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***Research Article***

# Therapeutic Effects of Mangifera indica on Chronic Health Conditions: A Logistic Regression Analysis in Oyo State, Nigeria

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**Abstract**

In numerous developing nations, traditional medicine is one of the basics of health care due to limited access to conventional medical systems. *Mangifera indica* (Linn.) is an indigenous treatment for managing chronic illnesses. However, little quantitative evidence about the perceived effectiveness with the community exists. This study examined how people in Oyo State perceived the health benefits of *Mangifera indica* in the management of selected recalcitrant health challenges such as diabetes, dysentery, and high blood pressure. A structured questionnaire was used to collect primary data from 75 respondents by employing a cross-sectional survey design. The usage and outcome were summarized using descriptive statistics and the inferential analysis were carried out using chi-square tests, correlation analysis and binary logistic regression. Findings suggest most respondents consider *Mangifera indica* helpful in their health problems. Logistic regression analysis showed that those who previously used *Mangifera indica* were significantly more likely to report effective health outcomes; however, the frequency of use, type of condition being treated, and lifestyle or dietary changes were no significant predictors. Even though the clinical effectiveness remains unproven, the data offers statistically sound evidence of favorable perceptions at the community level and reinforces the continuing importance of indigenous medicine in healthcare in developing countries. It is suggested that clinical studies be performed further.

## 1. Introduction

*Mangifera indica* (Linn.), commonly known as mango, is a plant of great interest to the traditional and modern world due to its immense pharmaceutical potential [1]. As per the World Health Organization, about 80% of population in the world rely on traditional medicine and usage of herbal supplements in last five years has increased drastically from 2.5% to 12% [1]. Mango is a plant which is found extensively in most tropical regions of the globe. According to Ayurvedic traditions, mango contains a repository of bioactive compounds that have potent antidiabetic, anti-oxidant, anti-inflammatory, and immunomodulatory properties. The multiple therapeutic potentials of M. Studies have documented the health benefit of indica from metabolic disorders to chronic inflammatory disease. Yet this study sought to examine the associations between frequency of consumption and associated health benefit in sub-Saharan Africa, including Nigeria [2]. The evidence gap highlighted the importance of undertaking more analytical studies using advanced statistical models to uncover the relationships between *Mangifera indica* use and health improvement paths.

There is a substantial preclinical and in vitro evidence regarding the therapeutic effect of M. While studies have suggested efficacy against different chronic ailments [3], very few community-based studies with robust quantitative approaches in resource-limited settings exist on the associations between frequency of use, type of health condition and perceived therapeutic outcome [4]. The hepatoprotective, cardioprotective and metabolic effects of mangiferin and related phytochemicals need to be verified through population-based studies that address lifestyle changes and confounding socioeconomic factors [5]. Also, M is used traditionally. The use of indica cannabis for the treatment of intractable medical conditions has not been systematically modeled using binary outcome frameworks that would enable risk stratification and prediction of effectiveness. The methodological gap is especially important in Nigeria, where practitioners of traditional medicine make up a large proportion of the primary healthcare workforce but their therapeutic recommendations are not quantitatively justified with data [6]. Lack of structured information on the relationship between Mycobacterium (M. The use of indica shows how often and those who use it either have an acceptable health outcome or unacceptable this may show a major flaw in the plant use.

According to ethnopharmacological surveys in Nigeria and other West African countries, M is widely used traditionally. Indica is useful for diabetes, hypertension, gastrointestinal disorders, and immune-related conditions [7]. Evidence of M has been synthesized by systematic reviews. According to a study conducted by [8], indica has antioxidant, anti-inflammatory, and hepatoprotective properties. Phytochemical diversity of leaves, bark, seeds and the fruit of different plants cause different bioactivities; hence consumption pattern and plant part used may significantly affect the therapeutic outcome [9]. Recent studies using network pharmacology and molecular docking have identified key signaling pathways in M. compounds indicate modify the inflammatory response and oxidative stress [10]. Main existing research mainly concentrates on the in vivo preclinical evidence and small clinical trials. Moreover, there is little attention given to the community level perception of effectiveness and the quantitative relationship between use frequency and self-reported health improvement [11]. By using logistic regression modeling approaches based on the population, these well-established mechanistic findings would evidence the link between conventional and contemporary.

M's Potential as a Therapy. Indica, though promote a plant native to India, has beneficial claims regarding soil improvement and therapeutic qualities; sigma suffering a much general reputation [12]. The binary logistic regression modeling is an advanced but interpretable statistical technique for assessing two health outcomes, which are determined by multiple predictors including frequency of M. These frequencies are indicated by their values over time, their periods of occurrence, and the quantum of their breach. Consumption of indica, lifestyle changes, demographic traits, health condition categories [13]. This approach makes it possible to estimate adjusted odds ratios, allowing us to measure the probability of reporting effective health outcomes by M. indica usage patterns while controlling for possible confounders. Scarpa et al. [14] argued that the use of logistic regression in their study contributes to the growing literature on assessing the effectiveness of traditional medicine and advancing the methodological rigor of ethnopharmacological studies in sub-Saharan Africa. Also, the study provides empirical evidence that is critical for informing policy recommendations to incorporate validated traditional medicines into complementary treatment programmes in Nigeria, especially in cases of recalcitrant ailments resistant to orthodox medicine [15].

We present the methodical application of binary logistic regression modeling to study the therapeutic effect of *Mangifera indica* on selected recalcitrant diseases in Oyo State, Nigeria. The objectives consist of three interconnected research objectives. First is to explore the association of frequency of *Mangifera indica* use with dichotomous health outcome, (effective versus ineffective) perception among people suffering from chronic recalcitrant ailments. The second is to examine relationships strength and direction of *Mangifera indica* use pattern, frequency of use, type of health condition, lifestyle changes and health outcome perception after adjusting sociodemographic and clinical variables. Lastly, the objective is to estimate likelihood of effective health outcome report by *Mangifera indica* eater with chronic recalcitrant symptom. As per multivariate binary logistic regression modeling, indica usage, consumption frequency and other factor probabilities [13]. Depending upon the perception of effectiveness of the treatment, which can be either effective or ineffective and so being the dependent variable, their odds ratios and prediction probabilities can be calculated [16]. Through this investigation evidence on the quantitative links between the use of traditional medicine and improved health will be produced. In addition, findings will contribute to the evidence-based complementary medicine literature and better inform decision-making on therapeutic alternatives for recalcitrant health care problems in resource-limited settings [17].

## 2. Methods

### 2.1. Study Design and Study Area

A quantitative cross-sectional survey design was adopted in this study to analyse how people with selected chronic health conditions perceive health implications of. The research was based in Oyo State, Nigeria, as well as neighboring communities where indigenous medicine is widely practiced. In these contexts, people use traditional treatments because of their everyday realities – relative ease of access, low cost, and cultural acceptability.

### 2.2. Study Population and Sampling Technique

The study population included adult participants who had been or were either previously suffering from or currently suffering from at least one of the selected conditions which were diabetes, dysentery or hypertension. An equal probability sampling (EPS) technique was applied to reduce the risk of selection bias and ensure representation of eligible individuals. Each participant was given an equal probability of selection inclusion. 100 questionnaires were administered in total. Out of these, 75 were returned in a fully completed form and deemed suitable for analysis 75% response rate. The final dataset used for the analysis included only those responses that were complete and consistent in nature.

### 2.3. Data Collection Instrument

Primary data were collected using a structured questionnaire developed specifically for this study. The instrument was designed to obtain detailed information on respondents' demographic characteristics, their experience with *Mangifera indica*, patterns of use, the type of health condition treated, associated lifestyle adjustments, and perceived health outcomes.

The questionnaire was divided into four sections:

i. **Section A:** Demographic characteristics of respondents, including age, gender, marital status, level of education, and religion.
ii. **Section B:** Information relating to respondents' health conditions and their use of *Mangifera indica*, covering prior use, form of preparation or administration, and frequency of consumption.
iii. **Section C:** Perceived health effects, changes in diet and lifestyle, and respondents' evaluation of the effectiveness of *Mangifera indica* in managing their condition.
iv. **Section D:** Comparative views on conventional medical treatments and respondents' general recommendations regarding the use of *Mangifera indica*.

The questionnaire consisted predominantly of close-ended items to facilitate uniform responses and support reliable quantitative analysis.

### 2.4. Measurement of Variables

The outcome variable was respondents perceived health outcome following the use of Mangifera indica. For inferential analysis, this variable was dichotomised into:

i. 0 = Ineffective (not effective, slightly effective)
ii. 1 = Effective (effective, significantly effective)

This binary classification allowed the analysis to focus on whether respondents perceived a meaningful health benefit.

**The explanatory variables included:**

i. Use of Mangifera indica (yes/no)
ii. Frequency of consumption
iii. Type of health condition treated and
iv. Dietary or lifestyle changes made alongside treatment

### 2.5. Data Processing and Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) was used to code and analyze data. All statistical tests were performed at 5% significant levels. The relationships among the study variables were examined using three complementary analyses, namely chi-square analysis, correlation analysis, and binary logistic regression. Statistical values were firstly calculated to characterize respondent sample and summarize data of key study variables. Reporting of standard measures including frequencies and percentages for categorical variables and means and standard deviations for continuous variables were used to provide an interpretable overview of the patterns in use of Mangifera indica and reported health effects, consistent with recommended practice in medicine and health research [18, 19].

Thus, a chi-square test of independence was conducted to determine the relationship between frequency of M. indica use and perceived health effects. The chi-square test is suitable non-parametric procedure for the evaluation of relationships between categorical variables since it doesn't assume normality and homogeneity of variance are involved. The chi-square test allows determination of whether or not the observed difference among cell frequencies from the expected value of the null hypothesis of independence [20, 21]. The strategy is a popular method for the investigation of associations in cross-classified categorical data in health and behavioural research [22, 23].

Also, correlation analyses were conducted to examine the strength of the association M. Indica consumption frequency, health condition, lifestyle changes, and perceived health benefits. Be079202. The Pearson's product–moment correlation coefficient was calculated for pairs of roughly normally distributed interval or ratio variables. One criticizes that Pearson's r is suitable for parametric data, and is best used with linear relationships [22, 24]. When a variable is measured on an ordinal scale, or if the parametric assumption is violated, Spearman's rank correlation coefficient was applied. This is a robust non-parametric alternative for assessing the presence and strength of monotonic associations [18, 23]. This integrated strategy is in line with the established recommendation of matching the correlation method to both the level of measurement and the distributional properties of the data to ensure valid and reliable estimation of associations [21, 24].

**Binary Logistic Regression**

The study utilized binary logistic regression to assess how the use of Mangifera indica affects health outcomes using a binary dependent variable of effective against ineffective. The process will enable us to estimate the chances of reporting an effective health outcome due to Mangifera Indica use and its frequency, condition type, lifestyle changes, etc. The adequacy of the model was evaluated using the Hosmer-Lemeshow goodness-of-fit test. We interpreted the results via odds ratios. According to [25], Mangifera indica and its by-products have provided multiple health benefits. They improved glucose homoeostasis and plasma lipid profiles. Additionally, they improved also endothelial function. Therefore, the benefits could be useful for metabolic and cardiovascular conditions.

The logistic regression model is specified as:

$$\log\left(\frac{P(Y_i=1)}{1-P(Y_i=1)}\right)=\beta_0+\beta_1(\text{MiUse}_i)+\beta_2(\text{Mi Frequency}_i)+\beta_3(\text{Condition Type}_i)+\beta_4(\text{Lifestyle Change}_i)$$

where;
$Y_i$= 1 denotes an effective outcome
$Y_i$= 0 denotes an ineffective outcome
$\beta_0$ is the intercept and
$\beta_1$–$\beta_4$ are regression coefficients.

### 2.6. Validity and Reliability of the Instrument

The instrument was validated and tested for reliability through standard procedures. To guarantee the validity of the study, literature review on traditional medicine and indigenous health practices guided the development of items on Mangifera indica usage, perceived effectiveness, and relevant context. Most of the much of the work used relevant literature and past research. Face validity was established through pilot review with people similar to the study population. Minor modification was made for clarity in this regard. Using an internal consistency analysis, reliability was assessed on perceived health outcomes and their related behaviour items, Cronbach's alpha was computed which returned a coefficient of at least $\alpha \geq 0.70$, the acceptable threshold for exploratory health studies.

### 2.7. Ethical Considerations

Taking part in the study was voluntary. Respondents were informed for the research, and confidentiality and anonymity were will be maintained. No identifying information was collected in this study and all responses were used for academic research only.

## 3. Results and Discussion

### 3.1. Descriptive Statistics

Table 1 captures the frequency distributions and summary statistics for the five study variables. In total 52 respondents (69.3%) reported effectiveness of Mangifera indica use on their health while the rest 23 respondent (30.7%) rated it ineffective. The average response for perceived health outcome (M = 0.69, SD = 0.46) shows a bi-modal distribution skewed to the health gain side. A similar majority, $t(80)=11.81$, $p<.001$, has reported having used that remedy before, M = 0.71, SD = 0.45, confirming a high use prevalence across the sample. Use of the remedy was reported by 70.7% (n =53) participants. With respect to usage frequency, daily was the most prevalent pattern used by 42.7% of users (n = 32), followed by twice-weekly (18.7%, n = 14) and once-weekly (17.3%, n = 13). Results with a mean frequency score of 2.83 (SD = 1.20) confirm habitual (as opposed to occasional) engagement with the plant remedy. According to [26, 27], African herbal medicine is used repeatedly and daily, whereby the preparation of decoction or infusion is part of routine self-care behaviour. The largest health condition managed was 'other conditions' (33.3%) followed by diabetes 25.3%, High blood pressure26.7%, dysertry 18.7%. Over half of respondents (53.3%) made no changes to their dietary habits.

**Table 1:** Descriptive Statistics of Key Study Variables (N = 75)

| Variable | Category | n | % | Mean | SD |
|---|---|---|---|---|---|
| **Perceived Health Outcome** | Ineffective | 23 | 30.7 | 0.69 | 0.46 |
| | Effective | 52 | 69.3 | — | — |
| **Use of Mangifera indica** | No | 22 | 29.3 | 0.71 | 0.45 |
| | Yes | 53 | 70.7 | — | — |
| **Frequency of MI Use** | Others | 16 | 21.3 | 2.83 | 1.20 |
| | Once per week | 13 | 17.3 | — | — |
| | Twice per week | 14 | 18.7 | — | — |
| | Daily | 32 | 42.7 | — | — |
| **Health Condition Treated** | Diabetes | 19 | 25.3 | 2.64 | 1.19 |
| | Dysentery | 14 | 18.7 | — | — |
| | High Blood Pressure | 17 | 22.7 | — | — |
| | Others | 25 | 33.3 | — | — |
| **Lifestyle / Dietary Change** | No | 40 | 53.3 | 0.47 | 0.50 |
| | Yes | 35 | 46.7 | — | — |

Note. MI = Mangifera indica; SD = Standard Deviation

### 3.2. Chi-Square Tests of Association

**Table 2:** Chi-Square Tests: Mangifera indica Factors × Perceived Health Outcome (N = 75)

| Test | Value | df | p-value | Sig. |
|---|---|---|---|---|
| **Panel A: Health Condition × Perceived Outcome** | | | | |
| Pearson Chi-Square | 1.960 | 3 | 0.581 | ns |
| Likelihood Ratio | 1.973 | 3 | 0.578 | ns |
| Linear-by-Linear | 0.229 | 1 | 0.632 | ns |
| **Panel B: Frequency of Use × Perceived Outcome** | | | | |
| Pearson Chi-Square | 1.613 | 3 | 0.656 | ns |
| Likelihood Ratio | 1.697 | 3 | 0.638 | ns |
| Linear-by-Linear | 0.388 | 1 | 0.533 | ns |

Note. ns = not significant at the $\alpha$ = .05 level.

In this study, the researchers conducted Pearson Chi-square tests to determine if perceived health outcomes differed by either health condition treated or frequency of consumption. As shown in Table 2, and in Figures 1 and 2, Panel A shows that there is no difference in the distribution of effectiveness ratings between the four health condition categories ($\chi^2(3) = 1.960$, p = 0.581). The absolute number of effective outcomes for diabetes was highest among respondents who used Mangifera indica (15 of 19). However, the relative proportions across conditions were similar, and the differences observed could be reasonably attributed to sampling variation. The likelihood ratio test showed this pattern was not significant ($G^2 = 1.973$, p = 0.578). Panel B similarly shows no statistically significant result between how often the TUI was used and the perception it was effective ($\chi^2(3)=1.613$, p=0.656) as shown in Figure 3. Even though daily users represented the biggest subgroup with effective outcomes (n = 22), the proportion of effective outcomes to the size of the subgroup was not markedly different from less frequent users. The linear by linear association statistic (0.388, p = 0.533) supports the idea that there was no dosage-response gradient in self-reported effectiveness in this sample.

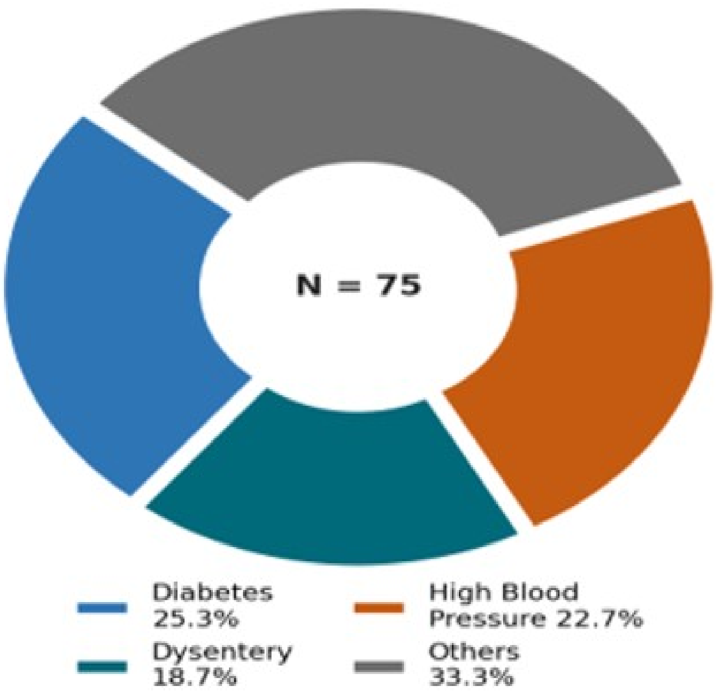


**Figure 1:** Distribution of Health Conditions Treated with Mangifera indica (N = 75)

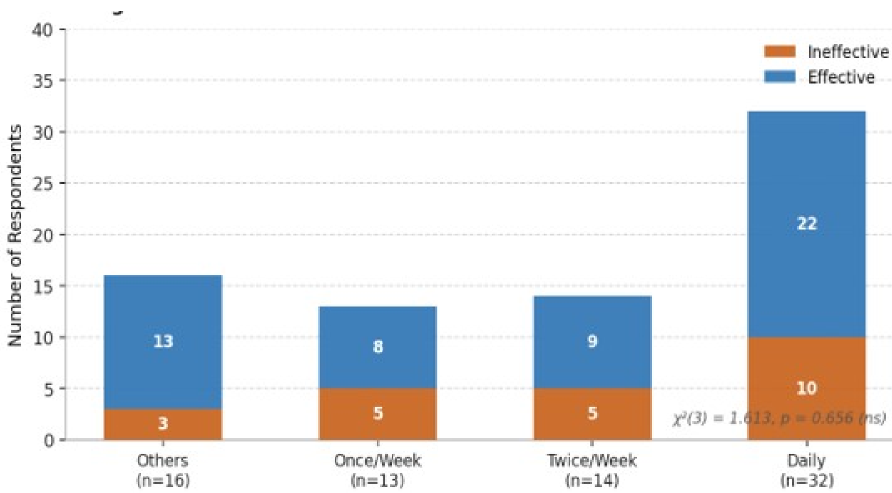


**Figure 2:** Perceived Health Outcome by Frequency of Mangifera indica Use ($\chi^2(3) = 1.613$, p = 0.656)

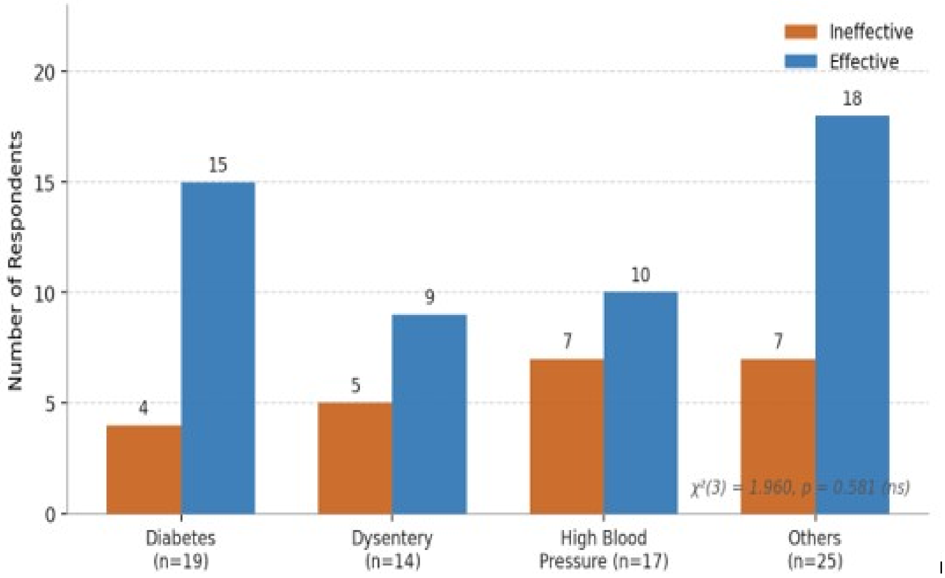


**Figure 3:** Perceived Health Outcome by Health Condition Treated ($\chi^2(3) = 1.960$, p = 0.581)

### 3.3. Pearson Correlation Analysis

**Table 3:** Pearson Correlation Matrix of Key Study Variables

| Variable | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Perceived Health Outcome | **1.000** | -0.332* | -0.072 | -0.056 | -0.073 |
| 2. MI Use | -0.332* | **1.000** | -0.052 | -0.281* | 0.069 |
| 3. Frequency of Use | -0.072 | -0.052 | **1.000** | 0.390* | -0.088 |
| 4. Health Condition | -0.056 | -0.281* | 0.390* | **1.000** | 0.239* |
| 5. Lifestyle Change | -0.073 | 0.069 | -0.088 | 0.239* | **1.000** |

Note. * p <.05 (two-tailed). N = 75.

The Pearson correlation matrix is illustrated in Table 3. From the analysis, four statistically significant relationships emerged. The data showed the strongest correlation between *Mangifera indica* use and health outcome (r = -0.332, p <.05). Since the outcome variable of health was coded 0 = Ineffective and 1 = Effective, and MI use was coded 0 = No and 1 = Yes, it means that the negative coefficient reflects a directional pattern: in a bivariate sense, respondents coded as users (1) were associated with the effective outcome category (1) which is consistent with the logistic regression interpretation developed below.

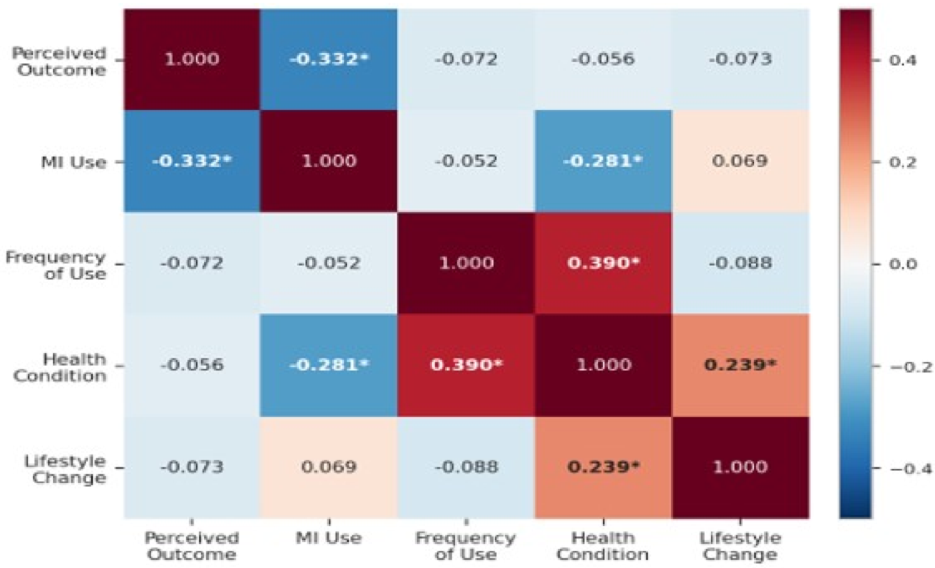


**Figure 4:** Pearson Correlation Heatmap (* p <.05; values reflect two-tailed Pearson r)

The use of MI is found to have a significant negative correlation with the type of health condition (r -0.281, p <.05). Moreover, different health conditions were associated with different uses rates as MI is a versatile plant that is used to cure various diseases. The extent to which a health condition is used has a significant positive correlation with type of health condition (r = 0.390, $p < .05$). This implies that certain illnesses, in particular chronic illness (like DM and high blood pressure) leads to more regular consumption schedule.

Moreover, there was a small but significant positive correlation between type of health condition and lifestyle change (r = 0.239, $p < .05$), which possibly suggests that those with chronic disease are somewhat more likely to make concurrent behaviour changes.

The data concerning perceived health outcome did not correlate significantly with the frequency of use (r = -0.072), the type of health condition (r = -0.056), or lifestyle change (r = -0.073). The correlation heatmap Figure 4 roughly shows the same pattern as above. However, it is interesting to note that the MI use–perceived outcome dyad is the only relationship that is practically important in the sense of being a consistent predictor of effectiveness.

### 3.4. Binary Logistic Regression Analysis

The likelihood of a respondent reporting an effective health outcome was identified using binary logistic regression as shown in Table 4 and Figure 5. Four proposed predictors were added all at once: use of *Mangifera indica*, how frequently used, health condition treated and lifestyle/dietary change. As a set, they explained a statistically-significant 16% of the variance or change in the usage of M. indica. The model fit is assessed with the Hosmer–Lemeshow goodness-of-fit statistic and produced a non-significant result ($\chi^2(8) = 1.787$, p = .971), indicating a good fit of the model. The Nagelkerke pseudo-$R^2$( of 0.113 means that the model explains about 11.3% of the variance in perceived health outcomes. This is a modest but justifiable proportion for survey based self-report data with a single item binary outcome. The classification accuracy (69.3%) was similar to the base rate showing the sample produced a good outcome.

**Table 4:** Binary Logistic Regression Results Predicting Perceived Health Effectiveness (N = 75)

| Predictor | B | S.E. | Wald | p-value | OR (Exp(B)) | 95% CI |
|---|---|---|---|---|---|---|
| Frequency of MI Use | -0.093 | 0.256 | 0.132 | 0.716 | 0.911 | [0.55–1.51] |
| **Use of *Mangifera indica* †** | **-1.574** | 0.723 | 4.744 | **0.029*** | **0.207** | [0.05–0.82] |
| Health Condition | -0.241 | 0.266 | 0.818 | 0.366 | 0.786 | [0.47–1.32] |
| Lifestyle Change | 0.011 | 0.546 | 0.000 | 0.984 | 1.011 | [0.35–2.94] |
| Constant | 2.922 | 1.142 | 6.546 | 0.011 | 18.571 | — |

Of four predictors, only use of *Mangifera indica* was statistically significant (Wald = 4.744, p = .029). The odds ratio of 0.207, when understood relatively to the referent category, suggests that those that reported using the plant remedy were 4.8 times more likely to experience effective health outcomes compared to those that did not use it. The estimate, along with the 95% confidence interval [0.05–0.82], is an accurate measure of the strength of this association at the level of the individual predictor, consistent with the correlation analysis.

Using the health condition (OR = 0.911, p = .716), health condition being treated (OR = 0.786, p = .366) and lifestyle change (OR = 1.011, p = .984) all non-significant. The lack of significant findings implies that, regardless of the specific way the individual used *Mangifera indica*, how often they used it and for what disease, once it is known that they used it or not, nothing further matters. This trend fits with ideas regarding dose-insensitive perceptions of folk remedies elsewhere in the TM literature.

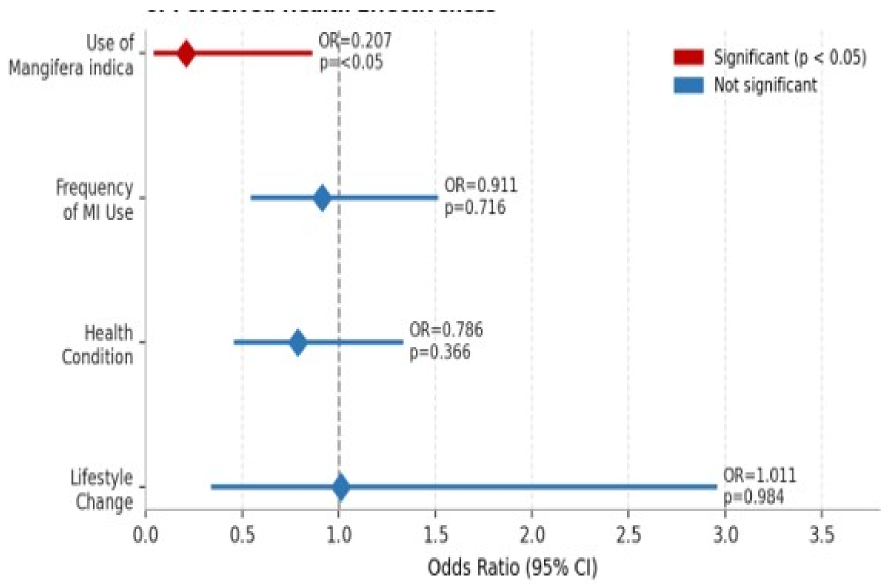


**Figure 5:** Forest Plot of Odds Ratios from Binary Logistic Regression (diamonds = OR; horizontal lines = 95% CI; red = $p < .05$)

## 4. Summary of Findings

This study was conducted to investigate the association of factors self-health impact among consumers at the community level of *Mangifera indica*. According to the findings, the individual's use of the remedy at all is the strongest predictor of perceived effectiveness. In other words, how much they used it, for what and with which other behaviour did it change, doesn't really matter. This investigation places these discoveries in relation to current empirical and ethnopharmacological literature. 70.7% level of *Mangifera indica* use in the study population corresponds with reported use patterns of traditional plant medicine in sub-Saharan Africa. According to a review published by [27] in Evidence-Based Complementary and Alternative Medicine, different parts of the mango tree; including leaves, Bark, Roots, and fruit, have deep ethnopharmacological significance among tropical and subtropical people. Moreover, they are used to treat metabolic, infectious and gastrointestinal diseases. In West Africa, *Mangifera indica* is one of the five most used plants for ailments related to the heart (cardiovascular). This is according to the ethnobotanical survey for sub-Saharan Africa by [28] Plants in the MDPI journal. It listed use in 41 countries between 1982 and 2021.

The fact that 69.3% of the respondents found health outcomes effective is a favourable comparison with community-level surveys of satisfaction with herbal medicines more generally. As Wauthoz et al. [26] illustrate, there is a strong cultural belief in the therapeutic efficacy of *Mangifera indica* bark based on the presence of mangiferin, the principal bioactive C-glucosylxanthone reported from different parts of the plant. This evidence doesn't contradict the descriptive finding of the study, which outlined a general positive perception. Rather, it bolsters the study finding and places it within a scientifically traceable pharmacological tradition, not an anecdotal attribution. The discovery made by logistic regression which states that for effective health outcomes, use of *Mangifera indica* was the only variable to prove statistically significant (OR inverse $\approx 4.83$, $p = .029$), substantiates experiment evidence of real biological activity. Mangiferin and related polyphenols found in different parts of the plant have been shown to inhibit activity of $\alpha$-glucosidase and $\alpha$-amylase at the mechanistic level [29, 30]. The pathway involving inhibition of enzymes may be behind the pharmacological rationale of why patients treating diabetes and metabolic conditions feel better on their medications in the absence of monitored clinical trials.

## 5. Conclusion

This study demonstrates that *Mangifera indica* is viewed positively for the management of diabetes, dysentery, and hypertension. Prior use is the only consistent predictor of reported efficacy. The pattern makes sense. Consumers who see benefit tend to be those who have taken it before rather than those who take it often or for a particular purpose. While no causal or clinical claims are made, the statistical symmetry points towards the ongoing role of indigenous remedies in resource-poor settings. Further, there are gentle but clear reminders about the need for more thorough clinical and longitudinal work to clarify their place in formal health systems.

### Article Information

**Disclaimer (Artificial Intelligence):** The author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.), and text-to-image generators have been used during writing or editing of manuscripts.

**Competing Interests:** Authors have declared that no competing interests exist.

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