

Estimating the Prevalence of Chronic Conditions in Population Health Management

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Introduction

Accurate measurement of chronic condition prevalence is essential for effective population health management. In Saudi Arabia, current approaches have significant limitations. This study evaluates these methods and proposes National Health Registries (NHRs) to address these challenges.

Objectives

This study evaluates the prevalence of chronic conditions in Saudi Arabia, examines limitations in current measurement practices, and proposes National Health Registries (NHRs) as a comprehensive alternative for effective population health management.

Methods

An epidemiological approach was used, stratifying the Saudi population into 1,280 groups based on age, gender, and geographic health clusters. Individuals were classified as active based on healthcare visit frequency. Prevalence estimates for chronic conditions, specifically diabetes, were validated against WHO benchmarks.

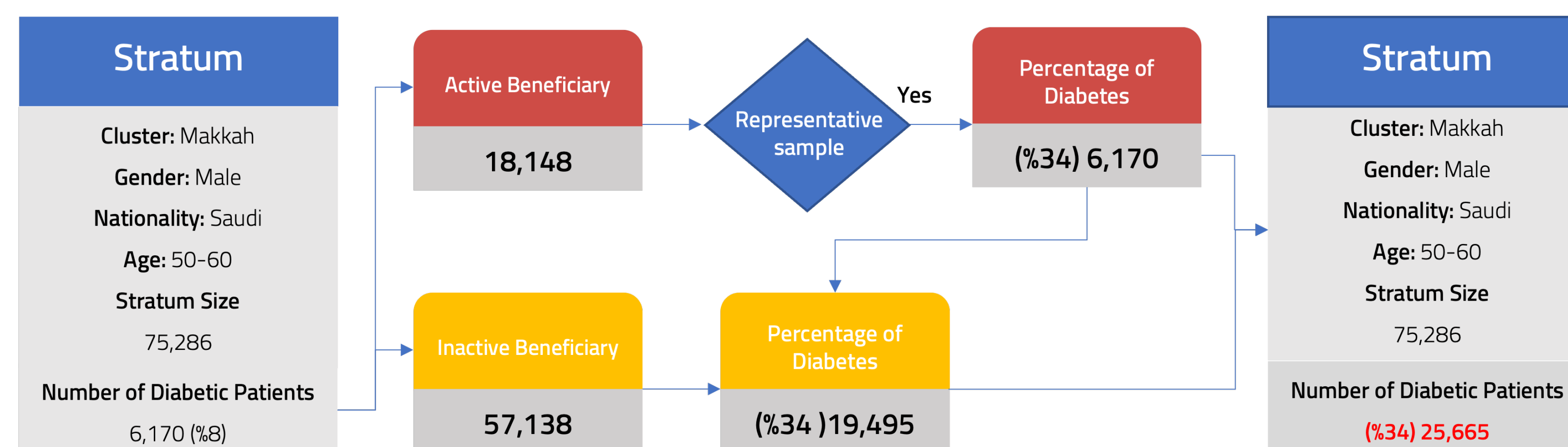


Figure. 1 Example of Stratified Sampling Methodology for Estimating Diabetes Prevalence in the Makkah Health Cluster.

Results

The analysis encompassed 33.1 million individuals, with 80% classified as active users. Most strata exhibited high representativeness, ranging between 97% and 99%. However, smaller clusters such as the Northern Borders showed wider margins of error (5% to 8%) in particular subgroups, notably among older female populations

The overall diabetes prevalence in Saudi Arabia was estimated at 9.1%. Diabetes prevalence comparisons across Saudi and non-Saudi males and females aligned closely with WHO data, confirming the reliability of the estimates.

Tabel. 1 Crude and Age-standardized Diabetes Prevalence among Saudi Adults (>18 years), stratified by age group and gender (2024). Values represent prevalence percentages with 99% confidence intervals.

Age group	Male (cude rate)	Female (cude rate)
18-19	1.85 (1.90,1.80)	1.6 (1.59, 1.5)
20-24	2.02 (2.07,1.97)	1.8 (1.86, 1.8)
25-29	1.65 (1.69,1.61)	2.4 (2.45, 2.3)
30-34	3.01 (3.09,2.94)	3.7 (3.77, 3.6)
35-39	5.24 (5.38,5.11)	5.5 (5.67, 5.4)
40-44	9.34 (9.58, 9.10)	9.1 (9.32, 8.9)
45-49	14.94 (15.33,14.56)	15.3 (15.72, 14.9)
50-54	21.38 (21.94, 20.83)	25.6 (26.25, 24.9)
55-59	27.84 (28.56,27.12)	37.4 (38.38, 36.5)
60-64	36.31 (37.25, 35.38)	46.6 (47.81, 45.4)
65-69	46.78 (47.99,45.58)	53.7 (55.11, 52.3)
70-74	50.85 (52.16,49.54)	54.6 (55.96, 53.2)
75-79	54.56 (55.97, 53.15)	54.4 (55.80, 53.0)
80-84	52.95 (54.31, 51.59)	52.3 (53.65, 51.0)
85+	45.52 (46.70, 44.35)	45.7 (46.92, 44.6)

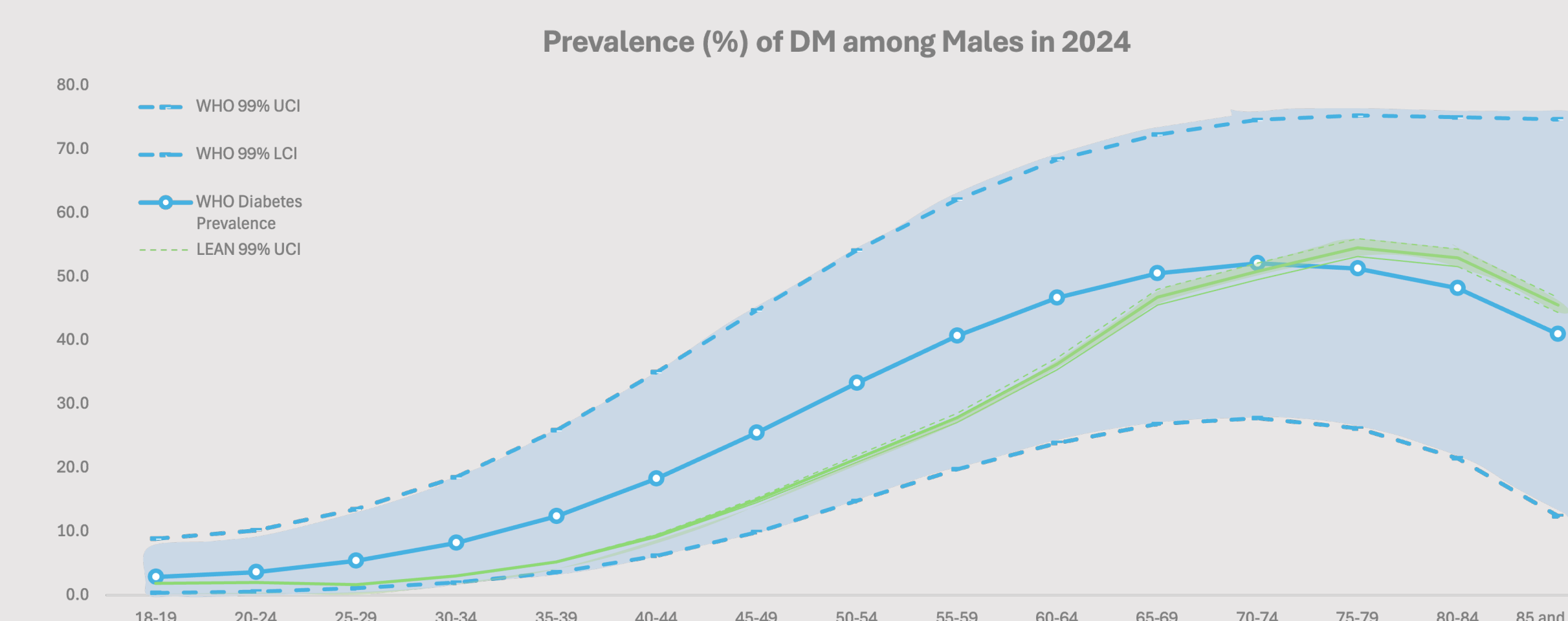


Figure. 2 Comparison between the results of the prevalence of diabetes in males with the reported numbers from WHO

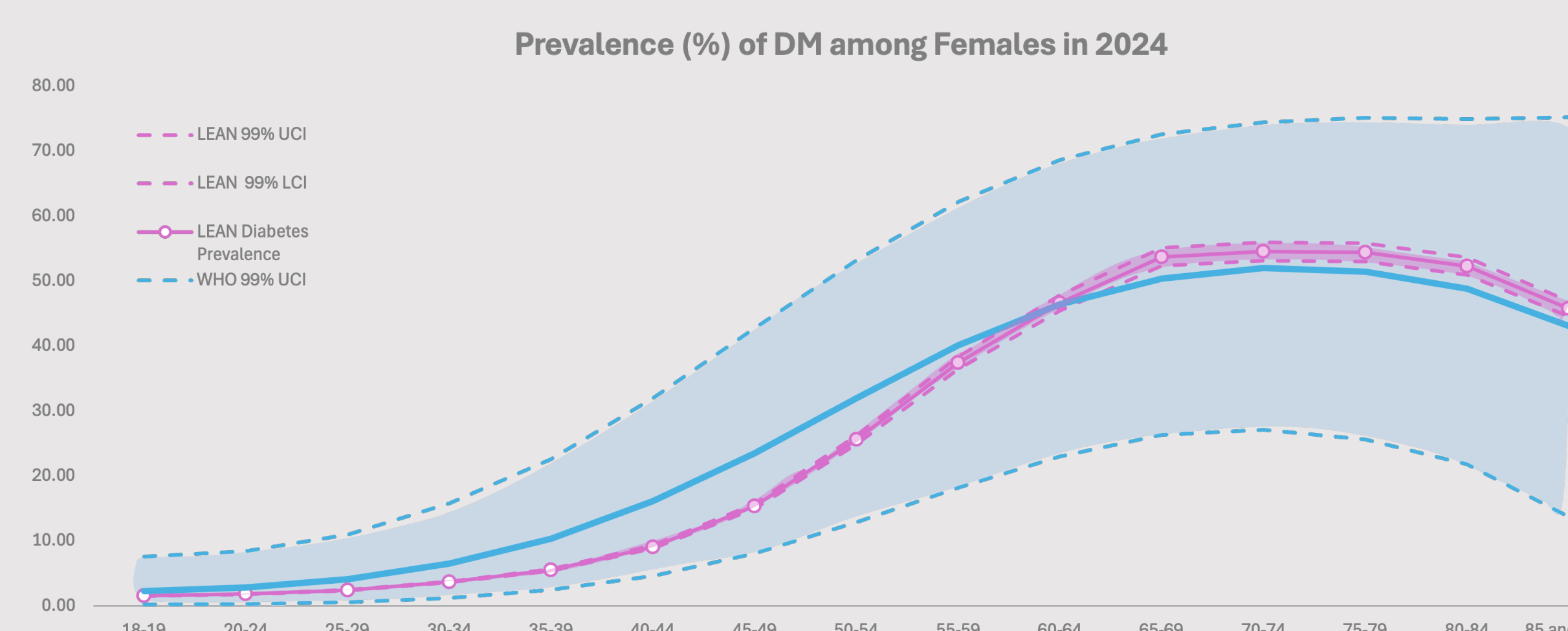


Figure. 3 Comparison between the results of the prevalence of diabetes in females with the reported numbers from WHO

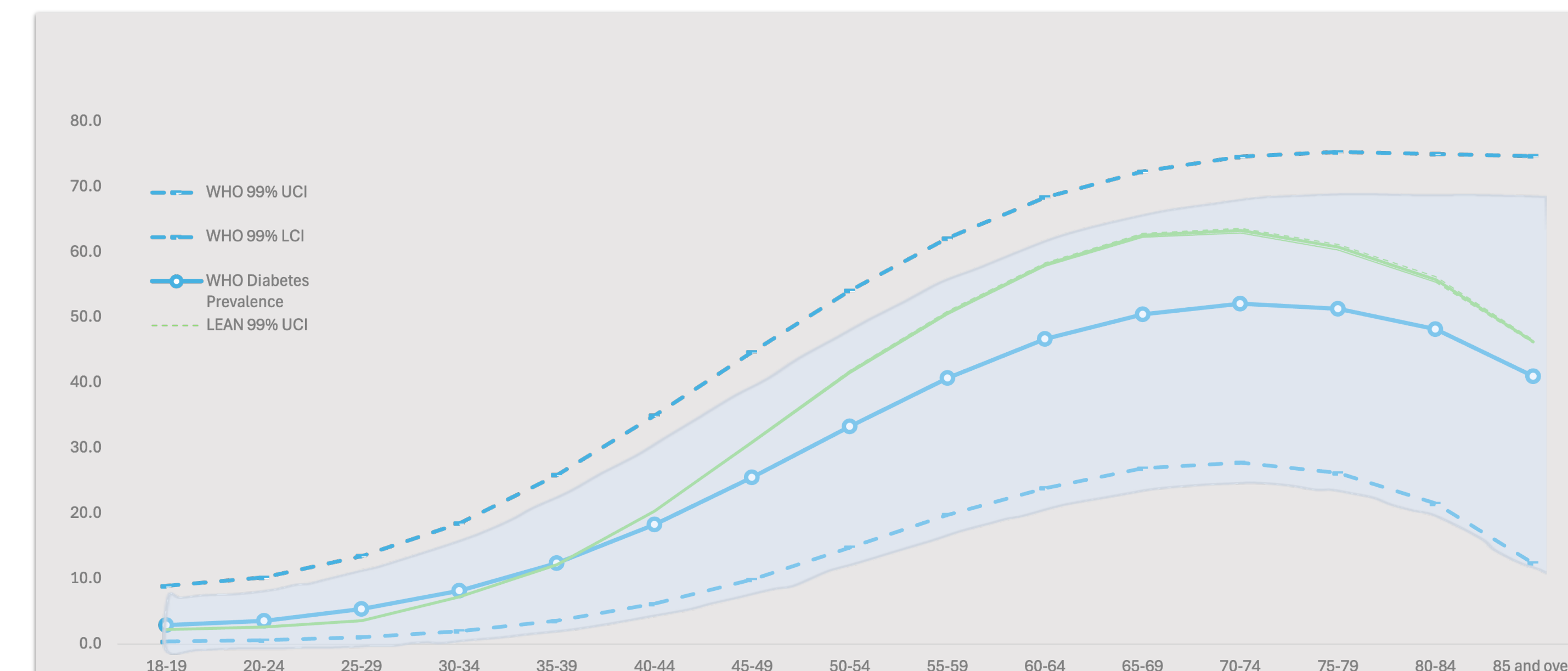


Figure. 4 Comparison between the results of the prevalence of diabetes in Saudi males with the reported numbers from WHO

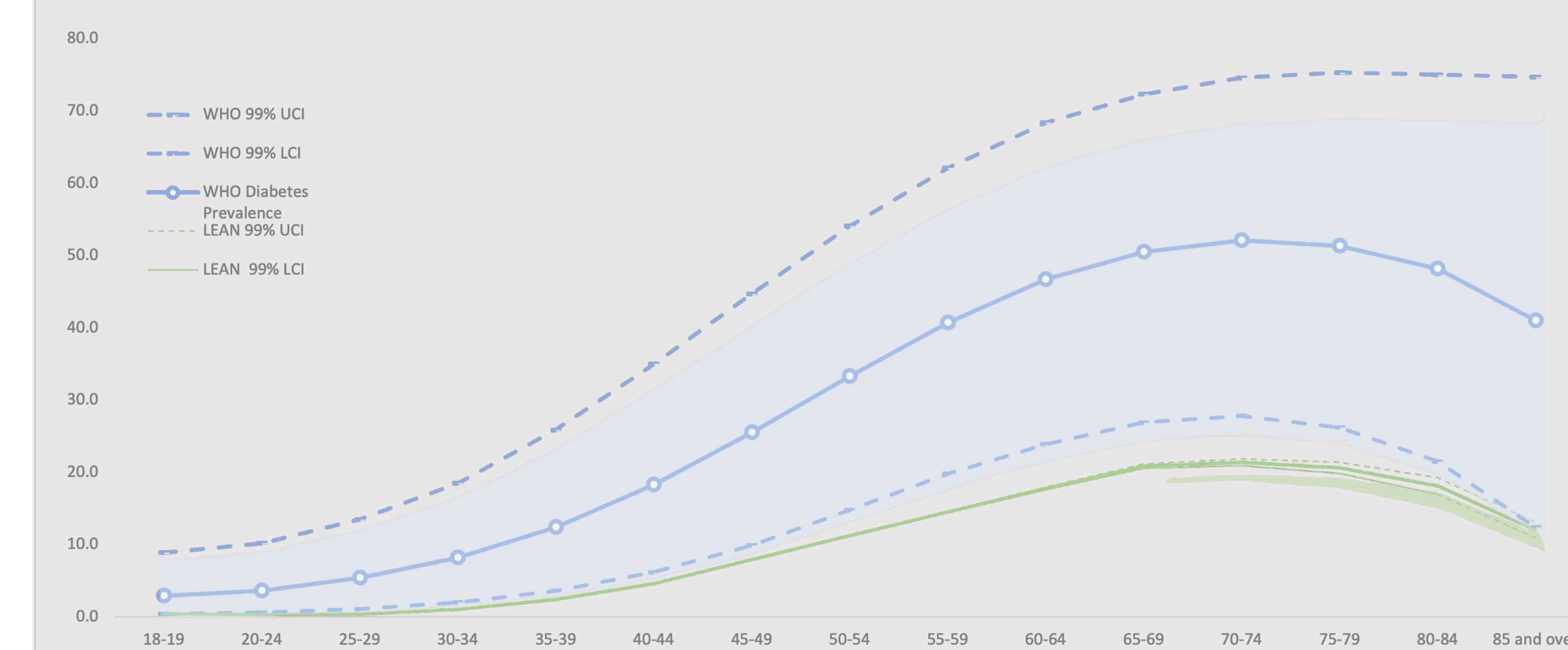


Figure. 5 Comparison between the results of the prevalence of diabetes in non-Saudi males with the reported numbers from WHO

Conclusion

Current measurement approaches for chronic conditions in Saudi Arabia face significant challenges in accuracy and representativeness, limiting their usefulness for health planning and decision-making. The establishment of National Health Registries (NHRs) presents a comprehensive and scalable solution, enhancing the precision of prevalence estimates and enabling more effective, evidence-based strategies. Implementing NHRs will facilitate improved resource allocation, equitable healthcare delivery, and ultimately promote better health outcomes and community well-being across Saudi Arabia. Future research should focus on evaluating the long-term impact of NHR implementation on health outcomes and system efficiency.