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COMPLIANCE TO TREATMENT REGIMEN AND THE PREVALENCE OF COMPLICATIONS AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS IN THE REGIONAL HOSPITAL, BAFOUSSAM

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ABSTRACT

Background: Diabetes mellitus is a chronic metabolic disorder associated with persistent hyperglycaemia and an increased risk of microvascular and macrovascular complications. In Cameroon, poor adherence to treatment regimens contributes to suboptimal glycaemic control and a high prevalence of complications. This study aimed to assess compliance to treatment regimens, identify associated socio-demographic and behavioral factors, and determine the prevalence of diabetes-related complications among patients at the Regional Hospital of Bafoussam. **Methods:** A cross-sectional study was conducted from March to June 2023, recruiting 302 consenting diabetic patients. Data on demographics, treatment adherence (Morisky scale), lifestyle practices, and complications were collected via structured questionnaires, with fasting blood glucose (FBG) and BMI measured. Compliance was classified as poor (0–4), moderate (5–7), or good (8–10). Associations between compliance, socio-demographics, and complications were tested using Chi-square and Pearson correlation, with significance at $p<0.05$. **Results:** Of 302 participants, 68.2% were female, and 41.4% were aged 56–65 years. Moderate compliance was observed in 76.5% of patients, while poor and good compliance were 9.3% and 14.2%, respectively ($\chi^2 = 254.41$, $p < 0.001$). Compliance was significantly associated with age ($\chi^2 = 25.713$, $p = 0.004$), educational level ($\chi^2 = 32.192$, $p = 0.001$; $r = 0.60$), and occupation ($\chi^2 = 65.185$, $p = 0.001$). Controlled FBG (<131 mg/dL) was achieved in 54% of participants, while 46% had hyperglycemia ($p = 0.029$). Most participants (78.8%) reported at least one complication, including visual disturbance (21.2%), neuropathy (20.2%), foot ulcers/poor wound healing (7.0%), and hypoglycemia (8.3%). A significant association was observed between compliance level and complications ($\chi^2 = 45.565$, $p = 0.034$), with severe outcomes such as stroke (1.0%) and amputation (0.3%) occurring primarily in moderately compliant patients. Patient-related barriers included financial constraints (43.4%, $p = 0.002$), forgetfulness (8.3%, $p = 0.015$), and inadequate knowledge (7.3%, $p = 0.018$), while health system barriers included drug stockouts (26.2%, $p = 0.001$), high service fees (17.2%, $p = 0.004$), and inadequate personnel (15.2%, $p = 0.006$). **Conclusion:** Moderate compliance is common among diabetic patients in Bafoussam, but partial adherence is associated with a high prevalence of complications. Socio-demographic factors (age, education, occupation) and both patient- and system-level barriers significantly influence adherence. Interventions targeting patient education, financial support, and health system strengthening are crucial for improving glycaemic control and reducing diabetes-related complcations.

KEYWORDS: Compliance, Treatment Regimen, Prevalence of Complications, Patients with Type 2 Diabetes Mellitus Regional Hospital Bafoussam.

BACKGROUND

Diabetes mellitus is a chronic metabolic disorder characterized by either insufficient insulin production by the pancreas or impaired insulin utilization by the body, leading to persistent hyperglycaemia and dysregulation of glucose homeostasis[1] Insulin is essential for regulating blood glucose, and when insulin production or action is defective, elevated blood sugar ensues. Over time, uncontrolled hyperglycaemia can damage multiple organ systems notably blood vessels and nerves leading to both acute and chronic complications. Classic symptoms of untreated diabetes include polyuria, polydipsia and polyphagia, but the real burden lies in long-term complications affecting the kidneys, eyes, cardiovascular system, and peripheral nerves.[2,3]

Globally, the burden of diabetes continues to surge. The global number of people living with diabetes has escalated dramatically over recent decades a trend projected to continue upward. According to the International Diabetes Federation (IDF), hundreds of millions currently live with diabetes globally, and projections suggest a substantial increase by 2045.[4] This trend is also evident in sub-Saharan Africa, including Cameroon, where diabetes particularly type 2 is increasingly common. A population-based study in a Cameroonian urban setting, for instance, reported a prevalence of type 2 diabetes (or impaired fasting glucose /T2D) of 5.7%[5] These data reflect the growing public health challenge posed by diabetes in Cameroon, likely exacerbated by lifestyle changes ("westernization" of diet, sedentariness, etc.) that are increasingly widespread.[6]

However, diagnosing diabetes is only the first step: effective management through pharmacotherapy and lifestyle modification is essential to prevent or delay complications. In Cameroon, evidence suggests that many patients fail to adhere adequately to their treatment regimen. For example, a hospital-based study of patients with type 2 diabetes from two regional hospitals reported a non-adherence prevalence of 54.4%[7] The main reasons cited by patients included forgetfulness, lack of finances, and the disappearance of symptoms. Such poor adherence undermines effective glycaemic control and increases the risk of complications, hospitalizations, and additional health-care costs.[7] Indeed, non-adherence may result not only in suboptimal therapeutic outcomes but also in wasted treatment opportunities and preventable morbidity.

Furthermore, available data from Cameroon show a high burden of complications among people with diabetes. A study assessing self-care behaviours among adults with type 2 diabetes in an urban district found that overall adherence to self-care (diet, lifestyle, medication) was low only about 36.4% highlighting gaps in comprehensive diabetes management beyond medication alone.[8] Another multicentre study reported that more than two-thirds of patients had poor glycaemic control ($HbA1c \geq 7\%$)[9], conditions that potentiate development of micro and macrovascular complications if not addressed. Additionally, in a cohort of diabetics followed in specialized centres, complications such as neuropathy (44.1%), retinopathy (22.8%), foot lesions (9.9%) and lower-limb arteriopathy (5.8%) were observed.[10] These data underscore the reality that, despite availability of diabetic clinics in Cameroon, chronic complications remain frequent, suggesting suboptimal long-term disease control.

These considerations together justify the need for the present study. Given the high and rising prevalence of type 2 diabetes in Cameroon, the documented poor adherence to antidiabetic treatment, and the substantial burden of complications, there is a critical gap in understanding how compliance to treatment regimens correlates with complications at the hospital level. By assessing the level of compliance among patients at the Regional Hospital of Bafoussam, identifying sociodemographic and behavioural factors associated with non-compliance, and determining the prevalence of complications among compliant versus non-compliant patients, this study aims to provide evidence to inform tailored interventions. Improved understanding may support strengthening patient education, follow-up, and health system policies ultimately enhancing glycaemic control, reducing complications, improving quality of life, and alleviating health and economic burdens for patients and the health system.

METHODOLOGY

The study was conducted at the Regional Hospital Bafoussam, a major referral facility with a dedicated diabetic clinic, selected due to its high diabetic patient load and well-structured service organization. Using a cross-sectional design, the research targeted all known diabetic patients attending the hospital between March and June 2023. A total of 302 participants were recruited through convenience sampling, with only consenting patients included and critically ill or unconscious diabetics excluded. The dependent variables were treatment regimen compliance measured using 10 closed-ended questions adapted from the Morisky adherence scale and graded as poor, moderate, or good and the occurrence of diabetes complications, while independent variables included patient socio-demographics, type and duration of diabetes. Data were collected using a structured questionnaire with sections on demographics, treatment compliance, patient and health-system–related barriers, and diabetes complications, provided in both English and French to enhance understanding. BMI was also measured using standard procedures. The questionnaire was pretested, and data collection occurred on clinic days in both inpatient and outpatient units, with the researcher reading and recording responses, including translations by guardians when needed; individualized patient education was also provided based on identified needs. Data were coded, cleaned, and analysed using SPSS version 21,

employing descriptive statistics and inferential tests such as Chi-square and Pearson correlation, at a significance level of $p<0.05$. Ethical approval and administrative authorizations were obtained from all relevant authorities, participant consent was ensured, and confidentiality maintained through anonymized coding of questionnaires.

RESULTS

Socio-demographic characteristics

Majority 206(68.2%) were females and the males were 96(31.8%). Majority 125(41.1%) were within the age range56-65years, followed by 117(38.7%) who were within 66-75years, and the minority 5(1.7%) were within 86-95years. As for the level of education, 134(44.4%) had completed secondary education, followed by 112(37.1%) who had primary education, and 11(36.6%) had no education. Concerning occupation, 77(25.5%) were farmers, followed by 73(24.2%) who were housekeepers, then workers 49(16.2%), then traders 47 (15.6), while 56 (18.5) were other professions. As for marital status, majority 191(63.2%) were married, followed by 75(24.8%) who were widows and widowers, and the minority 11 (3.6%) were divorced people. Majority 96(31.8%) had taken treatment within 1-5years, followed by 82(27.2%) who had taken within 6-10years, then 37(12.3%) had taken below 1year and the minority 33 (10.9%) had taken above 15years. Majority 145(48.0%) were obese, followed by 99(32.8%) who were overweight, then 47(15.6%) had normal weight and the minority 11(3.6%) were under weight. (See table 1)

Table 1: Distribution of respondents according to socio-demographic characteristics (N=302).

Variable	Characteristic	Frequency	Percentage (%)
Gender	Female	206	68.2
	Male	96	31.8
	Total	302	100.0
Age Range (Years)	36–45	10	3.3
	46–55	36	11.9
	56–65	125	41.4
	66–75	117	38.7
	76–85	9	3.0
	86–95	5	1.7
	Total	302	100.0
Level of Education	Primary	112	37.1
	Secondary	134	44.4
	Tertiary	45	14.9
	None	11	3.6
	Total	302	100.0
Occupation	Farmer	77	25.5
	Worker	49	16.2
	Trader	47	15.6
	Housekeeper	73	24.2
	Others	56	18.5
	Total	302	100.0
Marital Status	Single	25	8.3
	Married	191	63.2
	Divorced	11	3.6
	Widow(er)	75	24.8
	Total	302	100.0
Duration on Treatment (Years)	<1	37	12.3
	1–5	96	31.8
	6–10	82	27.2
	11–15	54	17.9
	>15	33	10.9
	Total	302	100.0
BMI (kg/m²) Range	Underweight	11	3.6
	Normal Weight	47	15.6
	Overweight	99	32.8
	Obese	145	48.0
	Total	302	100.0

Level of compliance to treatment regimen

Fasting blood glucose (FBG) control

Figure 1 below shows that majority 163(54%) had controlled (normal) FBG levels while minority 139(46%) had uncontrolled (hyperglycemia) FBG levels. (FBS < 131mg/dl = Controlled FBS level, 131 mg/dl and above = Uncontrolled).

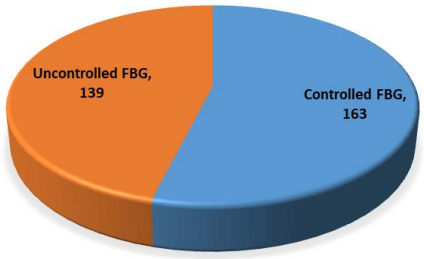

***Figure 1: Distribution of respondents according to Fasting blood glucose status* (N=302).**

Majority 236(78.1%) were taking their drugs correctly as prescribed while the minority 66(21.9%) were not. Few, 80(26.5%) were visiting the eye clinic at least once a year while the majority 222(73.5%) were not. More than average, 154(51.0%) were practicing regular exercise while the rest 148(49.0%) were not. Majority 209(69.2%) were following regular diabetic diets while 93(30.8%) were not. 202(66.9%) were doing monthly BP checks while the minority 100(33.1%) were not. Majority 225(74.5%) were practicing regular feet care while the minority 77(25.5%) were not; few, 22(7.3%) belong to a diabetic support group while the majority 280(92.7%) do not; Majority 190(62.9%) respect all appointments with care giver while a minority 112(37.1%) do not;13(4.3%) smoke cigarette while the majority 289(95.7%) do not; 79(26.2%) take alcohol while the majority 223(73.8%) do not. (See table 2 below)

Table 2: Distribution of respondents according to respect of treatment regimen (N=302).

Variable	Characteristic	Frequency	Percentage (%)
Taking drugs correctly	Yes	236	78.1
	No	66	21.9
	Total	302	100
Visiting eye clinic once a year	Yes	80	26.5
	No	222	73.5
	Total	302	100
Practicing regular exercises	Yes	154	51.0
	No	148	49.0
	Total	302	100
Regular diabetic diets	Yes	209	69.2
	No	93	30.8
	Total	302	100
Monthly BP checks	Yes	202	66.9
	No	100	33.1
	Total	302	100
Practicing regular feet care	Yes	225	74.5
	No	77	25.5
	Total	302	100
Belonging to a diabetic support group	Yes	22	7.3
	No	280	92.7
	Total	302	100
Respecting all appointments with caregiver	Yes	190	62.9
	No	112	37.1
	Total	302	100
Smoking cigarette	Yes	13	4.3
	No	289	95.7
	Total	302	100
Taking alcohol	Yes	79	26.2
	No	223	73.8
	Total	302	100

Level of compliance

The distribution of compliance scores was significantly different from an equal distribution across categories (χ^2 = 254.41, df = 2, p < 0.001). The majority of respondents (76.5%) demonstrated moderate compliance, whereas poor (9.3%) and good (14.2%) compliance were less common, indicating that most patients adhere to their treatment only partially (See table 3).

Table 3: Distribution of respondents according to level of compliance (N=302)

Score	Frequency (n)	Percentage (%)	χ^2	p-value
Poor	28	9.3	254.41	<0.001
Moderate	231	76.5		
Good	43	14.2		
Total	**302**	**100**		

**** Compliance Score: 0-4 = poor, 5-7 = moderate, 8-10 = good (scored according to respect to treatment regimen for each respondent - see table 3)***

Association between compliance level and socio demographic data

Using Chi-Square test, only the statistically significant results are presented.

Compliance level and age range

The results show a statistically significant association between age and treatment compliance among respondents (χ^2 = 25.713, p = 0.004). Moderate compliance was the most common pattern across all age categories, particularly among individuals aged 56–65 years and 66–75 years, who accounted for 34.4% and 29.8% of moderate compliers, respectively. These two age groups also recorded notable proportions of good compliance (3.3% and 7.0%, respectively), suggesting that middle-aged to early elderly individuals are more likely to adhere to their treatment regimens. Poor compliance was generally low across all age groups, with the highest proportion observed among respondents aged 56–65 years (3.6%). Younger adults aged 36–45 years and older adults aged 76 years and above demonstrated relatively low levels of both poor and good compliance, indicating a more mixed pattern of adherence in these age categories. (See table 4)

Table 4: Association between compliance level and age range (N=302).

Age (years)	Poor Compliance n(%)	Moderate Compliance n(%)	Good Compliance n(%)	X^2	p-value
36–45	1 (0.3)	8 (2.6)	1 (0.3)		
46–55	5 (1.7)	22 (7.3)	9 (3.0)		
56–65	11 (3.6)	104 (34.4)	10 (3.3)		
66–75	6 (2.0)	90 (29.8)	21 (7.0)		
76–85	3 (1.0)	4 (1.3)	2 (0.7)		
86–95	2 (0.7)	3 (1.0)	0 (0.0)		
χ^2 and p-value	—	—	—	**25.713**	**0.004**

Compliance level and educational level

There was a statistically significant association between educational level and treatment compliance among respondents (χ^2 = 32.192, p = 0.001). Moderate compliance was most frequently observed across all educational categories, with the highest proportions among individuals with secondary education (36.1%) and primary education (30.1%). These two groups also demonstrated the greatest numbers of poor compliers, particularly those with secondary education (4.3%) and primary education (3.3%). Notably, respondents with tertiary education showed the highest proportion of good compliance (5.6%), alongside a relatively low level of poor compliance (0.7%). This suggests that higher educational attainment may positively influence treatment adherence, likely due to better understanding of disease management and the importance of consistent follow-up. Participants with no formal education had low compliance levels across all categories, with only 1.7% showing moderate compliance and 1.0% showing good compliance. This indicates that lack of education may act as a barrier to optimal treatment adherence.

The Pearson correlation coefficient (r = 0.60) indicated a moderate positive relationship between educational level and treatment compliance. This suggests that higher educational attainment is associated with better adherence to treatment regimens. The results imply that education may enhance understanding of disease management and the importance of consistent adherence, thereby improving compliance outcomes.(See table 5)

Table 5: Association between compliance level and educational level (N=302).

Educational Level	Poor Compliancen (%)	Moderate Compliancen (%)	Good Compliancen (%)	χ^2	p-value	Pearson r
Primary	10 (3.3)	91 (30.1)	11 (3.6)			
Secondary	13 (4.3)	109 (36.1)	12 (4.0)			
Tertiary	2 (0.7)	26 (8.6)	17 (5.6)			
None	3 (1.0)	5 (1.7)	3 (1.0)			
χ^2 and p-value	—	—	—	**32.192**	**0.001**	**0.60**

Compliance level and occupation

There was a statistically significant relationship between occupation and treatment compliance among respondents ($\chi^2 = 65.185$, $p = 0.001$). Overall, moderate compliance was the most common pattern across nearly all occupational groups. Farmers represented the largest proportion of respondents and showed substantial levels of moderate compliance (23.8%), but also notable poor compliance (3.6%). Traders and housekeepers followed a similar pattern, each recording 13.9% moderate compliance and 1.7% poor compliance. These occupations may be more vulnerable to inconsistent treatment adherence due to irregular income, limited health awareness, or demanding work schedules. Teachers demonstrated one of the best compliance profiles, with 4.3% good compliance and no poor compliance. Health staff also showed relatively strong adherence, with 2.0% good compliance and no poor compliance, reflecting their better understanding of disease management. Respondents in skilled professions such as hairdressers and seamstresses displayed smaller but notable proportions of good compliance. Conversely, several occupations including drivers, mechanics, electricians, barbers, plumbers, accountants, and those in cultural arts recorded no good compliance and very low moderate compliance. Drivers, for instance, had poor compliance of 1.3% with no respondents achieving good compliance, suggesting occupational barriers such as mobility demands, time constraints, or limited access to regular care. (See table 6).

Table 6: Association between compliance level and occupation (N=302).

Occupation	Poor Compliancen (%)	Moderate Compliancen (%)	Good Compliancen (%)	X^2	p-value
Farmer	11 (3.6)	72 (23.8)	10 (3.3)		
Teacher	0 (0.0)	28 (9.3)	13 (4.3)		
Bike rider	0 (0.0)	8 (2.6)	1 (0.3)		
Health Staff	0 (0.0)	2 (0.7)	6 (2.0)		
Driver	4 (1.3)	10 (3.3)	0 (0.0)		
Trader	5 (1.7)	42 (13.9)	5 (1.7)		
Housekeeper	5 (1.7)	42 (13.9)	5 (1.7)		
Mechanic	0 (0.0)	7 (2.3)	0 (0.0)		
Electrician	1 (0.3)	3 (1.0)	0 (0.0)		
Barber	1 (0.3)	2 (0.7)	0 (0.0)		
Hair dresser	0 (0.0)	2 (0.7)	2 (0.7)		
Plumber	0 (0.0)	5 (1.7)	0 (0.0)		
Accountant	1 (0.3)	2 (0.7)	0 (0.0)		
Cultural arts	0 (0.0)	2 (0.7)	0 (0.0)		
Military	0 (0.0)	1 (0.3)	0 (0.0)		
Seamstress	0 (0.0)	3 (1.0)	1 (0.3)		
χ^2 and p-value	—	—	—	**65.185**	**0.001**

Barriers to compliance

Patient-related barriers to compliance

Out of the 302 participants, only 27(8.9%) reported they never had any individual barrier to compliance while the rest 275(91.1%) reported at least one individual barrier. Out of 302 participants, majority 131(43.4%) reported lack of finances, followed by 28(9.2%) who reported lack of finances/feasting periods and occasion, then 25(8.3%) reported forgetfulness/negligence, then 22(7.3%) reported inadequate knowledge, then 20(6.6%) reported lack of finances/lack of family support, then 17(5.6%) reported lack of family support, then 15(5.0%) reported lack of finances/using of herbs, then 10(3.3%) reported feasting periods and occasion, and the minority 7(2.3%) reported using of herbs. (See table 7)

Table 7: Distribution of respondents according to patient-related barriers to compliance (N=302).

Variable	Frequency	Percentage (%)
Lack of finances	131	43.4
Inadequate knowledge	22	7.3

Lack of family support	17	5.6
Using of herbs	7	2.3
Feasting periods and occasion	10	3.3
Forgetfulness/Negligence	25	8.3
Lack of finances/Lack of family support	20	6.6
Lack of finances/Using of herbs	15	5.0
Lack of finances/Feasting periods and occasion	28	9.2
None	27	8.9
Total	**302**	**100.0**

Health system-related barriers to compliance

Majority 79(26.2%) reported drug stock outs was the barrier to compliance, followed by 52(17.2%)who reported high service fees, then 46(15.2%) reported Inadequate personnel, then 40(13.2%) reported drug stock outs/ high service fees, then 24(7.9%) reported drug stock outs/long hospital distance, then 17(5.6%) reported high service fees /non use of health insurance coverage, then 14(4.6%) reported long hospital distance, then 11(3.6%) reported drug stock outs/ high service fees /extended patient waiting time, then 8(2.6%) reported extended patient waiting time, then 6(2.0%) reported drug stock outs/extended patient waiting time and the minority 5(1.7%) reported non use of health insurance coverage. (See table 8)

Table 8: Distribution of respondents according to health system-related barriers to compliance (N=302).

Variable	Frequency	Percentage (%)
Drug stockouts	79	26.2
High service fees	52	17.2
Extended patient waiting time	8	2.6
Non-use of health insurance coverage	5	1.7
Long hospital distance	14	4.6
Drug stockouts / High service fees	40	13.2
Drug stockouts / Extended patient waiting time	6	2.0
Drug stockouts / High service fees / Extended patient waiting time	11	3.6
High service fees / Non-use of health insurance coverage	17	5.6
Drug stockouts / Long hospital distance	24	7.9
Inadequate personnel	46	15.2
Total	**302**	**100.0**

The prevalence of diabetic complications

Out of the 302 participants, 64(21.2%) reported they have never experienced any complications while the rest 238(78.8%) had experienced at least one complication. Majority 64(21.2%) reported visual disturbance, followed by 61(20.2%) who reported pain/numbness in hands and feet, then 29(9.6%) reported visual disturbance/ pain/numbness in hands and feet, then 25(8.3%) reported hypoglycemia, then 21(7.0%) reported foot ulcer/poor wound healing, then 14(4.6%)reported hypoglycemia/visual disturbance, then 10(3.3%) hypoglycemia/ pain/numbness in hands and feet and also 10(3.3%) for visual disturbance/ foot ulcer/poor wound healing, then 3(1.0%) reported stroke(CVA) and then 1(0.3%) had amputation of one leg. (See table 9)

Table 9: Distribution of Respondents according to the Prevalence of Diabetic Complications (N=302).

Variable	Frequency	Percentage (%)
Hypoglycemia	25	8.3
Visual disturbance	64	21.2
Foot ulcer/poor wound healing	21	7.0
Pain/numbness in hands and feet	61	20.2
Hypoglycemia / Pain/numbness in hands and feet	10	3.3
Hypoglycemia /Visual disturbance	14	4.6
Visual disturbance/ Pain/numbness in hands and feet	29	9.6
Stroke(CVA)	3	1.0
Visual disturbance/ Foot ulcer/poor wound healing	10	3.3
Amputation	1	0.3
None	64	21.2
Total	302	100.0

Relationship between compliance level and the prevalence of complications

There was a statistically significant association between diabetes-related complications and treatment compliance in the study population ($\chi^2 = 45.565$, $p = 0.034$). Overall, respondents experiencing complications tended to cluster within the moderate compliance category across most conditions. Visual disturbance and pain/numbness in the hands and feet were the most frequently reported complications, each with 15.6% of respondents showing moderate compliance. These symptoms also recorded notable proportions of good compliance (3.3% and 2.3%, respectively), suggesting that the presence of persistent or uncomfortable symptoms may motivate patients to adhere more closely to treatment. Hypoglycemia appeared across all compliance categories, with moderate compliance (5.6%) being the highest. However, combinations of complications such as hypoglycemia with pain/numbness (3.3%) and hypoglycemia with visual disturbances (4.0%) were observed primarily among moderately compliant patients, indicating a potential link between fluctuating glucose control and inconsistent adherence. Complications associated with more advanced disease, such as foot ulcers, poor wound healing, and visual disturbance combined with foot ulcers, showed small but significant representation across compliance groups, particularly in moderate and good compliance. Severe complications like stroke (1.0%) and amputation (0.3%) were reported only among moderately compliant respondents, possibly reflecting a history of delayed adherence before partial improvement. Importantly, the group with no complications still had the highest representation in the moderate compliance category (17.9%), but also showed some good compliance (2.3%), suggesting that better adherence may help prevent progression to complications. (See table 10)

Table 10: Association between compliance level and the prevalence of complications (N=302).

Complications	Poor Compliance n(%)	Moderate Compliance n(%)	Good Compliance n(%)	X^2	p-value
Hypoglycemia	4 (1.3)	17 (5.6)	4 (1.3)	**45.565**	**0.034**
Visual disturbance	7 (2.3)	47 (15.6)	10 (3.3)		
Foot ulcer / poor wound healing	2 (0.7)	14 (4.6)	5 (1.7)		
Pain / numbness in hands and feet	7 (2.3)	47 (15.6)	7 (2.3)		
Hypoglycemia + Pain/numbness	0 (0.0)	10 (3.3)	0 (0.0)		
Hypoglycemia + Visual disturbance	1 (0.3)	12 (4.0)	1 (0.3)		
Visual disturbance + Pain/numbness	4 (1.3)	18 (6.0)	7 (2.3)		
Stroke (CVA)	0 (0.0)	3 (1.0)	0 (0.0)		
Visual disturbance + Foot ulcer	0 (0.0)	8 (2.6)	2 (0.7)		
Amputation	0 (0.0)	1 (0.3)	0 (0.0)		
None	3 (1.0)	54 (17.9)	7 (2.3)		

X^2= chi square P value < 0.05 statistically significant

DISCUSSION

The burden of type 2 diabetes mellitus (T2DM) in sub-Saharan Africa, including Cameroon, remains substantial. The present study found that 46% of participants had uncontrolled fasting blood glucose (FBG), while only 54% had controlled levels. This aligns with global observations that glycaemic control is challenging in resource-limited settings.[1,11] Poor glycaemic control is associated with increased risk of complications and reflects both patient-level and system-level challenges in diabetes management[12]

Medication adherence is a cornerstone of diabetes management. In this study, 78.1% of participants reported taking their medication as prescribed, yet only 14.2% achieved good overall compliance. Similar patterns have been reported in Cameroon and other SSA countries, where partial adherence is common and self-care behaviours such as diet, exercise, and routine monitoring are often suboptimal.[7,13,14] This underscores the fact that adherence encompasses more than medication-taking; it includes lifestyle modification and engagement with healthcare services.[8,15]

Socio-demographic factors significantly influenced compliance. Moderate compliance dominated across most age groups, especially among middle-aged and early elderly adults (56–75 years), suggesting that this demographic may be more motivated or have better health literacy.[6,16] Educational level also showed a positive association with compliance, with higher education correlating with better adherence ($r = 0.60$). This is consistent with findings that education enhances understanding of disease management and the importance of follow-up care.[6,17] Occupation likewise influenced compliance; farmers, traders, and housekeepers exhibited moderate adherence, but some had poor compliance due to financial and time

constraints, whereas teachers and health staff showed better adherence[16,18]

Barriers to compliance were both patient-related and health system-related. Financial constraints, forgetfulness, lack of family support, and inadequate knowledge were frequently reported patient-level barriers.[7,16] Health system barriers included drug stockouts, high service fees, long distances to hospital, and staff shortages[7,19] These barriers highlight that improving adherence requires multi-level interventions, including patient education, financial support, and strengthening healthcare systems.[12,14,19]

The prevalence of complications was high: 78.8% of participants experienced at least one complication, most commonly visual disturbances and neuropathy. Moderate compliance was associated with most complications, suggesting that partial adherence may be insufficient to prevent long-term adverse outcomes[10,13,20] Severe complications such as stroke and amputation were rare but observed among moderately compliant patients, indicating that early and consistent adherence is critical for preventing serious sequelae[9,12] These findings align with SSA data, which show that poor glycaemic control and suboptimal self-management contribute significantly to microvascular and macrovascular complications.[4,13,20]

CONCLUSION

This study revealed that most diabetic patients at the Regional Hospital of Bafoussam exhibited moderate compliance to treatment regimens, with only a minority achieving good adherence. Compliance was significantly associated with age ($p = 0.004$), educational level ($p = 0.001$), and occupation ($p = 0.001$). Despite partial adherence, a high prevalence of complications, particularly visual disturbances and neuropathy, was observed ($p = 0.034$). Targeted interventions focusing on patient education, financial support, and health system strengthening are critical to improving glycaemic control and reducing complications.

Study Limitations

The study employed a cross-sectional design, which limits causal inferences between compliance and complications. Convenience sampling may introduce selection bias, and self-reported compliance could be affected by social desirability or recall bias. Some complications were patient-reported and not clinically verified, potentially underestimating true prevalence. Finally, the study was conducted in a single hospital, which may limit generalizability to other regions of Cameroon.

Conflicts of Interest

The authors declare no conflicts of interest.

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