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DIABETES RISK PROFILING IN YOUNG ADULT NIGERIANS LIVING IN CROSS RIVER STATE: A CROSS-SECTIONAL STUDY OF FOUR SCREENING INSTRUMENTS.

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ABSTRACT

BACKGROUND

Type 2 diabetes mellitus (T2DM) is a global health concern, particularly in low- and middle-income countries such as Nigeria. This study evaluated predictive efficiency of four diabetes risk assessment tools—FINDRISC, AUSDRISK, IDRS, and ADART—and examined their correlation with fasting blood glucose (FBG) and body mass index (BMI) in apparently healthy young adults aged 18–35 years from urban and rural areas of Cross River State, Nigeria.

METHODS

A cross sectional study. Data were collected from 265 participants through questionnaires, anthropometric measurements, and fasting blood glucose tests.

RESULTS

FINDRISC and IDRS primarily identified participants as low risk, while ADART categorized most as high risk. Correlations between risk scores and FBG were weak for FINDRISC, IDRS, and AUSDRISK, and not significant for ADART. BMI assessment showed 17.4% overweight and 10.9% obese participants. ADART displayed high sensitivity but low specificity and positive predictive value. IDRS showed good specificity but lacked sensitivity. AUSDRISK presented the best balance with an area under the curve (AUC) of 0.61. FINDRISC had moderate specificity but no sensitivity in this population.

CONCLUSION

The tested diabetes risk tools had limited efficacy in detecting glycemic abnormalities in young adults in Cross River State, but some moderately correlated with overweight and obesity. Adaptation of existing tools for young Nigerian populations is needed.

KEYWORDS: Diabetes mellitus; risk scoring; ADART; AUSDRISK; FINDRISC; IDRS; BMI; obesity

INTRODUCTION

Diabetes mellitus, particularly type 2 diabetes (T2DM), is a rising global public health challenge, with increasing prevalence in low- and middle-income countries like Nigeria[1] In the South-South region, including Cross River State, the burden is notably high, with national prevalence estimated at 5.8% and regional rates approaching 9.8%[1, 2]. Prediabetes is also common, affecting an estimated 10–13% of Nigerian adults[3]. Without early detection, many individuals with impaired fasting glucose (IFG) progress to T2DM within a few years[3]. The long-term human and economic costs of managing diabetes and its complications highlight the urgent need for early detection and preventive strategies[1, 2].

Several non-laboratory-based risk assessment tools have been developed globally to identify individuals at high risk of developing T2DM. These include the Finnish Diabetes Risk Score (FINDRISC), the Australian Type 2 Diabetes Risk Assessment Tool (AUSDRISK), the American Diabetes Association Risk Tool (ADART), and the Indian Diabetes Risk Score (IDRS). These tools use self-reported information on lifestyle, age, anthropometry, and family history to estimate an individual's 5- to 10-year risk of developing diabetes [4]. While originally validated in high-income settings, they have shown promise in sub-Saharan Africa. For instance, community screening in Ogun State using FINDRISC showed that about 5% of adults were high risk, and the tool correlated moderately with fasting blood glucose (FBG) ($r \approx 0.32$, $p < 0.001$) [5]. Studies from Delta and Ebonyi States using FINDRISC and ADART reported 10–25% of participants as moderate-to-high risk, with many being overweight and having elevated glucose[5,6].

Among younger populations in Nigeria, these tools have also been evaluated. In one study of young adults aged 15–35, 12% had moderate-to-high FINDRISC scores, with overweight and central obesity common and accompanied by modest FBG elevation[7]. An earlier study reported similar risk distribution and noted higher overweight rates among females [7]. These findings suggest that even young adults, often assumed to be healthy, may harbor early risk factors particularly elevated body mass index (BMI) and dysregulated glucose levels. Existing Nigerian studies consistently show that higher risk scores are positively associated with FBG and BMI [4,5,6]. National reviews have also identified overweight (BMI >25 kg/m²)

and urban residence as strong predictors of diabetes[1], while systematic reviews stress the need for local validation of risk tools [2].

Cross River State, located in the South-South zone, experiences high rates of undiagnosed diabetes, but lacks detailed epidemiological data. One study in Calabar reported a 7% undiagnosed diabetes prevalence, while other regional data vary widely from 0.8–11%[8]. Rapid urbanization, sedentary lifestyles, high intake of refined foods, and cultural practices such as bride fattening contribute to metabolic risk in this setting[8]. While tools like FINDRISC, ADART, AUSDRISK, and IDRS have been used in other Nigerian populations, their predictive utility and accuracy in young adults in Cross River remain unclear.

This study addresses a key gap which is whether non-laboratory diabetes risk tools accurately reflect glycemic status and BMI in Cross River young adults. If risk scores show poor alignment, they may over- or underestimate population risk, affecting prevention efforts. However, strong correlation would support their utility in early screening. This study assessed the predictive power of four risk tools FINDRISC, AUSDRISK, ADART, and IDRS and their correlation with measurable indicators such as fasting blood glucose and body mass index in apparently healthy young adults (aged 18–35) in Cross River State. It also examines the distribution of risk categories, prevalence of IFG(Impaired Fasting Glucose) and overweight, and the strength of associations. By focusing on young adults, this study addresses a critical gap in the literature and evaluates the effectiveness of these tools in an early stage of diabetes development.

METHODOLOGY

Study Design and Area

This cross-sectional study was conducted to assess diabetes risk among apparently healthy young adults aged 18–35 years in Cross River State, Nigeria, using four validated diabetes risk assessment tools alongside selected anthropometric and biochemical parameters. The study area included both urban (Calabar Municipality and Calabar South) and rural settings (Uwet in Akamkpa LGA, and Ikot-Edem Ndareke and Nsang in Akpabuyo LGA), reflecting a diverse population characterized by both modern and traditional lifestyles.

Study Population and Eligibility

Participants were young adults aged 18 to 35 years residing in the selected communities. Inclusion criteria included being apparently healthy, not previously diagnosed with diabetes mellitus, and

provision of informed consent. Exclusion criteria included a known diagnosis of diabetes or other chronic metabolic disorders, pregnancy, history of drug addiction, or unwillingness to participate.

Sample Size Determination

The sample size was calculated using the formula for prevalence studies[9]

$n=Z^2\times p(1-p) / d^2$

Where:

Z=1.96 (95% confidence level).

p=10% (expected prevalence of high diabetes risk)

d=5% (margin of error).

This yielded n =138. Adjusting for a 20 % non-response rate and in bid to obtain a representative data, the final sample size was **265 participants**.

Sampling Technique

A multistage sampling method was employed. Cross River State was stratified by LGAs, from which two urban and two rural communities were randomly selected. Within these communities, systematic random sampling was used to select eligible respondents during organized community outreaches.

Data Collection Tools and Procedures

Data were collected using a structured questionnaire capturing demographic details, lifestyle factors, and items required for four diabetes risk tools: Finnish Diabetes Risk Score (FINDRISC), Australian Diabetes Risk Score (AUSDRISK), Indian Diabetes Risk Score (IDRS), and the American Diabetes Association Risk Tool (ADART). The questionnaire also assessed medical history and behavioral factors (e.g., diet, alcohol use, and physical activity).

Four validated diabetes risk scoring tools were used in this study to estimate the likelihood of developing type 2 diabetes among apparently healthy young adults. These include the Finnish Diabetes Risk Score (FINDRISC), Australian Type 2 Diabetes Risk Assessment Tool (AUSDRISK), Indian Diabetes Risk Score (IDRS), and the American Diabetes Association Risk Tool (ADART). FINDRISC is a non-invasive, cost-effective tool developed to identify individuals at risk of type 2 diabetes using eight components: age, body mass index (BMI), physical activity, dietary habits (fruit/vegetable intake), history of hypertension treatment, hyperglycemia, and family history of diabetes[10]. A total score categorizes individuals as low (0–14 points), high (15–20 points), or very high

risk (>20 points) of developing diabetes within 10 years[10]. AUSDRISK was developed in Australia and assesses 10 parameters, including age, sex, ethnicity, family history, previous high blood glucose, use of antihypertensive medications, smoking status, physical activity, BMI, and waist circumference. Risk is classified as low (<5 points), moderate (6–11 points), or high (12–20 points) for the likelihood of developing diabetes within five years. IDRS is a simplified risk score tailored to the Indian population, comprising four parameters: age, abdominal obesity, physical activity, and family history of diabetes. It is particularly useful in low-resource settings due to its simplicity and affordability[10]. Scores are categorized as low risk (<30), moderate risk (30–50), and high risk (≥60). ADART, developed by the American Diabetes Association, includes seven items: age, gender, family history, gestational diabetes, hypertension, physical activity, and BMI. A total score of ≥5 indicates high risk of diabetes[11].

Anthropometric and Clinical Measurements

Height and weight were measured using standard stadiometers and digital scales. BMI was calculated as weight (kg)/height (m^2). Waist and hip circumferences were measured using non-stretchable tape to compute waist-to-hip ratio (WHR) and waist-to-height ratio (WHtR). Blood pressure was measured after 5 minutes rest using a digital monitor (Omron M2 Eco), and the average of two readings was recorded.

Biochemical Analysis

Fasting blood glucose (FBG) was measured using a digital glucometer (Accu-Chek Active, Roche Mannheim, Germany). Participants fasted for at least 8 hours. A finger-prick capillary sample was taken by trained health workers, and results were recorded immediately after questionnaire administration.

Ethical Considerations

Ethical approval for the study was obtained from Federal Medical Centre, Umuahia (FMC/QEH/G.596/Vol.10/570) .

Data Analysis

Field data was collected with a modified template on excel spread sheet merging diabetes risk calculators used in the study with biochemical data for automated risk calculation. Data were analyzed using SPSS version 25, with charts and tables generated using Microsoft Excel 2016. Descriptive statistics were computed for demographic variables and risk scores. Chi-square tests assessed associations between categorical variables. Pearson's

correlation was used to examine relationships between risk scores, FBG, and BMI. Diagnostic accuracy for each risk tool was evaluated through sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and area under the ROC curve (AUC).

RESULTS

In this study, four validated diabetes risk assessment tools FINDRISC, AUSDRISK, IDRS, and ADART were applied to evaluate the risk distribution of developing type 2 diabetes mellitus (T2DM) among 265 young adults in Cross River State, Nigeria.

Distribution of Diabetes Risk Categories by Assessment Tool in young adults in Cross River State

Using the FINDRISC tool, a majority of participants (74.3%) were categorized as low risk. An additional 18.5% were considered to have a slightly elevated risk, while smaller proportions were classified as moderate (3.8%), high (3.0%), and very high risk (0.4%). With AUSDRISK, 59.6% were identified as low risk, 38.1% as intermediate risk, and 2.3% as high risk. In contrast, the IDRS tool classified 93.2% of participants as low risk and only 6.8% as requiring further screening. Notably, the ADART tool yielded a markedly different distribution, with 94.0% of participants classified as high risk and just 6.0% as low risk. (Table 1).

Distribution of Fasting Blood Glucose Levels

Analysis of fasting blood glucose (FBG) revealed that 95.5% of participants had normoglycemia (FBG ≤100mg/dL). A small proportion (3.8%) were within the prediabetic range (FBG 110–125 mg/dL), and 0.8% met the threshold for diabetes (FBG ≥126 mg/dL).

Association Between Diabetes Risk assessment Tools and Fasting Blood Glucose

Among individuals with normal FBG levels, FINDRISC categorized 74.7% as low risk and 18.2% as slightly elevated. Among those in the prediabetes range, 70.0% were still classified as low risk, while 20.0% fell into the slightly elevated category, and 10.0% were identified as high risk. For participants with diabetic-range FBG, half were classified as low risk and the other half as slightly elevated risk, none were categorized as moderate, high, or very high risk. With AUSDRISK, 60.9% of normoglycemic participants were classified as low risk, and 37.2% as intermediate. Among prediabetics, a majority (60.0%) were intermediate risk, while 10.0% were high risk. Of those in

the diabetic range, 50.0% were intermediate risk and 50.0% low risk. The IDRS tool showed high specificity for normoglycemic individuals, with 92.9% classified as low risk. All prediabetic and diabetic participants were also categorized as low risk, reflecting limited sensitivity to glycemic shifts in this cohort. In contrast, ADART consistently categorized the vast majority of participants as high risk regardless of glycemic status; 93.7% of normoglycemic individuals, and 100% of both prediabetics and diabetics were classified as high risk (Table 3). Pearson correlation analyses demonstrated that FINDRISC had a significantly weak positive correlation with FBG ($r = 0.141$, $p = 0.022$). AUSDRISK also showed a weak positive correlation ($r = 0.101$), with borderline significance ($p = 0.050$). IDRS displayed a similarly weak significant correlation ($r = 0.107$, $p = 0.045$). ADART showed a negligible and non-significant association with FBG ($r = 0.023$, $p = 0.711$). These findings suggest that FINDRISC and IDRS may offer limited predictive insight into glycemic status among this young adult cohort, while ADART's high-risk classification appears poorly aligned with actual glycemic levels (Table 4).

In Figure 1, ADART demonstrated a perfect sensitivity of 100%, accurately identifying all individuals with elevated FBG levels. However, this came with very poor specificity of 6.3%, as the tool over-classified nearly all participants as high risk. Consequently, its positive predictive value (PPV) was low at 0.8%, though its negative predictive value (NPV) reached 100%, confirming its utility in ruling out diabetes in low-risk individuals. In contrast, IDRS showed excellent specificity (92.9%) and high NPV (99.2%), but failed to detect any diabetic cases, resulting in zero sensitivity and zero PPV. AUSDRISK offered the most balanced performance among all the tools. It achieved a moderate sensitivity of 50.0%, specificity of 60.9%, and a relatively high NPV of 99.4%. While its PPV remained low at 1.0%, this reflects the influence of the study's very low diabetes prevalence (2 out of 265 participants; ~0.75%), Notably, AUSDRISK also had the highest area under the ROC curve (AUC = 0.61), indicating a modest but superior discriminative ability compared to the other tools. FINDRISC, on the other hand, had zero sensitivity, meaning it did not detect any participant with elevated FBG. However, it maintained a fair specificity of 74.7% and a high NPV of 99.5%, suggesting it may be more useful for ruling out rather than identifying potential cases of diabetes.

Across all tools, PPVs were uniformly low (≤1%), a direct reflection of the low disease prevalence in the study population. In contrast, NPVs exceeded 99% for all tools, underscoring their utility in confidently excluding diabetes when a participant is categorized as low risk.

Body Mass Index Distribution and Correlation with Diabetic Risk Assessment Scores

BMI analysis revealed that 64.2% of participants had a normal BMI (18.5–24.9 kg/m²), 17.4% were overweight (25.0–29.9 kg/m²), and 10.9% were obese (≥30.0 kg/m²). Only 7.5% were underweight (<18.5 kg/m²) (Table 5).

Assessment of BMI and diabetes risk scores showed a moderate, statistically significant positive correlation between BMI and FINDRISC ($r = 0.579$, $p < 0.001$) and IDRS ($r = 0.455$, $p < 0.001$), indicating a consistent relationship between increased BMI and elevated risk scores. AUSDRISK showed a weak, positive correlation with BMI ($r = -0.026$, $p = 0.675$), suggesting limited responsiveness to anthropometric status in this population. ADART also demonstrated a very weak, non-significant correlation ($r = 0.060$, $p = 0.329$), further underscoring its questionable validity in this cohort.

DISCUSSION

This study evaluated the relationship between four established diabetes risk assessment tools FINDRISC, AUSDRISK, IDRS, and ADART and fasting blood glucose (FBG) and body mass index (BMI) among 265 young adults in Cross River State, Nigeria. The findings reveal distinct patterns for each tool, elucidating their varying performances against glycemic and anthropometric outcomes.

FINDRISC classified most participants (74.3%) as low risk, with a weak significant correlation with FBG ($r = 0.141$, $p = 0.022$), and a stronger correlation with BMI ($r = 0.579$, $p < 0.001$). Despite this, the tool had zero sensitivity, failing to detect any participants with elevated FBG, though its specificity (74.7%) and negative predictive value (NPV) (99.5%) were reasonable. These findings are consistent with previous studies. Nnamudi et al[7]. in a Nigerian cohort, found moderate predictive utility of FINDRISC among young adults, with BMI being a dominant predictor and FBG mostly within normoglycemic ranges. In other international settings, such as Peru and Tanzania, FINDRISC demonstrated area under the curve (AUC) values of 0.69–0.71, largely driven by BMI and waist circumference (WC), with weaker associations to FBG[13]. The limited

glycemic detection in this study can be explained by the young age group (18–35 years), low disease prevalence, and narrow FBG range (95.5% normoglycemia). FINDRISC, which leans on anthropometric and lifestyle factors, may not be sensitive enough to identify early metabolic dysfunction in this demographic. This supports evidence from Mainous et al.[14,] who noted that tools optimized for older populations underperform in youth due to slower metabolic deterioration and fewer overt risk factors.

IDRS exhibited a similar pattern, with 93.2% of participants classified as low risk. It showed a moderate correlation with BMI ($r = 0.455$, $p < 0.001$) and a weaker correlation with FBG ($r = 0.107$, $p = 0.045$). Like FINDRISC, IDRS had zero sensitivity but excellent specificity (92.9%) and NPV (99.2%). The IDRS performance mirrors findings from Singh *et al.* [15], where the tool identified low risk in the majority of Indian medical students, with higher risk scores associated with obesity and family history. However, it diverges sharply from validation studies in older Indian populations, which reported 72.5% sensitivity and 60.1% specificity[16]. The discrepancy lies in population characteristics. IDRS emphasizes age, abdominal obesity, physical activity, and family history all variables with limited expression in our young cohort. Hence, even subtle elevations in FBG are missed when overt risk markers are absent. This under-detection is not necessarily a flaw in the tool but rather a mismatch with the age and metabolic profile of the population.

In contrast, AUSDRISK presented a more balanced risk distribution, classifying 59.6% as low risk, 38.1% intermediate, and 2.3% high risk. It had a weak but borderline significant correlation with FBG ($r = 0.101$, $p \approx 0.05$) and a weak positive correlation with BMI ($r = –0.026$, $p = 0.675$). Its performance metrics included moderate sensitivity (50%) and specificity (60.9%), with the highest AUC (0.61) among the tools studied. These findings are partially in line with its Australian validation, where AUSDRISK achieved an AUC of 0.78, sensitivity of 74%, and specificity of 68%, though predictive value remained low due to low disease prevalence[16]. Other comparative studies suggest AUSDRISK can outperform FINDRISC in certain populations [17]. The weak BMI correlation in this cohort suggests that lifestyle and behavioral variables central to AUSDRISK's scoring may dilute the impact of anthropometric indicators in younger populations where such behaviors are more uniform. This aligns with Sokary et al[18]. who noted reduced predictive

strength when BMI is the primary risk driver. Still, AUSDRISK captured 60% of participants with prediabetic or diabetic FBG levels in the intermediate risk category, accounting for its relatively better discriminative value.

ADART showed a markedly different profile. It classified 94% of participants as high risk, with negligible correlations to both FBG ($r = 0.023$, $p = 0.711$) and BMI ($r = 0.060$, $p = 0.329$). While it had perfect sensitivity (100%), its specificity was extremely poor (6.3%), and positive predictive value (PPV) was just 0.8%. These findings indicate that ADART significantly overclassifies risk. This overestimation may stem from ADART's scoring design, possibly placing excessive weight on non-specific symptoms or family history. Its limited representation of anthropometric and metabolic factors makes it ill-suited for populations with subtle clinical indicators. Importantly, ADART's structure may also reflect ethnic bias: tools incorporating race or ethnicity as a risk determinant may inflate risk in African populations without accounting for genetic and lifestyle heterogeneity[19].

Overall, this study reinforces the importance of context-specific validation and adaptation of risk tools. In populations with low disease prevalence and homogenous youth demographics, traditional tools underperform. The compressed FBG and BMI distributions among our cohort reduce the discriminatory power of tools that rely on these indicators. The tools' performances also reflect their design intent. FINDRISC and IDRS, with stronger anthropometric weighting, showed high correlation with BMI but little predictive utility for glycemic status. AUSDRISK, which integrates both behavioral and anthropometric variables, offered the most balanced performance. Meanwhile, ADART's blanket high-risk classification underscores the danger of overgeneralization without contextual calibration. To optimize screening in such contexts, calibrating risk tools to local population dynamics is essential. Brief modifications such as adjusting age brackets, tailoring lifestyle queries, and scaling waist/BMI thresholds could enhance predictive accuracy. Developing a simplified, indigenous risk tool that combines the most relevant predictors (e.g., BMI, WC, physical activity, and family history) may outperform imported models not attuned to African demographic realities. Several authors have advocated for such approaches [7,20] and have noted that existing tools detected metabolic syndrome more effectively than prediabetes, likely due to dietary and age homogeneity. Similarly, Nnamudi et al. [7]

advocated for tools tailored to the unique metabolic and environmental profiles of African youth.

CONCLUSION

This study elucidates how diabetes risk tools behave in a young Nigerian cohort. FINDRISC and IDRS correlate strongly with BMI but weakly with FBG serving better to exclude rather than detect type 2 diabetes. AUSDRISK offers superior discrimination but still misses half of cases. ADART is overly inclusive and fails to discriminate. These patterns reflect inherent biases of each tool, demographic and epidemiological context, and emphasizes the necessity of tool adaptation. Future work should calibrate or develop risk scores attuned to young African populations, integrating anthropometric, lifestyle, and modest glycemic indicators to enhance early detection and prevention.

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Competing Interests: The authors have no competing interests to declare that are relevant to the content of this article.

Ethical Approval: The ethical approval for this study (FMC/QEH/G.596/Vol.10/570) was sought and obtained from the Health Research Ethics Committee (HREC) of Federal Medical Centre, Umuahia, Nigeria. This study adopted the guidelines of the Helsinki Declaration of 1964 and later versions. All participants read, understood and signed the informed consent form prior to participating in the study.

Limitations of the study: Blood glucose levels were measured using a portable glucometer rather than a standard laboratory-based method. Although glucometers are practical and widely used for point-of-care testing, they may have lower accuracy and precision compared to reference laboratory assays. Factors such as device calibration, user technique, hematocrit variation, and environmental conditions may have influenced the measurements, potentially introducing measurement bias and affecting the reliability of the results.

However, all field staff were trained and batteries changed regularly. The technique was adopted for ease of use in the field and convenience of sampling.

Author contributions: III, NUA., OCO., OSN and AJI., EO., EGE, GOC, were responsible for acquisition data from field, III, ECECC and NUA were responsible for analysis and interpretation of data. III, ECECC, CCI, , EUI, UO and NAC contributed to the conception, design and supervision of the study as part of the TETfund NRF team. III, NUA and ECECC wrote the manuscript. III, EUI, O.CO and ECECC did the critical revision of the manuscript. All authors read and approved the final version of the revised manuscript.

Availability of data and materials: The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

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Table 1: Distribution of Diabetes Risk Categories by Assessment Tool in young adults in Cross River State

Risk Assessment Tool	Risk Category	Frequency (n)	Percentage (%)
FINDRISC	Low	197	74.3
	Moderate	10	3.8
	Slightly Elevated	49	18.5
	High	8	3.0
	Very High	1	0.4
	Total	**265**	**100.0**
AUSDRISK	Low Risk	158	59.6
	Intermediate Risk	101	38.1
	High Risk	6	2.3
	Total	**265**	**100.0**
IDRS	Low Risk	247	93.2
	Screen for Diabetes	18	6.8
	Total	**265**	**100.0**
ADART	High Risk	249	94.0
	Low Risk	16	6.0
	Total	**265**	**100.0**

Table 2: Distribution of Fasting Blood Glucose Levels

Fasting Blood Glucose (FBG) Category	Frequency (n)	Percentage (%)
≤ 100.00 mg/dl	253	95.5
110.00 – 125.00 mg/dl	10	3.8
≥ 126.00 mg/dl	2	0.8
Total	**265**	**100.0**

Table 3: Cross-tabulation of Risk Categories by Fasting Blood Glucose Levels

Risk Score Tool	Risk Category	FBG ≤ 109mg/dl	FBG 110–125 mg/dl	FBG ≥ 126 mg/dl	Total
FINDRISC	High	7 (2.8%)	1 (10.0%)	0 (0.0%)	8
	Low	189 (74.7%)	7 (70.0%)	1 (50.0%)	197
	Moderate	10 (4.0%)	0 (0.0%)	0 (0.0%)	10
	Slightly Elevated	46 (18.2%)	2 (20.0%)	1 (50.0%)	49
	Very High	1 (0.4%)	0 (0.0%)	0 (0.0%)	1
	Total	253 (100%)	10 (100%)	2 (100%)	265
AUSDRISK	High Risk	5 (2.0%)	1 (10.0%)	0 (0.0%)	6
	Intermediate Risk	94 (37.2%)	6 (60.0%)	1 (50.0%)	101
	Low Risk	154 (60.9%)	3 (30.0%)	1 (50.0%)	158
	Total	253 (100%)	10 (100%)	2 (100%)	265
ADART	High Risk	237 (93.7%)	10 (100%)	2 (100%)	249
	Low Risk	16 (6.3%)	0 (0.0%)	0 (0.0%)	16
	Total	253 (100%)	10 (100%)	2 (100%)	265
IDRS	Low Risk	235 (92.9%)	10 (100%)	2 (100%)	247
	Screen for Diabetes	18 (7.1%)	0 (0.0%)	0 (0.0%)	18
	Total	253 (100%)	10 (100%)	2 (100%)	265

Table 4: Correlation between Fasting blood glucose and Diabetic risk assessment tool

	FINDRISC		AUSDRISK		ADART		IDRS	
	Pearson correlation	P value	Pearson correlation	P value	Pearson correlation coefficient	P value	Pearson correlation	P value
FASTING BLOOD SUGAR	0.141	0.022	0.101	0.05	0.023	0.711	0.107	0.045

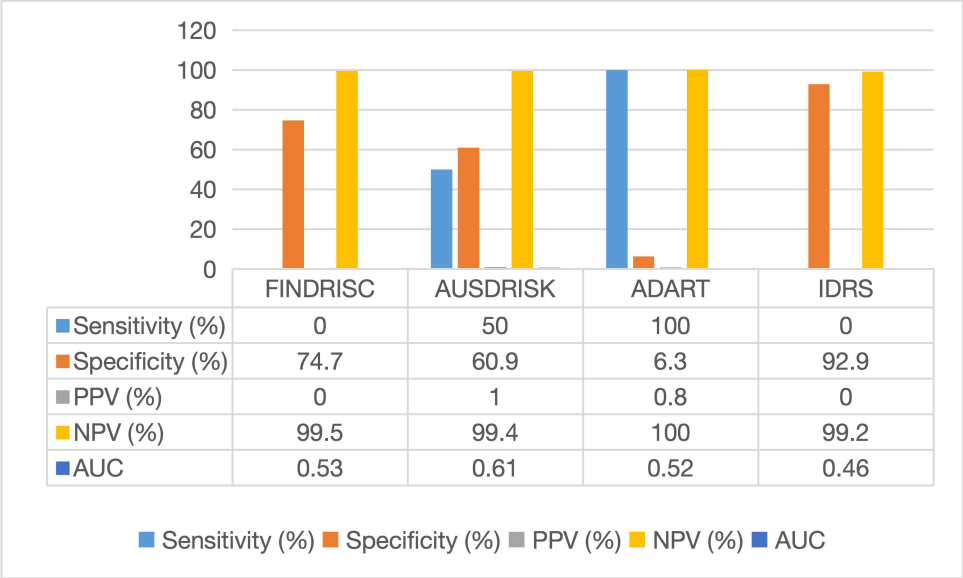

Figure 1: Diagnostic Metrics for Diabetic Risk Score Tools

Table 5: Distribution of Body Mass Index (BMI) of Young Adults in Cross River State.

BMI Category (kg/m²)	Frequency (n)	Percentage (%)
< 18.5	20	7.5
18.5 – 24.9	170	64.2
25.0 – 29.9	46	17.4
≥ 30.0	29	10.9
Total	**265**	**100.0**

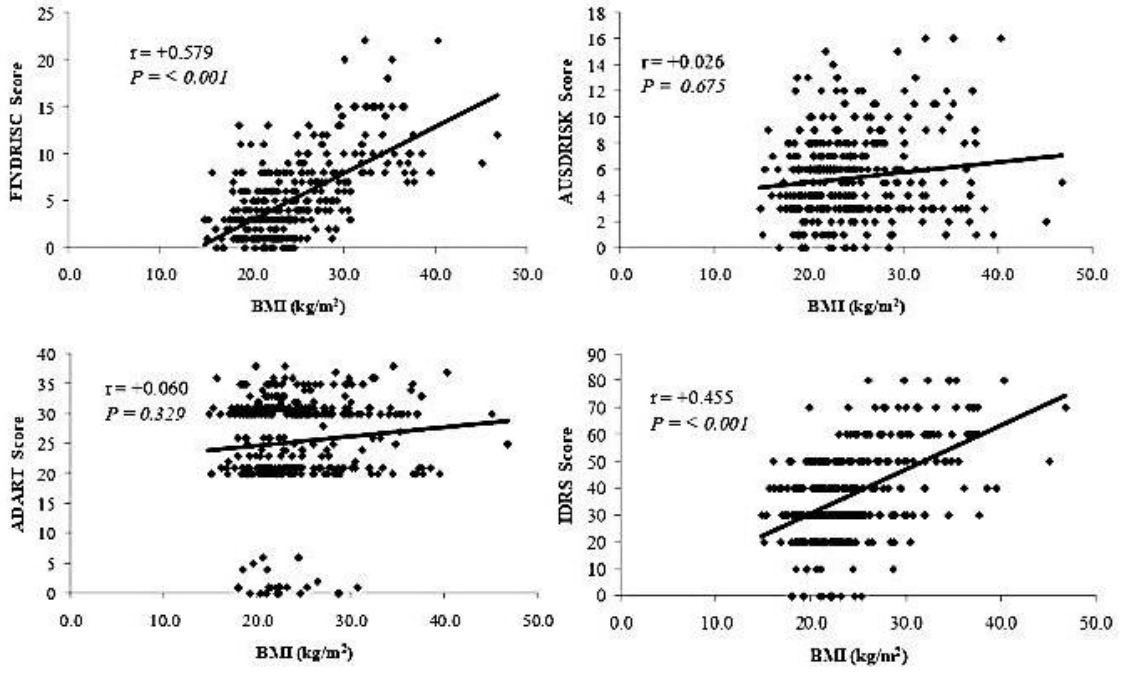

Fig 2.0: **Correlation Between Body Mass Index and Diabetes Risk Assessment Tools of Young Adults in Cross River State**

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