



El papel de los factores sociodemográficos como predictores de las barreras para la práctica de ejercicio físico entre los empleados del gobierno local filipino

The Role of Sociodemographic Factors as Predictors of Exercise Barriers Among Filipino Local Government Employees

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Abstract

Introduction: Physical inactivity remains a major public health concern, particularly among office-based employees whose work demands and sedentary routines limit opportunities for regular exercise. Understanding exercise barriers and influencing factors is essential for promoting active lifestyles in the public sector.

Objective: This study sought to examine the socio-demographic predictors of perceived barriers to exercise among Filipino local government employees, focusing on gender, age, civil status, and place of residence.

Methodology: A cross-sectional research design was employed involving 900 local government employees from selected rural and urban areas. Data were collected using a demographic questionnaire and a standardized instrument measuring seven exercise barriers. Descriptive statistics identified prevalent barriers, while logistic regression analysis examined the predictive influence of socio-demographic variables.

Results: Lack of energy, lack of time, lack of resources, and lack of willpower were the most significant barriers. Gender, age, and residence emerged as key predictors. Female and sexual minority employees showed higher likelihood of experiencing time-related and motivational barriers. Older individuals exhibited increased challenges related to willpower and skill, while rural employees faced greater energy and resource constraints.

Discussion: Findings aligned with evidence that exercise barriers are shaped by occupational, behavioral, and environmental factors, reflecting social and structural inequalities.

Conclusions: Exercise barriers are multidimensional and require targeted workplace interventions to promote physical activity and improve well-being.

Keywords:

exercise barriers; local government employees; logistic regression; socio-demographic predictors; filipinos

Resumen

Introducción: La inactividad física sigue siendo un importante problema de salud pública, especialmente entre los empleados de oficina cuyas demandas laborales y rutinas sedentarias limitan las oportunidades para realizar ejercicio de manera regular. Comprender las barreras al ejercicio y los factores que las influyen es esencial para promover estilos de vida activos en el sector público.

Objetivo: Este estudio tuvo como objetivo determinar los predictores sociodemográficos de las barreras percibidas para la práctica de ejercicio entre empleados del gobierno local en Filipinas, considerando el género, la edad, el estado civil y el lugar de residencia.

Metodología: Se empleó un diseño de investigación transversal con 900 empleados de gobiernos locales de zonas rurales y urbanas seleccionadas. Los datos se recolectaron mediante un cuestionario sociodemográfico y un instrumento estandarizado que evaluó siete barreras al ejercicio. Se utilizaron estadísticas descriptivas y regresión logística para analizar la influencia de las variables sociodemográficas.

Resultados: La falta de energía, de tiempo, de recursos y de voluntad fueron las barreras más significativas. El género, la edad y la residencia emergieron como predictores clave. Las mujeres y las minorías sexuales presentaron mayor probabilidad de experimentar barreras relacionadas con el tiempo y la motivación, mientras los adultos mayores enfrentaron mayores dificultades en la voluntad y la habilidad.

Discusión: Los hallazgos reflejan factores ocupacionales, conductuales y ambientales que generan desigualdades sociales y estructurales.

Conclusiones: Las barreras al ejercicio son multidimensionales y requieren intervenciones laborales específicas para promover la actividad física y mejorar el bienestar integral.

Palabras clave

barreras al ejercicio; empleados del gobierno local; regresión logística; predictores sociodemográficos; filipinos

Introduction

Exercise, as a subcategory of physical activity, is defined as a structured activity that is planned, repetitive, intentionally designed to enhance physical fitness components, that include cardiovascular endurance, flexibility, muscular strength, and speed (Dasso, 2019). Just like other physical activities, exercise has been proven beneficial for one's overall health. For example, its physical benefits include boosting energy expenditure, managing weight, preventing chronic diseases like diabetes, osteoporosis, and heart disease (Anderson & Durstine, 2019), facilitating sleep and physical growth (Piercy et al., 2018). Aside from its physical benefits, it is also recognized for its psychosocial benefits, such as improving mood states, self-esteem, and cognitive function, especially among adults (Biddle, 2021) and helps in dealing with isolation and helps in building social connectedness (Smith, 2017). Given the overwhelming evidence of its benefits, many individuals, especially among the adult population, still lack exercise, which contributes to the high rates of physical inactivity (PI) worldwide. Based on the latest global report of the World Health Organization (2022), almost a third or 31% of the population of adults worldwide is physically inactive, with 36% PI rate in the Americas, 28% in Western countries, 14% in Oceania, and 46% in the Asia Pacific region.

Among the various segments of this adult population, office-based workers, including local government employees, are especially prone to sedentary lifestyles due to the desk-based and sedentary nature of their work. The structure of work in public service roles, characterized by long hours and high workloads, limits opportunities for exercise, which may lead to a significant portion of the workforce being physically inactive (Hadgraft et al., 2015). For instance, in public workplaces in Southern Ethiopia, employees spend an average of 13.39 hours per day sitting, with screen time being a dominant activity, which highlights the prevalence of sedentary behavior in such settings (Baye, 2021).

In the Philippines, employees in local government offices face similar issues. Most of their daily work routines involve prolonged sitting, paperwork, and computer-based tasks, leaving little room for physical activity during work hours. This raises significant health concerns, particularly when paired with other socio-economic and lifestyle factors. Thus, understanding the barriers that limit these individuals to exercising is a vital key in addressing this issue.

A substantial body of research has consistently documented a wide range of barriers to exercise, encompassing personal, social, and environmental factors. These commonly include limited time, fatigue, stress, family-related constraints, and concerns about safety (Mbabazi et al., 2022; Silva et al., 2022). The US Center for Disease Control and Prevention (n.d.) have also provided a summary of all these barriers illustrated in 7 categories. These are lack of time, social influence, lack of energy, lack of willpower, fear of injury, lack of skill, and lack of resources.

Although previous studies have examined perceived barriers to exercise among various populations, including students (Ananayo et al.; Puen et al., 2021), teachers (Herazo-Beltrán et al., 2017), and police officers (Feng et al., 2025), few studies have employed logistic regression analysis to identify the sociodemographic predictors of these barriers. Moreover, very limited research has specifically investigated the predictors of exercise barriers among Filipino local government employees, despite this population being particularly vulnerable to physical inactivity due to the sedentary nature of public sector work. Furthermore, the simultaneous influence of key sociodemographic factors—namely sex, age, marital status, and place of residence—on the different dimensions of exercise barriers remains poorly understood.

Thus, this study aims to delve into how the socio-demographic profiles, particularly gender, age, civil status, and residence of local government employees, predict their perceived barriers to exercise. The results of this research aim to contribute to the existing literature by highlighting the unique barriers faced by local government employees in the Philippines. Moreover, it may provide valuable insights for policymakers, public health authorities, and human resource departments in designing workplace wellness programs and interventions that may reduce physical inactivity, improve employee well-being, and increase productivity in the public or government sector.

Method

This study utilized a cross-sectional research design. It seeks to analyze data collected from a population at a specific point in time (Puspa & Legiran, 2022) and it is commonly utilized for exploring the

prevalence of certain characteristics or conditions within a population, comparing groups on specific variables, and identifying associations between variables (Mao, 2023; Zuleika & Legiran, 2022). Since this study aimed to describe the participants' demographic profiles, their exercise barriers, and relationships between them and among them using regression analysis, this design is well-suited to provide a snapshot of the said conditions.

Participants

A total of 900 local government employees from a selected rural and urban local government unit in the Philippines participated in this study. These locations were chosen for their large and diverse population of local government employees, which allowed for a comprehensive analysis of how these variables influence perceptions of barriers to exercise. Proportional-total population was employed to ensure that all participants in the selected units had an equal opportunity to contribute to the study (Vehovar et al., 2016). The final set of participants includes diverse socio-demographic categories like gender (male, female, LGBTQIA++), age (25 and below, 26-35, 36-45, 46 and above), and civil status (single, married, widowed/separated). As shown in table 1, majority of the participants mostly belonged to the female group (49.7%), the 26 to 35 age group (28.2%), the married group (49.8%), and those from urban areas (64.3%).

Table 1. Socio-Demographic Profiles of the Participants

SOCIO-DEMOGRAPHIC PROFILE		FREQUENCY	PERCENTAGE
Gender	Male	376	41.8
	Female	447	49.7
	LGBTQIA++	57	6.3
Age	25 & below	178	19.8
	26 to 35	254	28.2
	36 to 45	220	24.2
	46 & above	248	27.6
Civil Status	Single	366	40.7
	Married	448	49.8
	Widowed/Separated	86	9.6
Residence	Rural	322	35.7
	Urban	588	64.3

Procedure

Prior to data collection, approval to conduct the study was obtained from the appropriate local government authorities and the National University Philippines Ethics Committee. Data collection was conducted from October 2025 to December 2025 over a period of 12 weeks in selected rural and urban local government units (LGUs) in the Philippines. The data collection was carried out by the researchers, who were oriented on the study protocol, ethical procedures, and standardized administration of the survey instrument to ensure consistency throughout the process.

Participants were approached personally in their respective government offices during official working hours and were informed about the purpose, procedures, voluntary nature of participation, and confidentiality of the study. Those who agreed to participate provided informed consent before completing the survey. The questionnaires were administered face-to-face using a paper-based format and were completed individually under the supervision of the researchers. Upon completion, the questionnaires were checked for completeness before being collected for data encoding and statistical analysis.

Instrument

A structured survey questionnaire was used to collect the data. The first part consisted of an information sheet describing the purpose, procedures, risks, benefits, and voluntary nature of participation, followed by an informed consent form. The second part gathered the participants' sociodemographic information, including sex, age, civil status, and place of residence. Responses to all demographic items were optional to respect participants' privacy and autonomy.

The third part of the questionnaire consisted of the Barriers to Being Active Quiz (BBAQ) developed by the U.S. Centers for Disease Control and Prevention, a standardized 21-item instrument designed to assess seven self-reported barriers to physical activity: Lack of Time, Social Influence, Lack of Energy, Lack of Willpower, Fear of Injury, Lack of Skill, and Lack of Resources. Minor wording modifications were made solely to improve contextual relevance and comprehension among Filipino local government employees without altering the conceptual meaning of the original items. The adapted version underwent expert review and pilot testing prior to implementation to ensure clarity and contextual appropriateness. The instrument demonstrated acceptable internal consistency (Cronbach's $\alpha = 0.83$). Each barrier domain consists of three items scored on a four-point Likert scale ranging from 0 (very unlikely) to 3 (very likely), yielding domain scores from 0 to 9 and a total score ranging from 0 to 63. Following the BBAQ scoring guidelines, a score of 5 or higher in any domain indicates that the corresponding barrier is considered significant.

The BBAQ has been widely used in studies examining barriers to physical activity across diverse populations (Ananayo et al., 2026; Puen et al., 2021; Rosselli et al., 2020; Sadia et al., 2020), supporting its applicability in public health and exercise research.

Data analysis

The collected data were consolidated, coded, classified, and analyzed using Jamovi. Descriptive and inferential statistical analyses were performed. For the descriptive statistics, frequency and percentage distributions were used to summarize the participants' sociodemographic characteristics. Following the scoring guidelines of the Barriers to Being Active Quiz (BBAQ) (U.S. Centers for Disease Control and Prevention, n.d.), the scores for each barrier domain were summed to determine whether a barrier was considered significant for each participant. Mean scores were subsequently computed to identify the most prevalent exercise barriers across the study population.

For the inferential statistics, binary logistic regression analysis was conducted to examine the influence of sociodemographic factors (sex, age, marital status, and place of residence) on each of the seven exercise barrier categories. Statistical significance was established at $p < .05$. The results of the logistic regression analyses were reported using Odds Ratios (ORs), 95% Confidence Intervals (95% CIs), and p-values, following the recommendations of Carey (2011) and Sperandei (2014).

Results

Table 2 presents the significant barriers to exercise among the participants in general. As stated in the scoring system of the tool, a mean score of 5 or higher is considered significant. Based on the results, the significant barriers are lack of time (5.62), lack of energy (5.78), lack of willpower (5.15), and lack of resources (5.32).

Table 2. Barriers to Exercise of Local Government Employees

BARRIERS	MEAN	STANDARD DEVIATION	DESCRIPTION
Lack of Time	5.62	1.86	Significant
Influence From Others	4.36	1.82	Not Significant
Lack of Energy	5.78	1.94	Significant
Lack of Willpower	5.15	1.89	Significant
Fear of Injury	4.18	2.31	Not Significant
Lack of Skill	4.00	2.37	Not Significant
Lack of Resources	5.32	1.89	Significant

As shown in Table 3, all assumptions of logistic regression in this case are met. The mentioned barriers, which are the dependent variables, consist of dichotomous responses (not significant and significant). At least one independent variable is present. The sample size ($n=900$) is sufficient. The relationship between the independent and dependent variables follows a sigmoidal pattern. Assumptions of linearity were examined using the Box-Tidwell test. Furthermore, the variance inflation factor (VIF) was assessed to determine the extent of multicollinearity among the independent variables. The results showed that all VIF values were below 5, indicating the absence of significant multicollinearity. Therefore, all variables were retained for inclusion in the model.

Table 3. Socio-Demographic Predictors of Barriers to Exercise Among Government Employees

	Lack of Time		Influence from Others		Lack of Energy		Lack of Willpower		Fear of Injury		Lack of Skill		Lack of Resources	
CHI-SQUARE (χ^2)														
Overall Model	39.2**		40.8**		46.5**		41.0**		50.9**		88.6**		33.6**	
Likelihood Ratio														
Gender	19.060**		29.192**		15.162**		14.250**		31.913**		34.961**		8.350*	
Age	6.470 ^{NS}		3.257 ^{NS}		6.211 ^{NS}		22.443**		12.066**		21.105**		6.330 ^{NS}	
Civil Status	1.500 ^{NS}		3.561 ^{NS}		0.876 ^{NS}		5.632 ^{NS}		2.236 ^{NS}		10.173 ^{NS}		3.080 ^{NS}	
Residence	12.430**		0.020 ^{NS}		25.770**		0.503 ^{NS}		0.093 ^{NS}		0.354**		19.120**	
MODEL COEFFICIENTS														
	EST.	OR	EST.	OR	EST.	OR	EST.	OR	EST.	OR	EST.	OR	EST.	OR
Gender														
Female and Male	0.346*	1.413	-0.021 ^{NS}	0.979	0.119 ^{NS}	1.126	0.326*	1.386	-0.209 ^{NS}	0.812	-0.198 ^{NS}	0.820	-0.087 ^{NS}	0.916
LGBTQIA++ and Male	0.869*	2.386	1.111**	3.036	0.370 ^{NS}	1.448	0.838*	2.311	1.150**	3.157	1.377**	3.963	0.596 ^{NS}	1.815
Age														
26 to 35 and 25 & below	-0.232 ^{NS}	0.793	-0.233 ^{NS}	0.792	-0.059 ^{NS}	0.943	-0.115 ^{NS}	0.891	-0.192 ^{NS}	0.826	-0.208 ^{NS}	1.232	-0.064 ^{NS}	1.066
36 to 45 and 25 & below	-0.090 ^{NS}	0.914	-0.037 ^{NS}	1.038	-0.140 ^{NS}	0.869	-0.684**	1.982	-0.124 ^{NS}	0.883	-0.582*	1.789	-0.061 ^{NS}	0.941
46 & above and 25 & below	0.336 ^{NS}	1.399	0.098 ^{NS}	1.103	0.432 ^{NS}	1.540	0.801**	2.228	0.443 ^{NS}	1.557	1.054**	2.869	0.482 ^{NS}	1.619
Civil Status														
Married and Single	0.004 ^{NS}	1.004	0.328 ^{NS}	1.389	0.085 ^{NS}	0.918	-0.167 ^{NS}	0.846	0.269 ^{NS}	1.308	0.504**	1.655	0.222 ^{NS}	1.248
Widowed/Separated and Single	-0.325 ^{NS}	0.723	0.366 ^{NS}	1.442	-0.307 ^{NS}	0.736	-0.677*	0.508	0.243 ^{NS}	1.275	-0.017 ^{NS}	0.984	-0.197 ^{NS}	0.822
Residence														
Urban and Rural	-0.839**	0.432	0.032 ^{NS}	1.032	-1.224**	0.294	-0.266 ^{NS}	0.847	-0.069 ^{NS}	0.933	0.137 ^{NS}	1.147	-1.026**	0.359
Accuracy Measures	VALUES													
Cox and Snell's R ²	0.43		0.44		0.50		0.45		0.55		0.84		0.37	
Nagelkerke's R ²	0.62		0.59		0.784		0.61		0.73		0.94		0.53	
Accuracy	0.743		0.568		0.784		0.654		0.590		0.636		0.730	
Specificity	0.097		0.554		0.080		0.147		0.751		0.732		0.094	
Sensitivity	0.976		0.581		0.986		0.943		0.423		0.515		0.969	

Legend: ** - Highly Significant, * - Significant, ^{NS} - Not Significant

Moreover, Cook's distance is applied in regression analysis to detect influential outliers among the predictor (independent) variables. It helps identify data points that may adversely affect the model. This statistic combines each observation's leverage and residual values; observations with higher leverage and larger residuals yield higher Cook's distance values. In a large data set, such as in the study, a Cook's distance value of more than 1 is considered an indicator of high influence or extreme value. As seen in Appendix B, no extreme values are observed.

As observed in the test statistics in table 3, the overall model indicates that the sociodemographic factors are highly significant (p -value < 0.01) to the barriers to physical activity participation, suggesting that these factors significantly contribute to the outcomes (significant barrier). Meanwhile, the omnibus likelihood ratio test provides the specific predictors that make a considerable impact on the outcomes. For instance, gender and residence are revealed to be significant factors to the lack of time, lack of energy, lack of skill, and lack of resources. At the same time, age is highly significant to lack of willpower, fear of injury, and lack of skill, as well as gender to influence from others. The omnibus test, on the other hand, suggested that civil status is not a significant factor in the barriers.

The pseudo-R² measures (Cox and Snell's and Nagelkerke's R²) are used to indicate how well the model explains variation in the outcome variable. For instance, as seen in the table, the explained variation in the lack of time based on the models ranges from 43% to 62%. The same method applies to other outcome variables, such as 44% to 59% for influence from others, 50% to 77% for lack of energy, 45% to 61% for lack of willpower, 55% to 73% for fear of injury, 84% to 94% for lack of skill, and 37% to

53% for lack of resources. Given these percentage ranges, there is a moderate to strong relationship between the sociodemographic factors and the mentioned barriers.

Lack of Time

As observed in the model, 74.3% of cases were accurately classified, with specificity (9.7%) much lower than sensitivity (97.6%). This could suggest that the model predicts higher true positives than true negatives. In this case, the model is good at confirming significant responses for 'lack of time' but poor at identifying the non-significant responses.

With both odds ratios (OR) greater than 1, females and LGQBTQIA++ have greater odds of having significant outcomes for 'lack of time' compared to males, particularly 1.413 and 2.386 more times, respectively. Meanwhile, respondents who live in urban areas have lower odds of having a significant outcome for 'lack of time' than rural residents, given that its OR is less than 1.

Influence from Others

With an accuracy rate of 56.8%, its similar sensitivity and specificity values identify both not significant and significant outcomes for 'influence from others.' With an OR greater than 1, LGBTQIA++ participants have 3.036 times the odds of having a significant outcome for 'influence from others' than males.

Lack of Energy

The model demonstrated an accuracy of 78.4%, with a specificity at 8.0% and sensitivity at 98.6%, indicating that the model predicts higher true positives than true negatives. With OR values lower than 1, participants who live in the urban areas, which also have a lower odds of having the significant outcome for the mentioned barrier than those in the rural areas.

Lack of Willpower

The model had an accuracy of 65.4%, with specificity at 14.7% and sensitivity at 94.3%, signifying a higher prediction of true positives compared to true negatives. With an OR value greater than 1, the odds of having a significant outcome for 'lack of willpower' for females are 1.386 times the odds of having a significant outcome for males. LGBTQIA++ participants are also more likely to have a significant outcome for 'lack of willpower' than males, with an OR of 2.311.

Moreover, the odds of having a significant outcome for 'lack of willpower' for participants aged 36 to 45 are 1.982 times the odds of having a significant outcome for those who are aged 25 and below. Participants aged 46 and above are also more likely to have a significant outcome for the same-mentioned barrier than those who are aged 25 and below, with an OR of 2.228.

On the other hand, respondents who are widowed or separated have lower odds of having significant outcomes for 'lack of resources' than single people.

Fear of Injury

With an accuracy rate of 59.0%, specificity of 75.1%, which is higher than sensitivity (42.3%), this could suggest that the model predicts a higher rate of true negatives than true positives. Moreover, with an OR greater than 1, LGBTQIA++ participants have 3.157 times the odds of having a significant outcome for 'fear of injury' than males.

Lack of Skill

With an accuracy rate of 63.6%, specificity of 73.2%, which is higher than sensitivity (51.5%), this could suggest that the model predicts a higher rate of true negatives than true positives. LGBTQIA++ participants have 3.963 times the odds of having a significant outcome for 'lack of skill' than males.

Moreover, the odds of having a significant outcome for this barrier for aged 36 to 45 are 1.789 times the odds of having a significant outcome for those who are aged 25 and below. Participants aged 46 and above are also more likely to have a significant outcome for the mentioned barrier than those who are aged 25 and below, with an OR of 2.869.

Meanwhile, married participants have a greater odds of having a significant outcome for the said barrier than those who are single.

Lack of Resources

As observed in the model, 73.0% of cases were accurately classified, with specificity (9.4%) much lower than sensitivity (96.9%). This suggests that the model predicts higher true positives than true negatives. Residence was revealed to be significant factor to 'lack of resources' as a barrier to participation, with OR value lower than 1. Participants who live in the urban areas, which also have a lower odds of having the significant outcome for the mentioned barrier than those who live in the rural areas.

Discussion

The results indicate that the significant barriers to exercise among local government employees in general are lack of energy, lack of time, lack of resources, and lack of willpower. This finding suggests that physical inactivity in this population is shaped by a complex interaction of occupational demands, individual behavioral factors, and organizational constraints.

Lack of energy emerged as the most dominant barrier, highlighting the physiological and psychological consequences of work-related strain. Prolonged sedentary tasks, mental fatigue, and job-related stress may reduce employees' perceived physical capacity to engage in exercise after work hours. This reflects a cyclical pattern in which inactivity contributes to low energy levels, which in turn further discourages physical activity (Albedry et al., 2024). The prominence of this barrier underscores the need for workplace interventions that address occupational fatigue, including active breaks, ergonomic improvements, workload management, and stress reduction strategies.

Lack of time further reflects the demanding nature of public sector employment, which often involves administrative workloads, field assignments, and competing professional and family responsibilities. Consistent with previous research, working adults tend to deprioritize physical activity when faced with time pressure and role overload (Supples et al., 2021). This suggests that exercise is commonly viewed as a discretionary activity rather than an essential component of daily functioning. Accordingly, interventions that promote time-efficient approaches such as short exercise sessions, flexible scheduling, and the integration of movement into routine work activities may be more practical and sustainable for this population.

The identification of lack of willpower highlights the behavioral and motivational dimensions of exercise participation. Despite awareness of its health benefits, employees may struggle with self-regulation, consistency, and habit formation (Edmunds et al., 2013). This finding indicates that physical inactivity is not solely the result of structural constraints but also reflects challenges in maintaining motivation and prioritizing long-term health behaviors. Programs grounded in behavior-change principles such as goal setting, self-monitoring, peer support, and organizational wellness campaigns may therefore enhance exercise adherence.

Finally, lack of resources points to environmental and institutional barriers that limit opportunities for physical activity. Restricted access to facilities, equipment, safe exercise spaces, or structured wellness programs may discourage participation, particularly among employees with financial or logistical constraints (Hunter et al., 2018). This finding highlights the critical role of organizational support in creating enabling environments that make active lifestyles more accessible and feasible.

Taken together, these barriers demonstrate that physical inactivity among local government employees is influenced by interrelated personal, occupational, and environmental factors. The pattern observed in this study is consistent with previous research across various populations, which similarly identifies energy depletion, time constraints, motivational challenges, and limited access to resources as key obstacles to regular physical activity (Olufemi et al., 2025; Puen et al., 2021). These results reinforce the need for comprehensive and multi-level workplace health strategies that address both individual behavior and organizational context.

This study has also explored the impact of sociodemographic profiles of local government employees, specifically their gender, age, marital status, and residence, concerning the seven barriers to exercise: lack of time, influence from others, lack of energy, lack of willpower, fear of injury, lack of skill, and lack of resources.

Along lack of time, the results indicated that gender and place of residence significantly predicted the likelihood of experiencing this barrier. Female and LGBTQIA++ employees had higher odds of reporting lack of time, whereas urban residents had lower odds compared to their rural counterparts. The higher likelihood among females may reflect persistent gender role expectations, in which women often assume disproportionate responsibilities related to household management and caregiving in addition to paid employment. Previous research consistently shows that women experience greater time-related constraints to physical activity due to role overload and work-family conflict (Sosa et al., 2023; Cavallini et al., 2020).

The elevated odds among LGBTQIA++ individuals may be explained by additional psychosocial demands associated with minority stress, including the need to navigate stigma or non-inclusive environments. Minority stress theory suggests that these chronic stressors may reduce time, energy, and opportunities for self-care behaviors such as exercise (Ostermiller et al., 2024). Furthermore, the higher likelihood

among rural residents aligns with evidence that rural populations often face longer travel times, limited access to facilities, and fewer structured programs, all of which increase the time burden associated with physical activity (Fan et al., 2014).

Regarding influence from others, LGBTQIA++ respondents were significantly more likely to report this as a barrier. This finding suggests that social norms, perceived judgment, or a lack of inclusive environments may discourage participation in physical activity. Previous studies indicate that sexual and gender minority individuals often experience lower levels of social support and heightened perceptions of stigma in sport and exercise settings, which negatively affect their engagement (Cary et al., 2016).

For lack of energy, place of residence again emerged as a significant predictor, with rural employees more likely to report this barrier than those in urban areas. Energy-related constraints among rural respondents may be associated with physically demanding work, longer commuting times, or limited access to exercise facilities and wellness resources. Occupational fatigue has been identified as a key factor contributing to low perceived energy for leisure-time physical activity. In addition, rural environments often provide fewer opportunities for structured wellness programs and active recovery, which may further exacerbate fatigue-related barriers (Gavarkovs et al., 2017).

In terms of lack of willpower, females, LGBTQIA++ individuals, and older employees (36 years and above) were more likely to report this barrier. Gender differences in exercise behavior have been linked to lower exercise self-efficacy and higher perceived constraints among women (Strachan et al., 2015). Similarly, sexual and gender minority populations may experience reduced motivation due to discrimination, body image concerns, or limited access to inclusive exercise environments (Teixeira et al., 2015). The age-related pattern is consistent with evidence showing that motivation for structured physical activity tends to decline with increasing age due to competing responsibilities, emerging health concerns, and reduced confidence in physical capability (Molanorouzi et al., 2015).

With regard to fear of injury, LGBTQIA++ respondents demonstrated significantly higher odds of reporting this barrier. This may reflect limited exposure to supportive sport environments, lower participation in organized physical activities, or heightened concerns about safety and acceptance in exercise settings. Research suggests that marginalized groups often perceive greater risk and vulnerability in physical activity contexts, particularly when facilities are not perceived as inclusive or supportive (Parchem et al., 2024).

For lack of skill, older age groups, married individuals, and LGBTQIA++ respondents were more likely to identify this as a barrier. Age-related increases may reflect declines in physical confidence, reduced exposure to structured training, or perceived competence limitations, all of which are associated with lower physical activity participation (Oliveira et al., 2018). The higher odds among married individuals may be related to family responsibilities that limit opportunities to develop or maintain physical skills. Meanwhile, the elevated likelihood among LGBTQIA++ individuals may reflect limited access to inclusive sport experiences during earlier life stages, contributing to lower perceived competence.

Finally, regarding lack of resources, urban residents were less likely to report this barrier, highlighting the structural disadvantages experienced by rural populations. Rural communities often face limited access to fitness facilities, equipment, safe exercise spaces, and organized programs, which have been consistently identified as a major environmental constraint to physical activity (Meyer et al., 2016). This finding underscores the role of geographic inequities in shaping opportunities for health-promoting behaviors.

Limitations

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design precludes establishing causal relationships between sociodemographic factors and perceived exercise barriers. The identified associations should therefore be interpreted as predictive rather than causal. Second, the study relied on self-reported data, which may be subject to recall bias and social desirability bias, potentially influencing participants' responses regarding their perceived barriers to exercise. Third, although the study included a large sample of local government employees from selected rural and urban local government units, the findings may not be generalizable to all local government employees in the Philippines or to employees in other occupational sectors due to contextual differences. Finally, while the study focused on key sociodemographic variables, other potentially relevant determinants of exercise barriers, such as income level, educational attainment, job position, work schedule, health status, physical activity level, and organizational support, were not

examined. Future studies are encouraged to incorporate these variables and employ longitudinal or prospective designs to provide a more comprehensive understanding of the factors influencing exercise barriers among working populations.

Conclusions

This study concludes that the barriers to exercise faced by local government employees in general are lack of energy, lack of time, lack of willpower, and lack of resources. It is further concluded that the sociodemographic factors of the participants, particularly their gender, age, and place of residence, significantly predict the likelihood of experiencing these barriers. Among these factors, gender emerged as the most influential, with female and LGBTQIA++ employees more likely to encounter constraints related to time, motivation, social influence, and perceived competence. Age was associated with increased barriers related to willpower and skill, suggesting that motivational and confidence-related challenges become more pronounced across the life course. In addition, place of residence emerged as a critical structural factor, with rural employees reporting higher odds of experiencing lack of energy and lack of resources than their urban counterparts.

These findings indicate that exercise barriers among local government employees are not merely individual limitations but reflect the interaction of occupational demands, social roles, minority stress, aging-related changes, and environmental access. The coexistence of personal (energy, willpower, and skill), social (influence from others), and environmental (time constraints and resource availability) barriers highlights the multidimensional nature of physical inactivity in the public sector workforce. Moreover, the observed rural-urban differences suggest that broader contextual factors, such as commuting distance, traffic conditions, accessibility to exercise facilities, and economic constraints, may further influence opportunities for physical activity and should be considered when designing workplace health promotion initiatives.

The prominence of lack of energy and lack of time highlights the need for organizational strategies such as active breaks, flexible work arrangements, ergonomic improvements, and stress management initiatives to reduce occupational fatigue and make physical activity more feasible during the workday. While the present study did not directly examine work-hour policies, promoting greater flexibility in work schedules may provide employees with more opportunities to engage in regular physical activity, particularly those facing competing occupational and family responsibilities. Sociodemographic differences further underscore the importance of targeted and inclusive interventions. Gender-sensitive and LGBTQIA++-inclusive programs may help address psychosocial barriers, while age-appropriate and skill-building activities are recommended to enhance confidence and motivation among older employees. Likewise, the higher likelihood of barriers among rural employees highlights the need to reduce geographic inequities by improving access to facilities, equipment, and community-based exercise opportunities.

Overall, the findings emphasize that promoting physical activity among local government employees requires comprehensive, multi-level workplace wellness programs that integrate behavioral support, social encouragement, organizational policies, and environmental resources. Beyond individual-level interventions, the results also have important implications for public health and workplace policy by highlighting the need for supportive work environments that enhance access, reduce structural barriers, and create equitable opportunities for regular physical activity among diverse employee populations.

Acknowledgements

The authors would like to acknowledge all the government employees who participated in this study.

Financing

This study did not receive any funding.

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