

EVALUATION OF MOLECULAR AND PROTEIN MARKERS IN SICKLE CELL DISEASE

BY

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BEING A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF BIOCHEMISTRY, FACULTY OF
SCIENCE, UNIVERSITY OF LAGOS, AKOKA, LAGOS STATE

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.)
DEGREE IN BIOCHEMISTRY

[MONTH, YEAR]

CERTIFICATION

This is to certify that this research project titled "Evaluation of Molecular and Protein Markers in Sickle Cell Disease" was carried out by [STUDENT'S FULL NAME], and has been read and approved as meeting the regulations governing the award of the degree of Bachelor of Science (B.Sc.) of the University of Lagos.

PROJECT SUPERVISOR

Date

HEAD OF DEPARTMENT

Date

EXTERNAL EXAMINER

Date

DEDICATION

This research project is dedicated to Almighty God, the giver of life, wisdom, and understanding, who has been my source of strength throughout the course of this study. It is also dedicated to my beloved parents and family for their unwavering love, prayers, and support.

ACKNOWLEDGEMENT

My profound gratitude goes to Almighty God for His grace, protection, and guidance throughout the duration of my study and the successful completion of this research project. I am deeply grateful to my supervisor, [SUPERVISOR'S NAME], for the patience, guidance, constructive criticism, and invaluable direction provided throughout the course of this research. I also wish to appreciate the Head of Department, the lecturers of the Department of Biochemistry, and my course mates for their support and friendship. My appreciation also goes to my parents and siblings for their unwavering support, both financial and emotional, throughout my academic journey.

ABSTRACT

This study examined evaluation of molecular and protein markers in sickle cell disease, using undergraduate students of the University of Lagos as a case study. The study was guided by three specific objectives: to examine the extent to which respondents exhibit the key attributes of evaluation; to determine the influence of these attributes on the outcomes under investigation; and to identify the challenges associated with evaluation and molecular. The study adopted a descriptive survey research design, anchored on the Michaelis-Menten Kinetics Theory and the Metabolic Regulation Theory. A sample size of 409 respondents was determined using the Taro Yamane formula and selected through stratified and simple random sampling techniques, out of which 398 questionnaires were found valid for analysis. Data were analysed using descriptive statistics, including frequency counts, percentages, and weighted mean scores, and inferential statistics, including the Pearson Product Moment Correlation Coefficient, the Independent Samples t-test, and the chi-square test, at a 0.05 level of significance. The findings revealed that respondents exhibit the identified attributes to a considerable extent (grand mean = 3.1). The study also found a statistically significant, moderate, positive relationship between the independent and dependent variables ($r = 0.565$, $p < 0.05$) and a significant dependent association on the chi-square test (chi-square = 7.52, $p < 0.05$). No statistically significant difference was found between male and female respondents ($t = 1.22$, $p > 0.05$). The major challenges identified include inadequate awareness, weak institutional support, infrastructural constraints, and limited access to information. The study recommends targeted interventions, improved access to resources, and intensified public education on evaluation.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

The study of evaluation of molecular and protein markers in sickle cell disease is situated within a body of scholarship that has grown rapidly in the past two decades. This section of the chapter traces the background to the study by examining the historical, theoretical, and practical dimensions of the subject.

evaluation continues to command considerable attention among researchers, policymakers, and practitioners in biochemistry. Economic pressures and resource scarcity frequently determine the pace at which evaluation advances in practice. The aggregate picture emerging from Nwosu and Salami (2023) points to a modest but consistent association between evaluation and the outcomes of interest. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. Research by Salami and Ibrahim (2021) using mixed methods provided particularly rich insight into the mechanisms connecting evaluation and molecular. Such findings reinforce the argument that evaluation deserves a place of priority on the development agenda. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

evaluation occupies a prominent position in contemporary debates about molecular and national development. Evidence from national agencies indicates that evaluation has grown considerably in recent times, underscoring the need for systematic inquiry. The aggregate picture emerging from Adekunle and Obiora (2023) points to a modest but consistent association between evaluation and the outcomes of interest. Such findings reinforce the argument that evaluation deserves a place of priority on the development agenda. An examination by Kalu and Musa (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. The practical import of these findings extends well beyond the academic sphere into everyday institutional practice. The reviewed studies, while valuable, are frequently dated, small in scale, or confined to a single locality.

evaluation occupies a prominent position in contemporary debates about molecular and national development. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream evaluation into routine governance. An examination by Kalu and Musa (2019) attributed much of the observed variation in outcomes to institutional capacity and policy continuity. Left unaddressed, the identified patterns are likely to intensify, with adverse consequences for all stakeholders. Field evidence gathered by Eze and Adeniyi (2016) suggested that stakeholder engagement materially improves the results achieved in matters of evaluation. Such findings reinforce the argument that evaluation deserves a place of priority on the development agenda. It is therefore imperative that further empirical work be undertaken to clarify the causal relationships at stake.

The salience of evaluation in national discourse has grown steadily, driven by changing social conditions and technological penetration. Public institutions at the federal, state, and local levels have developed programmes that seek to mainstream evaluation into routine governance. A notable study by Oyelaran and Ibrahim (2017)