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Working Class Diabetes: The World Forgot

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Abstract

Diabetes mellitus is becoming more common around the world, and it affects low- and middle-income groups the most. Most of the time, current diabetes management guidelines tell everyone to eat and live in the same way. These guidelines are mostly for people who don't move around much. This general approach often doesn't take into account the specific physical needs, job-related stressors, and financial limitations of working-class people who do physically demanding work. This kind of mismatch can cause low blood sugar, dehydration, not following treatment, and faster disease progression to happen over and over again. This prospective observational study looks at how the amount of work a person does affects their blood sugar levels, nutritional needs, and health outcomes in people with diabetes who work. The results show that standard diabetes care models and the way people actually work are very different. The study emphasises the imperative for occupation-specific diabetes management strategies that incorporate energy expenditure, hydration needs, and meal timing to improve metabolic stability and long-term outcomes in this underserved population.

Keywords: *Diabetes mellitus; Working-class population; Occupational physiology; Energy expenditure; Glycemic control*
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Introduction

Diabetes mellitus is among the most severe non-communicable diseases globally. It is becoming more common in countries with low and middle incomes [1]. Pharmacological advancements have significantly improved glycaemic control; however, lifestyle modifications—particularly in diet and physical activity—remain the essential components of diabetes management [2]. Most dietary guidelines, on the other hand, are based on studies of people who don't move around much. They don't always take into account the different kinds of jobs people have or how much money they have [3].

People in the working class, like farm workers, construction workers, factory workers, and people who work for a day, often have to work long hours, deal with heat stress, eat at odd times, and have trouble getting medical care [4]. These things have a big impact on how the body uses glucose, how well it stays hydrated, and how sensitive it is to insulin [5]. Standard calorie-restricted diets prescribed for diabetes may be inappropriate and potentially harmful for these populations, elevating the risk of hypoglycemia, fatigue, and reduced productivity [6].

Recent studies indicate that the amount of energy expended at work significantly influences the long-term fluctuations in blood sugar levels and metabolic function [7]. If people don't take this into account, it could be harder for them to follow their treatment plans and make complications more likely [8]. Nevertheless, occupational context remains insufficiently addressed in the majority of diabetes guidelines [9].

This study looks at how working-class people manage their diabetes, focusing on the link between their workload, their diet, and their blood sugar levels. This research highlights the shortcomings of a one-size-fits-all approach, promoting occupation-informed diabetes care tailored to the physiological requirements of working-class populations [10–13].

Materials and Methods

This prospective observational study was carried out over a span of 10 months involving adult working-class patients diagnosed with type 2 diabetes mellitus. Participants were sourced from outpatient clinics and categorised into three occupational groups according to physical workload: light labour, moderate labour, and heavy labour.

We recorded baseline demographic data, information about jobs, food intake, fasting blood glucose, postprandial glucose, and glycated haemoglobin (HbA1c) levels. We used metabolic equivalent task (MET) values to figure out how much energy was used. The frequency of hypoglycemic

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episodes and hydration status were also recorded. Ethical approval was secured, and informed consent was acquired from all participants.

Results

A total of 90 working-class individuals with diabetes were included in the study, with 30 participants in each occupational category.

Baseline Characteristics

Table 1 summarizes the demographic and clinical characteristics of the study population. Heavy laborers demonstrated significantly higher daily energy expenditure and higher mean HbA1c levels compared to light and moderate labor groups.

Table 1: Baseline characteristics of study participants across occupational groups

Occupational Group	Number of Participants	Mean Daily Energy Expenditure (kcal)	Mean HbA1c (%)
Light labor	30	1800 ± 220	7.1 ± 0.6
Moderate labor	30	2400 ± 260	7.6 ± 0.7
Heavy labor	30	3100 ± 310	8.2 ± 0.8

As shown in Table 1, HbA1c levels increased with occupational intensity, indicating poorer glycemic control among heavy laborers.

Hypoglycemic Episodes

Figure 1 illustrates the frequency of hypoglycemic episodes across occupational groups. Heavy laborers experienced a significantly higher number of hypoglycemic events per month compared to moderate and light labor groups, reflecting inadequate caloric intake relative to energy expenditure.

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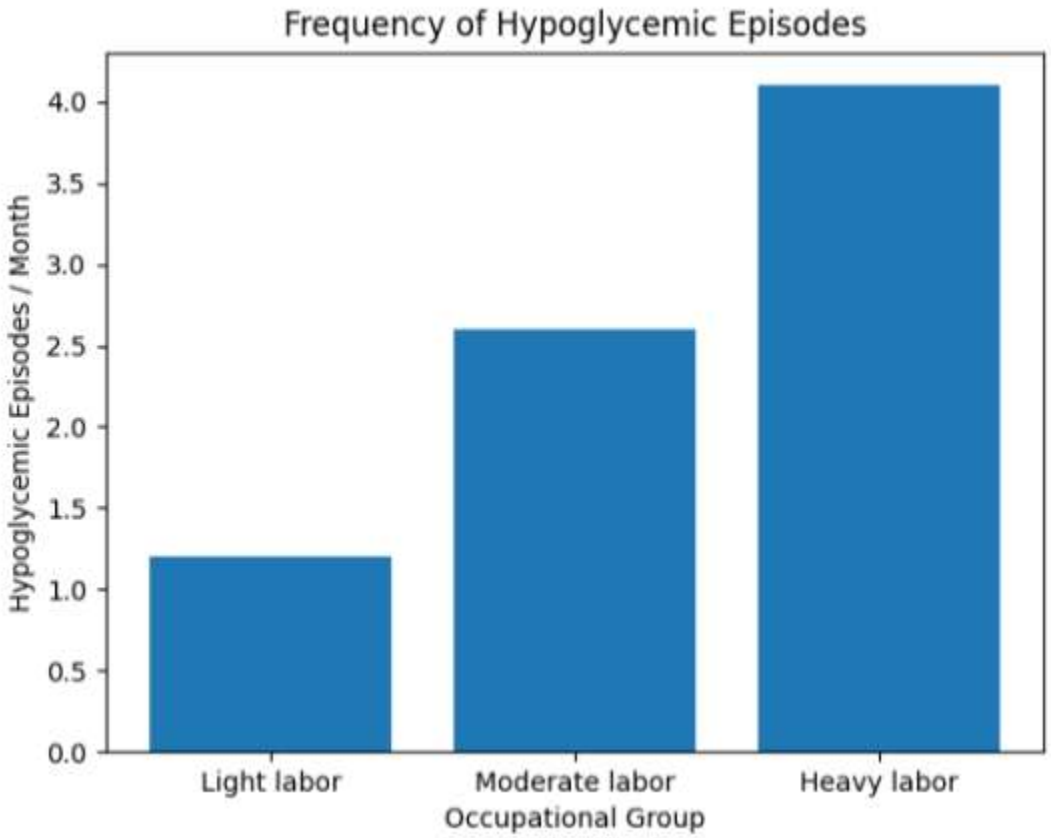

Figure 1: Frequency of hypoglycemic episodes across occupational categories

Caloric Intake versus Energy Expenditure

Figure 2 demonstrates the mismatch between prescribed caloric intake and estimated daily energy expenditure. Heavy laborers showed the largest caloric deficit, while light laborers had relatively balanced intake and expenditure.

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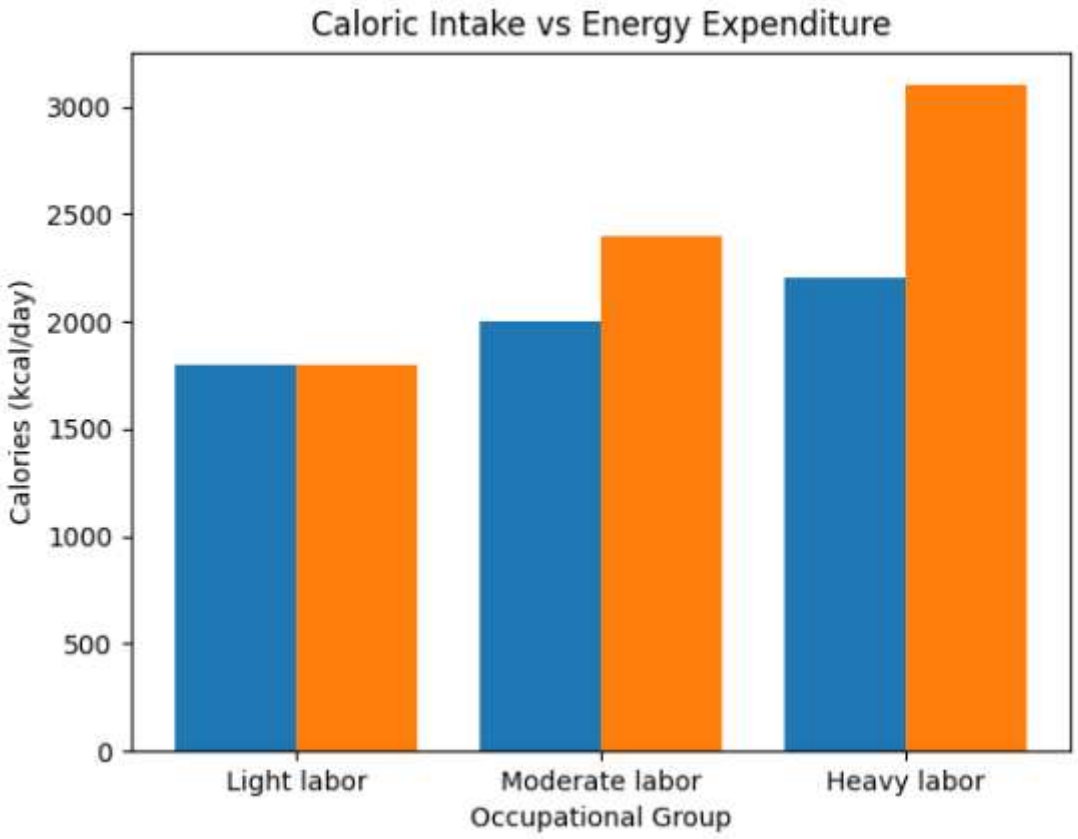

Figure 2: Comparison of prescribed caloric intake and estimated energy expenditure

These findings highlight the inadequacy of uniform dietary prescriptions for individuals engaged in heavy physical labor.

Discussion

The present study indicates that individuals who are employed and have diabetes do not receive appropriate care. The results clearly show that people who do hard work need more energy, have worse blood sugar control, and have more episodes of low blood sugar when they follow traditional dietary guidelines [14].

People who don't move around much may benefit from a uniform calorie-restricted diet, but people who work hard may not, which can lead to metabolic instability and lower adherence [15]. Occupational health studies have found similar results, showing that a high physical workload has a big impact on how glucose moves around and how sensitive insulin is [16,17].

Heavy workers with high HbA1c levels may be overeating to make up for it, eating at odd times, or purposefully taking less medication to avoid low blood sugar during work hours [18]. These adaptive behaviours make sense, but they also make the risk of long-term problems higher [19].

Integrating occupational context into diabetes management—via adjustments in caloric intake, carbohydrate distribution, hydration protocols, and medication timing—may improve both the safety and effectiveness of treatment [20–22]. Policymakers and healthcare professionals need to recognise that the amount of work people do affects their metabolic health [23–25].

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Conclusion

Diabetes management strategies that don't take into account the realities of work may hurt working-class people. To give people with diabetes fair, safe, and effective care, occupational physiology must be a part of dietary and therapeutic planning. An approach that takes into account a person's job could help working-class people better manage their blood sugar, stick to their treatment plan, and have better long-term health outcomes.

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List of Abbreviations

ADA – American Diabetes Association
HbA1c – Glycated hemoglobin
MET – Metabolic equivalent of task
WHO – World Health Organization

Conflict of Interest

The authors declare no conflict of interest.

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No funds received.

Author Contributions

Conceptualization, data collection, analysis, and manuscript preparation were carried out by the authors.

Data Availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

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