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Research Article

Keywords:

Posted Date: October 22nd, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-11432274/v1>

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Additional Declarations: No competing interests reported.

Prevalence and Temporal Trends of Type 2 Diabetes Mellitus Among Adults in Cameroon: A Systematic Review and Meta-analysis

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Abstract

Background: Type 2 diabetes mellitus (T2DM) is an increasing public health challenge in Sub-Saharan Africa (SSA). In Cameroon, its prevalence remains uncertain due to heterogeneous evidence across populations and geographical settings. This systematic review and meta-analysis estimated the pooled prevalence of T2DM among adults in Cameroon and examined variations by demographic, geographic, and study characteristics.

Methods: A systematic search of PubMed, Embase, Scopus, Web of Science, WHO Global Index Medicus, and the Virtual Health Library was conducted from database inception through 14 March 2026. Eligible studies were population- or community-based observational studies reporting the prevalence of T2DM among adults (≥ 18 years) in Cameroon. Pooled prevalence estimates were obtained using a random-effects meta-analysis of proportions with inverse-variance weighting, logit transformation, restricted maximum likelihood estimation, and Hartung-Knapp confidence intervals. Heterogeneity, publication bias, subgroup

analyses, meta-regression, and sensitivity analyses were performed. The review protocol was registered in PROSPERO (CRD420251274750).

Results: Eleven studies comprising 20,559 adults were included. The pooled prevalence of T2DM was 3.5% (95% CI, 2.1-5.7%), with substantial between-study heterogeneity ($I^2 = 92.7\%$). The 95% prediction interval ranged from 0.7% to 16.6%, highlighting substantial variability in T2DM prevalence estimates across different settings in Cameroon. Prevalence increased markedly with age, from 2.0% (95% CI, 1.0-4.0%) among adults aged <45 years to 11.0% (95% CI, 4.0-24.0%) among those aged ≥ 55 years. No significant differences were observed according to sex, place of residence, study quality, or sample size. Temporal analyses demonstrated a progressive increase in T2DM prevalence, rising from approximately 1% in studies conducted during 1997-1999 to 5% in those conducted after 2015. Multivariable meta-regression confirmed a significant positive association between publication year and T2DM prevalence ($\beta = 0.16$, 95% CI 0.02-0.31; $p = 0.034$), whereas study period was not independently associated with prevalence. Leave-one-out sensitivity analyses confirmed the robustness of the pooled estimates.

Conclusions: These findings provide the most comprehensive synthesis to date of T2DM burden and temporal trends in Cameroon and highlight the urgent need for strengthened surveillance, targeted prevention strategies, and early detection programs to address the growing diabetes epidemic.

Keywords: Type 2 diabetes mellitus; prevalence; Cameroon; systematic review; meta-analysis; epidemiology; sub-Saharan Africa

Introduction

Type 2 diabetes mellitus (T2DM) has become one of the fastest-growing public health challenges worldwide [1]. Once considered relatively uncommon in Sub-Saharan Africa (SSA), T2DM is now a major contributor to the region's increasing burden of non-communicable diseases, driven by rapid urbanization, population ageing, changing lifestyles, and the ongoing nutritional transition [2]. According to the International Diabetes Federation, an estimated 589 million adults aged 20-79 years were living with diabetes worldwide in 2024, and this number is projected to rise to 853 million by 2050 [3]. Although the African region currently has the lowest estimated prevalence of diabetes globally (5.0%), corresponding to approximately 24.6 million adults, it is expected to experience the fastest proportional growth worldwide [4]. IDF projections indicate that the number of adults living with diabetes in Africa will increase by 142%, reaching nearly 60 million by 2050 [3].

These projections reflect an ongoing epidemiological transition in which the burden of T2DM is shifting toward low- and middle-income countries. SSA, in particular, has experienced a rapid rise in diabetes cases over recent decades, posing major challenges to already constrained healthcare systems [5, 6]. By 2050, the number of adults living with diabetes in the region is projected to nearly triple, while approximately three-quarters of cases are expected to remain undiagnosed [3]. This rapid epidemiological transition, occurring alongside health systems that have traditionally been oriented toward communicable diseases and remain constrained by limited resources, presents major challenges for diabetes prevention, early detection, and long-term management [2, 4]. Consequently, delayed diagnosis and inadequate disease control contribute to the development of preventable complications, increasing premature morbidity and mortality while imposing substantial social and economic costs on individuals, health systems, and society [7].

In Cameroon, accurately quantifying the burden of diabetes is particularly challenging because of substantial geographical inequalities in healthcare access [8]. Although approximately 40% of the population resides in rural areas, diabetes prevention, screening, diagnosis, and management services remain disproportionately concentrated in urban centres [9, 10]. As a result, the burden of diabetes is likely underestimated in underserved settings, highlighting the importance of generating robust national estimates through a comprehensive synthesis of the available evidence.

A previous systematic review and meta-analysis (SRMA), published in 2018, synthesized evidence from studies published between January 2000 and April 2017 and reported a pooled T2DM prevalence of 5.8% based on 12 studies [11]. Although this review provided important insights into the epidemiology of diabetes in Cameroon, some methodological limitations warrant an updated synthesis. Specifically, the review combined community-based surveys with studies conducted in selected population groups, such as university students, and included participants aged 15 years and older. These eligibility criteria may have limited the generalizability of the pooled estimates to the general adult population. Therefore, we conducted an updated systematic review and meta-analysis restricted to community-based studies of adults to provide more representative estimates of T2DM prevalence in Cameroon. More importantly, the present study also aimed to evaluate temporal trends in T2DM prevalence, providing updated evidence on how the burden of diabetes has evolved over time in the adult population of Cameroon.

Methods

Protocol and registration

This systematic review was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement (see **Supplementary Table S3**) [12]. The review protocol was registered in the International Prospective Register of Systematic Reviews (PROSPERO; registration number CRD420251274750) and is publicly available at <https://www.crd.york.ac.uk/PROSPERO/view/CRD420251274750>.

Search strategy

Eligible studies were identified through a systematic search of PubMed, Embase, Scopus, WHO Global Index Medicus, Web of Science, and the Virtual Health Library (VHL) from database inception to March 14, 2026. No restrictions were applied regarding language or publication date. The search strategy was developed according to the POT framework (Population, Outcome, and Type of study), combining controlled vocabulary (including Medical Subject Headings [MeSH], where applicable) and keywords related to type 2 diabetes mellitus (T2DM), Cameroon, adults, and epidemiological outcomes (e.g., prevalence, incidence, burden, and population-based surveys). Synonymous terms within each concept were combined using the Boolean operator OR, and the main concepts were combined using AND. The complete search strategies for all databases are provided in **Supplementary Table S1**. In addition, backward and forward citation searching of the reference lists of all included studies and relevant reviews was performed to identify additional eligible studies[13]. The final search was conducted on 14 March 2026.

Study selection

Following the removal of duplicate records, two reviewers (NDC and JR) independently screened the titles and abstracts of all retrieved records using Rayyan. Observational studies, including cross-sectional and cohort designs, were considered eligible if they collected primary, community-based or population-based data and reported the prevalence of T2DM among adults (≥ 18 years) residing in Cameroon. Studies conducted exclusively in paediatric populations, institutional settings, or selected population groups (e.g., women only, pregnant women, or patients receiving specific treatments) were excluded. Conference abstracts, conference proceedings, articles without accessible full texts, and studies for which essential data could not be obtained from the corresponding authors were also excluded. Full-text articles deemed potentially eligible were independently assessed by the same two reviewers (SPX and ERT). Any disagreements regarding study eligibility were resolved through discussion and consensus. If the consensus didn't reached. then it was resolved by third reviewer (AP).

Study outcome

The primary outcome was the prevalence of T2DM among adults aged ≥ 18 years. T2DM was defined according to the diagnostic criteria adopted in each included study, including internationally recognized criteria in use at the time of study conduct (e.g., World Health Organization or American Diabetes Association guidelines). Diagnostic approaches included fasting plasma glucose (FPG) ≥ 7.0 mmol/L (126 mg/dL), a 2-hour plasma glucose concentration ≥ 11.1 mmol/L (200 mg/dL) following a 75-g oral glucose tolerance test (OGTT), glycated haemoglobin (HbA1c) $\geq 6.5\%$ (48 mmol/mol), or a previous physician diagnosis of diabetes, as reported by the original studies [14, 15].

Data extraction and risk of bias assessment

Two reviewers (SPX and ERT) independently extracted data from all eligible studies using a standardized data extraction form. All extracted data were subsequently verified by the corresponding author (SPX) to ensure accuracy and consistency. The extracted information included the first author, publication year, year of data collection, study setting (urban or rural), study design, population characteristics, and the number of T2DM cases and participants used to estimate prevalence. The methodological quality of the included studies was independently assessed by two reviewers using the National Institutes of Health (NIH) Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies. This instrument evaluates 14 methodological domains, with each applicable criterion rated as "Yes", "No", "Cannot Determine", "Not Reported", or "Not Applicable". An overall quality score was calculated by assigning one point to each "Yes" response and zero points to all other responses. Studies were subsequently classified as poor (0-5), fair (6-9), or good (10-14) methodological quality (Supplementary Table S2).

Statistical analysis

The pooled prevalence of T2DM was estimated using a random-effects meta-analysis of proportions implemented with the inverse-variance method [16, 17]. Proportions were logit-transformed (PLOGIT) before pooling to stabilize variances [18]. Between-study variance (τ^2) was estimated using restricted maximum likelihood (REML) [19], and 95% confidence intervals (CIs) for the pooled estimates were calculated using the Hartung-Knapp adjustment [20]. To quantify the expected variability of prevalence estimates across comparable populations, 95% prediction intervals were also calculated. Fixed-effect estimates were not generated because substantial between-study heterogeneity was anticipated [21].

Statistical heterogeneity was assessed using Cochran's Q test [22] and the I^2 statistic [23], with I^2 values of approximately 25%, 50%, and 75% representing low, moderate, and high heterogeneity, respectively [23]. Authors anticipated heterogeneity in several factors including patient population, method/instrumentation of glucose quantification and site of blood collection (venous vs capillary blood which influences glucose levels). Therefore, we used a random-effects model for meta-analysis. Prespecified subgroup analyses were conducted according to study design, publication period, year of data collection, sample size, study setting (urban or rural), age group, sex, and methodological quality. Univariable and multivariable random-effects meta-regression analyses were performed to explore potential sources of heterogeneity [24]. Publication bias was assessed by visual inspection of funnel plot asymmetry and formally evaluated using Egger's regression test [25] and Begg's rank correlation test [26]. Leave-one-out sensitivity analyses were performed to examine the influence of individual studies on the pooled estimates. Statistical significance was defined as a two-sided $P < 0.05$. All statistical analyses were performed using R version 4.5.1 (R Foundation for Statistical Computing, Vienna, Austria) with the meta package available at: [https:// www.R- proje ct. org/](https://www.R-project.org/).

Results

Characteristics of included studies

The literature search identified 601 records, including 595 retrieved from electronic databases (PubMed, Embase, Scopus, Web of Science, Virtual Health Library, and Global Index Medicus) and six records identified through backward citation searching and Google Scholar (**Fig. 1**). After duplicate removal, 271 records were screened, and 18 full-text articles were assessed for eligibility. Together with six additional reports identified through other search methods, 11 studies met the inclusion criteria and were included in the systematic review [9, 27–36]. The overall meta-analysis comprised 11 studies involving 20,559 participants. Subgroup analyses included eight estimates for males and eight for females, representing 7,613 and 11,091 participants, respectively. Residence-specific analyses included four estimates from rural populations (2,406 participants) and seven from urban populations (13,883 participants). Age-stratified analyses included six estimates for participants aged <45 years, three for those aged 45–54 years, and four for those aged ≥ 55 years. According to the methodological quality assessment, two (18.18%) studies were rated as good quality, while the remaining studies were classified as fair quality. Detailed characteristics of the included studies are presented in **Table 1**. The methodological quality scores ranged from 7 to 10 (**Supplementary Table S2**).

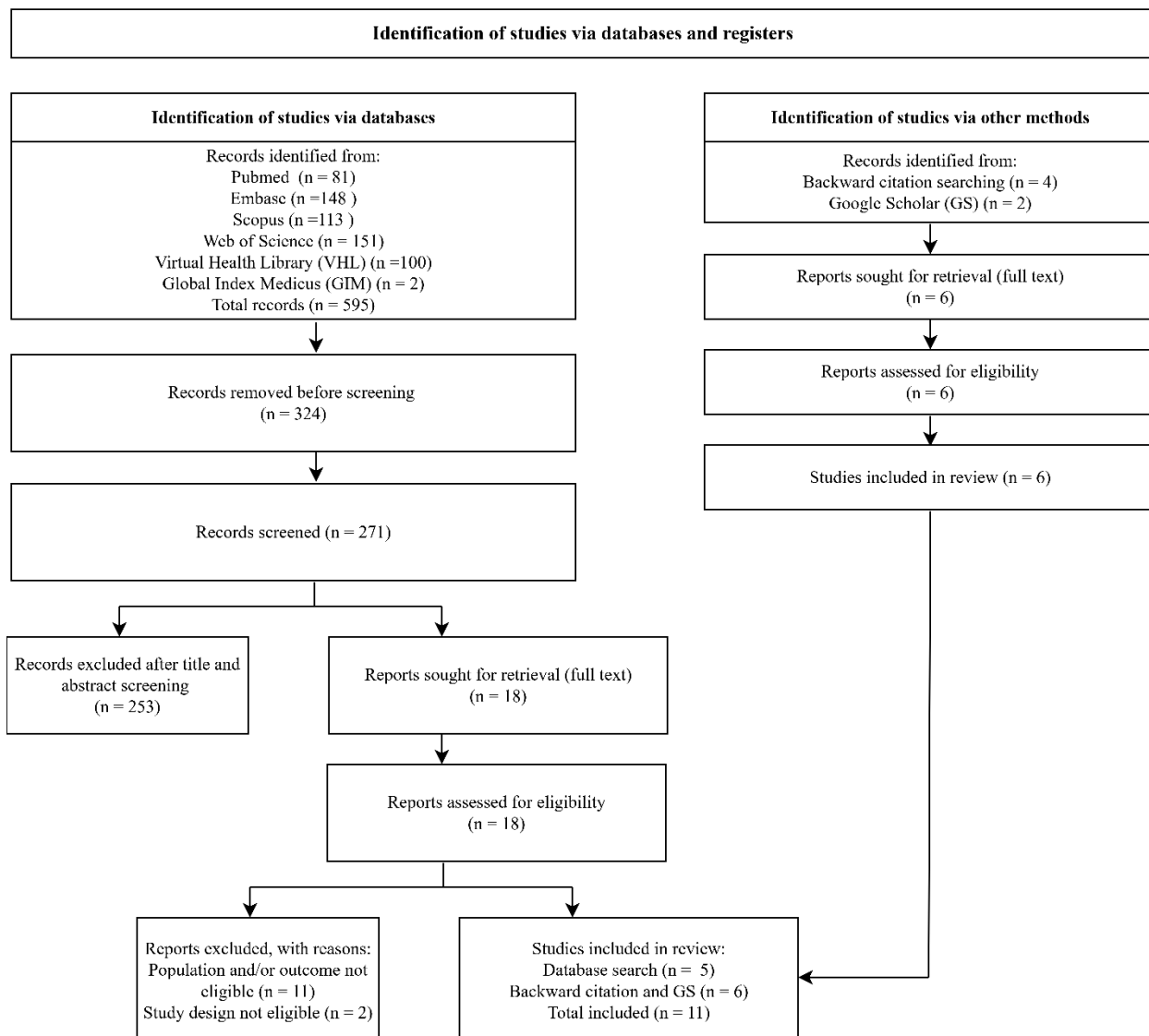


Fig.1. PRISMA 2020 flow diagram of the study selection process. Flow diagram showing the identification, screening, eligibility assessment, and inclusion of studies in the systematic review and meta-analysis.

Meta-analysis

Overall prevalence of T2DM and heterogeneity

The pooled prevalence of T2DM was 3.5% (95% CI, 2.1%-5.7%) using a random-effects model (Fig. 2). Between-study heterogeneity was considerable ($I^2 = 92.7\%$, $\tau^2 = 0.533$; Cochran's $Q = 136.61$, $df = 10$, $p < 0.001$). The 95% prediction interval for the expected prevalence across similar populations was 0.7%-16.6%.

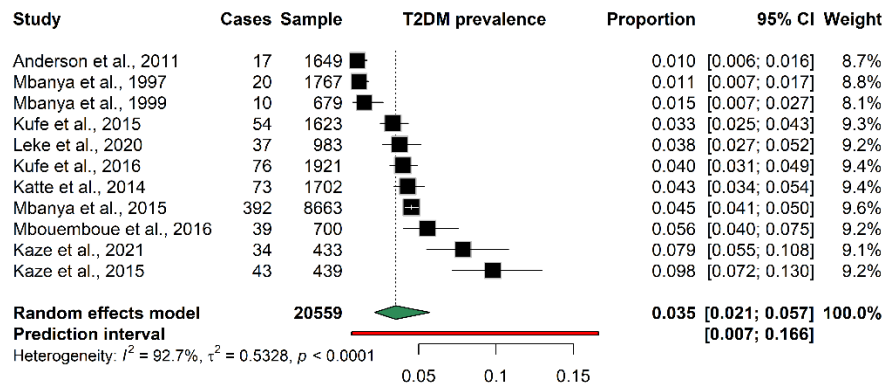


Fig. 2. Forest plot of the pooled prevalence of T2DM.

Subgroup analysis and meta-regression

Subgroup analyses showed significant differences in the pooled prevalence according to age (p -value for subgroup differences = 0.020), study sample size ($p = 0.039$), publication period ($p = 0.001$), and study period ($P = 0.031$), whereas no significant differences were observed according to study quality ($p = 0.083$), sex ($p = 0.944$), or place of residence ($p = 0.459$) (Table 2). In univariable meta-regression, higher prevalence was associated with participants aged ≥ 55 years ($\beta = 1.85$, 95% CI: 0.55-3.15; $p = 0.005$), larger sample size ($\beta = -0.64$, 95% CI: -1.25; -0.03; $p = 0.039$), publication period ($\beta = 0.08$, 95% CI: 0.04; 0.11; $p < 0.001$), and study period ($\beta = 0.07$, 95% CI: 0.02; 0.12; $p = 0.003$). In the multivariable model, only publication period remained significantly associated with prevalence ($\beta = 0.16$, 95% CI: 0.02; 0.31; $p = 0.034$) (Table 2).

Table 2. Subgroup analysis and meta-regression for sources of heterogeneity

Characteristics	No. of studies	Proportion (IC 95%)	I ² (%)	p-value ^a	p-value ^b	Regression Coefficient (95% CI); p-value	
						Univariable	Multivariable
Age							
<45	6	0.02 (0.01; 0.04)	85.0	< 0.001	0.020	Ref	
45-54	3	0.04 (0.01; 0.10)	49.1	< 0.001		0.79 (-0.53; 2.12); 0.242	
≥ 55	4	0.11 (0.04; 0.24)	93.5	< 0.001		1.85 (0.55; 3.15); 0.005	
Risk of bias							
Fair	9	0.03 (0.02; 0.05)	92.3	< 0.001	0.173	Ref	Ref
Good	2	0.06 (0.0001; 0.97)	95.8	< 0.001		0.72 (-0.54; 1.99); 0.232	0.43 (-0.47; 1.32); 0.288
Sample size							
<1000	5	0.05 (0.02; 0.12)	90.7	< 0.001	0.147	Ref	
≥ 1000	6	0.027 (0.01; 0.05)	93.2	< 0.001		-0.64 (-1.61; 0.33); 0.170	
Gender							
Male	8	0.03 (0.02; 0.04)	83.8	< 0.001	0.944		
Female	8	0.03 (0.02; 0.04)	88.0	< 0.001			
Residence							
Urban	7	0.04 (0.03; 0.06)	86.0	< 0.001	0.4585		

Rural	4	0.03 (0.02; 0.05)	94.4	< 0.001			
Publication period						0.08 (0.02; 0.13); 0.009	0.16 (0.02; 0.31); 0.034
1997-1999	2	0.01 (0.002; 0.07)	0.0	< 0.001	< 0.001		
2011-2014	2	0.02 (0.00; 0.99)	96.5	< 0.001			
2015-2016	5	0.05 (0.03; 0.08)	88.5	< 0.001			
2020-2021	2	0.05 (0.00; 0.89)	90.1	< 0.001			
Study period						0.07 (0.01; 0.14); 0.034	-0.11 (-0.29; 0.06); 0.152
1997-1999	2	0.01 (0.01; 0.03)	0.0	< 0.001	0.0313		
2006-2007	2	0.04 (0.02; 0.08)	78.7	< 0.001			
2011-2014	5	0.04 (0.03; 0.06)	94.2	< 0.001			
2018	2	0.05 (0.03; 0.11)	90.1	< 0.001			

Note: a: Within groups; b: Test for subgroup differences (between groups). Age, sex, and place of residence were not included in the multivariable meta-regression because these variables were available only as subgroup-specific estimates rather than study-level covariates. *Log-transformed sample size was included as a covariate in the meta-regression.

Temporal trend analysis

A positive temporal trend in the prevalence of T2DM was observed across the study period (**Fig. 3**), consistent with the univariable meta-regression analysis ($\beta = 0.07$, 95% CI: 0.01; 0.14). After adjustment for study-level characteristics, this association was attenuated and was no longer statistically significant in the multivariable model ($\beta = -0.11$, 95% CI: -0.29; 0.06).

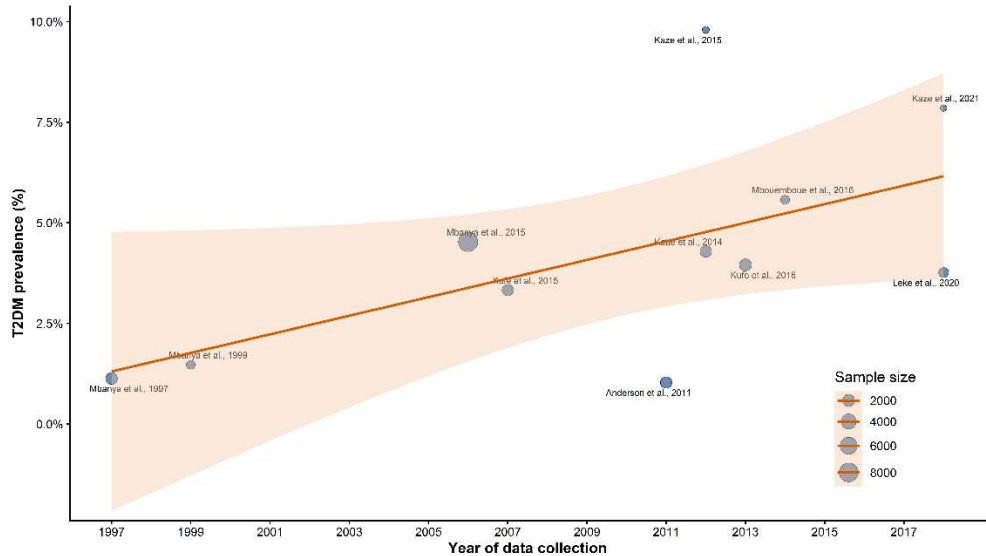


Fig. 3. Temporal trend in the prevalence of T2DM among adults in Cameroon. Each bubble represents an individual study, with bubble size proportional to the study sample size. The solid line represents the fitted random-effects meta-regression according to the year of data collection, and the shaded area denotes the 95% CI.

Publication bias

Publication bias and sensitivity analyses provided no evidence of small-study effects. Visual inspection of the funnel plot (**Fig. 4.A**) revealed no substantial asymmetry, consistent with Begg's rank correlation test ($z = -1.32$, $p = 0.186$) and Egger's regression test ($t = -1.14$, $p = 0.283$). Leave-one-out

sensitivity analyses demonstrated that sequential exclusion of individual studies had minimal impact on the pooled prevalence estimates, indicating that no single study had a substantial influence on the overall estimate (**Fig. 4.B**). Subgroup analyses by age and place of residence showed no evidence of small-study effects ($p > 0.05$). In the sex-specific analyses, Egger's regression test suggested potential small-study effects among both men ($p = 0.031$) and women ($p = 0.034$). Begg's rank correlation test was not statistically significant among men ($p = 0.083$), but indicated potential small-study effects among women ($p = 0.026$).

Discussion

In this systematic review and meta-analysis, we synthesized evidence from 11 population-based studies of T2DM conducted between 1997 and 2021 among adults aged 18 years or older in Cameroon. The pooled prevalence of T2DM was 3.5% (95% CI, 2.1%-5.7%), suggesting that approximately one in every 28 adults is affected by the disease. Our estimate is substantially lower than the 5.8% (95% CI, 4.1%-7.9%) reported in the previous systematic review from Cameroon, which included 12 studies [11]. Several methodological differences may account for this variation. While the earlier review identified studies published up to April 2017, our review incorporated more recent evidence and adopted stricter eligibility criteria. Notably, although the previous review stated that only population-based studies involving adults were eligible, it included a study conducted exclusively among university students [27]. University students represent a selected population that is typically younger and differs from the general adult population in terms of educational attainment, socioeconomic characteristics, and health-related behaviours. Consequently, estimates derived from this group may not be directly generalizable to the broader adult population. In addition, despite specifying the exclusion of individuals aged 18 years or younger, some of the included studies enrolled participants within this age group. These differences in study selection and participant eligibility may partly explain the discrepancy between the pooled estimates.

Our findings are broadly consistent with recent estimates reported for neighboring Central African countries, including Rwanda (2.1%), Burundi (4.3%), and Angola (4.9%) [4]. In contrast, the estimated prevalence for Cameroon in 2024 was 6.9%, almost twice the pooled estimate observed in our review. This difference should be interpreted with caution because the national estimate was derived from the Global Burden of Disease modelling framework, which synthesizes multiple data sources to generate nationally comparable estimates, whereas our meta-analysis was based exclusively on published population-based prevalence studies. Nevertheless, the 95% prediction interval from our meta-analysis (0.7%-16.6%) encompasses the 2024 national estimate, indicating that this value remains compatible with the between-study variability observed across populations and settings within Cameroon.

A positive temporal trend in T2DM prevalence was identified in the univariable meta-regression ($\beta = 0.07$, 95% CI, 0.02-0.12), suggesting an increasing burden of disease over time. Although diabetes was historically considered an uncommon condition in many African countries, epidemiological studies conducted since the 1990s have documented a substantial increase in its occurrence, accompanying the rapid demographic and epidemiological transition experienced across the region [37, 38]. However, this association was no longer statistically significant after adjustment for study-level characteristics ($\beta = -0.11$), suggesting that the temporal trend may be explained, at least in part, by between-study heterogeneity rather than by calendar time alone. These findings emphasize the importance of accounting for methodological heterogeneity when interpreting temporal changes in T2DM prevalence across epidemiological studies.

Subgroup analyses showed that the prevalence of T2DM increased markedly with age, reaching 11% among individuals aged 55 years or older compared with only 2% among those younger than 45 years. This pattern is consistent with findings from the previous systematic review and meta-analysis conducted in Cameroon [11], as well as studies from other countries, including Ethiopia [39], China [4], Brazil [40], and India [41]. These findings are in line with the natural history of T2DM, as ageing is associated with progressive β -cell dysfunction, increased insulin resistance, and prolonged cumulative exposure to metabolic and behavioral risk factors [42, 43]. These findings are consistent with the multifactorial nature of T2DM, in which ageing interacts with other established risk factors. They also highlight the importance of prevention and early detection strategies, particularly among older adults. Similarly, no significant differences in T2DM prevalence were observed according to sex, place of residence, or study quality, consistent with findings from previous studies [11, 44, 45].

Although these subgroup analyses did not identify significant differences, the limited number of studies available within some categories and the substantial between-study heterogeneity may have reduced the power to detect subgroup-specific effects. While previous studies conducted in different settings have reported higher prevalence of diabetes in urban areas [45–47], potentially related to greater sedentary behavior, dietary transitions, and higher rates of obesity [48–50], this pattern was not observed in the present meta-analysis. The absence of significant differences by residence may be partly explained by the limited number of available studies and the considerable heterogeneity across studies, which may have reduced the ability to detect true variations between subgroups.

The present study showed substantial heterogeneity, and meta-regression analyses were conducted to provide additional insights into potential sources of the observed variability across studies. In the univariable analysis, studies including participants aged ≥ 55 years reported significantly higher T2DM prevalence compared with those including adults younger than 45 years. Furthermore, studies with smaller sample sizes tended to report higher prevalence estimates. In the multivariable analysis, only publication period remained independently associated with T2DM prevalence, whereas the association with the study period was no longer statistically significant after adjustment. These findings suggest that part of the variability observed across studies may be related to methodological characteristics and the contextual factors under which the studies were conducted. Therefore, accounting for between-study heterogeneity is essential when interpreting pooled prevalence estimates.

The findings of this study have important implications for T2DM surveillance and prevention in Cameroon. The increasing prevalence of T2DM over time and the substantially higher burden among adults aged 55 years and older highlight the need for age-targeted screening and population-level interventions to reduce modifiable risk factors, including obesity, physical inactivity, and unhealthy dietary habits. Although no significant differences were observed between urban and rural populations, surveillance efforts should continue to include both settings to monitor potential changes in disease distribution as Cameroon undergoes rapid demographic, nutritional, and epidemiological transitions [9, 51], reflecting broader trends across SSA [52, 53]. The considerable between-study heterogeneity further underscores the need for standardized diagnostic criteria and nationally representative population-based surveys to generate reliable estimates and support evidence-based health policies and equitable resource allocation.

This study has several strengths. To our knowledge, it provides the most up-to-date synthesis of the prevalence of T2DM in Cameroon by incorporating recent evidence and applying rigorous eligibility

criteria restricted to population-based studies. By excluding studies conducted in selected populations, our findings are likely to provide a more representative estimate of T2DM prevalence among the adult population. In addition to estimating the pooled prevalence, we assessed temporal trends and explored potential sources of heterogeneity through subgroup and meta-regression analyses, providing a more comprehensive understanding of the epidemiology of T2DM in Cameroon. Furthermore, no evidence of publication bias was identified, supporting the robustness of the pooled estimates. Despite these strengths, this review has some limitations. Substantial between-study heterogeneity remained even after subgroup and meta-regression analyses, suggesting that unmeasured methodological and population differences may have influenced the pooled estimates. The relatively small number of studies available for some subgroup analyses may have reduced the statistical power to detect differences, particularly between urban and rural populations. In addition, most studies were conducted in specific regions of Cameroon rather than using nationally representative samples. Although geographic variation was explored in subgroup analyses, the limited national coverage of the available evidence may restrict the generalizability of the findings to the country as a whole.

Conclusion

This study summarizes the evidence on the burden of T2DM among adults aged 18 years or older in Cameroon and highlights the growing importance of diabetes as a public health challenge. The increase in prevalence over time, together with the substantially higher burden among older adults, underscores the need to strengthen diabetes surveillance, expand prevention and early detection initiatives, and improve the integration of diabetes care into primary healthcare services. Developing standardized, nationally representative surveillance systems will be crucial for monitoring disease trends, identifying emerging priorities, guiding equitable resource allocation, and informing evidence-based policies to address the future burden of T2DM in the country.

Declarations

Supporting information

S1. Search strategy

S.2. Methodological quality

S3. PRISMA Checklist

Clinical trial number

Not applicable

Clinical trial number

Not applicable

Consent to Publish declaration

344 Not applicable.

345 **Ethics and Consent to Participate declarations**

346 Not applicable.

347 **Data availability**

348 The datasets generated and/or analyzed during this study are available from the corresponding author upon
349 academic purpose request.

350 **Competing interests**

351 The authors declare that they have no competing interests.

352 **Funding**

353 This research received no specific financial support from public, commercial, or not-for-profit funding
354 agencies.

355 **Acknowledgements**

356 The authors acknowledge Dr. Veena Puri and Dr. Ashok Kumar from the Department of System
357 Biology and Bioinformatics, Panjab University, Chandigarh, for organizing the workshop on systematic
358 review and meta-analysis using the GRADE framework held at Panjab University, Chandigarh, from
359 February 13-15, 2025. The workshop contributed to the development of the SRMA protocol. The authors
360 also thank the resource faculty members who contributed to the workshop.

361 **Author Contributions**

362 ERT, SPX, and AP conceived and designed the study. SPX conducted the formal analyses. The
363 study methodology was developed by SPX, ERT, AP, and JR. AP and ERT were responsible for project
364 administration, resource management, and supervision. Validation was performed by AP, ERT, and SPX.
365 SPX and ERT prepared the first draft of the manuscript. The manuscript was critically reviewed and
366 commented on by SPX and AP. All authors (SPX, ERT, NDC, JR, and KK) contributed to manuscript
367 revision, critically reviewed the content, and approved the final version.

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507 **Table 1.** Characteristics of the studies included in the systematic review

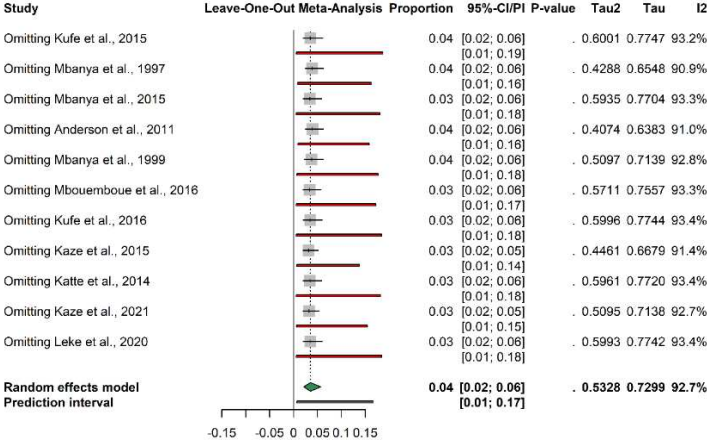
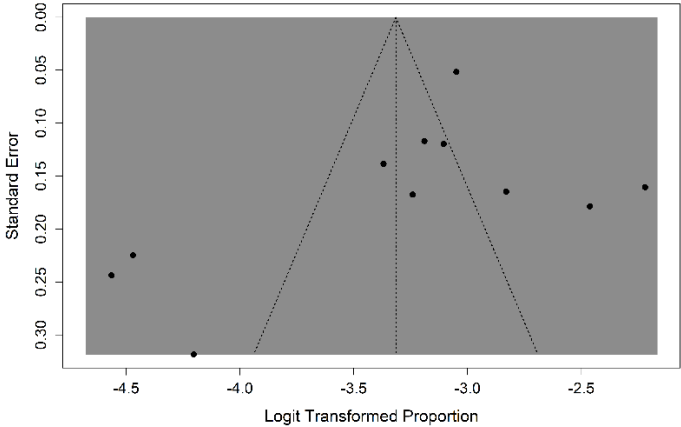
Basic information about the reference				Study Design				Population of study & sample size		Results	Diabetes diagnosis criteria	Quality rating (Good, Fair, or Poor)
Author, Year	Publication Year	Journal	Year of Research	Subject of study (adults)	Study Design	Inclusion criteria	Exclusion criteria	Numerator	Sample size	Prevalence (%)	Criteria	
Kufe et al., 2015 [27]	2015	<i>BMC Public Health</i>	2007	≥ 25	Cross-sectional	Adults ≥25 years residing in the CAMoD area	Missing FCG data	54	1623	3.33	FPG ≥7.0 mmol/L and/or previously diagnosed diabetes	Fair
Mbanya et al., 1997 [29]	1997	<i>Diabetologia</i>	1997	24-74	Cross-sectional	African adults aged 24–74 years residing in Cameroon and undergoing OGTT	Unknown age or missing OGTT data	20	1767	1.13	WHO criteria (75-g OGTT)	Fair
Mbanya et al., 2015 [30]	2015	<i>Diabetes research and clinical practice</i>	2006	≥ 25	Cross-sectional	Adults ≥25 years willing to participate (overnight fasting)	Pregnancy, psychiatric illness, mobility impairment, known diabetes, or missing data	392	8663	4.52	WHO criteria (FPG ≥6.1 mmol/L screening; OGTT confirmation)	Fair
Anderson et al., 2011 [31]	2011	<i>British journal of nutrition</i>	2011	≥ 25	Cross-sectional	West African adults aged 25-74 years without known diabetes	Pregnancy, treated diabetes, extreme energy intake, or missing data	17	1649	1.03	WHO 2006 (FPG ≥7.0 mmol/L and/or 2-h OGTT ≥11.1 mmol/L)	Fair
Mbanya et al., 1999 [32]	1999	<i>Diabetes Care</i>	1999	25	Cross-sectional	Adults aged 25-74 years residing in selected communities and undergoing OGTT	Not reported	10	679	1.47	WHO 1985 (75-g OGTT ≥11.1 mmol/L) and/or treatment	Fair
Mbouemboue et al., 2016 [33]	2016	<i>International Journal of Hypertension</i>	2014	≥ 18	Cross-sectional	Adults aged > 17	Not reported	39	700	5.57	FPG >126 mg/dL (7.0 mmol/L)	Fair
Kufe et al., 2016 [34]	2016	<i>BMC Public Health</i>	2013	≥ 20	Cross-sectional	Adults aged > 19	Not reported	76	1921	3.96	IDF/WHO (two fasting capillary glucose measurements ≥126 mg/dL)	Good
Kaze et al., 2015 [35]	2015	<i>BMC Nephrology</i>	2012	≥ 20	Cross-sectional	Adults aged > 19	Not reported	43	439	9.79	Self-reported diagnosis and/or FCG ≥126 mg/dL	Good
Katte et al., 2014 [36]	2014	<i>BMC Public Health</i>	2012	≥ 18	Cross-sectional	Adults aged > 19	Not reported	73	1702	4.29	FCG ≥126 mg/dL and/or previous diagnosis/treatment	Fair
Kaze et al., 2021 [28]	2021	<i>Clinical and Experimental Nephrology</i>	2018	≥ 20	Cross-sectional	Adults aged > 19	Not reported	34	433	7.85	FPG ≥126 mg/dL (two tests) and/or glucose-lowering medication	Fair
Leke et al., 2020 [9]	2020	<i>Journal of Endocrine and</i>	2018	≥ 30	Cross-sectional	Adults aged ≥30	Not reported	37	983	3.76	WHO criteria (FPG ≥7.0 mmol/L)	Fair

		Metabolic Diseases										
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508 **Legend:** FPG, fasting plasma glucose; FCG, fasting capillary glucose; OGTT, oral glucose tolerance test; IDF, International Diabetes Federation.

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 510 A
 511

B



512 **Fig. 4.** Assessment of publication bias and sensitivity analysis. (A) Funnel plot of the included studies used to assess potential publication bias. (B)
 513 Leave-one-out sensitivity analysis showing the pooled prevalence of T2DM after sequential omission of each study.
 514

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