Productivity Loss and Diabetes in Brazil: A Modeling Approach Based on National Health Survey Data

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Extended Abstract

This study aims to estimate work absence and limitations associated with diabetes using data from the 2019 National Health Survey (PNS) of Brazil [1]. We analyzed employed individuals aged 20–65 years (men) and 20–60 years (women). Work absence was modeled using a negative binomial regression, with the outcome being the number of days the individual was unable to perform their usual activities over the past two weeks, restricted to a maximum of 10 working days. The resulting predicted values were converted into percentages of absent days. Work limitation was assessed through logistic regression, with a binary outcome defined as the presence of moderate to severe self-reported limitations in usual activities. Productivity was expressed through a productivity index (PI), defined as PI = 1 − (absence + limitation), where higher PI values indicate greater productivity (i.e., fewer absent or limited workdays) [2]. The exposure of interest was self-reported diabetes status, and all models accounted for the complex sampling design of the Brazilian National Health Survey (PNS) and were adjusted for age, race/ethnicity, education level, and employment type.

On average, women with diabetes lost 7.84% (95% CI: 5.96–10.33) of workdays and had a prevalence of self-reported work limitation of 18.81% (95% CI: 15.13–23.14), resulting in a PI of 0.73. Among women without diabetes, these values were 5.73% (95% CI: 4.96–6.62) and 11.05% (95% CI: 10.26–11.89), respectively, with a PI of 0.83. Among men without diabetes, the percentages were 3.45% (95% CI: 2.88–4.12) and 6.46% (95% CI: 5.70–7.20), while for those with diabetes, they were 4.84% (95% CI: 3.42–6.85) and 13.39% (95% CI: 10.40–17.00), corresponding to PIs of 0.90 and 0.82, respectively.

The percentage reduction in the productivity index among working men with diabetes, compared to those without diabetes, was approximately 10%, while among women it was 8%. These findings highlight the substantial impact of diabetes on workforce productivity and emphasize the importance of effective disease management strategies in occupational health. Incorporating targeted interventions for individuals with diabetes could help mitigate productivity losses and reduce the broader economic burden.

References

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