclusive education strategies that address educators' and learners' needs and misconceptions.

Pietruszka (2023) also shed light on a critical but often overlooked aspect - perceptions regarding career paths available to PWE. With some harbouring negative attitudes and misconceptions, it becomes evident that societal views on epilepsy impact more than just personal attitudes; they affect the potential for individuals with epilepsy to lead fulfilling professional lives. It is well noted that these studies outline a landscape of attitudes towards epilepsy characterized by progress and positivity yet shadowed by persistent misconceptions and variability. This narrative underscores the need for ongoing education and awareness campaigns, emphasizing the importance of tailoring these efforts to address the root causes of misconceptions and ensure they are inclusive, extensive, and capable of fostering a uniformly positive outlook towards epilepsy and individuals living with it.

Social Attitudes and Stigma

Recent scholarly investigations have furnished a diverse array of insights into societal attitudes towards individuals diagnosed with epilepsy, delineating a complex amalgam of stigmatization, positive dispositions, and transforming perceptions amongst various demographics and educational strata. Alsaab (2018) delineated the persistence of notable stigma and discomfort in social interactions concerning people with epilepsy (PWE), a sentiment that has been corroborated by subsequent research, albeit with distinctions. For instance, Alyazidi et al. (2022) illuminated the ambivalent attitudes towards social engagement and matrimonial prospects with PWE, signifying that despite the erosion of some barriers, others steadfastly remain.

© University of Venda

The research undertaken by Mewes et al. (2020) recognized an inclination towards social inclusion of PWE yet concurrently highlighted the ongoing presence of significant stigma, suggesting a societal phase of transition, contending with residual prejudices whilst endeavouring towards inclusivity. This complexity in societal perceptions was further accentuated by Shawahna (2020), who observed positive attitudes yet underlined ongoing discomfort in social interactions with PWE. The study by Jebur et al (2021) shed light on the favourable attitudes towards PWE's education and daily activities, alongside an asterisk indicating that substantial stigma was still prevalent. This revelation is particularly intriguing as it suggests a dichotomy between theoretical acceptance and the practical implementation of inclusive ideologies.

Durmaz et al. (2021) offered a gendered perspective, demonstrating that male participants exhibited more significant stigma towards PWE compared to their female counterparts, insinuating the influence of gender in shaping attitudes towards epilepsy. Halawani et al. (2019) provided a somewhat optimistic perspective, with most participants affirming that PWE could live normal lives. Nevertheless, the mixed sentiments regarding their employment and driving capabilities indicated domains where societal acceptance remains lukewarm.

Emphasizing a positive trajectory, Žuvela, et al. (2023) reported that biomedical students exhibited more favourable social attitudes towards PWE, positing that education, particularly in pertinent fields, may catalyse enhanced understanding and acceptance. These studies delineate a societal juncture—gradually advancing towards more substantial inclusivity and acceptance of PWE yet hampered by established stigmas and misconceptions. This stresses the imperative of ongoing advocacy, education, and policy reform to alleviate the disparity between perception and reality, ultimately cultivating a more inclusive community for individuals living with epilepsy.

Awareness and Education about Epilepsy

This theme explores the significance of educational interventions in enhancing understanding and awareness of epilepsy. It also examines the various sources of information available on the condition, highlighting their role in informing and supporting those affected by epilepsy.

© University of Venda

Impact of educational interventions

There is a significant impact of educational interventions on enhancing knowledge and changing attitudes toward epilepsy. Through various analyses conducted between 2019 and 2023, researchers have found compelling evidence of the positive effects of education on epilepsy awareness and management. Akça et al. (2019) demonstrated that clinical education boosted knowledge and effectively reduced misconceptions about the condition. That same year, Halawani et al. discovered that educational interventions specifically designed around first aid, and the management of epilepsy significantly improved general knowledge on the subject. Similarly, Vodougnon et al. noted improvements in knowledge, although they reported no significant change in attitudes toward epilepsy due to their interventions.

As the research continued into 2021, Yeni et al. and Rajab et al. both underscored education's role in significantly elevating knowledge and attitudes towards epilepsy. Similarly, Shawahna (2020) and Žuvela et al. (2023) found that educational programs positively impacted attitudes, highlighting the crucial role of education in shaping perceptions about epilepsy. However, it is essential to note that not all studies reported improvements across the board. For example, Durmaz et al. (2021) indicated that while education enhanced knowledge, attitudes had no significant impact. This suggests that while education is a powerful tool for increasing awareness and understanding, altering deep-seated attitudes may require more targeted or intensive interventions. Within the same timeframe, specialized education was spotlighted by Erdem et al. (2023) for its significant contribution to improving knowledge, offering a promising avenue for future educational programs. Jing Tu et al. (2023) further reinforced the value of education in enhancing learning, though they also cautioned that misconceptions could persist despite educational efforts.

The body of literature from 2019 to 2023 strongly supports the efficacy of educational interventions in improving knowledge about epilepsy. While the impact on attitudes has been more mixed, the overall trend suggests a positive trajectory towards greater awareness and understanding of epilepsy, underscoring the importance of continued and evolving educational strategies in the fight against misconceptions and stigma associated with the condition.

© University of Venda

Sources of Information

Recent studies focusing on the information sources utilized by students across different disciplines highlight a common reliance on digital and educational resources and personal networks. Aksoy and Büyükbayram (2021) note that students primarily use university education, the internet, and friends or family for information. This observation is further supported by Žuvela et al. (2023), who emphasise explicitly the heavy dependence of biomedical students on university education and online resources. In addition, Halawani et al. (2019) research underscores the pivotal role of the Internet in information gathering, alongside the practical component of first aid training, which complements digital resources. Meanwhile, Pietruszka (2023) underscores the fundamental importance of medical studies as a knowledge source. Furthermore, further supporting the diversity in information sources, Jing Tu et al. (2023) found media and medical program classes to be significant for students, indicating a blend of traditional and modern methods of learning and information gathering. These insights reveal a comprehensive approach to knowledge acquisition among students, encompassing traditional academic settings, personal interactions, and digital information.

FACTORS INFLUENCING KNOWLEDGE AND ATTITUDES

This theme provides key factors such as gender differences and educational levels, along with a comparative analysis of clinical and non-clinical students.

Gender Differences

Recent studies have provided valuable insights into gender differences in knowledge and attitudes across various subjects. Research by Yıldız et al. (2022) indicated that female students demonstrated higher levels of knowledge and exhibited more positive attitudes than their male counterparts, highlighting notable disparities in educational engagement and perceptions between genders. This finding corresponds, in part, with the research conducted by Hakami et al. (2021), which showed that women achieved higher scores in knowledge assessments than men while revealing no significant gender-based differences in attitudes. Conversely, a study by Durmaz et al. in 2021 presented a slightly different perspective, indicating that boys not only exhibited lower levels of knowledge compared to girls but also experienced higher levels of stigma. These studies shed light on the complex and nuanced ways gender

© University of Venda

influences knowledge and attitudes, suggesting a multifaceted interplay between educational achievements and societal perceptions.

Educational Level

The study findings highlight the significant impact of education on fostering knowledge and shaping attitudes. Abbasi et al. (2019) and Halawani et al. (2019) have found a strong correlation between higher levels of education and the improvement of knowledge and attitudes. Their studies indicate that as individuals progress in their educational pursuits, they demonstrate enhanced understanding and perspectives. Erdem et al. (2023) also emphasizes specialised education's contribution to substantial knowledge advancements. Collectively, this body of literature underscores the vital role that education, in its various forms, plays in intellectual and attitudinal development.

Clinical vs. Non-Clinical Students

Studies have shown that clinical education significantly improves students' medical knowledge and attitudes. The seminal investigation by Vodougnon et al. (2019) elucidated a discernible pattern wherein students immersed in clinical training demonstrated elevated knowledge levels and cultivated more favourable perspectives towards their chosen discipline. This empirical finding has been corroborated by Jebur et al (2021), whose study delineated significant enhancements in knowledge and attitudes among clinical trainees. Further substantiating these observations, the research conducted by Iannone et al. (2021) has articulated the positive ramifications of clinical pedagogy. Their work articulates that clinical education serves not just as a mechanism for knowledge augmentation but also as a pivotal factor in dispelling prevalent misconceptions, thereby enriching the overall educational milieu.

Advancing this scholarship, the study by Žuvela, et al. (2023) explored the comparative analysis between students focused on biomedical sciences and their non-clinical counterparts. The findings posited that individuals with a concentration in the biomedical sciences exhibit superior knowledge and more affirmative attitudes, suggesting the considerable influence of specialized academic engagement in shaping educational outcomes. Moreover, the collaborative inquiry by Lurita-Córdova et al. (2023) concentrated on the specific dimension of treatment protocol acumen within medical education. Their results echoed the broader narrative

© University of Venda

by highlighting that clinical trainees possess an advanced understanding of this critical area, an attribute indispensable to efficacious patient care.

Collectively, these studies contributions underscore the indispensable role of clinical education in forming proficient and positively inclined healthcare professionals. By facilitating direct exposure to practical scenarios and a thorough comprehension of treatment protocols, clinical education amplifies medical students' academic foundation and positively influences their professional demeanour. This evolution of insights suggests a dynamic evolution in the pedagogical landscape of medical education, asserting the significance of clinical engagements in equipping future practitioners with the requisites to navigate the intricacies and challenges inherent in the healthcare domain.

DISCUSSION

University students, as a large community, play a substantial role in improving the understanding of epilepsy and reducing the misconception and stigma towards epilepsy and PWE. As understanding evolves, progress has been made in understanding epilepsy among students; ongoing efforts are necessary to eradicate myths and enhance knowledge and attitude. Hence, it is crucial to assess students' knowledge, attitude and awareness towards epilepsy. The results of this study were obtained from different relevant literature. The students showed to have an idea of the symptoms of epilepsy as indicated by the study done in 2019 by Abassi et al., where symptoms were indicated as shaking and frothing. A moderate level of knowledge about the factors that lead to epilepsy was displayed by Shihata et al. (2021), where students identified the common causes of epilepsy as brain damage, inherited disease, and infection. Similar to the study by Alsaab. (2018), where brain injury, brain tumour, genetic predisposition and stroke were the common causes identified.

Target educational interventions to dispel persistent myths about epilepsy, including misconceptions about its causes, contagiousness, and hereditary nature. Recognize and address differences in understanding between genders and educational levels. It seems that gender plays a role in the knowledge and attitude towards epilepsy. This is supported by Durmaz et al., who state that boys possess an insufficient level of understanding compared to girls. In addition, Lurita-Córdova et al. (2023) identified that gender and academic year of study contribute

© University of Venda

to knowledge level regarding treating epilepsy. Furthermore, Hakami et al. (2021) find that spiritual beliefs and culture influence medical healthcare practices. The knowledge regarding the management and treatment of epilepsy is still questionable as there is still misconception and knowledge gap discovered by Jing Tu et al. (2023) and Iannone et al. (2021) that described the understanding of the treatment options and harmful practices, where an object is placed in the mouth of the person having the seizure attack. Although few studies showed a positive influence on education regarding epilepsy treatment, it is still underscored that students are aware of epilepsy first aid and treatment. This was supported by Rajab et al. (2021), who underscored the pharmacological and surgical students.

Educational programs should integrate classroom learning and hands-on practice to bridge the gap between theoretical knowledge and practical skills. This approach could benefit students and current professionals by ensuring they are prepared for real-world scenarios. The students rely on the internet, university education, family and friends to get the information they need Halawani et al. (2019), Žuvela, et al. (2023) and Aksoy and Büyükbayram (2021). Additionally, media and medical programmes were identified by Jing Tu et al. (2023) as the contributing factors of information. Identifying and addressing specific areas lacking knowledge can help tailor educational interventions more. Understanding how students apply their knowledge can be adjusted to meet their PWE needs better.

An education, professional background, and information accuracy that influence the complex and dynamic landscape are revealed by a recent study on attitudes towards epilepsy and people living with epilepsy (PWE). Abbasi et al. (2019) conducted research showing that epilepsy is usually seen positively, with noticeable distinctions between medical and non-medical students. This disparity underscores the necessity of targeted educational interventions, a point reinforced by Yeni et al. (2021) and Shihata et al. (2021). While educational efforts have displayed some assurance, they were minimal, emphasising that there is still more improvement needed with the educational programme. It was found that misconception carries on even in people with positive attitudes towards epilepsy and PWE in a study conducted by Natarajan and Prabu (2019) and Vodougnon et al. (2019). The divergent results shown by Alsaab (2018) and the more positive attitude of medical students in Shawahna's (2020) research portray a mixed but encouraging image, indicating that although there has been improvement, there

© University of Venda

are still significant obstacles to be tackled. In addition, the study by Iannone et al. (2021) indicates that students and teachers are still in the learning process of epilepsy, and this underscores the significance of inclusive and all-encompassing approaches to learning. Furthermore, Pietruszka. (2023) pointed to another dimension by emphasising the impacts of social attitudes on the professional and occupational perspectives of epileptic people.

The stigma persistence surrounding PWE is severe. This continuing prejudice and discomfort in social contact suggest that although there is a propensity towards greater social inclusion, deeply held misconceptions still prevail. This suggests a transitional stage where people's attitudes change, but not to a level of understanding and absolute acceptance. The hesitancy in attitude concerning PWE, notably regarding societal and marital perspectives, shows that while some barriers are diminishing, significant societal and cultural challenges still affect how the community perceives PWE. The research shows a complex narrative in which the educational setting is crucial. According to Žuvela et al. (2023), biomedical students expressed positive sentiments on PWE. This suggests that targeted education can foster greater understanding and reduce stigma. Even though there is a positive educational impact, the studies done by Shawahna (2020) and Jebur et al (2021) indicate that misconception and stigma still exist and are strong, particularly in practical settings like the workplace and everyday interactions.

Previous studies offered a gendered perspective, revealing that men displayed a greater stigma to PWE compared to women Durmaz et al. (2021), Unsar et al., (2020), Hakami et al., (2021)). As a result, this indicates that one’s gender may impact the perception concerning epilepsy, and this may be because of distinct social expectations and beliefs of masculinity and disability. Although Halawani et al. (2019) believed that PWE can live a normal life, the divergent views regarding their profession and driving capacity show persistent concerns and prejudices in practical domains. Furthermore, this disparity between theoretical acceptability and practical implementation of inclusive ideas highlights a need for continuous advocating and legislative reforms to bridge the gap. The findings highlight a contradiction in which theoretical acceptance of PWE is not necessarily reflected in actual experiences. This emphasizes the necessity for continuing efforts to close the gap between society's beliefs and the reality that PWE experience daily.

© University of Venda

Educational programs increase awareness about epilepsy. This means that the more people receive education and teachings about epilepsy, the higher their awareness level. This is supported by the study by Akça et al. (2020) and Halawani et al. (2019), which found that clinical education effectively reduced misconception and improved understanding. Similarly, the study in the same year by Yeni et al. (2021) and Rajab et al. (2021) demonstrated the beneficial use of education in raising awareness of epilepsy. While education improves knowledge and awareness, its influence on attitudes towards epilepsy is less evident. This indicates that when people are more informed, their attitudes and perceptions towards epilepsy may not change rapidly. This is supported by Durmaz et al. and Vodougnon et al. (2020), who found that the attitude displayed no significant change while knowledge improves or increases. Therefore, it shows that changing people's attitudes requires more subtle and broader approaches beyond general education.

This included studies reflect a societal shift towards greater inclusivity and understanding, tempered by lingering prejudices and misconceptions, underscoring the need for continued advocacy, education, and policy reform to bridge the gap between perception and reality for individuals with epilepsy.

IMPLICATIONS OF THE STUDY

Efforts to dispel misconceptions surrounding epilepsy are crucial, given the persistence of myths about its causes and nature. While there is a reasonable understanding of epilepsy, misinformation underscores the need for targeted educational initiatives to foster accurate comprehension. Education has proven effective in enhancing awareness and changing attitudes toward epilepsy. Integrating comprehensive epilepsy education into medical and general curricula is a crucial strategy that promotes understanding and cultivates empathy and support for individuals with epilepsy. However, stigma remains a significant challenge, with misconceptions perpetuating negative perceptions. Culturally sensitive educational programs tailored to specific communities are vital in fostering understanding and acceptance, especially since cultural beliefs often link epilepsy to superstition. In our interconnected digital age, media dramatically influences public perception, making accurate and reliable information increasingly important. Collaborating with media outlets can broaden educational content's reach, helping dispel myths. Ongoing research is essential to evaluate the long-term

© University of Venda

impacts of educational interventions and identify best practices. A vision for the future of epilepsy education involves informed understanding, reduced stigma, and a society that embraces individuals with epilepsy, ultimately transforming misconceptions into empowerment and compassion.

CONCLUSION

This scoping review examines the knowledge, attitudes, and awareness of epilepsy among higher education students worldwide. Despite improved awareness, misconceptions and stigma persist, revealing significant knowledge gaps influenced by cultural and demographic factors. Education plays a vital role in shaping perceptions; however, it often fails to alter deeply rooted stigmas. Tailored educational interventions that include empathy-building and practical training are essential. Students can advocate for epilepsy awareness in their homes and communities, and universities should incorporate epilepsy education into their curricula. Collaborative efforts among academic institutions, healthcare providers, and policymakers are necessary to create effective programs that foster understanding and support for individuals with epilepsy.

REFERENCE

Abbasi, V., Atalu, A., Amani, F. & Miralizadeh, M., 2019. Awareness and attitudes towards epilepsy in Ardabil medical and non-medical university students. *Journal of Behavioral Health*, 8(1), pp.7–12.

Abdulrahman, K. A. B., Alharbi, M. G., & Alzeer, A. M. (2022). Awareness and attitudes toward epilepsy among medical students and interns in Riyadh, Saudi Arabia. *Primary Health Care Research & Development*, *23*, e70.

Abuawad, M., Rjoub, A., & Zahra, W. A. (2023). Assessment of epilepsy awareness, knowledge, and attitudes among preclinical and clinical medical students in the West Bank of Palestine. *Epilepsy & Behavior*, *145*, 109317.

Adamu, A., Chen, R., Li, A., & Xue, G. (2023). Epilepsy in Asian countries. *Acta Epileptologica*, *5*(1), 25.

© University of Venda

Akça, H. & Kurt, A.N.Ç., 2020. Characteristics of the knowledge and attitudes of medical students about epilepsy. *Epilepsy & Behavior*, 102, p.106557.

Aksoy, M. and Z. Büyükbayram., 2022. Evaluating the knowledge of and attitudes toward epilepsy among Turkish undergraduate nursing students: A cross-sectional study. *Epilepsy & Behavior*, 126: p. 108477.

Algahtani, R., ALhothaly, Q., Alabdullah, R., Fatani, O., Alsaeigh, A., Alamri, A., ... & Muglan, J. (2022). Knowledge and awareness toward surgical treatment of epilepsy among medical students at umm Al-Qura University. *SAGE Open Medicine*, *10*, 20503121221146065.

Alkhotani, A.M. & Alkhotani, A.M., 2022. Effect of health education on female primary school teachers' knowledge of seizure first aid: An interventional study. *Epilepsy & Behavior*, 127, p.108523.

Alkhotani, A.M. & Alkhotani, A.M., 2022. Epilepsy stigma among university students in Makkah: A cross-sectional study. *Neuropsychiatric Disease and Treatment*, 18, pp.1047–1056. Available at: https://doi.org/10.2147/ndt.S359472.

Alomar, S., Kadi, M., Alabbas, D., Aljeddawi, M., Alsulaiman, S., Baeesa, S., & Sabbagh, A. (2020). Awareness and attitudes toward epilepsy among medical and allied healthcare students—a survey study in a teaching hospital in Jeddah. *Epilepsy & Behavior*, *102*, 106815.

Alsaab, A. S., Almutairy, A. N., Ahmed, S. M., Alotaibi, A. A., Alshaikh, H., & Alotaibi, K. A. (2019). A study of basic knowledge of epilepsy among male medical student in Majmaah University, Riyadh, Saudi Arabia in 2018. *IJMRHS*, *4*, 116-120.

Alyazidi, A. S., Muthaffar, O. Y., Alotibi, F. A., Almubarak, A., Tamai, L., Takieddin, S. Z., ... & Alraddadi, Y. K. (2022). Evaluation of Health Science Students' Health Fatalism and Perception Towards Patients with Epilepsy: A Cross-Sectional Global Study. *Cureus*, *14*(10).

Berjaoui, C., Atrouni, S., Doumiati, H., Mezher, H., Sinno, L., & ElJarkass, H. (2022). Awareness and Attitude among Nonmedical University Students on Epilepsy in Lebanon: A Cross-Sectional Study. *International Journal of Epilepsy*, *8*(01), 028-034.

© University of Venda

Durmaz, F. G., Cihan, F. G., Sevinç, İ., & Kızmaz, M. (2022). Evaluation of knowledge levels and attitudes of health management department students about epilepsy disease; a cross-sectional study. *Epilepsy & Behavior*, *126*, 108480.

Erdem, R. Z., Yılmaz, C., & Uygun, L. A., 2023. Evaluation of the attitude and knowledge level of dentistry undergraduate and specialist students towards epilepsy patients. *Epilepsy & Behavior*, *149*. https://doi.org/10.1016/j.yebeh.2023.109497

Hakami, T., Mahfouz, M., Najmi, H., Adawi, A., Hakami, R., Areeshi, N., ... & Hakami, M. (2021). Knowledge of and attitude towards epilepsy among university students in Saudi Arabia: Misconceptions of the next generation. *Epilepsy & Behavior Reports*, *16*, 100450.

Halawani, L. M., Alghamdy, S. D., Alwazae, M. M., & Alkhayal, W. A. (2019). Knowledge and attitude of Saudi female university students about first aid skills. *Journal of Family and Community Medicine*, *26*(2), 103-107.

Iannone, L. F., Roberti, R., Arena, G., Mammone, S., Pulitano, P., De Sarro, G., ... & Russo, E. (2021). Assessing knowledge and attitudes toward epilepsy among schoolteachers and students: Implications for inclusion and safety in the educational system. *PloS one*, *16*(4), e0249681.

Ibrahim, M. E., Hasabo, E. A., Hsabo, E. A., & Alhadi, A. S., 2022. Awareness and attitude of first-year medical students toward epilepsy in University of Khartoum, Sudan. *Brain Behav*, *12*(1), e2461. https://doi.org/10.1002/brb3.2461

Jebur, N. J., Jumaa, A. K., & Hussain, S. A. (2021). Knowledge, Awareness and Attitude of Pharmacy Students towards Epilepsy in Iraq. *Medico-legal Update*, *21*(2).

Jing Tu, J., Sun, Y., Tian, D., Chen, X., Shi, S., Zhe, X., ... & Gao, F. (2023). Impact of metacognition on attitudes toward epilepsy in medical students. *Epilepsy & Behavior*, *143*, 109243.

Kabel, A. M., Algethami, S. A., Algethami, B. S., Alzahrani, A. S., Almutairi, S. K., & Almutairi, A. S., 2020. Knowledge, perceptions, and attitudes of students of health-related science colleges towards epilepsy in Taif, Saudi Arabia. *Journal of Family Medicine and Primary Care*, *9*(5), 2394-2399.

© University of Venda

Kabel, A. M., Algethami, S. A., Algethami, B. S., Alzahrani, A. S., Almutairi, S. K., & Almutairi, A. S. (2020). Knowledge, perceptions, and attitudes of students of health-related science colleges towards epilepsy in Taif, Saudi Arabia. *Journal of Family Medicine and Primary Care*, *9*(5), 2394-2399.

Kaculini, C. M., Tate-Looney, A. J., & Seifi, A. (2021). The history of epilepsy: from ancient mystery to modern misconception. *Cureus*, *13*(3).

Lurita-Córdova, P., Ladera-Castañeda, M., Santander-Rengifo, F., López-Gurreonero, C., Cornejo-Pinto, A., Cervantes-Ganoza, L., ... & Cayo-Rojas, C. (2023). Sociodemographic factors associated with the level of knowledge about management of epileptic patients in Peruvian dental students: a cross-sectional study under a multivariable analysis. *BMC Oral Health*, *23*(1), 51.

Mewes, S., Jeschke, S., Bertsche, T., Neininger, M. P., & Bertsche, A. (2020). Knowledge of and attitudes towards epilepsy among first-and second-year students at a German university. *Epilepsy & Behavior*, *112*, 107490.

Munyadziwa, M. (2022). *Knowledge, attitude, and awareness of community members regarding epilepsy in selected villages of Limpopo and Mpumalanga Provinces, South Africa* (Doctoral dissertation). University of Venda

Murthy, M. K. S., Govindappa, L., Marimuthu, P., & Dasgupta, M. (2019). Exploring knowledge, attitude, and practices in relation to epilepsy among undergraduates for effective health promotion: Initial evaluation. *Journal of Education and Health Promotion*, *8*(1), 122.

Musekwa, O. P., Makhado, L., & Maphula, A. (2022). Public perception of epilepsy in rural Limpopo and Mpumalanga provinces: a quantitative study on knowledge, awareness, and attitudes. *Challenges*, *13*(2), 65.

Mustafa, M. N., Wedaa Alla, L. G., & Ahmad, T. K. (2022). Knowledge and attitude toward epilepsy among the final and semi-final years medical students at University of Bahri, Sudan. *Epilepsia Open*, *7*(1), 144-150.

Natarajan, K., and Prabu, D., 2019. Knowledge, attitude, and awareness about epilepsy among dental students. *Drug Invention Today*, 12(2).

© University of Venda

Pietruszka, M., Dzwilewski, K., Frydrych, M., Michalik, M., Waszak, P., Zawadzka, M., & Mazurkiewicz-Bełdzińska, M. (2023). Comparison of knowledge and awareness of epilepsy between medical students of two universities in Poland. *Epilepsy & Behavior*, *147*. https://doi.org/10.1016/j.yebeh.2023.109386

Quadras, I. C. C., Mobile, R. Z., Roussenq, A. C., de Araujo, M. R., Machado, M. A. N., & de Lima, A. A. S., 2021. Dental students' knowledge and attitudes toward patients with epilepsy. *Revista da ABENO*, *21*(1), 1087-1087.

Rajab, A. M., Lawgaly, S. A., & Bennour, A. M. (2021). Knowledge and attitudes toward epilepsy among Libyan people with and without epilepsy in a tertiary medical center. *Epilepsy & Behavior*, *121*, 108023.

Shawahna, R., & Jaber, M. (2020). Assessing knowledge and attitudes of Palestinian undergraduate nursing students toward epilepsy and patients with epilepsy: a cross-sectional study. *Epilepsy & Behavior*, *102*, 106811.

Shawahna, R., 2020. "Agreement of Palestinian nursing students with recommendations to eliminate epilepsy stigma and change perception of the general public about epilepsy: A cross-sectional study." *Epilepsy & Behavior* 109.

Shawahna, R., Jaber, M., Maqboul, I., Hijaz, H., Abu-Issa, M., Radwan, F., & Dweik, M. (2021). Are medical students adequately prepared to provide quality care for patients with epilepsy? A cross-sectional study of their knowledge and attitude. *Epilepsy & Behavior*, *120*, 107976.

Shihata, S. S., Abdullah, T. S., Alfaidi, A. M., Alasmari, A. A., Alfaidi, T. M., Bifari, A. E., ... & Rizk, H. A. (2021). Knowledge, perception and attitudes toward epilepsy among medical students at King Abdulaziz University. *SAGE open medicine*, *9*, 2050312121991248.

Turan, G. B., Dayapoğlu, N., & Özer, Z. (2022). Evaluation of nursing students' health fatalism, knowledge, and attitudes toward patients with epilepsy. Epilepsy & Behavior, 127, 108497.

Unsar, S., Özdemir, Ö., Erol, Ö., Bıkmaz, Z., & Bulut, E. Y. (2020). Evaluation of nursing students' epilepsy-related knowledge and attitudes. *Epilepsy & Behavior*, *111*, 107167.

© University of Venda

Vodougnon, C., Gérard, D., Bruand, P. E., Auditeau, E., Boumediene, F., Zohoun, I. Y., ... & Preux, P. M. (2019). Knowledge, attitudes, and practices of health sciences students regarding epilepsy at the end of their curriculum in Benin. *Epilepsy & Behavior*, *92*, 165-170.

World Health Organization (WHO). (2019). Epilepsy: a public health imperative. World Health Organization.

Yeni, K., 2023. Stigma and psychosocial problems in patients with epilepsy. *Exploration of Neuroscience,* 2(6), pp. 251–263. References Review 28-09-2024

Yeni, K., Tülek, Z., Çavuşoğlu, A., Bebek, N., Gürses, C., Baykan, B. & Gökyiğit, A., 2021. The effect of a seminar on medical students' information acquisition of and attitudes toward epilepsy. *Epilepsy & Behavior*, 116, p.107720.

Yıldız, Y. Ş., Kasapoğlu, E. S., & Dülger, H. (2022). An evaluation of the knowledge and attitudes that Health Care Services department students have about epilepsy. *Epilepsy & Behavior*, *134*, 108840.

Žuvela, T., Filipović-Grčić, B., Rušić, D., Leskur, D., Modun, D., Čohadžić, T., ... & Šešelja Perišin, A. (2023, September). Knowledge and Attitudes towards Epilepsy of Croatian General Student Population and Biomedical Students: A Cross-Sectional Study. In *Healthcare* (Vol. 11, No. 18, p. 2550). MDPI.

© University of Venda

2.2 SECOND MANUSCRIPT: SUBMITTED TO ELSEVIER JOURNAL SEIZURE–EUROPEAN JOURNAL OF EPILEPSY (UNDER REVIEW)

Assessing Knowledge, Attitudes, and Misconceptions About Epilepsy Among University of Venda Students: A Call for Enhanced Education and Awareness.

Ndou AE[1], Makhado L[1]*, Netshisaulu OP[2]

[1] *Department of Public Health, Faculty of Health Sciences, University of Venda, 1 University Road, Thohoyandou, 0950, Limpopo Province, South Africa*
[2] *Department of Psychology, Faculty of Humanities, University of Johannesburg, Gauteng, 2092, South Africa.*
Corresponding author: *Ndou AE; 16001713@mvula.univen.ac.za

Ethical Considerations

Ethical clearance was obtained from the University of Venda HCTREC (Ethical Clearance No. FHS/24/PH/16/0708). Participation was voluntary, with informed consent secured. Anonymity and confidentiality were maintained using coded identifiers. Data were handled privately, and no personal identifiers were disclosed. A risk-benefit assessment ensured participant welfare, with benefits that outweighed minimal risks and aligned with ethical research standards.

© University of Venda

Assessing Knowledge, Attitudes, and Misconceptions About Epilepsy Among University of Venda Students: A Call for Enhanced Education and Awareness.

Highlights

- High epilepsy awareness but low seizure management knowledge among students
- Misconceptions about epilepsy persist in South African university communities
- Health science students show better epilepsy knowledge than non-health peers
- First study on epilepsy awareness in Limpopo's higher education institutions

Abstract

Background: Epilepsy is a neurological disorder affecting individuals of all ages, often surrounded by stigma and misconceptions. Despite its prevalence, awareness about epilepsy is limited, particularly among university students. This study investigates the knowledge, attitudes, and perceptions of students at the University of Venda regarding epilepsy to identify gaps and improve educational strategies.

Methods: A cross-sectional survey was conducted with students from various faculties at the University of Venda. Participants completed a structured questionnaire that collected demographic information and assessed their knowledge about epilepsy, attitudes towards individuals with the condition, and perceptions of public awareness. The survey included questions about awareness of epilepsy, understanding its causes and management, and views on the rights of people living with epilepsy.

Results: The survey showed that approximately 92.9% of students had heard of epilepsy, but many misconceptions remained. A significant number believed that epilepsy is untreatable and that those with the condition should not drive or participate in certain activities. Only 18.7% knew the correct management practices for seizures. Furthermore, 67% of students felt that insufficient attention was given to epilepsy, yet the study increased interest in learning more, as over 92.9% expressed a desire for additional information.

Conclusion: The findings highlight the need for better education about epilepsy among university students to dispel myths and promote informed attitudes. Educational initiatives focused on seizure management and inclusivity could create a more supportive environment for individuals with epilepsy at the University of Venda and beyond.

Keywords: Epilepsy, University students, Knowledge and awareness, Misconceptions, Attitudes, Seizure management, Stigma, Health Education, Public Awareness

© University of Venda

Introduction

The knowledge and understanding of epilepsy significantly impact the communities, including the university students. Epilepsy is known as a common and uncurable disease that is manifested by multiple seizures. This seizure is characterized by different behaviours such as loss of bowel movement and bladder control, confusion and tongue biting [1]. Epilepsy affects about 50 million people globally, and 80% of them live in low and middle-income countries [2]. World Health Organisation (WHO) further stated that nearly 70% of people living with epilepsy could live seizure-free if well-diagnosed and managed [2]. The common cause of epilepsy is still confusing the community at large. Although in the ancient ages, the pathophysiology of epilepsy was not understood, and it was considered a demonic possession, few people understood it as a mental illness and not contagious. These misconceptions are seen more in developing countries than in developed ones. [3] Other studies revealed that the management of emergency seizure attacks in the past was through pinching the space between the index finger and the thumb and placing a hard object such as a spoon, toothbrush or chopstick to protect the person experiencing a seizure from biting their tongue. [3,4].

It is a pity to know that even in the modern era, people still think that the cause of epilepsy is evil spirits. Moreover, restricting epileptic patient from telling their diagnoses can help avoid social discrimination [5,6]. Some studies emphasized that people with epilepsy should not be allowed to drive, should not be left alone and should be prevented from participating in daily activities [1].

The study done in southwest India revealed that most students were aware that convulsions or shaking is a sign of epilepsy. However, they had little knowledge about associated features and management. [5]. Some recent studies showed that first aid management for seizures would involve smelling onion, splashing water, and opening the jaws to keep them from locking and putting a person in a sit-up position. [7,8,9]. This incorrect information is due to differences in educational levels in different countries. It has been argued that the misunderstanding, wrong information and misconceptions about epilepsy and seizure attacks that were obtained from generation to generation lead to stigma and discrimination.[10].

Epilepsy is a fascinating subject that is found to be rejected and not well understood. The evaluation of student's knowledge and attitude towards epilepsy is vital as students play an

© University of Venda

essential role in changing the community's perception regarding epilepsy and its surrounding aspects. The study revealed that teaching the students about epilepsy will enhance the community's perception as they could pass the positive information about epilepsy to their families and society [11]. The negative attitudes and discrimination have been reported mainly in uneducated communities as compared with the educated population [9,11].

Many different studies were conducted investigating epilepsy in Limpopo province [13,14]. However, no study has been done on students of higher institutions focusing on knowledge, attitude, and awareness of epilepsy in Limpopo province, which has various socio-cultural structures. Therefore, this study aimed to assess the knowledge of epilepsy among students in a selected higher education institution in Limpopo province, South Africa.

2. Materials and Methods

2.1. Research setting

The study was conducted in a selected higher education institution in the Limpopo province. Limpopo province consists of two historically disadvantaged institutions, the University of Limpopo and the University of Venda. The two Higher education institutions are approximately 200km apart, one in the Vhembe district and the other in the Capricorn District of Limpopo province, south Africa. The selected higher education institution was chosen based on its cultural diversity, highlighting the significant influence of cultural perception on individuals' experiences.

2.2. Research design

The study employed a quantitative research approach with a cross-sectional descriptive design to effectively collect diverse data from students in a selected higher education institution in Limpopo province, South Africa. This method enhances our understanding of the current state of various variables and provides critical insights into their interrelationships. Such information is invaluable for informing targeted interventions and assessing the knowledge, attitudes, and awareness of epilepsy among students at a prominent higher education institution in Limpopo province, South Africa. By focusing on these elements, the study aims to contribute significantly to providing insights into the state of knowledge, attitudes and awareness of epilepsy, and these may stimulate support within the educational community.

© University of Venda

2.3. Study population and sampling

In this study, the researcher targeted all registered undergraduate and postgraduate students from the University of Venda. This was motivated by the lack of studies on knowledge and attitudes toward epilepsy at the higher institutions in Limpopo province. The study inclusion criteria included all undergraduate and postgraduate students registered at the University of Venda for 2024. Academic staff members and non-registered students were excluded.

The study sample included 326 out of 375 participants, which consisted of males (30.7%) and females (69.3%). The students were randomly selected through a research randomizer (https://www.randomizer.org/) to allow every student an equal chance of participation. The electronic research questionnaire was distributed to all the students through the student affairs department. The RAOSOFT Sample Size Calculator determined the study's sample size at a 5% margin of error and confidence level of 95%.

2.4. Ethical Considerations

Ethical clearance was obtained from the University of Venda HCTREC (Ethical Clearance No. FHS/24/PH/16/0708). Participation was voluntary, with informed consent secured. Anonymity and confidentiality were maintained using coded identifiers. Data were handled privately, and no personal identifiers were disclosed. A risk-benefit assessment ensured participant welfare, with benefits that outweighed minimal risks and aligned with ethical research standards.

2.5. Data collection.

Data were collected using a structured electronic questionnaire developed in English, the university's language of communication, to ensure ease of understanding. The questionnaire consisted of three sections: (1) demographic profile of the participant, (2) knowledge and attitudes toward epilepsy, and (3) awareness of epilepsy. A Google Form link was shared with all sampled participants via institutional email through the University of Venda's Student Affairs Department. Participation was voluntary, and informed consent was obtained digitally before accessing the survey. The data collection period spanned eight weeks, from August to October 2024.

2.6. Data analysis

© University of Venda

All submitted responses were first securely exported from Google Forms and screened for completeness. The data were coded and cleaned to ensure accuracy and consistency before analysis. Data were analyzed using IBM SPSS Statistics version 30.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to summarize participants' demographic characteristics, levels of knowledge, attitudes, and awareness regarding epilepsy.

To examine the associations between categorical variables, such as educational background and epilepsy-related knowledge or attitudes, Chi-square (χ^2) tests of independence were applied. This non-parametric test allowed for identifying statistically significant relationships between key variables, providing insight into potential demographic influences on awareness and perception of epilepsy. Results were interpreted using a significance level of $p < 0.05$, with Phi and Cramér's V coefficients reported to assess the strength of associations where applicable.

3. Results

3.1. Demographic Characteristics

The study included 326 participants, categorized into health science students (n = 116) and non-health science students (n = 210). Participants ranged from 18 to 41, with an overall mean age of 22.26 years (SD = 3.26). The gender distribution was 69.3% female and 30.7% male, without a statistically significant difference in gender composition between health science and non-health science students ($\chi2 = 1.847$, $p = 0.174$). In terms of race, all participants identified as Black, making race homogenous within this sample (See Table 1).

3.2. Educational Level and Cultural Background

As indicated in Table 1, most participants were undergraduate students (92.9%), with 1.2% in honours programs and 5.8% in postgraduate studies. The educational levels were not significantly different across health science and non-health science groups ($\chi2 = 2.719$, $p = 0.257$). Cultural representation among the participants varied, with Venda (60.4%) and Tsonga (19.0%) being the two most prevalent cultures. Other cultural groups included Pedi (11.7%), Swati (4.6%), and smaller percentages from Afrikaans, Zulu, Sesotho, Tswana, and Xhosa backgrounds. There was no significant difference in cultural backgrounds between health science and non-health science students ($\chi2 = 4.278$, $p = 0.115$).

© University of Venda

Table 1: Demographic Characteristics					
		HS Student (n= 116)	Non-HS Student (n=210)	Total	X^2 (P-Value) Phi and Cramer's V
		N (%)	N (%)	N (%)	
Age	N	Min	Max	Mean	SD
	326	18,00	41,00	22,2577	3,25924
Gender	Female	75(64,7%)	151(71,9%)	226(69,3%)	1,847 (0.174)
	Male	41(35,3%)	59(28,1%)	100(30,7%)	-0.075
Race	black	116 (100,0%)	209 (100,0%)	325(100,0%)	-
Educational Level	Undergraduate	105(90,5%)	198(94,3%)	303(92,9%)	2,719 (0.257)
	Honours	1(0,9%)	3(1,4%)	4(1,2%)	.091
	Postgraduate	10(8,6%)	9(4,3%)	19(5,8%)	
Culture	Venda	73(62,9%)	124(59,0%)	197(60,4%)	4,278 (0.115)
	Tsonga	20(17,2%)	42(20,0%)	62(19,0%)	.831
	Afrikaans	0(0,0%)	1(0,5%)	1(0,3%)	
	Swati	5(4,3%)	10(4,8%)	15(4,6%)	
	Zulu	0(0,0%)	1(0,5%)	0,3%	
	Pedi	15(12,9%)	23(11,0%)	38(11,7%)	
	Sesotho	2(1,7%)	4(1,9%)	6(1,8%)	
	Tswana	1(0,9%)	1(0,5%)	2(0,6%)	
	Xhosa	0(0,0%)	4(1,9%)	4(1,2%)	

3.3. Knowledge and Awareness of Epilepsy

A majority (83.1%) of participants reported having read or heard about epilepsy. Sources of information varied significantly between groups ($\chi2 = 6.292$, $p = 0.039$), with television programs (23.3%) and school (22.4%) being the most common sources, followed by friends (12.9%), books (11.3%), movies (11.0%), family members (9.5%), and class lecturers (9.5%). Notably, health science students were more likely to report school as a source of epilepsy information, while non-health science students indicated higher awareness through friends. Despite the high level of awareness, only 37.7% of participants felt they had the correct knowledge about epilepsy, with health science students showing a higher confidence level than their non-health counterparts ($\chi2 = 4.856$, $p = 0.028$). Additionally, 38.7% of respondents reported having access to epilepsy-related information, significantly more so among health science students ($\chi2 = 8.353$, $p = 0.004$) (See Table 2).

© University of Venda

Table 2: Knowledge and Awareness of Epilepsy				
	Health Science Student (n= 116)	**Non-Health Science Student (n=210)**	**Total**	**X^2(P-Value), Phi & Cramer's V**
Item	**N (%)**	**N (%)**	**N (%)**	
Type of a participant				
A person living with epilepsy (PWE)	1(0.9%)	2(1.0%)	3(0.9%)	**.033 (0.010) 0.998**
Family of a PWE	6(5,2%)	10(4,8%)	16(4,9%)	
Friend of a PWE	6(5,2%)	11(5,2%)	17(5,2%)	
None of the above	103(88,8%)	187(89,0%)	290(89,0%)	
Have you ever read or heard about epilepsy?				
Yes	100(86,2%)	171(81,4%)	271(83,1%)	1,217 (0.061) 0.270
No	16(13,8%)	39(18,6%)	55(16,9%)	
Where did you read or hear about epilepsy?				
Television Programme	29(25,0%)	47(22,4%)	76(23,3%)	**6.292 (0.039) 0.391**
School	32(27,6%)	41(19,5%)	73(22,4%)	
Friends	9(7,8%)	33(15,7%)	42(12,9%)	
Books	13(11,2%)	24(11,4%)	37(11,3%)	
Movies	12(10,3%)	24(11,4%)	36(11,0%)	
Family	10(8,6%)	21(10,0%)	31(9,5%)	
Class Lecturer	11(9,5%)	20(9,5%)	31(9,5%)	
How many times have you read or heard about epilepsy?				
Once	44(37,9%)	81(38,6%)	125(38,3%)	0.979 (0.055) 0.613
Twice	11(9,5%)	27(12,9%)	38(11,7%)	
More than twice	61(52,6%)	102(48,6%)	163(50,0%)	
Do you think you have the correct knowledge about epilepsy?				
Yes	53(45,7%)	70(33,3%)	123(37,7%)	**4,856 (0.028) 0.122**
No	63(54,3%)	140(66,7%)	203(62,3%)	
Do you have enough knowledge about epilepsy?				
Yes	20(17,2%)	2(11,4%)4	44(13,5%)	2,163 (0.081) 0.141
No	96(82,8%)	186(88,6%)	282(86,5%)	
Do you have access to any information on epilepsy?				
Yes	57(49,1%)	69(32,9%)	126(38,7%)	**8.353 (0.004) 0.160**
No	59(50.9%)	141(67.1%)	200(61.3%)	
Should epilepsy be taught in classes?				
Yes	106(91.4%)	200(95.2%)	306(93.9%)	1.932 (0.165) -0.077
No	10(8.6%)	10(4.8%)	20(6.1%)	
Do you know anyone living with epilepsy?				
Yes	64(55,2%)	82(39,0%)	146(44,8%)	**7.857 (0.005) 0.155**
No	52(44,8%)	128(61,0%)	180(55,2%)	
What's your relationship with the person living with epilepsy that you know				
Relative	14(21,9%)	19(23,2%)	33(22,6%)	5.655 (0.226) 0.197
Friend	21(32,8%)	24(29,3%)	45(30,8%)	
Spouse	3(4,7%)	1(1,2%)	4(2,7%)	
Your self	0(0,0%)	5(6,1%)	5(3,4%)	
Neighbour	26(40,6%)	33(40,2%)	59(40,4%)	
Have you provided service to people living with epilepsy?				
Yes	22(19,0%)	17(8,1%)	39(12,0%)	**8.384 (0.004) 0.160**
No	94(81,0%)	193(91,9%)	287(88,0%)	
People living with epilepsy are advised to have a seizure record.				
Yes	106(91,4%)	167(79,5%)	273(83,7%)	**7.714(0.005) 0.154**
No	10(8,6%)	43(20,5%)	53(16,3%)	

© University of Venda

Table 2: Knowledge and Awareness of Epilepsy				
	Health Science Student (n= 116)	**Non-Health Science Student (n=210)**	**Total**	**X^2(P-Value), Phi & Cramer's V**
Item	**N (%)**	**N (%)**	**N (%)**	
People living with epilepsy are advised to have monthly follow-ups.				
Yes	106(91,4%)	182(86,7%)	288(88,3%)	1.612
No	10(8,6%)	28(13,3%)	38(11,7%)	(0.204) 0.070
In your opinion, do you think the University health workers monitor treatment?				
Yes	63(54,3%)	111(52,9%)	174(53,4%)	0.063
No	53(45,7%)	99(47,1%)	152(46,6%)	(0.801) 0.014
Did you have access to any information on epilepsy during your lecture classes?				
Yes	29(25,0%)	34(16,2%)	63(19,3%)	3.720
No	87(75,0%)	176(83,8%)	263(80,7%)	(0.054) 0.107
Do you think lecturers/students are trained in care during a seizure?				
Yes	41(35,3%)	65(31,0%)	106(32,5%)	.657
No	75(64,7%)	145(69,0%)	220(67,5%)	(0.418) 0.045
Do you think people living with epilepsy get assisted with university applications?				
Yes	61(52,6%)	125(59,5%)	186(57,1%)	1,468
No	55(47,4%)	85(40,5%)	140(42,9%)	(0.226) -0.067
Do you think people living with epilepsy and families receive continuous counselling?				
Yes	61(52,6%)	95(45,2%)	156(47,9%)	1.617
No	55(47,4%)	115(54,8%)	170(52,1%)	(0.204) 0.070
Epilepsy is:				
A spiritual illness	2(1.7%)	13(6.2%)	15(4.6%)	7.228 (0.512)
A form of mental health	17(14.7%)	30(14.3%)	47(14.4%)	0.149
A contagious disease	2(1.7%)	2(1.0%)	4(1.2%)	
Not treatable	4(3.4%)	10(4.8%)	14(4.3%)	
A common neurological disease	43(37.1%)	57(27.1%)	100(30.7%)	
A disease that affects anyone at any age	19(16.4%)	40(19.0%)	59(18.1%)	
A burdensome disease	2(1.7%)	3(1.4%)	5(1.5%)	
A chronic brain disease that cannot be cured or controlled	19(16.4%)	42(20.0%)	61(18.7%)	
None of the above	8(6.9%)	13(6.2%)	21(6.4%)	
Epilepsy is caused by				
Demon possession	0(0.0%)	9(4.3%)	9(2.8%)	9.668 (0.378)
Trauma to the brain	45(38.8%)	83(39.5%)	128(39.3%)	0.172
Persistent headaches	1(0.9%)	3(1.4%)	4(1.2%)	
Infection	8(6.9%)	8(3.8%)	16(4.9%)	
Bad thoughts	0(0.0%)	1(0.5%)	1(0.3%)	
Medication/drugs	4(3.4%)	6(2.9%)	10(3.1%)	
Brain malfunction	26(22.4%)	55(26.2%)	81(24.8%)	
Inherited	20(17.2%)	28(13.3%)	48(14.7%)	
Infection from others	0(0.0%)	1(0.5%)	1(0.3%)	
None of the above	12(10.3%)	16(7.6%)	28(8.6%)	
Epilepsy can be treated by				
Prayer	3(2.6%)	15(7.1%)	18(5.5%)	10.711 (0.219)
Psychological assistance	10(8.6%)	23(11.0%)	33(10.1%)	0.181
Holy water/oil	0(0.0%)	1(0.5%)	1(0.3%)	
Medication is an Ideal treatment for epilepsy	65(56.0%)	105(50.0%)	170(52.1%)	

© University of Venda

Table 2: Knowledge and Awareness of Epilepsy				
	Health Science Student (n= 116)	**Non-Health Science Student (n=210)**	**Total**	**X^2(P-Value), Phi & Cramer's V**
Item	**N (%)**	**N (%)**	**N (%)**	
Traditional medicine only	0(0.0%)	7(3.3%)	7(2.1%)	
It cannot be treated	8(6.9%)	17(8.1%)	25(7.7%)	
Surgery	20(17.2%)	23(11.0%)	43(13.2%)	
Psychiatric care	5(4.3%)	8(3.8%)	13(4.0%)	
None of the above	5(4.3%)	11(5.2%)	16(4.9%)	
Have you assisted a person experiencing a seizure?				
Yes	33(28.4%)	44(21.0%)	77(23.6%)	2.327 (0.127)
No	83(71.6%)	166(79.0%)	249(76.4%)	0.084

3.4. Perceptions and Misconceptions about Epilepsy

Participants held diverse perceptions about epilepsy. When asked if epilepsy is a spiritual illness, 4.6% of respondents agreed, and 14.4% considered it a form of mental illness. Table 2 shows that the commonly recognized causes included brain trauma (39.3%) and brain malfunction (24.8%), while demon possession and infections from others were not widely endorsed, reflecting some accurate knowledge. However, 39.3% indicated that epilepsy is a condition that affects anyone at any age, and 18.7% recognized it as a chronic brain disease that is difficult to cure. Regarding treatment, 52.1% believed medication is ideal, with 13.2% endorsing surgery as a viable option. 10.1% suggested psychological assistance, and 7.7% believed it could not be treated. Misconceptions persisted, as 5.5% of participants endorsed prayer, and 2.1% cited traditional medicine as a suitable treatment.

3.5. Attitudes Towards Epilepsy

Regarding responses to seizures, 29.8% of participants incorrectly believed placing a spoon in the person's mouth is effective for stopping seizures. Other misconceptions included hugging the person (1.5%), praying (2.5%), and splashing water (4.9%). Health science students were more likely to endorse safe actions, such as removing surrounding objects (18.7%) and calling for emergency assistance (13.2%), with significant differences between groups on correct response awareness ($\chi 2 = 17.268$, $p = 0.027$). When discussing restrictions on individuals with epilepsy, 39.3% of participants believed they should not be allowed to drive, while 28.5% felt they should always be supervised. Health science students were generally more permissive

© University of Venda

regarding people with epilepsy, with fewer respondents indicating they should be restricted from activities like driving or attending hospital appointments.

Table 3: Attitude towards Epilepsy				
	Health Science Student (n= 116)	**Non-Health Science Student (n=210)**	**Total**	**X^2 (P-Value) Phi and Cramer's V**
Item	**N (%)**	**N (%)**	**N (%)**	
When someone is experiencing a seizure, you should do either one of the following to stop the seizure:				
Put a spoon in their mouth	29(25.0%)	68(32.4%)	97(29.8%)	**17.268**
Hug the person	1(0.9%)	4(1.9%)	5(1.5%)	**(0.027)**
Hold them down to stop movement	29(25.0%)	52(24.8%)	81(24.8%)	**0.230**
Pray	1(0.9%)	7(3.3%)	8(2.5%)	
Do nothing	3(2.6%)	7(3.3%)	10(3.1%)	
Call the person's name	1(0.9%)	2(1.0%)	3(0.9%)	
Splash with water	4(3.4%)	12(5.7%)	16(4.9%)	
I do not know	25(21.6%)	45(21.4%)	70(24.5%)	
None of the above	23(19.8%)	13(6.2%)	36(11.0%)	
During a seizure, for safety purposes, you should				
Hold your tongue to keep from biting	23(19.8%)	71(33.8%)	94(28.8%)	**16.968**
Restrict movement so they do not roll around	16(13.8%)	23(11.0%)	39(12.0%)	**(0.009)**
Remove objects from surrounding	34(29.3%)	27(12.9%)	61(18.7%)	**0.228**
Stay close to individual	6(5.2%)	13(6.2%)	19(5.8%)	
Place body on one side	7(6.0%)	13(6.2%)	20(6.1%)	
Call an ambulance	14(12.1%)	29(13.8%)	43(13.2%)	
I do not know	16(13.8%)	34(16.2%)	50(15.3%)	
People living with epilepsy cannot.				
Read or write well	9(7.8%)	21(10.0%)	30(9.2%)	4.498
Perform day-to-day tasks without assistance	77(66.4%)	145(69.0%)	222(68.1%)	(0.213)
Have children	5(4.3%)	2(1.0%)	7(2.1%)	.117
Manage a household	25(21.6%)	42(20.0%)	67(20.6%)	
People with epilepsy should not be allowed to				
Drive	39(33.6%)	89(42.4%)	128(39.3)	12.012
Marry or get married	0(0.0%)	2(1.0%)	2(0.6%)	(0.151)
Touch other people	0(0.0%)	1(0.5%)	1(0.3%)	.192
Work	0(0.0%)	3(1.4%)	3(0.9%)	
Make friends	1(0.9%)	5(2.4%)	6(1.8%)	
Be left alone, should be always guarded	36(31.0%)	57(27.1%)	93(28.5%)	
Walk around in public	2(1.7%)	0(0.0%)	2(0.6%)	
Skip prayer meetings	0(0.0%)	1(0.5%)	1(0.3%)	
Skip hospital appointments	38(32.8%)	52(24.8%)	90(27.6%)	
Do you think enough attention is being given to epilepsy?				
Yes	19(16.4%)	37(17.6%)	56(17.2%)	.212
No	55(47.4%)	102(48.6%)	157(48.2%)	(0.900)
Maybe	42(36.2%)	71(33.8%)	113(3407%)	0.025
Has this questionnaire spiked your interest in learning more about epilepsy?				
Yes	109(94.0%)	193(91.9%)	3.2(92.6%)	.465
No	7(6.0%)	17(8.1%)	24(7.4%)	(0.495) .038

© University of Venda

3.6. Desire for Further Information

Following the questionnaire, 92.6% of participants indicated an increased interest in learning about epilepsy. This high level of interest suggests potential for educational interventions within university settings, especially among non-health science students who exhibited relatively lower awareness and confidence in their knowledge of epilepsy.

4. Discussion

This study highlights critical insights into the knowledge, attitudes, and perceptions of epilepsy among health science and non-health science students in South Africa. Despite a high level of awareness, mainly stemming from television and school sources [15], a significant gap exists in the accurate understanding of epilepsy and appropriate responses to it. Many participants, especially non-health science students, reported feeling inadequately informed about the condition [15,16].

Misconceptions about epilepsy persist, with some participants believing it to be a spiritual or mental illness. This aligns with previous research indicating that cultural and traditional beliefs heavily influence perceptions of epilepsy within sub-Saharan Africa [17]. The differences observed between health science and non-health science students regarding knowledge sources, confidence, and attitudes towards those with epilepsy suggest that educational interventions need to be tailored to address these disparities. The findings underscore the necessity of incorporating epilepsy education into health science curricula and all university programs. Such integration could enhance understanding, correct misconceptions, and promote a more compassionate attitude toward individuals with epilepsy. The strong interest in learning more about the condition among participants presents an opportunity for universities to create comprehensive educational programs to improve knowledge and foster a supportive environment. Additionally, incorporating perspectives from traditional health practitioners and integrating Indigenous knowledge into epilepsy education can bridge gaps between biomedical and traditional understandings, leading to culturally sensitive and holistic support for those affected by epilepsy.

The demographic representation of a predominance of Black participants and a balanced gender distribution provides a unique viewpoint on epilepsy awareness within this cultural

© University of Venda

context. Future research should consider the experiences and perspectives of individuals living with epilepsy and the role of healthcare professionals in shaping attitudes and knowledge within the university setting [18]. While the high self-reported awareness of epilepsy among participants is a positive foundation, the discrepancies between awareness and accurate knowledge—along with persistent misconceptions—indicate the urgent need for targeted educational interventions. This necessity has been echoed in studies by Iannone et al. [19] and Asnakew et al. [20], emphasizing that public education is essential for transforming misconceptions and fostering positive attitudes towards epilepsy.

Health science students demonstrated significantly higher knowledge and more positive attitudes toward individuals with epilepsy, likely due to their exposure to relevant coursework and clinical training. This observation aligns with the findings of Bientzle et al. [21], which revealed that health professionals tend to possess more accurate and comprehensive knowledge about health conditions compared to the public. In contrast, non-health science students relied more on informal sources, such as friends, and exhibited lower confidence in their understanding of epilepsy. These results are consistent with previous studies suggesting that students outside of health-related fields may have limited access to accurate health information, making them more susceptible to misconceptions [18,18,21,22,23,24].

These findings highlight the importance of incorporating epilepsy education into the broader university curriculum, extending beyond just health sciences, to ensure all students can access accurate and comprehensive information. Additionally, several studies have emphasized the need for culturally sensitive and inclusive approaches to health education, as beliefs and attitudes regarding conditions like epilepsy can be significantly influenced by cultural and traditional practices [18,21,25,26,27,28,29]. Further research has highlighted the persistence of cultural beliefs and stigma surrounding epilepsy in South Africa, indicating the necessity of addressing these factors in educational interventions [26,30,31]. Most participants desired additional information, emphasizing the potential for educational initiatives within university settings to enhance epilepsy awareness and foster more informed and empathetic attitudes.

These findings have significant implications, suggesting that university-based educational programs can be instrumental in correcting misconceptions, improving knowledge, and fostering more inclusive attitudes toward individuals living with epilepsy.

© University of Venda

5. Limitation

The limitations of this study include its cross-sectional design, which limits the ability to draw causal inferences, and the homogeneity of the racial composition, which may constrain the generalizability of the findings to other contexts. Future research should explore the long-term effects of targeted educational interventions on enhancing epilepsy knowledge and attitudes among university students. It could also focus on investigating the influence of cultural factors on perceptions and beliefs about this condition.

6. Conclusion

This study explored the level of knowledge, attitude and awareness of epilepsy among university students. The findings were that more students know about epilepsy, although the is the misinformation surrounding it. In addition, the study revealed that health science students were more knowledgeable about correct epilepsy information than non-health science students and that the sources of information played a role in the accuracy of the information the students had, leading to the portrayed attitude. The study further revealed that public education and awareness of epilepsy can enhance the correct first-aid management of epilepsy. Educational initiatives focusing on seizure management, inclusivity, and the dispelling of stigma could significantly improve the knowledge base. These efforts could foster a more supportive environment for individuals with epilepsy within the University of Venda and broader society.

Abbreviations

HCTREC- Human and Clinical Trial Research Ethics Committee
WHO- World Health Organisation

Acknowledgment

The authors acknowledge the undergraduate and postgraduate students who participated in the study.

Conflict of interest

The authors declare that there is no conflict of interest.

Funding

© University of Venda

This work was supported by the HWSETA.

References

1. Abuawad M, et al. Assessment of epilepsy awareness, knowledge, and attitudes among preclinical and clinical medical students in the West Bank of Palestine. Epilepsy & Behavior. 2023;145.
2. World Health Organization. Epilepsy. Geneva, Switzerland; 2024. Available from: https://www.who.int/news-room/fact-sheets/detail/epilepsy.
3. Zhao T, Zhang X, Cui X, Chen Y, Wang N, Wang B, Ren Z, Sun L, Zhao P, Xu J, Han X. Awareness, attitudes and first aid knowledge of epilepsy among university students–A cross-sectional study in Henan Province, China. Epilepsy Research. 2024;201:107315.
4. Rossi KC, Baumgartner AJ, Goldenholz SR, Goldenholz DM. Recognizing and refuting the myth of tongue swallowing during a seizure. Seizure. 2020;83:32-7.
5. Panda SB, Prabhu K, Rao S, Rao A, Rao G, Datta A, Ramanan H, Kamath A. Evaluation of knowledge of and attitudes toward epilepsy among the health science students of Manipal University. Epilepsy & Behavior. 2011;20(3):447-9.
6. Ab Rahman AF. Awareness and knowledge of epilepsy among students in a Malaysian university. Seizure: European Journal of Epilepsy. 2005;14:593-596.
7. Kartal A. Knowledge of, perceptions of, attitudes and practices regarding epilepsy among medical students in Turkey. Epilepsy & Behavior. 2016;58:115-8.
8. Mustafa MN, Wedaa Alla LG, Ahmad TK. Knowledge and attitude toward epilepsy among the final and semi-final years medical students at University of Bahri, Sudan. Epilepsia Open. 2022;7:144–150. https://doi.org/10.1002/epi4.12573
9. Hajji EB, Traore B, Hassoune S, Bellakhdar S, Salah NE, Rafai MA, Lakhdar A. Knowledge, attitudes and practices towards epilepsy in morocco: A cross-sectional study. Epilepsy & Behavior. 2024 Jan 1;150:109567.
10. Shawahna R. Agreement of Palestinian nursing students with recommendations to eliminate epilepsy stigma and change perception of the general public about epilepsy: A cross-sectional study. Epilepsy & Behavior. 2020 Aug 1;109:107126.
11. Alsaab A, Almutairy A, Ahmed S, Alotaibi A, Alsheikh H, Alotaibi K. A study of basic knowledge of epilepsy among male medical students in Majmaah University, Riyadh, Saudi Arabia in 2018. 2018;4:116-120.

© University of Venda

12. Musekwa OP, Makhado L, Maphula A. Caregivers' and family members' knowledge, attitudes and practices towards epilepsy in rural Limpopo and Mpumalanga, South Africa. Int J Environ Res Public Health. 2023; 20: 5222. https://doi.org/10.3390/ijerph2006522
13. Nemathaga M, Maputle MS, Makhado L, Mashau NS. Professional nurses' experiences of managing epilepsy at limited resource rural facilities in Limpopo and Mpumalanga Provinces, South Africa. Seizure: European Journal of Epilepsy. 2024;121:156-61.
14. Anup KT, et al. Knowledge, awareness and attitude about epilepsy among schoolteachers in India. Seizure. 2008;17:684-690.
15. Ajibola S, Akinbami A, Elikwu C, Odesanya M, Uche E. Knowledge, attitude and practices of HIV post exposure prophylaxis amongst health workers in Lagos University Teaching Hospital. Pan African Medical Journal. 2014;19(1).
16. Adelman EE, Meurer WJ, Nance DK, Kocan MJ, Maddox KE, Morgenstern LB, Skolarus LE. Stroke awareness among inpatient nursing staff at an academic medical center. Stroke. 2014 Jan;45(1):271-3. https://doi.org/10.1161/strokeaha.113.002905
17. Alloboon F, Aleidan M, Alomaim R, Al-Yaish W. Awareness of medical doctors about medical ethics in King Khalid Hospital in Almajmaah City 2016 - 2017. Int J Adv Res. 2020;8:515-530. https://dx.doi.org/10.21474/IJAR01/12178
18. Osborne T. Not lazy, not faking: teaching and learning experiences of university students with disabilities. Disability & Society. 2019;34(2):228-52. https://doi.org/10.1080/09687599.2018.1515724
19. Iannone LF, Roberti R, Arena G, Mammone S, Pulitano P, De Sarro G, Mecarelli O, Russo E. Assessing knowledge and attitudes toward epilepsy among schoolteachers and students: Implications for inclusion and safety in the educational system. PloS one. 2021;16(4):e0249681. https://doi.org/10.1371/journal.pone.0249681
20. Asnakew S, Legas G, Belete A, Admasu FT, Demilie K, Bayih WA, Chanie ES, Negash TT, Yitbarek GY. Knowledge and attitude of the community towards epilepsy in Northwest Ethiopia: a huge gap on knowledge and attitude of the community. Epilepsy & Behavior Reports. 2021;15:100422. https://doi.org/10.1016/j.ebr.2020.100422

© University of Venda

21. Bientzle M, Creß U, Kimmerle J. Epistemological beliefs and therapeutic health concepts of physiotherapy students and professionals. BMC Med Educ. 2014;14:208. https://doi.org/10.1186/1472-6920-14-208
22. Van Der Heide I, Wang J, Droomers M, Spreeuwenberg P, Rademakers J, Uiters E. The relationship between health, education, and health literacy: results from the Dutch Adult Literacy and Life Skills Survey. Journal of health communication. 2013;18(sup1):172-84. https://doi.org/10.1080/10810730.2013.825668
23. Nuzzarello A, Goldberg JH. How perceived risk and personal and clinical experience affect medical students' decisions to seek treatment for major depression. Academic Medicine. 2004;79(9):876-81. https://doi.org/10.1097/00001888-200409000-00014
24. Sukys S, Cesnaitiene VJ, Ossowsky ZM. Is health education at university associated with students' health literacy? Evidence from cross-sectional study applying HLS-EU-Q. BioMed Research International. 2017;2017(1):8516843. https://doi.org/10.1155/2017/8516843
25. Ibinga E, Druet-Cabanac M, Revegue MH, Engohang-Ndong J, Bisvigou U, Ategbo SJ, Preux PM, Ngoungou EB. Impact of knowledge, attitudes, and sociocultural factors on school enrollment of children with epilepsy in Gabon. Seizure. 2019 Oct 1;71:145-50. https://doi.org/10.1016/j.seizure.2019.07.014
26. Kaddumukasa M, Kaddumukasa MN, Buwembo W, Munabi IG, Blixen C, Lhatoo S, Sewankambo N, Katabira E, Sajatovic M. Epilepsy misconceptions and stigma reduction interventions in sub-Saharan Africa, a systematic review. Epilepsy & Behavior. 2018 Aug 1;85:21-7. https://doi.org/10.1016/j.yebeh.2018.04.014
27. Musekwa OP, Makhado L, Maphula A, Tsakani Mabunda J. How Much Do We Know? Assessing Public Knowledge, Awareness, Impact, and Awareness Guidelines for Epilepsy: A Systematic Review. Open Public Health J. 2020;13:794-807. https://doi.org/10.2174/1874944502013010794
28. Makhado TG, Lebese RT, Maputle MS, Makhado L. Epilepsy life skill education guidelines for primary school teachers and learners in Limpopo and Mpumalanga Provinces, South Africa: Multiphase mixed methods protocol. PLoS One. 2022;17:e0271805. https://doi.org/10.1371/journal.pone.0271805

© University of Venda

29. Durmaz FG, Cihan FG, Sevinç İ, Kızmaz M. Evaluation of knowledge levels and attitudes of health management department students about epilepsy disease; a cross-sectional study. Epilepsy & Behavior. 2022;126:108480. https://doi.org/10.1016/j.yebeh.2021.108480
30. Keikelame MJ, Swartz L. Parents' understanding of the causes and management of their children's epilepsy in Khayelitsha, Cape Town. South African Journal of Psychology. 2007 Jun;37(2):307-15. https://doi.org/10.1177/008124630703700206
31. Osungbade KO, Siyanbade SL. Myths, misconceptions, and misunderstandings about epilepsy in a Nigerian rural community: implications for community health interventions. Epilepsy & Behavior. 2011 Aug 1;21(4):425-9. https://doi.org/10.1016/j.yebeh.2011.05.014

© University of Venda

SECTION THREE

CONCLUSION, LIMITATION AND RECOMMENDATIONS

© University of Venda

INTRODUCTION

This section includes a conclusion, recommendation, limitation and summary of the mini dissertation. The section involves the conclusions of all manuscripts, the general conclusion of the study, and recommendations and limitations of the study. The misunderstanding and misconception of epilepsy still play a pivotal role in the community. This study assessed the level of knowledge, attitude, and awareness that the students displayed at the university level.

CONCLUSIONS FROM THE MANUSCRIPTS

This section consists of the conclusions of the studies included in this mini dissertation, where the scoping review revealed that the gap in epilepsy knowledge was affected by cultural differences. The second manuscript showed that many students displayed good attitudes and had knowledge of epilepsy, although there are still misunderstandings resulting from incorrect sources of information.

ARTICLE 1: UNDERSTANDING EPILEPSY: A SCOPING REVIEW OF KNOWLEDGE, ATTITUDES, AND AWARENESS AMONG UNIVERSITY STUDENTS

This scoping review examines the knowledge, attitudes, and awareness of epilepsy among higher education students worldwide. Despite improved awareness, misconceptions and stigma persist, revealing significant knowledge gaps influenced by cultural and demographic factors. Education plays a vital role in shaping perceptions; however, it often fails to alter deeply rooted stigmas. Tailored educational interventions that include empathy-building and practical training are essential. Students can advocate for epilepsy awareness, and universities should incorporate epilepsy education into their curricula. Collaborative efforts among academic institutions, healthcare providers, and policymakers are necessary to create effective programs that foster understanding and support for individuals with epilepsy.

ARTICLE 2: ASSESSING KNOWLEDGE, ATTITUDES, AND MISCONCEPTIONS ABOUT EPILEPSY AMONG UNIVERSITY OF VENDA STUDENTS: A CALL FOR ENHANCED EDUCATION AND AWARENESS

This study explored the level of knowledge, attitude and awareness of epilepsy among university students. The findings were that more students know about epilepsy, although the is misinformation surrounding it. In addition, the study revealed that health science students were more knowledgeable about correct epilepsy information than non-health science students and that the sources of information played a role in the accuracy of the information that the students had, leading to the portrayed attitude. The study further revealed that public education and awareness of epilepsy can enhance the correct first-aid management of epilepsy. Educational initiatives focusing on seizure management, inclusivity, and the dispelling of stigma could significantly improve the knowledge base. These efforts could foster a more supportive environment for individuals with epilepsy within the University of Venda and broader society.

© University of Venda

GENERAL CONCLUSION FOR THE STUDY

The study examined the knowledge, attitudes, and awareness of epilepsy among students at a selected higher education institution. Participants demonstrated a keen interest in learning more about the condition, as many were unaware of it until they completed the questionnaire. Data were gathered using an electronic questionnaire structured in three sections. The findings revealed that a significant number of students, particularly those in health science programs, possessed some understanding of epilepsy. However, misconceptions persisted due to insufficient education about the condition within their coursework. Additionally, some students held inaccurate beliefs about epilepsy, primarily arising from unreliable sources of information. This study was crucial in assessing the student's understanding and identifying areas needing improvement. It underscored the importance of promoting awareness to eliminate misconceptions, misunderstandings, and stigma associated with epilepsy.

RECOMMENDATION

The recommendation of this study is described based on the educational, policy, practical and research.

EDUCATIONAL

The researcher recommends that the University have a programme that focuses on epilepsy awareness and promotion, and has a day dedicated to PWE to educate people about epilepsy as a neurological disease; this may reduce misconceptions, myths and discrimination. It will further educate people on the proper management of seizures. Furthermore, the study recommends that an epilepsy programme be included as an orientation for all first-entering students to ensure all students are well-informed about epilepsy.

POLICYMAKERS

The study recommends that the university revise the current and available policies on medical emergencies and include a policy that focuses on managing seizure attacks. This can include revising the faculty training programme and training the staff and students interested in managing epilepsy. Additionally, the policy can include how often the training should be done on staff and students to ensure ongoing support for PWE.

PRACTICAL

The researcher further recommends that there be guides and posters for students, staff, and faculty on first aid management of epilepsy. This can be printed out and posted on the notice boards and shared with all active students to ensure they are all informed.

RESEARCH

The researcher recommends that the university provide opportunities for students to research epilepsy and collaborate with other institutions interested in epilepsy. This can be achieved by providing funding

© University of Venda

specifically for the epilepsy programme and allocating grants to faculty interested in epilepsy to facilitate the programme.

LIMITATIONS

The study had several limitations. Firstly, it only included enrolled university students, which may not provide a comprehensive understanding of the perspectives on epilepsy among the broader population. Additionally, an electronic questionnaire may have constrained participants from fully expressing their views. This limitation could affect the richness of the data collected and may not capture the diversity of opinions and experiences related to epilepsy.

SUMMARY OF THE MINI-DISSERTATION

This study assessed the knowledge, attitude, and awareness of epilepsy among university students. The overall findings showed a moderate to high level of knowledge, an improved attitude and insufficient awareness. Although there are studies done on epilepsy in many groups, there are still misconceptions and myths about the condition. To ensure that all students understand epilepsy, the programme should be included in all faculties and not only focus on health science students.

© University of Venda

ANNEXURE A: ETHICAL CLEARANCE

ETHICS APPROVAL CERTIFICATE

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Ms AE Ndou

STUDENT NO:
16001713

PROJECT TITLE: **Knowledge. Attitude and awareness of epilepsy towards students of higher institution of learning in Limpopo, South Africa.**

ETHICAL CLEARANCE NO: **FHS/24/PH/16/0708**

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof L Makhado	UNIVEN, PUBLIC HEALTH	Supervisor
Mrs OP Musekwa	UNIVEN, PUBLIC HEALTH	Co-Supervisor
Ms AE Ndou	UNIVEN, PUBLIC HEALTH	Investigator – Student

Type: Masters Research
Risk: *Minimal risk to humans, animals, or environment* (Category 2)
Approval Period: August 2024 – August 2025

The Human and Clinical Trials Research Ethics Committee (HCTREC) hereby approves your project as indicated above.

General Conditions
While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following.

- The project leader (principal investigator) must report in the prescribed format to the REC:
  - Annually (or as otherwise requested) on the progress of the project, and upon completion of the project.
  - Within 48hrs in case of any adverse event (or any matter that interrupts sound ethical principles) during the course of the project.
  - Annually a number of projects may be randomly selected for an external audit.
- The approval applies strictly to the protocol as stipulated in the application form. Would any changes to the protocol be deemed necessary during the course of the project, the project leader must apply for approval of these changes at the REC. Would there be deviated from the project protocol without the necessary approval of such changes, the ethics approval is immediately and automatically forfeited.
- The date of approval indicates the first date that the project may be started. Would the project have to continue after the expiry date; a new application must be made to the REC and new approval received before or on the expiry date.
- In the interest of ethical responsibility, the REC retains the right to:
  - Request access to any information or data at any time during the course or after completion of the project,
  - To ask further questions; Seek additional information; Require further modification or monitor the conduct of your research or the informed consent process.
  - withdraw or postpone approval if:
  - Any unethical principles or practices of the project are revealed or suspected.
  - It becomes apparent that any relevant information was withheld from the REC or that information has been false or misrepresented.
  - The required annual report and reporting of adverse events was not done timely and accurately,
  - New institutional rules, national legislation or international conventions deem it necessary.

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE
Date Considered: August 2024

Name of the HCTREC Chairperson of the Committee: Prof NS Mashau

Signature:

UNIVERS OF VEND
OFFICE OF THE DIRECTOR
RESEARCH AND INNOVATION
2024 -08- 07
Private Bag X5050
Thohoyandou 0950

© University of Venda

ANNEXURE B: INFORMATION SHEET

Title of the Research Study: KNOWLEDGE, ATTITUDE AND AWARENESS OF EPILEPSY AMONGST STUDENTS AT A SELECTED HIGHER EDUCATION INSTITUTION OF LEARNING IN LIMPOPO, SOUTH AFRICA

Principal Researcher: Andani Edna Ndou, Master of Public Health student.

Supervisor: Prof Makhado L

Co-supervisor: Dr Netshisaulu O.P

Brief Introduction and Purpose of the Study:

Introduction

I, Andani Edna Ndou, a Master of Public Health student at the University of Venda, am embarking on research titled above. I would ask you to participate in the study. You are not forced to participate in the study. You can ask anyone you feel comfortable with regarding this research. If you encounter any unusual words or words, you do not understand, please ask me to explain them before proceeding.

Purpose of the study: The study aims to explore the knowledge of epilepsy among students in a selected higher education institution in Limpopo province, South Africa.

Outline the procedure- the research will employ a quantitative cross-sectional descriptive study. Purposive sampling will be used to sample participants from a selected higher institution of learning who will be willing to participate. The population will be all students (undergraduate and postgraduate students). The sample size will be 375, determined by the Raosoft sample size calculator from the higher institution of learning population. Data will be collected using an electronic Google form questionnaire.

Time of intervention- the questionnaire will take approximately 15-45 minutes of your time. The time will also be determined by the participant's speed and understanding in answering the questionnaire.

© University of Venda

Participation selection- You are invited to participate in the study because the researcher feels that the experience and knowledge you have about epilepsy may assist or contribute to understanding people's experiences towards epilepsy.

Voluntary participation and withdrawal- your participation in the study is voluntary. You are not forced and are free to do so if you choose not to be part of the study. There will not be any consequences should a participant choose to withdraw from the research.

Procedure- a participant will answer the questionnaire electronically. If a participant is unwilling to answer, they are free to move to another question or not answer at all. The information a participant provides will be confidential, and only supervisors (Prof Makhado L and Dr Netshisaulu O.P) and I will have access to it. If changes need to be made, the researcher will inform the participants and seek permission.

Risks and discomforts to the participants- there may be some personal questions that you need to respond to. You will have to respond truthfully. If you feel uncomfortable giving out the information, you do not have to answer or participate in the interview.

Benefits- benefits from this study will be that the researcher, participants, and community will find more insight and gain more knowledge about epilepsy.

Remuneration- no money will be paid to participants as a reward for participating in the study.

Cost of the study- you will not be expected to pay any money to participate in the research or complete the questionnaire.

Confidentiality- the answered questionnaire will be kept safe and confidential. Only the research team will have access to it. No information will be shared outside the research team. No name will be attached to the information provided by a respondent.

Research-related injury- The results of this study will not be shared with anyone outside the project, and nothing will be attributed to the participant by name. The knowledge that the researcher will get will be shared with the participant before it is published to the public. There will not be any compensation to the participants in case of injury during the study.

© University of Venda

Persons to contact in case of any problem: My supervisors (Prof Makhado L and Dr Netshisaulu O.P). Kindly contact the researcher on 063 440 5307 or the University Research Ethics Committee Secretary on 0159629058/ Vanecia.Khoza@univen.ac.za.

For complaints, they can be reported to the University Research Ethics Committee Secretariat on 015 962 9058 / Vanecia.Khoza@univen.ac.za or Whistleblowing Ethics Hotline Tollfree Telephone number: 0800212755 Email: univenhotline@tipoffs.com

Generally, all participants will be assured that participation is voluntary. The number of participants should be disclosed. The researcher will issue a copy of the information letter to the participants. The information letter and consent forms will be in English language for ease of understanding.

© University of Venda

ANNEXURE C: CONSENT FORM

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, (Andani Edna Ndou), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number:
- I have also received, read, and understood the above-written information regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and declare myself prepared to participate in the study.
- I understand that significant new findings developed while this research which may relate to my participation will be made available to me.

Full Name of Participant	Date	Time	Signature
……	……	……	……..

I, Andani Edna Ndou herewith confirm that the above participant has been fully Informed about the nature, conduct and risks of the above study.

Full Name of Researcher

…… Date…….. Signature……

Full Name of Witness (If applicable)

…… Date …….. Signature……

Full Name of Legal Guardian (If applicable)

…… Date…… Signature……

© University of Venda

ANNEXURE D: LETTER TO CONDUCT RESEARCH IN THE UNIVERSITY.

University of Venda

Private Bag X5050

Thohoyandou

0950

Dear Sir/Madam,

Subject: Request for Permission to Conduct a Research Study

I trust this message finds you in good health.

I, Andani Edna Ndou (Student ID: 16001713), am writing to seek permission to carry out my research study titled "Knowledge, Attitudes, and Awareness of epilepsy Among Students at a Selected Higher Education Institution of learning in Limpopo, South Africa." I am currently pursuing a master's degree in public health within the Faculty of Health Sciences.

The primary objective of this study is to assess and describe the knowledge, attitudes, and awareness of epilepsy among students within a chosen higher education institution in Limpopo province, South Africa. I want to emphasize that all necessary ethical protocols will be strictly observed to ensure the researcher's and study participants' safety and well-being.

I kindly request your favorable consideration of this request. Your support in granting permission for this research would be greatly appreciated.

Thank you for your attention to this matter.

Yours sincerely,

_____

Andani Edna Ndou

© University of Venda

APPENDIX E: DATA COLLECTION QUESTIONNAIRE

Questionnaire number _____ Faculty_____ Date___/___/_____

This questionnaire is part of a research study that aims to assess the level of knowledge and attitude that students have about epilepsy, with the goal of creating an epilepsy awareness program. Thank you for choosing to participate. Please find the instructions below.

INSTRUCTIONS:

The questionnaire comprises two sections (Section 1 and Section 2) and 4 pages; ensure you have all these.

Please answer all questions honestly and follow the instructions given per question.

Please use a cross (X) in the boxes to choose an answer.

Please do not skip questions unless required.

Section 1: Sociodemographic data

1. **Age: _____**
2. **Gender: Male ☐ Female ☐**
3. **Race: Black ☐ Coloured ☐ Indian ☐ White ☐**
4. **Culture: Venda ☐ Tsonga ☐ Ndebele ☐ Swati ☐ Zulu ☐ Sepedi ☐ Sesotho**
5. **Marital status: Single ☐ Married ☐ Divorced ☐ Widowed ☐**
6. **Education: Undergraduate ☐ Postgraduate ☐**
7. **Religion: Pentecostal ☐ Lutheran ☐ Catholic ☐ ZCC ☐ Methodists ☐ Traditional ☐ Other _____**
8. **Employment status: Employed ☐ Full-time student ☐ Temporary employmen☐**

© University of Venda

9. **Are you a: Person living with epilepsy ☐ Family of person living with epilepsy ☐ Friend of person with epilepsy ☐**

Section 2: Knowledge and Awareness of epilepsy

1. **Have you ever read or heard about epilepsy? Yes ☐ No ☐**

(If no answer, if no skip to 6)

2. **Where did you read or hear about epilepsy? Television program ☐ School ☐ Friends ☐ Books ☐ Movies ☐ Family ☐ Personal Experience ☐ During lecture class ☐**

3. **How many times have you read or heard about epilepsy? Once ☐ Twice ☐ More than three times ☐**

4. **Do you think you have the correct knowledge about epilepsy? Yes ☐ No ☐**

5. **Do you have enough knowledge about epilepsy? Yes ☐ ☐**

6. **Do you have access to any information on epilepsy? Yes ☐ No ☐**

7. **Should epilepsy be taught in classes? Yes ☐ No ☐**

8. **Do you know anyone living with epilepsy? ☐ Yes ☐ No ☐**

8.1. **Relationship: Your child ☐ Relative ☐ Friend ☐ Spouse ☐ Neighbor ☐ Yourself ☐**

9. **Knowledge on cause/s, nature and management and treatment of epilepsy.**

9.1. **Are you a health science student? Yes ☐ No ☐**

Questions for health care providers (*Please skip to 10.2 if you are not a health science student*) ☐

© University of Venda

9.1.1. **Have you provided services to people living with epilepsy? Yes ☐ No**

9.1.2. **People living with epilepsy are advised to have a seizure record. Yes ☐ ☐ No**

9.1.3. **People living with epilepsy are advised on monthly follow up. Yes ☐ ☐**

9.1.4. **University health workers monitor treatment adherence. Yes No ☐ ☐**

9.1.5. **Did you have access to any information on epilepsy during your lecture classes?**

Yes No ☐ ☐

9.1.6. **Do you think lecturers/ students are trained on care during a seizure? Y☐ ☐ No**

9.1.7. **Do people living with epilepsy get assisted with university applications? Y☐☐ No**

9.1.8. **Do people living with epilepsy and families receive continuous counselling. Yes ☐ ☐ No**

9.2. **Epilepsy is:** ***(Please tick options you feel most strongly about)***

A spiritual illness ☐

A form of a mental disorder ☐

A contagious disease ☐

Not treatable ☐

A common neurological disease ☐

A disease that affects anyone at any age ☐

A burdensome disease ☐

A brain chronic disease that cannot be cured or controlled ☐

© University of Venda

None of the above ☐

Other _____

9.3. **Epilepsy is caused by:** ***(Please tick options you feel most strongly about)***

Demonic possession ☐

Trauma to the brain ☐

Persistent headaches ☐

Infections ☐

Bad thoughts ☐

Medication/drugs ☐

Brain malfunction ☐

Inherited ☐

Curse from God ☐

Infection from others ☐

None of the above ☐

Other_____

9.4. **Epilepsy can be treated by:** ***(Please tick options you feel most strongly about)***

Prayer ☐

Psychological assistance ☐

Holy water/oil ☐

Medication is an Ideal treatment for epilepsy ☐

© University of Venda

Traditional medicine only ☐

☐

Cannot be treated

Surgery ☐

Psychiatric care ☐

None of the above ☐

10. Knowledge on first aid *(Please tick options you feel most strongly about)*

10.1. **Have you helped a person experiencing a seizure: Yes** **No** ☐ ☐

10.2. **When someone is experiencing a seizure, you should do either one of the following to stop the seizure:**

Put a spoon on their tongue. ☐

Hug the person ☐

Spray holy water ☐

Hold them down to stop movement ☐

Pray ☐

Do nothing ☐

Burn insane over their body ☐

Call the person's name ☐

Splash with water ☐

I don't know ☐

None of the above ☐

© University of Venda

10.3. **During a seizure, for safety purposes you should:**

Hold tongue to keep from biting ☐

Restrict movement so they don't roll around ☐

Remove objects from surrounding ☐

Stay close to individual ☐

Place body on one side ☐

Call an ambulance ☐

I don't know ☐

11. Attitudes, knowledge and awareness on impact of epilepsy ***(please tick as many as possible).***

11.1. **People living with epilepsy cannot:**

Read or write well ☐

Perform day-to-day tasks without assistance ☐

Have children ☐

Manage a household ☐

11.2. **People living with epilepsy shouldn't be allowed to:**

Drive ☐

Marry or get married ☐

Touch other people ☐

Work ☐

© University of Venda

Make friends ☐

Be left alone, should be always guarded ☐

Walk around in public ☐

Attend school ☐

Skip prayer meetings ☐

Skip traditional meeting for treatment ☐

Skip hospital appointments ☐

12. Do you think enough attention is being given toward epilepsy? Yes ☐ **No** ☐ **Not sure** ☐

Has this questionnaire spiked your interest to learn more about epilepsy? Yes ☐ **No** ☐

© University of Venda

APPENDIX F: LANGUAGE EDITING CERTIFICATE.

EDITOR'S LETTER

To whom it may concern

Dear Sir/Madam

This is to authenticate that I, Zitha Innocent, have proofread and edited a mini dissertation for a Master of Public Health in the Department of Public Health in the Faculty of Health Sciences at the University of Venda entitled **KNOWLEDGE, ATTITUDES, AND AWARENESS OF EPILEPSY AMONGST STUDENTS AT A SELECTED HIGHER EDUCATION INSTITUTION OF LEARNING IN LIMPOPO, SOUTH AFRRICA**

BY

ANDANI EDNA NDOU

Student number: 16001713

I have meticulously and comprehensively inspected this mini dissertation for consistency, coherence, and correctness of language use, ensuring proper register usage and citations. I have suggested several amendments, which were communicated to the student for consideration and implementation. The student has undertaken to effect these amendments before this research is finally submitted.

Best Regards

Date: **15/01/2025**

Contact No: 0715430998
Email: Innocent.Zitha@nwu.ac.za ***and*** **Zitha960@gmail.com**

BA Hons (English), MA (English), PhD (current studies), My expertise in English language and communication has equipped me with the skills necessary to provide thorough and accurate proofreading and editing services.

© University of Venda