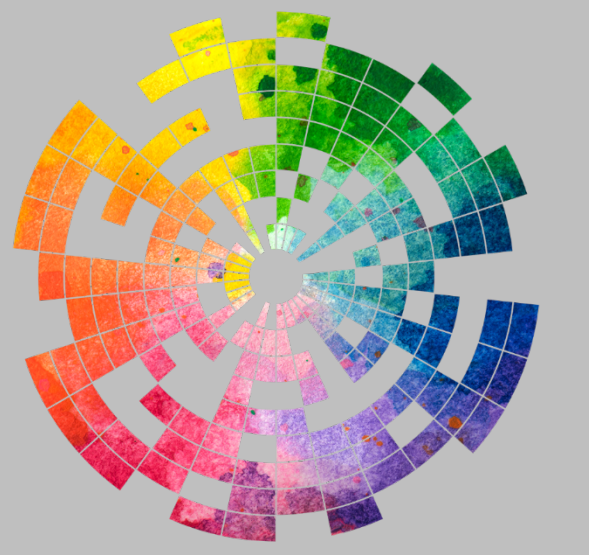


# The underdiagnosis rate of diabetes and its associated factors in older adults in Mexico, China, and South Africa



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## Introduction

- Underdiagnosed diabetes is a problem in many parts of the world, despite the negative health effects
- Previous studies have shown that the increasing rates of type 2 diabetes globally are closely related to changes in lifestyle and socioeconomic status
- Diabetes underdiagnosis rates (the rate of self-reported diagnosis compared to actual diabetes) are rarely reported, because of the need for multiple measures
- Need blood biomarker measures such as glucose or glycated hemoglobin (HbA1c)
- Need self-report measures

## Objective and Hypothesis

**Objective:** Describe the rate of actual diabetes (HbA1c  $\geq$  6.5%) compared to self reported diabetes diagnosis among older adults in three middle income countries using data from the WHO's Study on global AGEing and adult health (SAGE)

**Hypothesis:** The under-diagnosis of diabetes will be associated with being male, being unmarried, being less satisfied with healthcare, having lower wealth, and with decreased physical functioning

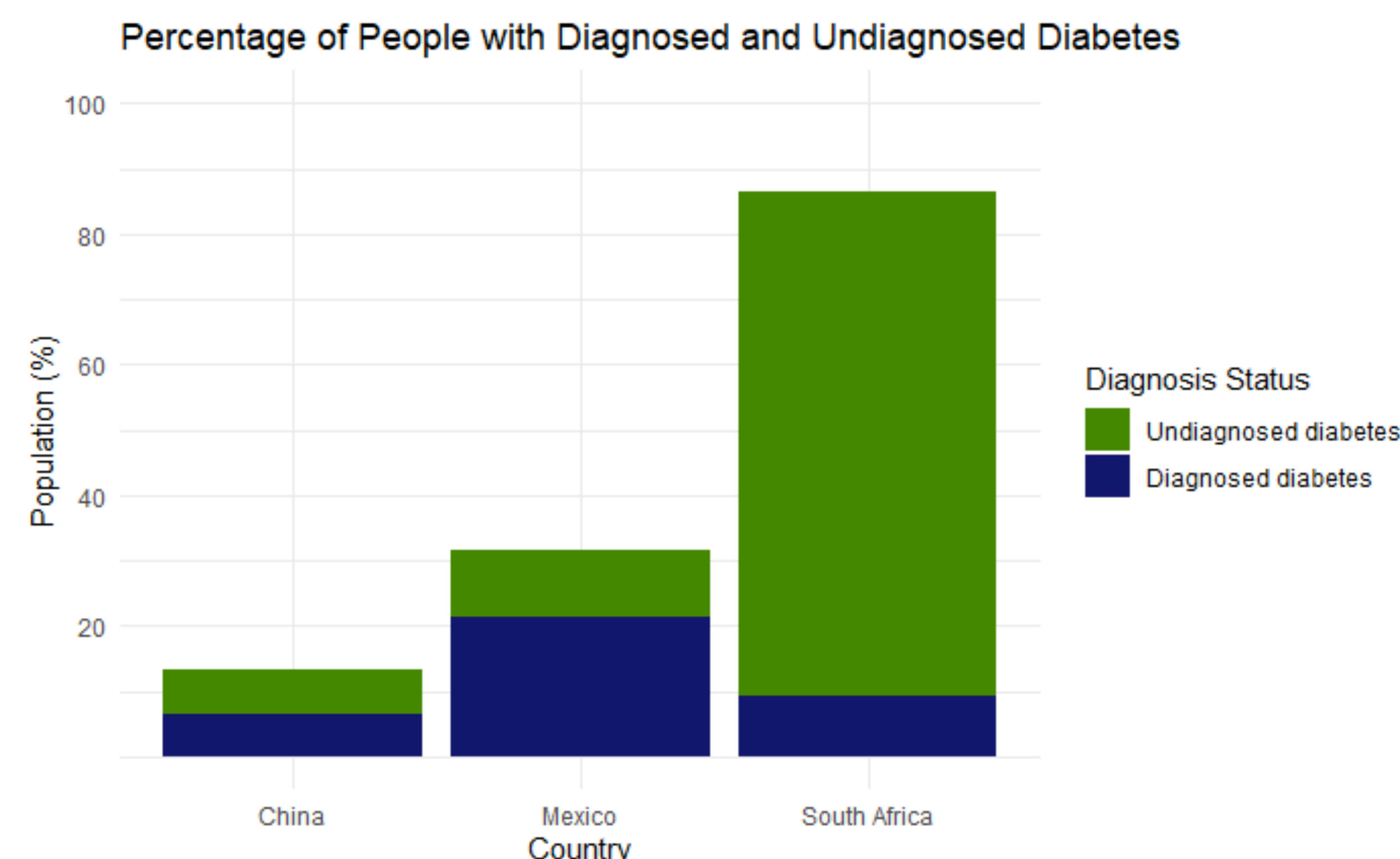
## Methods

- N = 12,927, China n = 8,152, Mexico n = 1,763, South Africa n = 3,012
- Older adults: age 50+ years
- Variables were collected following Sage procedures outlined in Kowal et al. 2012
- Diabetes Diagnosis: Self report "Have you ever been diagnosed with diabetes?"
- HbA1c Diabetes: dried blood spot HbA1c, analyzed in each country separately, values equal to or above 6.5% indicate diabetes
- Physical Functioning: 24 item questionnaire about physical functioning difficulties (e.g., "In the last 30 days, how much difficulty did you have in walking 100 meters?")

## Results

- Results indicate that 7% (China), 10% (Mexico), and 77% (South Africa) of participants had diabetes (HbA1c  $\geq$  6.5%) yet had not been previously clinically diagnosed (Figure 1)
- 94% to 98% of people who had an HbA1c that indicated diabetes without a diagnosis report having received healthcare the last time they needed it
- In all three countries, people that had diabetes without a diagnosis were more likely to rate their health as better than people with diabetes and a diagnosis
- Table 1 shows that the underdiagnosis was associated with being male in South Africa, but not China or Mexico, it was associated with having less wealth in China and South Africa, but not Mexico.

## Figure and Table



Binomial Logistic Regression B values for the Predictors of the Underdiagnosis of Diabetes

|                         | China     | Mexico   | South Africa |
|-------------------------|-----------|----------|--------------|
| Age                     | -.04***   | -.02     | -.01         |
| Female                  | -.03      | -.18     | -.34**       |
| Marriage                | .08       | -.13     | .00          |
| Wealth                  | -.96***   | -.24     | -1.18***     |
| Healthcare Satisfaction | .16       | .07      | -.04         |
| Physical Functioning    | -.15      | -.14     |              |
| <b>Model Parameters</b> |           |          |              |
| Chi-square              | 173.22*** | 25.95*** | 172.96***    |
| R <sup>2</sup>          | .20       | .06      | .15          |

## Conclusions

- The actual rate of diabetes is much greater in Mexico, China, and particularly in South Africa as compared to the self-reported rate
- The data shows that the underdiagnosis of diabetes was associated with being male in South Africa, and having lower wealth in China and South Africa
- Marriage, physical functioning, and healthcare satisfaction were not related to diagnosis
- Health in those with undiagnosed diabetes could rapidly decline if no healthcare services are utilized
- Those who have undiagnosed diabetes but are otherwise healthy are not utilizing healthcare services, showing that health screening is important even when health seems okay

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