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ORIGINAL PAPER

The association between sedentary behaviour and the risk of type 2 diabetes mellitus among medical students at Syiah Kuala University

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Abstract

Background: Sedentary behaviour is any waking behaviour characterized by an energy expenditure ≤1.5 METs while sitting or reclining posture. Medical students represent a young adult population that is prone to sedentary behaviour. Excessive sedentary behaviour may increase the risk of metabolic diseases, including type 2 diabetes mellitus (T2DM).

Objective: This study aimed to examine the association between sedentary behaviour and the risk of T2DM among medical students at Universitas Syiah Kuala.

Methods: This cross-sectional study involved 260 medical students at Universitas Syiah Kuala, selected using stratified random sampling, and was conducted from September 22 to October 17, 2025, at the Faculty of Medicine, Universitas Syiah Kuala. Sedentary behaviour was assessed using the Sedentary Behaviour Questionnaire (SBQ), while the risk of T2DM was evaluated using the Finnish Diabetes Risk Score (FINDRISC) which incorporates anthropometric measures including body mass index (BMI) and waist circumference.. Statistical analysis was performed using the Spearman rank correlation test with a significance level of $p < 0.05$.

Results: The majority of respondents had a high level of sedentary behaviour (44.6%). Most participants were classified as having a low risk of T2DM (48.5%), BMI < 25 kg/m² (53.5%), normal waist circumference (60.4%), and no family history of diabetes mellitus (45.4%). There was a statistically significant association between sedentary behaviour and the risk of T2DM ($p = 0.046$), with a very weak correlation strength ($r = 0.124$).

Conclusion: A statistically significant but very weak association between sedentary behaviour and the risk of T2DM among medical students at Syiah Kuala University.

Keywords: sedentary behaviour, type 2 diabetes mellitus risk, FINDRISC, medical students, sedentary behaviour questionnaires

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Introduction

Diabetes mellitus (DM) is a metabolic disorder characterized by elevated blood glucose levels resulting from impaired insulin secretion, reduced insulin effectiveness, or a combination of both.[1] Type 2 diabetes mellitus (T2DM) accounts for more than 90% of diabetes cases globally and is associated with high morbidity and mortality due to complications such as cardiovascular disease, nephropathy, retinopathy, neuropathy, and amputations.[2] This condition also imposes a substantial economic burden on individuals and healthcare systems.[3]

According to the IDF Diabetes Atlas (11th edition), an estimated 589 million adults aged 20–79 years live with diabetes, projected to reach 853 million by 2050. Indonesia ranks fifth worldwide, with 20.4 million individuals affected by diabetes, and this number is projected to rise to 28.6 million by 2050.[2] Nationally, the prevalence of DM increased from 10.9% based on the 2018 Basic Health Research (RISKESDAS) to 11.7% according to the 2023 Indonesian Health Survey (SKI). Type 2 diabetes mellitus represents the most common type of diabetes in Indonesia, accounting for 50.2% of all diagnosed diabetes mellitus cases nationwide. In Aceh Province, the proportion of T2DM reaches 54.8%, exceeding the national average.[4] Furthermore, the prevalence of DM in Banda Aceh has increased compared with the provincial average, from 1.7% and 2.4% to 2.28% across all age groups and 2.98% among individuals aged ≥15 years, emphasizing the urgent need for risk factor control in productive age populations.[5]

Type 2 Diabetes Mellitus (T2DM) is a multifactorial disease influenced by various risk factors, including genetic predisposition, obesity, unhealthy dietary patterns, physical inactivity, and sedentary behaviour. One of the major modifiable risk factors is lifestyle, particularly prolonged sedentary behaviour, which has been associated with metabolic dysregulation and increased risk of T2DM.[6] Sedentary behaviour is defined as any waking activity characterized by an energy expenditure ≤1.5 METs while in a sitting or reclining posture such as working at a computer, watching television, or using electronic devices. In this study, sedentary behaviour was measured using the Sedentary Behaviour Questionnaire (SBQ), a standardized and validated instrument that provides detailed information on daily sitting duration across various activities, and total sedentary time was calculated as hours per week based on the accumulation of reported sitting duration.[7] WHO recognises physical inactivity as a major risk factor for noncommunicable diseases and recommends reducing sedentary time and increasing physical activity.[8] In Indonesia, the prevalence of sedentary behaviour among individuals aged ≥10 years increased from 26.1% in 2013 to 33.5% in 2018.[9] Physiologically, prolonged sitting reduces skeletal muscle activity and glucose utilization, increases visceral adiposity, and promotes insulin resistance, ultimately leading to impaired glucose tolerance.[10–12]

Medical students represent a young adult population that is particularly vulnerable to sedentary behaviour despite having adequate health knowledge. High academic workload, prolonged sitting during lectures, and the use of leisure time for passive activities such as watching videos and using electronic devices contribute to extended daily sitting duration.[13–15] In addition to prolonged sitting duration, several studies have reported that sedentary behaviour is often accompanied by unhealthy dietary habits. University students who spend more time in sedentary activities tend to consume snacks and energy-dense foods and exhibit irregular eating patterns, which may further increase the risk of metabolic disturbances. Nevertheless, although dietary factors may contribute to metabolic alterations and an increased risk of type 2 diabetes mellitus, the present study

specifically focuses on sedentary duration as the primary variable of interest.[16–18] Several studies have reported that medical students spend approximately 7–10 hours per day in sedentary activities, with more than 50% classified as having high sedentary levels.[19–22] This population is therefore important to study, as medical students are expected to serve as role models in promoting healthy lifestyles and, in the future, act as agents of change within the community.[23] This issue is further underscored by the increasing trend of T2DM among productive age populations, whereas the disease was previously more common among individuals aged over 45 years.[24,25]

Along with the increasing exposure to sedentary behaviour at a young age, early detection of T2DM risk has become increasingly important, particularly among productive and undiagnosed populations. Indonesia currently ranks third globally in the number of undiagnosed diabetes cases, with approximately 15 million affected adults.[2] In this study, the risk of T2DM was assessed using the Finnish Diabetes Risk Score (FINDRISC), a non-invasive, easy-to-administer, and validated questionnaire designed to predict the risk of developing T2DM within the next ten years in the general population.[26]

The association between sedentary behaviour and the risk of T2DM has been demonstrated in numerous previous studies. Several investigations have reported a significant relationship between sedentary behaviour and increased T2DM risk, with p-values <0.05.[9,27,28] Prolonged sitting habits since adolescence, such as watching television for more than four hours per day, have also been shown to increase the risk of developing T2DM in adulthood.[29] However, most studies have focused on populations already diagnosed with diabetes or older age groups. Research examining the risk of T2DM among productive-age populations, particularly medical students, remains limited, highlighting the need for further investigation in this group.

Based on these considerations, this study aimed to analyze the association between sedentary behaviour and the risk of type 2 diabetes mellitus among medical students at Universitas Syiah Kuala. This study contributes to the existing literature by providing evidence on lifestyle-related determinants of T2DM risk in a young, undiagnosed population and may serve as a scientific basis for promotive and preventive interventions within the academic environment. The findings are expected to benefit educational institutions, healthcare professionals, and policymakers in developing strategies to reduce sedentary behaviour as an early preventive measure against T2DM.

Methods

This study employed a cross-sectional design to analyze the association between sedentary behaviour and the risk of type 2 diabetes mellitus (T2DM) among medical students of the Medical Education Program at Universitas Syiah Kuala. Data collection was conducted from September 22 to October 17, 2025 after obtaining ethical approval from the Ethics Committee of the Faculty of Medicine, Universitas Syiah Kuala (Ethical approval number: 200/EA/FK/2025).

The study population consisted of all active medical students at Universitas Syiah Kuala. The sample was selected using stratified random sampling with cohorts defined by students' year of entry (2022, 2023, and 2024). The population was first divided into strata according to cohort, and the number of participants from each stratum was determined proportionally to its size. Within each stratum, respondents were selected using simple random sampling through a computer-generated randomization process. The

required sample size was calculated using the Slovin formula, resulting in a total of 260 respondents. The inclusion criteria were active medical students from the 2022, 2023, and 2024 cohorts, willingness to participate in the study, and no history of diabetes diagnosed by medical professionals. The exclusion criteria included respondents with severe illnesses that significantly limited daily physical activity, such as cardiovascular disease, stroke, chronic pulmonary disorders, or severe musculoskeletal diseases diagnosed by medical professionals, and those with incomplete questionnaire responses.

Data were collected using the Sedentary Behaviour Questionnaire (SBQ) to assess sedentary behaviour across various daily activities and the Finnish Diabetes Risk Score (FINDRISC) to evaluate the risk of T2DM. Both instruments are standardized, validated, and non-invasive measurement tools. For the SBQ, participants reported the duration of sitting time separately for weekdays and weekend days across multiple sedentary activities. Total sedentary time per week was calculated by multiplying weekday sitting time by five and weekend sitting time by two, then summing the values to obtain total hours per week. Sedentary Behaviour was subsequently categorized into low (<60 hours/week), moderate (≥60 to <81.5 hours/week), and high (≥81.5 hours/week) based on previously established cut-off points.[30] In this study, T2DM risk was classified into five categories according to standard FINDRISC criteria: low (<7), slightly elevated (7–11), moderate (12–14), high (15–20), and very high (>20).[31–33] Univariate analysis was conducted to describe the distribution of respondent characteristics and the categories of each variable. Bivariate analysis was performed using the Spearman rank correlation test with a significance level of $p < 0.05$.

Results

A total of 260 respondents participated in this study. The general characteristics of the respondents are presented in **Table 1**.

Table 1. General characteristics of respondents (n = 260)

Characteristics	Frequency n(%)
Sex	
Male	78(30)
Female	182(70)
Age (years)	
17	2(0.8)
18	15(5.8)
19	81(31.2)
20	85(32.7)
21	56(21.5)
22	17(6.5)
23	2(0.8)
24	2(0.8)
Cohort	
2022	70(26.9)
2023	86(33.1)
2024	104(40)
Body mass index (BMI)	
< 25 kg/m2	139(53.5)
25-27 kg/m2	30(11.5)
> 27 kg/m2	91(35)

Characteristics	Frequency n(%)
Waist circumference	
Female < 80 cm, Male < 90 cm	157(60.4)
Female ≥ 80 cm, Male ≥ 90 cm	103(39.6)
Family history of diabetes mellitus	
No	118(45.4)
Yes : Parents or Siblings	84(32.3)
Yes : Non biological relatives	51(19.6)
Yes : Both (parents/siblings and non biological relatives)	7(2.7)
Sedentary behaviour	
Low	75(28.8)
Moderate	69(26.5)
High	116(44.6)
Risk of type 2 diabetes mellitus	
Low	126(48.5)
Slightly low	91(35)
Moderate	35(13.5)
High	8(3.1)
Very High	0(0)

Table 1 shows that the majority of respondents were female (182 participants, 70%). The most common age group was 20 years (85 participants, 32.7%). Most respondents were from the 2024 cohort (104 participants, 40%). More than half of the respondents had a body mass index (BMI) < 25 kg/m² (139 participants, 53.5%) and normal waist circumference (157 participants, 60.4%). Most respondents had no family history of diabetes mellitus (118 participants, 45.4%). A high level of sedentary behaviour was observed in 116 respondents (44.6%). Regarding the risk of T2DM, nearly half of the respondents were classified as having a low risk (126 participants, 48.5%).

Table 2. Sedentary behaviour levels among medical students at Syiah Kuala University by gender

	Sedentary behaviour			
Sex	**Low n(%)**	**Moderate n(%)**	**High n(%)**	**Total n(%)**
Female	49(26.9)	49(26.9)	84(46.2)	182(100)
Male	26(33.3)	20(25.6)	32(41)	78(100)

The distribution of sedentary behaviour levels according to gender is presented in **Table 2.** Female students had a higher proportion of high sedentary behaviour (84 participants, 46.2%) compared to male students (32 participants, 41%). Overall, female students tended to exhibit higher sedentary behaviour levels than male students.

Table 3. Types of sedentary activities among medical students at Syiah Kuala University

Sedentary Activities	Weekdays (hours/day) Mean (SD)	Weekend (hours/day) Mean (SD)
Watching television/videos	2.95(1.87)	3.61(2.00)
Playing computer/laptop/video games	1.42(1.64)	1.81(1.88)
Sitting while listening to music/radio	1.59(1.66)	1.77(1.76)
Sedentary Activities	**Weekdays (hours/day) Mean (SD)**	**Weekend (hours/day) Mean (SD)**
Sitting while calling/texting/using gadgets	2.17(1.89)	2.13(1.85)
Desk work/computer-based activities	1.74(1.71)	1.38(1.52)
Sitting while reading books/magazines	0.92(1.20)	0.75(1.12)
Playing musical instruments	0.10(0.39)	0.12(0.43)
Arts, crafts, or handicraft activities	0.17(0.49)	0.23(0.65)
Driving/transportation	1.24(1.34)	1.01(1.10)
Total sedentary duration (hours/week)	61.58(34.07)	25.63(13.01)
Total sedentary duration weekdays and weekend(hours/week)	87.22(45.15)	

The types of sedentary activities performed by the respondents on weekdays and weekends are summarized in **Table 3**. The most common sedentary activities on both weekdays and weekends were watching television or videos and using mobile phones for communication or recreational purposes, with an average duration of more than 2 hours/day. Activities with the lowest duration included playing musical instruments and engaging in arts or handicraft activities. These findings indicate that most sedentary time among medical students was spent on screen-based activities.

Table 4. Risk of type 2 diabetes mellitus among medical students at Syiah Kuala University by gender

	Risk of T2DM				
Sex	**Low n(%)**	**Slightly low n(%)**	**Moderate n(%)**	**High n(%)**	**Total n(%)**
Female	96(52.7)	59(32.4)	21(11.5)	6(3.3)	182(100)
Male	30(38.5)	32(41)	14(17.9)	2(2.6)	78(100)

Table 4 presents the distribution of T2DM risk according to gender. Most respondents of both sexes were classified as having a low risk of T2DM. Male students showed a higher proportion in the moderate-risk category (17.9% vs 11.5%), whereas female students showed a slightly higher proportion in the high-risk category (3.3% vs 2.6%).

Table 5 shows Spearman rank correlation analysis revealed a statistically significant association between sedentary behaviour level and the risk of T2DM ($r = 0.124$; 95% CI: 0.017–0.235; $p = 0.046$). Although statistically significant, the strength of the correlation was very weak, indicating minimal clinical or practical relevance in this population. low prevalence of family history of diabetes.

Table 5. Association between Sedentary Behaviour and Risk of Type 2 Diabetes Mellitus

Sedentary Behaviour	*Risk of T2DM*				*r (CI 95%)*	*p-value*
	Low n(%)	Slightly low n(%)	Moderate n(%)	High n(%)		
Low	43(57.3)	21(28)	9(12)	2(2.7)		
Moderate	36(52.2)	21(30.4)	9(13)	3(4.3)	0.124 (0.017-0.235)	0.046
High	47(40.5)	49(42.2)	17(14.7)	3(2.6)		

Discussion

The majority of medical students at Universitas Syiah Kuala were classified as having a high sedentary behaviour (44.6%). This finding indicates that prolonged sitting behaviour is a dominant habit within this population.[14] A study by Annisa et al.,[34] similarly reported that most medical students at Universitas Mulawarman exhibited moderate (88%) and high (6.6%) sedentary behaviours. Lateef et al.,[35] also observed a comparable pattern among medical students in India, where a substantial proportion of students were categorized as having a high sedentary behaviour (22.4%), making them the group with the lowest physical activity levels compared to students from other academic disciplines. These findings are further supported by Deolalikar et al.,[36] who reported that medical students in North India spent more than 7 hours per day sitting. Janampa-Apaza et al.,[13] found that medical students in Peru spent more than 8 hours per day in sedentary activities. Leisure time dominated by passive behaviours, such as screen use and television viewing, further contributes to the accumulation of sedentary behavior. The high sedentary behaviour among medical students is largely attributable to heavy academic workloads, prolonged sitting during lectures, extended study durations, and passive leisure activities such as watching videos or using electronic devices, all of which increase total sitting time and promote sedentary behavior.[13,14]

Based on gender differences, female students tended to have higher sedentary behaviour levels in both moderate and high categories compared to male students. Herreros-Irarrázabal et al.,[19] reported that female medical students in Latin America spent more sedentary time (420 minutes/day) than males (360 minutes/day).[19] Lateef et al.,[27] also found that sedentary behaviour was slightly more prevalent among female students (30.6%) than males (29.7%). Janampa-Apaza et al.,[13] documented that 50.9% of female medical students in Peru spent more than 8 hours per day in sedentary activities. Lower physical activity levels among female students are often associated with motivational and psychosocial factors, including lower self-confidence in performing certain physical activities, safety concerns related to outdoor exercise, and limited access to or comfort with available sports facilities. The accumulation of these barriers contributes to prolonged sedentary behaviour among female students.[37]

This study also provides an overview of the predominant types of sedentary activities. Based on the analysis of 16 items from the Sedentary Behaviour Questionnaire (SBQ), the average total sedentary duration among students reached 87.22 hours per week. Total weekly sedentary time was calculated by multiplying the reported weekday duration by five and weekend duration by two, and then summing both values. Higher durations were observed on weekdays compared to weekends. On weekdays, the most frequently

reported sedentary activities included watching television or videos (2.95 hours/day), sitting while using electronic devices (2.17 hours/day), and documentary activities or computer use (1.74 hours/day), indicating that most sedentary time was associated with screen-based activities and academic demands. A similar pattern was observed on weekends, with sedentary activities dominated by watching television or videos (3.61 hours/day), device use (2.13 hours/day), and playing computer or video games (1.81 hours/day), with a tendency toward increased viewing duration compared to weekdays. Overall, screen-based activities were the most common sedentary behaviors on both weekdays and weekends, with average durations exceeding 2 hours per day. These findings are consistent with those of Vella and Nelson,[38] who reported that university students spent approximately 2 hours per day on screen time (2.0 ± 1.6 hours/day) as part of a total sedentary duration of 8.4–8.7 hours per day. Santoso et al.,[21] also reported similar patterns among medical students at Universitas Udayana, where smartphone use or chatting averaged 238–252 minutes per day (approximately 4 hours/day), along with other screen-based activities such as completing assignments using laptops or computers (136–206 minutes/day), watching DVD or playing video games (82–129 minutes/day), and computer or laptop use (106–118 minutes/day).[21] These patterns indicate that although sedentary behavior is multidimensional, screen-based activities are the primary contributors to high sedentary behaviour among medical students.

The majority of students were classified as having low to moderately low risk of type 2 diabetes mellitus (T2DM) based on FINDRISC scores. Algadheeb et al. similarly reported that most medical students in Riyadh had a low risk of T2DM (98.8%).[39] Sintawati et al.,[31] found that 64.1% of students were in the low-risk category, with only a small proportion classified as high risk (4%). Chamba et al.,[41] reported that 62.5% of medical students at Universidad de Guayaquil were at low risk for T2DM, with no participants categorized as having high or very high risk.

Factors such as young age, lower obesity prevalence, and relatively healthier lifestyles contribute to low T2DM risk scores. The pathological process of T2DM develops progressively and often remains subclinical at younger ages, particularly among individuals under 25–30 years.[42] Additionally, obesity prevalence is generally lower among students, limiting the presence of major T2DM risk factors.[43]

Nevertheless, this study identified a subgroup at risk, with 16.6% of respondents categorized as having moderate to high T2DM risk. This finding indicates variability in metabolic risk among medical students and suggests the accumulation of risk factors such as central obesity, family history of diabetes, and early metabolic changes detected through FINDRISC scores.

Based on gender differences, T2DM risk was slightly higher among female students (3.3%) compared to male students (2.6%). Ajaykumar et al.,[44] reported that most female students were in the low-risk category (44.4%), with a small proportion at moderately increased risk (16.6%) and 1.4% at moderate risk. In contrast, among male students, 34.3% were classified as low risk and 2.5% as moderately increased risk. Mahajan et al. further reported that 69% of female participants were categorized as having moderate risk, substantially higher than males (41%). Higher T2DM risk among females is primarily associated with lower physical activity levels and higher prevalence of central obesity. Approximately 51% of female students reported no physical activity, a markedly higher proportion than males (29%).[43,44] Reduced physical activity negatively affects insulin sensitivity, thereby increasing diabetes risk among female students.[44]

This study demonstrated a statistically significant association between sedentary behaviour and T2DM risk ($p = 0.046$), although the strength of the association was very weak ($r = 0.124$). This indicates that while increased sedentary behavior contributes to higher T2DM risk, its impact remains minimal among medical students. This is reflected in the distribution of results, where most respondents remained in the low-risk category despite having moderate to high sedentary behaviour. These findings are consistent with those of Julliyana et al.,[27] who also reported a significant but weak association between sedentary behaviour and diabetes risk among high school students in Sumedang.[27] Scandiffio and Janssen reported that certain types of sedentary behavior, such as watching television for more than 4 hours per day, have a stronger impact on future T2DM risk, suggesting that not all sedentary behaviors exert equal metabolic effects.[10] Physiologically, prolonged sitting reduces skeletal muscle contractions, leading to decreased glucose utilization. Skeletal muscle is the primary site of glucose uptake, therefore, reduced muscle activity diminishes glucose clearance from circulation. This condition also decreases lipoprotein lipase activity and inhibits GLUT-4 translocation to the muscle cell membrane, both of which play critical roles in glucose metabolism. The accumulation of these mechanisms may induce insulin resistance and increase the risk of T2DM later in life.[10]

Cohort findings by Bennett et al.,[45] demonstrated a 13% increase in diabetes risk for each additional hour of sedentary time however, this effect was attenuated after adjusting for body mass index (BMI), highlighting adiposity as an important mediator. Sedentary behaviour promotes visceral fat accumulation and low-grade inflammation, which reduce insulin sensitivity and disrupt metabolic regulation.[11] Stronger associations between sedentary behaviour and diabetes have been reported in older or metabolically high-risk populations, such as in studies by Ambarita et al.,[9] among patients diagnosed with diabetes and Bialangi et al.[28] among individuals at high risk for prediabetes ($p < 0.001$).

Conversely, studies such as those conducted in Hisayama, Nurdina, and Meisinger cohorts reported no association between sedentary behaviour and T2DM incidence among healthy adult populations. These findings suggest that the metabolic impact of sedentary behavior is highly dependent on baseline metabolic status, particularly BMI and insulin sensitivity. When confounding factors such as obesity, dietary patterns, and family history are controlled, the association between sedentary behaviour and diabetes risk often becomes weak or non-significant.[46–48]

The literature supports that sedentary behaviour contributes to T2DM risk. however, its effect is strongly influenced by BMI, genetic predisposition, and baseline metabolic health. Among young and generally healthy populations, the association tends to be weak or absent, whereas in older or metabolically high-risk populations, the relationship becomes more pronounced.

In this study, the weak association observed may be explained by the characteristics of the respondents, most of whom had normal BMI, were of young age, had low prevalence of family history of diabetes, and still engaged in at least 30 minutes of physical activity. Physical activity has been shown to reduce diabetes risk by nearly 50% in certain populations and may offset much of the negative impact of sedentary behavior.[45] The majority of respondents were aged 19–21 years, an age group that typically maintains good insulin sensitivity and optimal metabolic reserve. In young adults, diabetes risk remains low despite relatively high sedentary behavior due to preserved pancreatic β-cell function and insulin responsiveness. However, persistent sedentary behavior over time may gradually impair insulin sensitivity and β-cell

function.[49] Additionally, most respondents had normal BMI, which serves as a protective factor. BMI is a key mediator in the relationship between sedentary time and diabetes risk, as individuals with normal BMI tend to maintain more stable glucose regulation, reducing the immediate impact of sedentary behavior.[49,50] Studies suggest that approximately 60–67% of the association between sedentary behavior and diabetes risk is mediated by BMI.[45]

This study reinforces the understanding that sedentary behaviour is associated with increased T2DM risk. However, among young populations with generally good metabolic health, the effect appears to be relatively minimal due to protective factors such as younger age, normal BMI and waist circumference, adequate physical activity, and a low prevalence of family history of diabetes. Nevertheless, sedentary behaviour should still be considered a long-term risk factor, as its impact may become more pronounced with advancing age and declining insulin sensitivity. These findings emphasize the importance of intermediary variables such as BMI, waist circumference, physical activity level, and genetic factors in strengthening or attenuating the relationship between sedentary behaviour and T2DM risk. Medical students represent a transitional population that already shows early risk indicators yet still has substantial opportunities for prevention through reducing sedentary behavior and increasing physical activity. If sedentary habits persist into adulthood, the risk of metabolic disorders may increase in parallel with declining insulin sensitivity and the accumulation of additional risk factors.

Conclusion

The majority of medical students at Universitas Syiah Kuala were classified as having a high sedentary behaviour (44.6%). Most respondents were categorized as having a low risk of type 2 diabetes mellitus (T2DM) (48.5%), while 16.6% were classified as having moderate to high T2DM risk. Female students showed a slightly higher proportion in the high-risk category compared to male students (3.3% vs 2.6%). The average daily sedentary duration among respondents was 87.22 hours per week.

A statistically significant but very weak correlation was observed between sedentary behaviour and T2DM risk among medical students at Universitas Syiah Kuala ($r = 0.124$; $p = 0.046$), indicating minimal practical significance in this population.

Conflict of interest

The authors declared no conflict of interest regarding this article.

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Author Contributions

JHM: Conceptualization, data acquisition, formal analysis, interpretation of results, drafting the manuscript, and project administration; TM: Conception and design of the study, supervision, interpretation of data, critical revision of the manuscript for important intellectual content, and final approval of the version to be published; HM: Conception and design of the study, supervision, interpretation of data, critical revision of the manuscript for important intellectual content, and final approval of the version to be published; DS: supervision, interpretation of data, conception and design of the study, critical revision of the manuscript for important intellectual content, and final approval of the version to be published; H: supervision, interpretation of data, conception and design of the study, critical revision of the manuscript for important intellectual content, and final approval of the version to be published.

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