

Bodybuilding as a Recreational Strategy: Its Role in Enhancing Student Wellness and Institutional Vitality in Campus Gymnasium and Park Settings

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Abstract

Wellness recreation areas, such as parks, gyms, offer students different ways to engage in muscle strengthening and a plethora of social, physical and psychological benefits. A cross-sectional, correlational study was conducted with 312 undergraduate students on several urban campuses that had a gym and a nearby park utilizing a stratified sampling technique. A questionnaire was recorded which measured (a) engagement (motivation) (frequency, duration, intensity), (b) wellness (social, psychological, physical) and satisfaction with different aspects of a facility (comfort, safety, access and equipment). Analyses included descriptive statistics, Pearson correlations, and linear regression analyses, which tested the relationship between Overall Wellness and Facility Satisfaction, with the standard regression diagnostics. Engagement was not only extensive but was due to intrinsic motivation: 61% of students trained at a high intensity three or more times a week. Students reported moderate levels of well-being in the physical, psychological, and social areas. Engagement had a statistically significant positive relationship with each domain of wellness ($r=.47-.59, p < .01$). Students expressed greater satisfaction with the quality of gym facilities compared to facilities provided in parks. Gyms were seen to be more positive than parks, at least in part due to the greater amount of equipment, and, consequently, students rated the safety and climate control more highly. Facility Satisfaction was a statistically significant predictive factor in Overall Wellness ($R^2 = .144, b = .38, p < .001$). Barriers for use were overcrowding;

few hours of operation; and shaded and well-equipped spaces at park. Although there are gaps to be filled regarding indoor and outdoor spaces, the more gaps that are filled the better the overall health of students will be. Specifically, to reduce the gaps in parks and gyms, students' overall health will be improved by adding (1) cooling equipment that provides shade, (2) better safety equipment and moreover, (3) improved maintenance and reduced levels of crowding. The hybrid solution of robust gyms and purpose-built outdoor strength stations increases access, coaches with operational objectives and advances inclusion particularly including women and gym culture averse groups. Intended programming and design choices are health interventions.

Keywords: *bodybuilding participation; campus gymnasium; physical education; recreational infrastructure; student wellness*

Introduction

The well-being of students has become a fundamental issue for higher education institutions which is intrinsically connected to academic performance, retention, and sustainability for the institution (Henrico, 2022; Wilson 2022). Universities are increasingly expected to provide instruction while simultaneously creating an environment where the physical, psychological, and social are more than just set of statements but lived experiences (Mazurek, Melnyk & Click, 2024). In this setup, recreational physical activity has emerged as a momentous institutional measure in sustaining student wellness (Aquino, 2023; Belošević & Ferić, 2022; Blažević & Hromin, 2024). Among the various physical activities offered in the campus environment, bodybuilding defined as structured resistance training for the development of strength and health rather than a means of competitive physical performance has been gaining popularity among university students. However, it has been understudied as a holistic approach to wellness in campus environments.

Once seen as a niche or subcultural activity, bodybuilding has become a mainstream physical engagement activity with well-documented multidimensional benefits. Empirical research proves that resistance training not only to the improvement of muscular strength, endurance and functional fitness (Bird et al., 2024), but also helped contribute towards the improvement of emotional regulation, alleviation of anxiety and depressive symptoms, and elevation of self-efficacy among young adults (Arabacı et al., 2025; Luo et al., 2024; Marinelli et al., 2024). Recent systematic reviews and meta-analyses confirm that structured resistance training is an effective non-pharmaceutical intervention to improve psychological well-being in university age cohorts (Marinelli et al., 2024). These benefits are often explained in terms of Self-Determination Theory (SDT), which emphasizes the fulfilment of autonomy, competence and relatedness as important motivators for sustained motivation and positive health outcomes (Ntoumanis, et al., 2021; Standage, & Ryan, 2020), and the salutogenic model, which emphasizes the development of a sense of coherence

as a pathway to becoming more resilient and generally well (Soares-Santeugini, et al., 2025).

Despite an emerging body of international literature, bodybuilding remains underexploited as a planned and intentional part of institutional wellness planning, particularly in developing country contexts like the Philippines. Although some of these universities now have gymnasiums and open parks, activities involving resistance are often informal, unevenly organised, and are poorly embedded within formal wellness frameworks (Aquino, 2023). Additionally, existing research in the Philippines has mostly focused around general physical activity engagement and perceptions on physical education, with little attention given to structured strength training and its psychosocial consequences (Graciano, 2022). Moreover, much of the literature on bodybuilding worldwide focuses on physiological outcomes (i.e., hypertrophy, strength gains), with little attention paid to any of the psychological elements, including gym culture, interaction with peers, gender, body image pressures, and perceived inclusivity (Knowlton & Newland, 2024; Wilson, 2022). These remain especially relevant, due to national and global affairs undertaken around achieving the Sustainable Development Goals 3 (Good Health and Wellbeing by 2030) and 4 (Quality Education by 2030) are calling for inclusive, evidence-based approaches to student health promotion within educational institutions (United Nations, 2025; UN given, 2025). Consequentially, beyond individual participation, the built environment is an important step in determining wellness outcomes. Campus gymnasiums and parks inherently differ widely in terms of equipment, availability safety, accessibility, climate control, and overall comfort, all of which are known to have a huge effect on user satisfaction and sustained engagement (Feng & Li, 2018; Liao et al., 2022; Marojević, 2024). Research in the areas of campus recreation and environmental design continues to show that facility satisfaction is positively correlated with increased participation rates and enhanced health related outcomes (Makubuya et al., 2020; Wang, 2025). Nevertheless, empirical studies which directly address the relationships of satisfaction with gymnasium and park facilities on the direct prediction of multidimensional student wellness, especially through a comparative indoor/outdoor perspective, remain limited. Understanding this relationship is critical as facility design and management decisions can be indirect but powerful health interventions, because they are key factors in questioning motivation, fair access, and commitment over time (e.g. Kim et al., 2024; Wang, 2025).

Therefore, the current study scrutinizes bodybuilding as a strategic recreational intervention, which can improve overall students' wellness by examining (a) the levels of engagement and intrinsic motivation among the resistance training regimes, (b) students' perceived physical, psychological and social well-being, and (c) students' satisfaction with the campus gymnasium and park facilities as predictors of overall wellness. Grounded in the Self-Determination Theory and salutogenic model (Ntoumanis et al., 2021; Soares-Santeugini et al., 2025) and with

the goal of enhancing the bodybuilding literature, the current study aims incorporate behavioral, psychosocial and environmental dimensions of bodybuilding in the Philippine higher education context. By doing so, it redefines bodybuilding-not as an appearance-driven or elites-only component of campus wellness ecosystems-but rather as an inclusive, evidence-based, and institutionally relevant component of campus wellness ecosystems as befits the Sustainable Development Goals.

Conceptual and theoretical underpinnings of perceived social determination and salutogenic principles.

The current study is firmly grounded in Self-Determination Theory (SDT) and the salutogenic model both of which offer a rigorous theoretical framework for showing the effect of structured physical activities like bodybuilding on student wellness in the context of higher education setting. These complementary constructs highlight that health and well-being are not the sole prerogative of individual behavior but arise from the interaction between the processes of motivation, the context of the environment and the social support systems (Ntoumanis et.al., 2021; Soares-Santeugini et al., 2025). Self-Determination Theory argues that engagement in physical activity is more likely to be sustained long-term when three core psychological needs autonomy, competence, and relatedness are met (Ntoumanis et al., 2021; Standage & Ryan, 2020). In campus-based bodybuilding, such needs may be fulfilled when students can choose training regimens that are consistent with their goals, perceive evidence of some measurable strength and fitness progress, and experience supportive peer interactions within the gymnasium or park. Empirical reports have shown evidence that autonomy-supportive exercise environments are related to higher levels of intrinsic motivation and therefore to persistence and psychological factors such as higher levels of persistence, autonomy grounded in personal goals and task commitment (Xu et.al., 2025, Lou Et. Al. 2024). For that reason, SDT provides a useful lens for assessing the extent to which motivational drivers mediate the fit between bodybuilding and student wellness. Complementary to SDT, the salutogenic model also focuses on developing a “sense of coherence“ the degree to which individuals experience life as comprehensible, manageable, and meaningful (Soares-Santeugini et al., 2025). Physical activity, especially organized resistance training, has been demonstrated to strengthen sense of coherence by reinforcing feelings of emotional modulation, stress coping skills and control of one’s health (Happ et.al., 2024; Marinelli et al, 2024). From a salutogenic standpoint, bodybuilding is not merely a fitness-seeking activity but a health-promoting resource that strengthens resilience and psychological stability, particularly during the academically and socially demanding university years.

This synthesis of SDT principles and salutogenesis suggests a mediating role that the built environment plays in illness wellness outcomes. Campus gymnasiums and parks differ in terms of equipment quality, safety; accessibility, and environmental comfort, factors that can either support or hinder students’ motivational needs and sense of coherence (Feng & Li, 2018; Liao et al., 2022; Marojević, 2024). Research on campus

recreation and facility management has been consistent in result that satisfaction with physical environments is positively associated with engagement, perceived well-being and sustained participation in health-related behaviours (Makubuya et al., 2020; Wang, 2025). Thus, facility satisfaction plays a dual role: as a contextual enabler of intrinsic motivation, which is articulated by SDT, and as a structural health resource, which is conceptualized in salutogenic theory.

Despite the growing body of an international literature promoting such theoretical connections, its use within the Philippine higher education scene remains scant. Local studies have focused mainly on the exercise treatment of overall physical activity involvement, without integrating the ideas of motivational theory, atmosphere layout, and the many-sidedness of wellbeing results (Aquino, 2023; Graciano, 2022). Furthermore, psychosocial concerns incorporating gendered experiences, body image pressures, and cultural ideas related to gym culture are often under-studied due to evidence indicating impact of these factors on access, comfort, and reach when it comes to strength-based activities (Knowlton & Newland, 2024; Wilson, 2022). Addressing these gaps requires a framework that tackles each of these areas of individual motivation, social, and institutional infrastructure simultaneously. Accordingly, the present study considers recreational facilities and programmatic decisions active elements of campus health promotion, as opposed to neutral contextual circumstances. This approach directly responds to calls for evidence-based, inclusive, and environmentally informed wellness approaches aligned with Sustainable Development Goals 3 (Good Health and Wellbeing and The World Resources Institute, 2025, UNICEF) 4 (Quality Education 2025; UN, 2025).

Conceptual framework

This study's conceptual framework positions bodybuilding as a structured leisure and recreational activity that contributes to students' physical, psychological, and social well-being through motivational and environmental mechanisms in the university environment. The framework conceptualizes student wellness as the result of dynamic interactions between individual engagement, intrinsic motivations and satisfaction with existing campus gymnasium and park facilities (Ntoumanis et al., 2021; Soares Santeugini et al., 2025). Also, the framework assumes that engagement in bodybuilding is maintained and enhanced when the context of exercise supports the basic psychological needs of the students in terms of autonomy, competence and relatedness (Ntoumanis et al., 2021; Standage & Ryan, 2020;). Safe, accessible, and well-equipped campus gyms and parks, can encourage intrinsic motivation by enabling students to exert choice, feel a sense of skill progression and make social connections with other students. In turn, intrinsic motivation is conceptualized as a key mediating process through which supportive environmental conditions convert into an elevated level of participation in support of bodybuilding activities (e.g. frequency, duration and intensity) (Xu et al., 2025; Luo et al., 2024). From a salutogenic perspective, the framework further suggests that regular involvement in bodybuilding fortifies

students' sense of coherence, i.e., the perception they have about the life experiences, which must be manageable, meaningful, and comprehensible, as an explanation for psychological stability and, overall, health (Soares- Santeugini et al., 2025). Within this model, bodybuilding is more than a means to physical fitness; it is a health promoting resource, in favour of internal resilience, emotional regulation, and adaptive coping during the demands of university life (Happ et al., 2024; Marinelli et al., 2024).

Facility satisfaction is placed as a key environmental determinant in the framework. Satisfaction with gymnasium and parks facilities which are based on perceptions of safety, accessibility, comfort, availability of equipment, and environmental support is assumed to affect wellness outcomes through two pathways. First, facility satisfaction indirectly improves student wellness through amplified intrinsic motivation and continued engagement to bodybuilding. Second, it has a direct impact on overall wellness by affecting the quality of recreational experience of students, as well as their perception of physical and psychological security in the campus spaces (Makubuya et al., 2020; Wang, 2025). In this sense, recreational facilities are conceptualized as active health-promoting environments and not passive physical structures. Accordingly, the framework hypothesizes positive relations between bodybuilding engagement (frequency, duration, and intensity) and the three domains of student wellness: physical, psychological, and social. Intrinsic motivation acts as an intermediary mechanism between environmental support and participation and facility satisfaction as a motivational enhancement and direct predictor of holistic well-being. This integrated SDT-salutogenic model highlights the importance of institutional design and recreation planning as a strategic program in accordance with the campus wellness targets and larger investments to Sustainable Development Goals 3 (Good Health and Well-Being) and 4 (Quality Education) (United Nations, 2025; UNICEF, 2025).

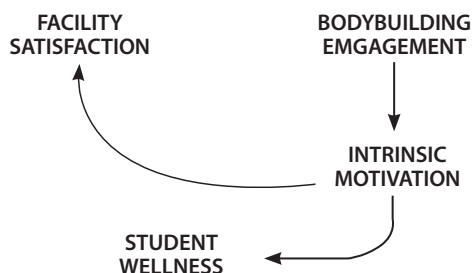


Figure 1. Bodybuilding Engagement and Student Wellness: An SDT–Salutogenic Model
Source: Authors Development

Research objectives and hypotheses

The major focus of this study was to examine the relationship between bodybuilding participation and student wellness, with special attention to how satisfaction with university recreational amenities (particularly gymnasiums and parks) affects physical, psychological and social well-being among undergraduates. Anchored in a

prespecified conceptual schema, the study attempted to make a behavioral-motivational-environmental integration intrinsic to campus-based bodybuilding. The inquiry begins by describing participants' demographic and participation characteristics sub-divided by sex, year of study, provision of recreational facilities by the school, and principal exercise modality. Bodybuilding engagement was operationalized in terms of frequency, duration, and intensity of involvement in bodybuilding, alongside measurements of intrinsic motivational levels. Students' self-reported wellness was assessed in a triad of physical, psychological and social states to understand the degree to which the bodybuilding involvement correlated with multidimensional health outcomes. Moreover, the study also evaluated students' satisfaction with gyms and parks amenities in terms of perceived safety, accessibility, and comfort and equipment availability. Finally, the analyses phase determined whether aggregate facility satisfaction is a salient predictor of holistic student wellness. Guided by the intersection of Self-Determination Theory and the salutogenic model the study proposed the following directional hypotheses:

Hypotheses 1: Bodybuilding engagement is positively associated with students' physical, psychological, and social wellness.

Hypotheses 2: Students report significantly higher levels of satisfaction with campus gymnasium facilities compared to park-based recreational facilities.

Hypotheses 3: Satisfaction with campus recreational facilities is a significant positive predictor of overall student wellness.

Methodology

Research design

In this investigation, a cross-sectional and descriptive correlational survey design was used to address the issues in the relationships between engagement in bodybuilding, satisfaction with recreational facilities in the campus, and wellness of a student. Such a design is suitable for the investigation of naturally occurring associations among university populations, as well as for the testing theory-based, direction hypotheses without experimental manipulation. Consistent with previous investigations into alterations in health behavior and structured recreation, this way paves the way for investigation of the connections between examples of bodybuilding participation to multi-variable measures of wellness and wellbeing such as physical fitness, psychological strength, and social connectedness (Luo et al., 2024). Through capturing the experience of the students at a single point in time, the study aims to provide a brief and methodical summary of the trends for engagement and perceived wellness results in the gymnasium and in the campus park. While the design does not allow for causal inference, it is well suited to the identification of meaningful relationships that can be used to inform theory development, institutional planning and future longitudinal or experimental research. Given that the sample was collected from urban universities, with established recreational infrastructures, the results have most application in similar higher education settings.

Participants

The research sample comprised undergraduate students from 18 to 25 years of age enrolled in selected universities situated inside Metro Manila with on-campus gymnasium facilities and proximate spaces in the park for recreational exercise. A stratified random sampling approach was used to achieve the goal of improving representativeness with gender and academic year as the main strata. The principle of proportional allocation was used to assure balanced representation in this set of subdivisions. Eligibility to participate required students to be currently engaged and actively involved in campus-based resistance or strength training resistance activities. Study individuals who had medical contraindications to resistance exercise were excluded to ensure that the study would be safe for all participants and the validity of data collection and reporting. This inclusion criterion allowed for the study to target specifically students who have direct experience with bodybuilding and campus recreational facilities enhancing the relevance of the measured engagement and wellness outcomes.

Universities were deliberately chosen to represent traditional recreational systems that exist on large urban campuses that include indoor gymnasiums and open park settings. These settings offered suitable contexts to investigate institutional and environmental determinants that promote autonomy, competence and relatedness as stated within the Self-Determination Theory as well as the health-promoting resources as focused on the salutogenic model. The availability of safe, accessible and functional recreational spaces meant an assessment of the interplay between facility design and institutional support and student motivation and wellbeing. A total of 312 respondents were selected to be included, which exceeded the minimum number necessary to detect moderate correlations with adequate statistical power in correlational studies. The explicit choice of institutions with well-embedded and accessible wellness facilities was not accidental, as the significance of the built environment in directing health behaviors, involvement and overall wellbeing in university populations has been examined in other research papers (Feng & Li, 2018; Wang, 2025). Consequently, the sample was well-suited to examining the interrelationship among bodybuilding engagement, facility satisfaction, and multidimensional student wellness in an urban higher education setting.

Instrument

Data collection processes were implemented using a researcher-developed questionnaire, which was informed by validated constructs in the literature and was guided by the conceptual framework of the study. The instrument consisted of four main sections that were designed to express bodybuilding engagement, perceived wellness, facility satisfaction, and the motivation drivers. The first section, the Bodybuilding Engagement Scale, assessed student participation in resistance training regarding frequency of training (sessions per week), training duration (minutes per session), training intensity (self-rated training exertion), type of activity along with sources of motivation. Its structure and content were informed by previous

studies on resistance training behavior as well as psychological characteristics of bodybuilding participation (Devrim-Lanpir et al., 2023). The second section, or the Wellness Perception Inventory, assessed perceived well-being in the students in three domains: physical wellness (e.g., strength, endurance, and functioning of the body systems), psychological wellness (e.g., mood regulation, stress management, and self-esteem), social wellness (e.g., social belonging and interacting with peers). Items were drawn from current established frameworks of wellness and exercise psychology and adapted to the context of higher education and built upon approaches used in Happ et al. (2024) and Guy-Evans (2025). The third section was the Facility Satisfaction Index which discussed students' understanding of the facilities in the gymnasium and park. This scale recorded the satisfaction with accessibility, safety, comfort, quality of equipment as well as overall support of the environment. The construction of this section was informed by evaluative models in recreational facility evaluation, as well as in health promoting environments (Sousa Basto & Ferreira, 2025). The last part of the questionnaire, the Motivational Drivers Checklist, addressed intrinsic and extrinsic motivational orientations to bodybuilding participation. This component was expressly based on the Self-Determination Theory, focusing on autonomy, competence and relatedness as core motivational constructs (Standage & Ryan, 2020). Prior to full deployment, the questionnaire was piloted on a sample of 40 undergraduate students to assess clarity and reliability to the extent that preliminary construct validity is available. Item-total correlations were found to be acceptable ($> .30$), and the results of an exploratory factor analysis provided evidence for a three-factor structure comprising physical, psychological and social wellness. Internal consistency reliability coefficients (Cronbach's alpha) were good for subscales: physical wellness ($\alpha = .88$), psychological wellness ($\alpha = .86$), and social wellness ($\alpha = .85$). Content validity was also supported via expert review by three faculty who specialize in physical education and recreation administration to evaluate relevance, clarity and congruence of items to the objectives of the study.

Data collection procedure

Data were collected using a hybrid schema (both online and in-person survey modality) deployed in scheduled campus wellness initiatives and designated academic intermissions. This mixed-method approach was used to maximize response rates, while at the same time allowing for the temporal constraints and preferences demonstrated by the student body. Prior to data collection, ethical clearance was obtained from the relevant Institutional Review Board, ensuring all the investigative procedures complied with the strict set of ethical norms that guides research involving human participants. Each respondent was provided with an informed consent document outlining the study's objectives, voluntary participation, and procedure. Participants were specifically informed of the confidentiality and anonymity of their submissions, as well as their unequivocal right to withdraw from the study at any point in time

without incurring any academic or other penalty. Careful attention was given to data management protocols to ensure participant privacy and prevent unauthorized access to the data. The study was conducted in strict accordance with international ethical guidelines and relevant national statutes governing student research and the protection of human subjects (United Nations, 2025).

Data analysis

The quantitative data were analyzed with the help of IBM Sparks Statistics version 29. Analysis of descriptive statistics, such as frequencies, percentages, means, and standard deviations, was calculated to summarize the characteristic demographic data of the respondents during their participation in bodybuilding, the frequency, duration, and intensity of bodybuilding, perceived wellness outcomes, and satisfaction with the facilities in the gymnasium and park. These procedures yielded an overview of participation patterns and facility use that was in line with previous studies that analyzed student health and physical activity behavior (Albaugh et al., 2024).

Pearson product-moment correlation analysis was performed to test the relationships between engagement in bodybuilding and perceived wellness of a person in physical, psychological, and social domains. This analysis engaged in the 1st hypothesis of the relation between the participation on resistance training with the multidimensional student well-being, by following the demonstrated approach in the research on health behaviour and exercise psychology (Matthews et al., 2024).

To examine the predictive role of facility satisfaction on overall wellness, a simple linear regression analysis was performed. Model results included coefficients of determination (R^2 and adjusted R^2), F-statistics with corresponding degrees of freedom, standardized beta coefficients (β), and 95% confidence intervals. Multicollinearity was assessed using variance inflation factors (VIFs), and model assumptions were evaluated through inspection of residual plots and the Shapiro-Wilk test for normality, ensuring the robustness and interpretability of the regression estimates. Researchers studied intergroup differences in wellness outcomes using analysis of variance (ANOVA). One-way analysis of variance helped compare the perceived wellness between the demographic strata, for example, gender and academic cohort, which is consistent with comparably structured investigations in the student wellness literature (Graciano, 2022). Supplemental analyses with the help of pairwise t-tests of Analysis of Variance (ANOVA) investigated wellness disparities dependent on degrees of bodybuilding participation, satisfaction with facilities, and motivational antecedents. Upon highlighting statistically significant differences, relevant post hoc methods were followed with suitable assessments (i.e., including multiple comparisons) and effect size statistics were computed considering elucidating information on practical significance, following the modelling recommendations recommended in campus recreation and environmental health research (i.e., Liao et al., 2022).

Results

Respondents' profile

A sample of 312 undergraduates was recruited from the community within the university and was representative of the five-year levels. In terms of gender distribution, 58% of the sample considered themselves male and 42% considered themselves female. Concerning use of athletic facilities, a majority (67%) reported regular use of campus-based gymnasiums while only 41% reported infrequent or rare use of park-based recreational facilities. Bodybuilding became the preponderant model of physical activity, 74% of respondents chose it as their main form of physical activity. The most common reasons for participation included strength development, stress reduction, and improved body image. Overall, these descriptive results show a strong tendency for resistance-based training among students at large, urban universities.

Table 1
Respondent' profile

| Variable | Category | Frequency (n) | Percentage (%) |
|------------------|--------------------|---------------|----------------|
| Gender | Male | 181 | 58.0% |
| | Female | 131 | 42.0% |
| Year level | 1st Year | 62 | 19.9% |
| | 2nd Year | 71 | 22.8% |
| | 3rd Year | 65 | 20.8% |
| | 4th Year | 61 | 19.6% |
| | 5th Year | 53 | 17.0% |
| Gym access | Regular | 209 | 67.0% |
| Park access | Occasional or Rare | 128 | 41.0% |
| Primary activity | Bodybuilding | 231 | 74.0% |

The intensity of bodybuilding engagement

The results on bodybuilding involvement show sharp levels of involvement and regularity. A resounding presence of respondents, 61% in total, reported taking part in training sessions three or more times per week, with 48% exceeding the one-hour limit. The mean value for training frequency and self-rating of intensity are of high range. Furthermore, intrinsic motivation measures indicate a strong internal drive to carry out bodybuilding exercises. Collectively, these observations represent long-lasting, self-determined participation in resistance training among the student sample.

Table 2
Level of Bodybuilding Participation

| Indicator | Mean (M) | Standard Deviation (SD) | Interpretation |
|----------------------------|----------|-------------------------|------------------------|
| Frequency (sessions/week) | 3.87 | 0.94 | High |
| Duration (minutes/session) | 62.4 | 15.2 | Moderate to Long |
| Intensity (self-rated) | 4.12 | 0.68 | High |
| Intrinsic Motivation Score | 4.32 | 0.58 | Strong intrinsic drive |

Subjective outcomes of wellness

The results of the present investigation identified that students generally had positive perception of wellness in all three domains assessed. A higher mean score was obtained on the physical wellness, followed by the psychological wellness and social wellness. A high proportion of respondents suggested that regular participation in bodybuilding contributed to increased strength, endurance, and physical functioning in general. Similarly, many students reported positive psychological benefits such as decreased anxiety, enhanced mood and increased self-esteem. Social wellness outcomes were also positively rated, with the majority of respondents reporting some improvement in peer relationships and social interaction as a result of occurring activities in the gym. Collectively, these results indicate moderately high to very high health-related perceptions of wellness among students participating in bodybuilding.

Table 3
Perceived Effects of Bodybuilding on Wellness

| Wellness domain | Mean (M) | Standard Deviation (SD) | Interpretation |
|------------------------|----------|-------------------------|------------------|
| Physical wellness | 4.45 | 0.51 | Very High |
| Psychological wellness | 4.21 | 0.63 | High |
| Social wellness | 3.98 | 0.72 | Moderate to High |

Relations between wellness and engagement

The Pearson product moment correlation analysis revealed statistically significant positive relationships between participation in bodybuilding and the three major sectors of student wellness. In particular, the engagement had moderate to strong correlation with physical wellness, psychological, and social wellness. Consequently, these results suggest that high levels of bodybuilding participation are associated with more positive physical, psychological and social well-being outcomes among the students.

Table 4
The relationship between bodybuilding and the wellness domain

| Variable Pair | Correlation (r) | Significance (p) |
|--|-----------------|------------------|
| Bodybuilding to physical wellness | 0.59 | < 0.01 |
| Bodybuilding to psychological wellness | 0.53 | < 0.01 |
| Bodybuilding to social wellness | 0.47 | < 0.01 |

Satisfaction with gym and park facilities

Empirical results indicate significantly greater student satisfaction with campus gymnasium facilities than with park-based recreational spaces. As presented in Table 5, the average score of satisfaction for gymnasiums has been found to be higher than for parks. Feedback themes are emerging that gymnasiums are positively evaluated on the basis of the availability and quality of the equipment, perceived safety, and effective climate control. In contrast, park facilities are often seen as lacking sufficient shade

and specialist fitness equipment, limiting their usefulness for bodybuilding. These descriptive results indicate a large disparity in perceived quality of indoor and outdoor recreational environments. Satisfaction ratings do suggest that while gymnasiums are considered to be currently well supported and suitably purpose-built spaces for resistance training, park-facilities may not yet meet the functional and comfort needs of students engaged in bodybuilding activities for extended periods of time.

Table 5
Facility satisfaction ratings

| Facility type | Mean (M) | Standard Deviation (SD) | Key feedback themes |
|---------------|----------|-------------------------|--|
| Gymnasium | 4.18 | 0.66 | Equipment quality, safety, and climate |
| Park | 3.62 | 0.74 | Limited shade, lack of equipment |

Wellness as a dimension of facility satisfaction.

In order to examine the relationship of facility satisfaction and holistic student wellness, we implemented a simple linear regression model. The analysis demonstrated that facility satisfaction is a statistically significant predictor of overall wellness that accounts for about 14.4 percent of the variation in wellness scores. The model showed the statistical significance demonstrates that the recreational facilities perceived by the students exert a substantive influence on their holistic well-being. The parameter estimate for facility satisfaction had a moderate positive standardized effect on overall wellness. These results suggest that higher satisfaction with gymnasium and park amenities is related to more positive outcomes in terms of physical, psychological and social aspects of student wellness.

Table 6
Model summary for overall wellness

| Model | R^2 | Adjusted R^2 | F | df | p |
|---|-------|----------------|-------|----|--------|
| Facility satisfaction to overall wellness | 0.144 | 0.142 | 52.32 | 1 | < .001 |

Table 7
Predictor of overall wellness

| Predictor variable | Beta (β) | 95% CI | Significance (p) |
|-----------------------|------------------|---------------|------------------|
| Facility satisfaction | 0.38 | [0.277-0.483] | < .001 |

Discussion

The results of this study show that bodybuilding is an established and preferred physical activity among undergraduate students at an urban university setting. High participation levels, indicated by frequency, duration, and intensity of training, indicate that resistance training is no longer marginal and niche but a routine part of student lifestyles. The high levels of intrinsic motivation seen among this group of participants aligns with Self Determination Theory which suggests that intrinsic motivation is most likely to be sustained for physical activity if autonomy, competence,

and relatedness are supported within an exercise environment (Ntoumanis et al., 2021; Xu et al., 2025). As students advance academically and gain familiarity with training routines and social integration in gym spaces, these motivational mechanisms may be further bolstered. The positive relationships between bodybuilding engagement and physical, psychological, and social wellness prompt to a growing magnitude of facts demonstrating the multidimensional benefits of structured resistance training in university populations. High physical wellness scores seem to correspond with the results of prior studies, supporting organized strength for significant improvements in muscular strength, endurance, and overall functional wellbeing (Bird et al., 2024; Nikolić & Mraković, 2021). Concurrent psychological well-being benefits contribute to salutogenic perspectives on PA where regular involvement fosters psychophysiological well-being components such as improvements in emotional regulation, stress coping and resilience via enhancing an effective sense of coherence (Happ et al., 2024; Soares-Santeugini et al., 2025). Furthermore, the positive social wellness outcomes imply that campus gyms serve as social micro-communities that contribute to social interaction between students, shared goals, and informal support networks to students' sense of belonging (Belošević & Ferić, 2022; Blažević & Hromin, 2024; Wilson, 2022).

Facility satisfaction emerged as a key contextual factor that influenced student experiences. Consistent with campus recreation and environmental design literature, students rated satisfaction with gymnasiums as much higher than park-based facilities, citing better equipment availability, perceived safety, and climate control being as main reasons for their choices (Feng & Li, 2018; Liao et al., 2022). Regression results provided further evidence that recreational facilities satisfaction was a significant predictor of overall wellness, supporting the idea of the role of operational and design decisions as indirect health interventions. These results contribute to contemporary design perspectives for hybrid indoor/outdoor recreational ecologies that create more accessibility and equity through shaded outdoor stations and fitness zones with specific design purposes (Wang, 2025). Although the overall engagement was high, the results indicate an uneven participation among student subgroups. Lower engagement across populations may stem from gendered experiences, body-image concerns, and cultural views of gym settings as noted in previous research (Knowlton & Newland, 2024; Wilson, 2022). To overcome these obstacles, not only is it necessary to do infrastructural work, but implement gender-responsive programming that thoughtfully addresses gender aspects, inclusivity, and psychological security. Integrating supportive initiatives such as peer mentoring, beginner friendly programming and digital support for guidance may help reduce participation barriers particularly for less confident or inexperienced students in resistance training (Hublin et al., 2021; Jabučanin et al., 2025; Ružić-Baf et al., 2023). These measures would suit the institutional concerns related to Sustainable Development Goals 3 (Good Health and Well-Being) and 4 (Quality Education) that propose a focus on inclusion and evidence-based methods of student development (United Nations, 2025; UNICEF, 2025).

There are various limitations that should be acknowledged. The cross-sectional,

correlational design does not permit causal inferences to be inferred on the links between bodybuilding engagement, satisfaction with facilities, and outcomes wellness. Use of self-reported data poses the risk of recall bias and the social desirability effect. Additionally, the sample drawn from urban universities in Metro Manila, from students engaged in resistance-based activities and limited to regulars is not generalizable to rural settings or inactive populations. Future research employing longitudinal or experimental designs across various institutional settings is suggested to overcome such weaknesses.

Conclusion

This research concludes that the practice of bodybuilding, support by appropriate institutional infrastructure and motivational conditions, is positively related with the physical, psychological and social wellbeing of university students. Elevated levels of engagement and intrinsic motivation indicate that resistance training has become an integral part of student wellness at urban campuses. Students also reported improvements in their physical health, emotional wellbeing and social connectedness. The results further illustrate the important role that recreational amenities at the campus play in shaping wellness outcomes. Satisfaction with gymnasium and park facilities became a significant predictor of general wellness and thus emphasizes the importance of well maintained, easily available, and well-thought-out recreational spaces. While indoor gymnasiums were generally favored, the limited use of outdoor parks suggests there is untapped potential to exploit outdoor parks which may be levered through strategic design improvements and targeted programming. Collectively, these results support the case for the appraisal of bodybuilding as a viably inclusive, institutionally appropriate wellness alternative divergent to the goals of health and education identically expressed globally.

Recommendations

Empirical evidence supports formally introducing bodybuilding into universities through structured programs such as planned training modules, peer-led mentorship programs, and wellness education focused on the physical, psychological, and sociological value of resistance training. Integrating these provisions into the frameworks of organizational wellness can foster a viable culture of health, robustness, and increased student involvement on campuses. Campus planners and administrators should focus on accessibility, safety, and flexibility in both gymnasium and park facilities. Strategic investments should be directed to sufficient equipment supply, climate-resilient structure and design, efficient crowd management and inclusive spatial structure (inclusive of diverse user demographics). The implementation of shaded outdoor fitness areas and a combination of indoor and outdoor fitness spaces may boost the participation of some students who prefer, or have demands requiring, alternative to conventional indoor spaces. Operational impediments, namely, restricted facility hours and crowding at

peak hours, are impediments that need to be mitigated through judicious scheduling and program design. Implementing peer-mentoring systems, progressive steps toward skill and building digital assistance and utilization (e.g., mobile apps to help teach and organize days), these types of programs can even further reduce barriers to participation and broaden the benefits of bodybuilding to less active or apprehensive shoulder populations.

Finally, future research should explore the long-term impact of bodybuilding on academic performance, emotional regulation proficiency, and student retention. Comparative studies at regional and cultural level are encouraged to explain the transferability of bodybuilding as a wellness strategy. A holistic, data-driven approach will ensure that bodybuilding is no longer an individual activity but part of the strategic institutional approach that ensures healthy, inclusive, and vibrant campus communities.

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Bodybuilding kao rekreacijska strategija: njegova uloga u poboljšanju dobrobiti studenata i institucionalne vitalnosti u kampuskim teretanama i parkovima

Sažetak

Područja wellness rekreacije, poput parkova i teretana, nude studentima različite načine za jačanje mišića te mnoštvo društvenih, tjelesnih i psiholoških koristi. Provedena je prosječna, korelacijska studija s 312 studenata preddiplomskoga studija na nekoliko urbanih kampusa koji su imali teretanu i obližnji park, koristeći tehniku stratificiranoga uzorkovanja. Zabilježen je upitnik koji je mjerio (a) angažman (motivaciju, učestalost, trajanje, intenzitet), (b) dobrobit (socijalnu, psihološku, tjelesnu) i zadovoljstvo različitim aspektima objekta (udobnost, sigurnost, pristup i oprema). Analize su uključivale deskriptivnu statistiku, Pearsonove korelacije i analize linearne regresije, koje su testirale odnos između opće dobrobiti i zadovoljstva infrastrukturnim sadržajima, uz standardne dijagnostike regresije. Angažman nije bio samo opsežan, već je bio rezultat intrinzične motivacije: 61 % studenata treniralo je u visokom intenzitetu 3 ili više puta tjedno. Studenti su izvijestili o umjerenim razinama dobrobiti u tjelesnim, psihološkim i društvenim područjima. Angažman je imao statistički značajnu pozitivnu povezanost sa svakim područjem blagostanja ($r = ,47- ,59, p < ,01$). Studenti su izrazili veću zadovoljstvo kvalitetom teretana u usporedbi s objektima koji se nalaze u parkovima. Teretane su percipirane kao povoljnije u odnosu na parkove, djelomično zbog veće dostupnosti opreme, pri čemu su studenti sigurnost i kontrolu klimatskih uvjeta ocijenili višim vrijednostima. Zadovoljstvo objektima bilo je statistički značajan prediktivni faktor u općoj dobrobiti ($R^2 = ,144, b = ,38, p < ,001$). Prepreke za korištenje bile su pretrpanost, malo radnih sati te sjenila i dobro opremljeni prostori u parku. Iako postoje praznine koje treba ispuniti u pogledu unutarnjega i vanjskoga prostora, što više praznina bude ispunjeno, to će bolje biti opće zdravlje studenata. Konkretnije, u cilju ublažavanja nedostataka u parkovima i teretanama te unaprjeđenja općeg zdravlja studenata, preporučuje se uvođenje

(1) opreme za hlađenje koja osigurava sjenu, (2) unaprjeđenje sigurnosne opreme te (3) poboljšanje održavanja uz smanjenje razine gužve. Hibridni model koji integrira robusno opremljene teretane i namjenski izgrađene vanjske prostore za vježbanje povećava dostupnost, omogućuje angažman stručnog osoblja usmjerenog na operativne ciljeve te potiče inkluziju, osobito među ženama i skupinama koje pokazuju otpor prema teretanskoj kulturi. Ciljano osmišljeni programi i dizajnerske odluke pritom djeluju kao važne javnozdravstvene intervencije.

Ključne riječi: *sudjelovanje u bodybuildingu; sveučilišna teretana; tjelesna kultura; rekreacijska infrastruktura; dobrobit studenata*

Uvod

Dobrobit studenata postala je temeljno pitanje za visokoobrazovne institucije koje je intrinzično povezano s akademskim uspjehom, zadržavanjem studenata i održivošću institucije (Henrico, 2022; Wilson, 2022). Od sveučilišta se sve više očekuje da, uz pružanje nastave, oblikuju okruže u kojem su tjelesno, psihološko i socijalno blagostanje više od deklarativnih načela, odnosno postaju proživljena iskustva (Mazurek, Melnyk i Click, 2024). U ovom okružju, rekreativna tjelesna aktivnost pojavila se kao značajna institucionalna mjera za očuvanje dobrobiti studenata (Aquino, 2023; Belošević i Ferić, 2022; Blažević i Hromin, 2024). Među različitim oblicima tjelesne aktivnosti dostupnima u kampusnom okružju, bodybuilding, definiran kao strukturirani trening otpora usmjeren na razvoj snage i zdravlja, a ne na natjecateljsko tjelesno postignuće, sve više dobiva na popularnosti među studentima, no i dalje je nedovoljno istražen kao holistički pristup dobrobiti u kampusnim okružjima.

Nekada percipiran kao nišna ili subkulturna aktivnost, bodybuilding je postao široko rasprostranjen oblik tjelesne aktivnosti s dobro dokumentiranim višedimenzionalnim koristima. Empirijska istraživanja dokazuju da trening otpora ne samo da je doprinio poboljšanju mišićne snage, izdržljivosti i funkcionalne kondicije (Bird i sur., 2024), već je također pomogao u poboljšanju emocionalne regulacije, ublažavanju simptoma anksioznosti i depresije te povećanju samopouzdanja među mladim odraslim osobama (Arabacı i sur., 2025; Luo i sur., 2024; Marinelli i sur., 2024). Nedavne sustavne recenzije i metaanalize potvrđuju da je strukturirani trening otpora učinkovita nefarmakološka intervencija za poboljšanje psihološke dobrobiti među studentima (Marinelli i sur., 2024). Ove koristi često se objašnjavaju putem teorije samoodređenja (SDT), koja naglašava ispunjenje autonomije, kompetencije i povezanosti kao važne motivatore za održavanje motivacije i pozitivne zdravstvene ishode (Ntoumanis i sur., 2021; Standage i Ryan, 2020), te salutogenetski model, koji naglašava razvoj osjećaja koherentnosti kao put do postajanja otpornijim i općenito zdravijim (Soares-Santeugini i sur., 2025). Unatoč rastućem broju međunarodnih radova, bodybuilding je nedovoljno iskorišten kao planirani i namjerni dio institucionalnoga planiranja wellnessa, posebno u kontekstu zemalja u razvoju poput Filipina. Iako neka od tih sveučilišta raspolažu teretanama i otvorenim parkovima, aktivnosti koje uključuju trening otpora često su

neformalno organizirane, nedovoljno strukturirane i slabo integrirane u formalne okvire wellnesa (Aquino, 2023). Osim toga, postojeća istraživanja na Filipinima uglavnom su se fokusirala na opću angažiranost u tjelesnoj aktivnosti i percepcije o tjelesnom odgoju, dok se malo pažnje posvećuje strukturiranom treningu snage i njegovim psihosocijalnim posljedicama (Graciano, 2022). Štoviše, velika većina literature o bodybuildingu širom svijeta fokusira se na fiziološke ishode (tj. hipertrofiju, dobitke u snazi), a premalo pažnje usredotočeno je na bilo koji psihološki element, uključujući kulturu teretane, interakciju s vršnjacima, spol, pritiske vezane uz tjelesnu sliku i percipiranu inkluzivnost (Knowlton i Newland, 2024; Wilson, 2022). Ovi su aspekti posebno relevantni zbog nacionalnih i globalnih aktivnosti usmjerenih na postizanje Ciljeva održivoga razvoja 3 (Dobro zdravlje i blagostanje do 2030.) i 4 (Kvalitetno obrazovanje do 2030.), koji pozivaju na uključive, na dokazima utemeljene pristupe promicanju zdravlja studenata unutar obrazovnih institucija (Ujedinjeni narodi, 2025). Posljedično, osim individualnoga sudjelovanja, izgrađeno okruženje predstavlja važan korak u određivanju ishoda zdravlja. Sveučilišne teretane i parkovi značajno se razlikuju u pogledu dostupnosti opreme, sigurnosti, pristupačnosti, kontrole klimatskih uvjeta i opće razine udobnosti, a poznato je da svi ti čimbenici imaju snažan utjecaj na zadovoljstvo korisnika i njihovu dugoročnu uključenost (Feng i Li, 2018; Liao i sur., 2022; Marojević, 2024). Istraživanja u područjima kampuske rekreacije i dizajna okoliša nastavljaju pokazivati da je zadovoljstvo objektima pozitivno povezano s povećanim stopama sudjelovanja i poboljšanim zdravstvenim ishodima (Makubuya i sur., 2020; Wang, 2025). Ipak, empirijske studije koje izravno ispituju odnos zadovoljstva teretanama i parkovnim sadržajima s predikcijom višedimenzionalnoga blagostanja studenata, osobito iz komparativne perspektive unutarnjih i vanjskih prostora, i dalje su ograničene. Razumijevanje toga odnosa ključno je jer odluke o dizajnu i upravljanju objektima mogu djelovati kao neizravne, ali snažne javnozdravstvene intervencije, s obzirom na to da utječu na motivaciju, pravedan pristup i dugoročnu posvećenost korisnika (npr. Kim i sur., 2024; Wang, 2025).

Stoga, postoji potreba da se u ovoj studiji detaljno ispita bodybuilding kao strateška rekreacijska intervencija, koja će poboljšati dobrobit studenata u cjelini. Slijedom navedenoga, ova studija ispituje: (a) razine angažmana i intrinzične motivacije u različitim oblicima treninga otpora, (b) percipiranu tjelesnu, psihološku i socijalnu dobrobit studenata te (c) zadovoljstvo studenata teretanama i parkovnim sadržajima na kampusu kao prediktore ukupne dobrobiti. Utemeljena na teoriji samoodređenja i salutogenom modelu (Ntoumanis i sur., 2021; Soares-Santeugini i sur., 2025) te s ciljem unaprjeđenja literature o bodybuildingu, ova je studija imala za cilj unaprijediti postojeću literaturu integriranjem bihevioralnih, psihosocijalnih i okolišnih dimenzija bodybuildinga, specifičnih za kontekst visokoga obrazovanja na Filipinima. Ujedno nastoji redefinirati bodybuilding ne kao praksu usmjerenu isključivo na tjelesni izgled ili rezerviranu za elitne skupine, već kao uključivu, na dokazima utemeljenu i institucionalno relevantnu komponentu kampuske dobrobiti, u skladu s načelima Ciljeva održivoga razvoja.

Konceptualne i teorijske osnove percipirane socijalne determinacije i salutogenih principa.

Ova studija čvrsto se oslanja na teoriju samoodređenja (SDT) i salutogeni model koji oboje nude rigorozan teorijski okvir za prikazivanje učinka strukturiranih tjelesnih aktivnosti poput bodybuildinga na dobrobit studenata u kontekstu visokoga obrazovanja. Ove komplementarne konstrukcije ističu činjenicu da zdravlje i dobrobit nisu isključiva povlastica individualnoga ponašanja, već proizlaze iz interakcije između procesa motivacije, konteksta okoline i sustava socijalne podrške (Ntoumanis i sur., 2021; Soares-Santeugini i sur., 2025). Teorija samoodređenja tvrdi da će sudjelovanje u tjelesnoj aktivnosti vjerojatno biti održano na duge staze kada su ispunjene tri osnovne psihološke potrebe: potrebe za autonomijom, kompetencijom i povezanošću (Standage i Ryan, 2020; Ntoumanis i sur., 2021). Unutar područja bodybuildinga na kampusu, takve potrebe mogu se ispuniti kada studenti imaju priliku odabrati treninge koji su u skladu s njihovim ciljevima, kada percipiraju dokaze o mjerljivom napretku u snazi i kondiciji te doživljavaju podržavajuće interakcije s vršnjacima vježbajući u teretani ili parku. Empirijska izvješća pokazala su da su okružja za vježbanje koja podržavaju autonomiju povezana s višim razinama intrinzične motivacije, a time i s ustrajnošću i psihološkim faktorima kao što su veće razine ustrajnosti, autonomija utemeljena na osobnim ciljevima i posvećenost zadatku (Xu i sur., 2025, Lou i sur., 2024). Iz toga razloga, SDT pruža koristan okvir za promatranje u kojoj mjeri motivacijski čimbenici posreduju u povezanosti između bodybuildinga i dobrobiti studenta. Dopunjujući SDT, salutogena perspektiva također se fokusira na razvoj „osjećaja koherentnosti” koji se može opisati kao stupanj u kojem pojedinci doživljavaju život kao razumljiv, upravljiv i smislen (Soares-Santeugini i sur., 2025). Pokazalo se da tjelesna aktivnost, posebno organizirani trening snage, jača osjećaj koherentnosti i snaži osjećaje emocionalne modulacije, vještine suočavanja sa stresom i kontrole vlastitoga zdravlja (Happ i sur., 2024; Marinelli i sur., 2024). S ovoga salutogenetskog stajališta može se vidjeti da bodybuilding nije samo aktivnost usmjerena na fitness, već i čimbenik koji promiče zdravlje, jačajući otpornost i psihološku stabilnost, osobito tijekom akademski i socijalno zahtjevnih godina na sveučilištu. Ova sinteza načela SDT-a i načela salutogeneze sugerira posredničku ulogu koju izgrađeno okružje ima u ishodima zdravlja i bolesti. Sveučilišne teretane i parkovi razlikuju se s obzirom na kvalitetu opreme, sigurnost, pristupačnost i druge vanjske čimbenike koji mogu podržati ili ometati motivacijske potrebe i osjećaj koherentnosti studenata (Feng i Li, 2018; Lia i sur., 2022; Marojević, 2024). Istraživanja u područjima kampuske rekreacije i upravljanja objektima dosljedno pokazuju da je zadovoljstvo fizičkim okružjima pozitivno povezano s angažmanom, percipiranim blagostanjem i trajnim sudjelovanjem u ponašanjima povezanim sa zdravljem (Makubuya i sur., 2020; Wang, 2025). Stoga zadovoljstvo infrastrukturnim uvjetima ima dvostruku ulogu: djeluje kao kontekstualni čimbenik koji potiče intrinzičnu motivaciju, u skladu s teorijom samoodređenja (SDT), te kao strukturni zdravstveni resurs, kako je konceptualizirano

u okviru salutogene teorije. Unatoč rastućem broju međunarodnih radova koji promiču takve teorijske poveznice, njihova primjena unutar filipinske visokoškolske scene još je uvijek oskudna. Lokalna istraživanja uglavnom su se bavila tretmanom vježbanja u okviru ukupnoga sudjelovanja u tjelesnoj aktivnosti, bez integriranja ideja motivacijske teorije, konteksta okružja i višeslojnoga pristupa rezultatima dobiti (Aquino, 2023; Graciano, 2022). Nadalje, psihosocijalna pitanja, uključujući rodna iskustva, pritiske povezane s tjelesnom slikom te kulturne obrasce vezane uz kulturu teretana, često su nedovoljno zastupljena u literaturi, unatoč dokazima koji upućuju na njihov značajan utjecaj na pristup, osjećaj ugođe i dostupnost aktivnosti usmjerenih na razvoj snage (Knowlton i Newland, 2024; Wilson, 2022). Rješavanje ovih praznina zahtijeva okvir koji istovremeno obrađuje svako od ovih područja individualne motivacije, društvene i institucionalne infrastrukture. Prema tome, ova studija smatra rekreacijske objekte i programske odluke aktivnim elementima promicanja zdravlja na kampusu, nasuprot neutralnim kontekstualnim okolnostima. Ovaj pristup izravno odgovara na pozive za pristupima wellnessu koji se temelje na dokazima, obuhvaćaju uključivost i informiranost o okolišu, a koji su usklađeni s Ciljevima održivog razvoja 3 (Dobro zdravlje i blagostanje i Svjetski institut za resurse, 2025, UNICEF) i 4 (Kvalitetno obrazovanje 2025; UN, 2025).

Konceptualni okvir

Koncept ove studije jest konstruirati bodybuilding kao strukturiranu slobodnu i rekreacijsku aktivnost koja će pridonijeti tjelesnoj, psihološkoj i socijalnoj dobiti studenata putem motivacijskih i okolišnih mehanizama u sveučilišnom okružju. Okvir konceptualizira dobit studenata kao rezultat dinamičkih interakcija između individualnoga angažmana, intrinzičnih motivacija i zadovoljstva postojećim teretanama i sadržajima u parkovima na kampusu (Ntoumanis i sur., 2021; Soares Santeugini i sur., 2025). Također, okvir pretpostavlja da se angažman u bodybuildingu održava i poboljšava kada kontekst vježbanja podržava osnovne psihološke potrebe studenata u smislu autonomije, kompetencije i povezanosti (Standage i Ryan, 2020; Ntoumanis i sur., 2021). Studentske teretane i parkovi koji su sigurni, dostupni i dobro opremljeni očekivano potiču intrinzičnu motivaciju omogućujući studentima da donose izbore, osjećaju napredak u vještinama i uspostavljaju socijalne veze s drugim studentima. U tom smislu, intrinzična se motivacija konceptualizira kao ključni posrednički proces kojim podržavajući uvjeti okoline prelaze u povišenu razinu sudjelovanja u aktivnostima bodybuildinga (npr. učestalost, trajanje i intenzitet) (Xu i sur., 2025; Luo i dr., 2024). Iz salutogenetske perspektive, okvir dodatno sugerira da redovito sudjelovanje u bodybuildingu jača osjećaj koherencije među studentima, tj. percepciju koju imaju o životnim iskustvima, koja moraju biti savladiva, smisljena i razumljiva, kao objašnjenje za psihološku stabilnost i, općenito, zdravlje (Soares-Santeugini i sur., 2025). Unutar ovoga modela, bodybuilding nije samo ponašanje usmjereno na tjelesnu kondiciju, već i resurs koji promiče zdravlje u korist unutarnje otpornosti, emocionalne regulacije

i prilagodljivosti zahtjevima studentskoga života (Happ i sur., 2024; Marinelli i sur., 2024). Zadovoljstvo infrastrukturnim uvjetima konceptualizirano je kao ključna okolišna odrednica unutar teorijskog okvira. Konkretno, zadovoljstvo sadržajima teretana i parkova—utemeljeno na percepcijama sigurnosti, pristupačnosti, udobnosti, dostupnosti opreme te podržavajućeg okoliša—pretpostavlja se da utječe na ishode dobrobiti putem dvaju mehanizama. Prvo, zadovoljstvo infrastrukturnim uvjetima neizravno poboljšava dobrobit studenata putem pojačane intrinzične motivacije i kontinuirano angažiranje u bodybuildingu. Drugo, ima izravan utjecaj na cjelokupnu dobrobit utječući na kvalitetu iskustva studenata u rekreacijskim aktivnostima, kao i na njihovu percepciju tjelesne i psihološke sigurnosti u prostorima kampusa (Makubuya i sur., 2020; Wang, 2025). U tom smislu, rekreacijski se sadržaji konceptualiziraju kao aktivna okružja koja promiču zdravlje, a ne kao pasivne tjelesne strukture. Prema tome, okvir postulira pozitivne odnose između angažmana u bodybuildingu (učestalost, trajanje i intenzitet) i tri područja studentske dobrobiti: tjelesne, psihološke i socijalne. Intrinzična motivacija djeluje kao posrednički mehanizam između podrške iz okoline i sudjelovanja te zadovoljstva infrastrukturnim uvjetima kao motivacijsko poboljšanje i izravni prediktor cjelokupne dobrobiti. Ovaj unificirani SDT-salutogeni model ističe važnost institucionalnoga dizajna i planiranja rekreacije kao strateškoga programa u skladu s ciljevima dobrobiti kampusa i većim ulaganjima u Ciljeve održivoga razvoja 3 (Dobro zdravlje i blagostanje) i 4 (Kvalitetno obrazovanje) (Ujedinjeni narodi, 2025; UNICEF, 2025).

Slika 1.

Istraživački ciljevi i hipoteze

Glavni fokus ove studije bio je ispitati odnose između sudjelovanja u bodybuildingu i dobrobiti studenata, s posebnim naglaskom na ulogu zadovoljstva sveučilišnim rekreacijskim sadržajima (posebno teretanama i parkovima) u tome kako oni utječu na tjelesnu, psihološku i socijalnu dobrobit među preddiplomskim studentima. Utemeljena u unaprijed definiranoj konceptualnoj shemi, studija je nastojala integrirati bihevioralne, motivacijske i okolišne dimenzije inherentne bodybuildingu u kampuskom kontekstu. Istraživanje je započelo opisom demografskih i participacijskih obilježja studenata, pri čemu su ispitanici razvrstani prema spolu, godini studija, dostupnosti rekreacijskih sadržaja u okviru ustanove te dominantnoj modalnosti vježbanja. Angažman u bodybuildingu potom je operacionaliziran u smislu učestalosti, trajanja i intenziteta sudjelovanja u bodybuildingu, uz mjerenja razina intrinzične motivacije. Zdravlje koje su studenti tražili procijenjeno je u okviru tjelesnih, psiholoških i socijalnih stanja kako bi se razumjelo u kojoj je mjeri sudjelovanje u bodybuildingu korelirano s višedimenzionalnim zdravstvenim ishodima. Štoviše, studija je ocijenila zadovoljstvo studenata u vezi sa sadržajima teretana i parkova u smislu percipirane sigurnosti, pristupačnosti, udobnosti i dostupnosti opreme. Na kraju, u analitičkoj fazi odredilo se je li ukupno zadovoljstvo infrastrukturnim uvjetima značajan prediktor cjelokupne

dobrobiti studenata. Vođeni presjekom teorije samoodređenja i salutogenoga modela, studija je postavila sljedeće hipoteze:

Hipoteza 1: Sudjelovanje u bodybuildingu pozitivno je povezano s tjelesnom, psihološkom i socijalnom dobrobiti studenata.

Hipoteza 2: Studenti iskazuju statistički značajno više razine zadovoljstva sadržajima teretana na kampusu u usporedbi s rekreacijskim sadržajima u parkovima.

Hipoteza 3: Zadovoljstvo rekreacijskim sadržajima na kampusu predstavlja značajan pozitivan prediktor opće dobrobiti studenata.

Metodologija

Istraživački dizajn

U ovom istraživanju korišten je presječni i deskriptivni korelacijski istraživački dizajn kako bi se istražila pitanja u vezi s odnosima između sudjelovanja u bodybuildingu, zadovoljstva rekreacijskim sadržajima na kampusu i dobrobiti studenata. Takav dizajn je prikladan za istraživanje prirodno nastalih asocijacija među sveučilišnom populacijom, kao i za testiranje teorijski utemeljenih, usmjerenih hipoteza bez eksperimentalne manipulacije. U skladu s prethodnim istraživanjima o promjenama u ponašanju vezanom uz zdravlje i strukturiranoj rekreaciji, ovaj pristup otvara put za istraživanje povezanosti između primjera sudjelovanja u bodybuildingu i višefaktorskih mjera dobrobiti, kao što su tjelesna kondicija, psihološka snaga i socijalna povezanost (Luo i sur, 2024). Zahvaćajući iskustvo studenata u jednom vremenskom presjeku, studija ima za cilj pružiti sažet i metodološki utemeljen pregled trendova angažmana te percipiranih ishoda dobrobiti u teretanama i parkovima na kampusu. Iako nacrt istraživanja ne omogućuje uzročno zaključivanje, on je prikladan za identifikaciju značajnih odnosa koji mogu poslužiti kao osnova za razvoj teorije, institucionalno planiranje te buduća longitudinalna ili eksperimentalna istraživanja. S obzirom na to da je uzorak s urbanih sveučilišta, s uspostavljenom rekreacijskom infrastrukturom, nalazi imaju najviše primjene u sličnim okružjima visokoga obrazovanja.

Sudionici

Istraživački uzorak činili su studenti preddiplomskoga studija u dobi od 18 do 25 godina, upisani na odabrane sveučilišta smještene unutar Metro Manile, koja imaju teretane na kampusu i obližnje parkove za rekreativno vježbanje. Korištena je stratificirana metoda slučajnoga uzorkovanja kako bi se postigao cilj poboljšanja reprezentativnosti, pri čemu su spol i akademska godina bili glavne stratifikacije. Načelo proporcionalne alokacije korišteno je kako bi se osigurala uravnotežena reprezentacija u ovome skupu pododjela. Kriterij sudjelovanja zahtijevalo je da studenti budu trenutačno angažirani i aktivno uključeni u trening otpora ili trening snage na kampusu. Osobe koje su imale medicinske kontraindikacije za vježbe snage isključene su kako bi se osiguralo da istraživanje bude sigurno za sve sudionike te da se očuva valjanost prikupljanja i izvještavanja podataka. Ovaj kriterij uključivanja omogućio je da se studija usmjeri

posebno na studente koji imaju izravno iskustvo s bodybuildingom i rekreacijskim sadržajima na kampusu kako bi se ojačala relevantnost mjerene angažiranosti i ishoda dobiti.

Sveučilišta su namjerno odabrana da predstavljaju tradicionalne rekreacijske sustave koji postoje na velikim urbanim kampusima, uključujući zatvorene teretane i otvorene prostore poput parkova. Ova okružja pružila su prikladne kontekste za istraživanje institucionalnih i okolišnih čimbenika koji promiču autonomiju, kompetenciju i povezanost, kako je navedeno u teoriji samoodređenja, kao i resursa koji promiču zdravlje, s naglaskom na salutogenom modelu. Dostupnost sigurnih, pristupačnih i funkcionalnih rekreacijskih prostora značila je procjenu međusobnoga utjecaja dizajna infrastrukturnih sadržaja i institucionalne podrške te motivacije i dobiti studenata. Ukupno je odabrano 312 ispitanika koji su uključeni, što je premašilo minimalni broj potreban za otkrivanje umjerenih korelacija s adekvatnom statističkom snagom u korelacijskim studijama. Izričit odabir institucija s dobro razvijenim i dostupnim wellness sadržajima nije bio slučajna, s obzirom na to da je uloga izgrađenoga okružja u usmjeravanju zdravstvenih ponašanja, uključenosti te opće dobiti među sveučilišnom populacijom već potvrđena u prethodnim istraživanjima (Feng i Li, 2018; Wang, 2025). Posljedično, uzorak je bio dobro prilagođen proučavanju međusobne povezanosti između sudjelovanja u bodybuildingu, zadovoljstva sadržajima i višedimenzionalne dobiti studenata u urbanom visokom obrazovanju.

Instrument

Procesi prikupljanja podataka provedeni su korištenjem upitnika koji je razvio istraživač, a koji je bio temeljen na validiranim konstrukcijama iz literature i vođen konceptualnim okvirom studije. Instrument se sastojao od četiriju glavnih odjeljaka, osmišljenih za procjenu angažmana u bodybuildingu, percipirane dobiti, zadovoljstva infrastrukturnim uvjetima te motivacijskih čimbenika. Prvi dio, Skala sudjelovanja u bodybuildingu, procjenjivao je sudjelovanje studenata u treningu snage s obzirom na učestalost trening tjedne sesije), trajanje treninga (minute po sesiji), intenzitet treninga (samoprocjena uložena napora tijekom treninga), vrstu aktivnosti zajedno izvorima motivacije. Njegova struktura i sadržaj bili su oblikovani u prethodnim istraživanjima o ponašanju u otporu treninga, kao i psihološkim karakteristikama sudjelovanja u bodybuildingu (Devrim-Lanpir i sur., 2023). Drugi dio, ili Inventar percepcije dobiti, procijenio je percipiranu dobit kod studenata u trima područjima: tjelesna dobit (npr. snaga, izdržljivost i funkcioniranje tjelesnih sustava), psihološka dobit (npr. regulacija raspoloženja, upravljanje stresom i samopouzdanje) te socijalna dobit (npr. socijalna pripadnost i interakcija s vršnjacima). Stavci su preuzeti iz trenutačno uspostavljenih okvira wellnessa i psihologije vježbanja te prilagođeni kontekstu visokoga obrazovanja, oslanjajući se na pristupe korištene u Happ i sur. (2024) i Guy-Evans (2025). Treći dio činio je Indeks zadovoljstva infrastrukturnim sadržajima, koji je procjenjivao percepcije studenata o objektima u teretani i parku. Skala se odnosila na zadovoljstvo pristupačnošću, sigurnošću, udobnošću, kvalitetom

opreme te općom podrškom okoliša. Konstrukcija ovoga dijela bila je utemeljena na evaluacijskim modelima procjene rekreacijskih objekata, kao i okružja koja promiču zdravlje (Sousa Basto i Ferreira, 2025). Zadnji dio upitnika, Popis motivacijskih čimbenika, bavio se intrinzičnim i ekstrinzičnim motivacijskim orijentacijama za sudjelovanje u bodybuildingu. Ova komponenta bila je izričito temeljena na teoriji samoodređenja, s naglaskom na autonomiju, kompetenciju i povezanost kao ključne motivacijske konstrukte (Standage i Ryan, 2020). Prije potpune primjene, upitnik je testiran na uzorku od 40 studenata preddiplomskoga studija kako bi se procijenila jasnoća i pouzdanost u mjeri u kojoj je dostupna preliminarna valjanost konstrukta. Korelacije između stavki i ukupnoga rezultata pokazale su se prihvatljivima ($> ,30$), a rezultati eksploratorne faktorske analize pružili su dokaze za trofaktorsku strukturu koja obuhvaća tjelesnu, psihološku i socijalnu dobrobit. Koeficijenti unutarnje konzistencije pouzdanosti (Cronbachova alfa) bili su dobri za podskale: tjelesna dobrobit ($\alpha = ,88$), psihološka dobrobit ($\alpha = ,86$) i socijalna dobrobit ($\alpha = ,85$). Valjanost sadržaja također je podržana pregledom triju nastavnika koji se specijaliziraju za tjelesno obrazovanje i upravljanje rekreacijom kako bi procijenili relevantnost, jasnoću i usklađenost stavki s ciljevima studije.

Postupak prikupljanja podataka

Podatci su prikupljeni primjenom hibridnoga pristupa, kombinacijom *online* i osobnoga anketiranja, provedenoga tijekom planiranih inicijativa za dobrobit na kampusu te u okviru određenih akademskih stanki. Ovaj mješoviti pristup korišten je radi maksimiziranja stope odaziva, uz istodobno uvažavanje vremenskih ograničenja i preferencija studenata. Prije početka prikupljanja podataka dobiveno je odobrenje nadležnoga institucionalnog etičkog odbora, čime je osigurana usklađenost svih istraživačkih postupaka sa strogim etičkim standardima za istraživanja koja uključuju ljudske sudionike. Svakom ispitaniku dostavljen je dokument o informiranom pristanku koji je opisivao ciljeve studije, dobrovoljno sudjelovanje i postupak. Sudionicima su posebno naglašena jamstva o povjerljivosti i anonimnosti njihovih osobnih podataka, te o njihovom nedvojbenom pravu da se u bilo kojem trenutku povuku iz sudjelovanja u istraživanju bez ikakvih kompenzacijskih ili akademskih posljedica. Pažnja je posvećena protokolima upravljanja podacima kako bi se osigurala privatnost sudionika i spriječio neovlašteni pristup podacima. Provedba istraživanja bila je u potpunosti usklađena s međunarodnim etičkim smjernicama te relevantnim nacionalnim propisima koji reguliraju istraživanja na studentima i zaštitu ljudskih ispitanika. (Ujedinjeni narodi, 2025).

Analiza podataka

Kvantitativni podatci analizirani su pomoću IBM Sparks Statistics verzije 29. Analiza deskriptivne statistike, kao što su frekvencije, postotci, srednje vrijednosti i standardne devijacije, izračunata je kako bi se saželi karakteristični demografski podatci ispitanika tijekom njihovoga sudjelovanja u bodybuildingu, frekvencija, trajanje i intenzitet bodybuildinga, percipirani rezultati dobrobiti te koliko su bili zadovoljni

sadržajima u teretani i parku. Ove su procedure pružile pregled obrazaca sudjelovanja i korištenja objekata koji je bio u skladu s prethodnim studijama koje su analizirale zdravlje studenata i ponašanje u tjelesnoj aktivnosti (Albaugh i sur., 2024). Provedena je Pearsonova korelacija produkta-momenta kako bi se ispitali odnosi između angažmana u bodybuildingu i percipirane dobrobiti u tjelesnoj, psihološkoj i socijalnoj domeni. Ovom analizom testirana je prva hipoteza o povezanosti sudjelovanja u treningu snage i multidimenzionalne dobrobiti studenata, u skladu s pristupima istraživanja zdravstvenoga ponašanja i psihologije vježbanja (Matthews i sur., 2024).

Kako bi se ispitala prediktivna uloga zadovoljstva infrastrukturnim sadržajima na opću dobrobit, provedena je jednostavna linearna regresijska analiza. Rezultati modela uključivali su koeficijente determinacije (R^2 i prilagođeni R^2), F-statistike s odgovarajućim stupnjevima slobode, standardizirane beta koeficijente (β) i 95 % intervale pouzdanosti. Multikolinearnost procijenjena je korištenjem faktora inflacije varijance (VIF), a pretpostavke modela evaluirane su pregledom rezidualnih grafova i Shapiro–Wilkov testa normalnosti, osiguravajući robusnost i interpretabilnost regresijskih procjena. Istraživači su proučavali međugrupne razlike u ishodima dobrobiti koristeći analizu varijance (ANOVA). Jednosmjerna analiza varijance pomogla je usporediti percipiranu dobrobit između demografskih strata, na primjer, spol i akademska skupina, što je u skladu s usporedivo strukturiranim istraživanjima u literaturi o dobrobiti studenata (Graciano, 2022). Dodatne analize pomoću parnih t-testova analize varijance (ANOVA) istražile su razlike u dobrobiti ovisno o razinama sudjelovanja u bodybuildingu, zadovoljstvu objektima i motivacijskim čimbenicima. Nakon isticanja statistički značajnih razlika, primijenjene su relevantne post hoc metode s odgovarajućim procjenama, tj. uključujući višestruke usporedbe, a statistike veličine učinka izračunate su uzimajući u obzir informacije kojima se objašnjava praktična važnost, slijedeći preporuke modeliranja u istraživanjima kampuskve rekreacije i zdravstvene zaštite okoliša (Liao i sur., 2022).

Rezultati

Profil ispitanika

Uzorak od 312 studenata preddiplomskoga studija regrutiran je iz zajednice unutar sveučilišta i bio je reprezentativan za petogodišnje razine. Što se tiče spolne distribucije, 58 % uzorka smatralo se muškarcima, a 42 % ženama. Što se tiče korištenja sportskih objekata, većina (67 %) izvijestila je o redovnom korištenju teretana na kampusu, dok je samo 41 % izvijestilo o rijetkom ili povremenom korištenju rekreacijskih objekata u parkovima. Bodybuilding je dominantan model tjelesne aktivnosti, 74 % ispitanika odabralo ga je kao svoju glavni oblik tjelesne aktivnosti. Najčešći razlozi za sudjelovanje uključivali su razvoj snage, smanjenje stresa i poboljšanje tjelesnoga izgleda. Uzimajući u obzir sve navedeno, rezultati pokazuju snažnu sklonost treningu s otporom među studentima na velikim urbanim sveučilištima.

Tablica 1

Intenzitet angažmana u bodybuildingu.

Rezultati vezani uz angažman u području bodybuildinga pokazuju oštre granice uključenosti i redovitosti. Značajan postotak ispitanika, koji čini 61 % ukupnoga broja, izjavilo je da sudjeluje u treninzima tri ili više puta tjedno, dok je 48 % izjavilo da trajanje sesija premašuje sat vremena. Srednja vrijednost učestalosti treninga i samoprocenjivanje intenziteta u visokom su rasponu. Nadalje, mjera intrinzične motivacije ukazuje na snažan unutarnji poticaj za izvođenje vježbi bodybuildinga. Zajedno, ova zapažanja predstavljaju dugotrajno, samoodređeno sudjelovanje u treningu snage u uzorku studentske populacije.

Tablica 2

Subjektivni ishodi dobiti

Nalazi ovoga istraživanja pokazali su da su studenti općenito izvještavali o pozitivnim razinama dobiti u sva tri ispitivana područja. Viši prosječni rezultat postignut je u tjelesnoj dobiti, a slijede ga psihološka dobit i socijalna dobit. Visok postotak ispitanika sugerirao je da redovito sudjelovanje u bodybuildingu doprinosi povećanju snage, izdržljivosti i tjelesnoga funkcioniranja općenito. Slično tome, mnogi studenti su izvijestili o pozitivnim psihološkim koristima poput smanjenja anksioznosti, poboljšanja raspoloženja i povećanja samopouzdanja. Ishodi socijalne dobiti također su bili pozitivno ocijenjeni, pri čemu je većina ispitanika izvijestila o određenom poboljšanju u odnosima s vršnjacima i socijalnoj interakciji kao rezultat aktivnosti koje se odvijaju u teretani. Zajedno, ovi rezultati ukazuju na umjereno visoke do vrlo visoke percepcije zdravlja i dobiti među studentima koji sudjeluju u bodybuildingu.

Tablica 3

Odnos između dobiti i angažmana

Analiza Pearsonove produkt-momenta korelacije otkrila je statistički značajne pozitivne odnose između sudjelovanja u bodybuildingu i triju glavnih područja studentske dobiti. Posebno, sudjelovanje je imalo umjerenu do jaku korelaciju s tjelesnom, psihološkom i socijalnom dobiti. Posljedično, ovi nalazi sugeriraju da su visoke razine sudjelovanja u bodybuildingu povezane s pozitivnijim tjelesnim, psihološkim i socijalnim ishodima dobiti među studentima.

Tablica 4

Zadovoljstvo sadržajima teretane i parka

Empirijska istraživanja pokazuju da studenti imaju znatno veću razinu zadovoljstva s teretanama na kampusu nego s rekreacijskim prostorima u parkovima. Kao što je prikazano u Tablici 5, prosječna ocjena zadovoljstva teretanama pokazala se višom nego za parkove. Nalazi tematske analize ukazuju na to da su teretane općenito

pozitivno ocijenjene u pogledu dostupnosti i kvalitete opreme, percipirane sigurnosti i učinkovite regulacije klime. S druge strane, parkovni sadržaji često se percipiraju kao nedostatni u smislu sjenovitosti i specijalizirane fitness opreme, što ograničava njihovu funkcionalnost za bodybuilding aktivnosti. Ovi opisni rezultati upućuju na izrazite razlike u percipiranoj kvaliteti unutarnjih i vanjskih rekreacijskih okružja. Ocjene zadovoljstva sugeriraju da se teretane doživljavaju kao dobro opremljeni i prikladno dizajnirani prostori za trening snage, dok parkovni sadržaji još uvijek ne zadovoljavaju funkcionalna i komforna očekivanja studenata koji se dulje vrijeme bave bodybuildingom.

Tablica 5

Dobrobit kao dimenzija zadovoljstva objektom

Kako bismo istražili odnos između zadovoljstva infrastrukturnim sadržajima i holističke dobrobiti studenata, implementirali smo jednostavni linearni regresijski model. Analiza je pokazala da je zadovoljstvo infrastrukturnim sadržajima statistički značajan prediktor opće dobrobiti koji objašnjava otprilike 14,4 posto varijacije u rezultatima dobrobiti. Model je pokazao da statistička značajnost ukazuje na to da rekreacijski sadržaji koje studenti percipiraju imaju značajan utjecaj na njihovu cjelokupnu dobrobit. Procjena parametra za zadovoljstvo sadržajima imala je umjereno pozitivan standardizirani učinak na ukupnu dobrobit. Ovi rezultati sugeriraju da je veće zadovoljstvo sadržajima u teretani i parku povezano s pozitivnijim ishodima u tjelesnim, psihološkim i socijalnim aspektima dobrobiti studenata.

Tablica 6

Tablica 7

Diskusija

Rezultati ove studije pokazuju da je bodybuilding uspostavljena i preferirana tjelesna aktivnost među studentima preddiplomskoga studija u urbanom sveučilišnom okružju. Visoke razine sudjelovanja, koje se očituju u učestalosti, trajanju i intenzitetu treninga, ukazuju na to da trening snage više nije marginalan i specifičan, već normalan dio studentskoga načina života. Visoke razine intrinzične motivacije u ovoj skupini sudionika podržavaju pretpostavku teorije samoodređenja koja sugerira da će intrinzična motivacija najvjerojatnije biti održavana za tjelesnu aktivnost ako su autonomija, kompetencija i povezanost podržani unutar okružja za vježbanje (Ntoumanis i sur., 2021; Xu i sur., 2025). Kako studenti napreduju u akademskom okružju te postaju sve upoznati s rutinama treninga i socijalnom integracijom u teretanama, očekivano je jačanje motivacijskih mehanizama. Pozitivne povezanosti između angažmana u bodybuildingu tjelesne, psihološke i socijalne dobrobiti dodatno potvrđuje sve veći broj dokaza koji ukazuju na višedimenzionalne koristi strukturiranog treninga otpora u sveučilišnim populacijama. Visoki rezultati tjelesne dobrobiti čini se da odgovaraju

nalazima prethodnih studija, koje podržavaju korištenje organiziranoga treninga snage za postizanje značajnih poboljšanja u mišićnoj snazi, izdržljivosti i općoj funkcionalnoj dobrobiti (Bird i sur., 2024; Nikolić i Mraković, 2021). Istovremene koristi za psihološku dobrobit doprinose salutogenim perspektivama o tjelesnoj aktivnosti pri čemu redovito sudjelovanje potiče komponente psihofiziološke dobrobiti, poput poboljšanja emocionalne regulacije, suočavanja sa stresom i otpornosti, kroz jačanje učinkovitoga osjećaja koherentnosti (Happ i sur., 2024; Soares-Santeugini i sur., 2025). Štoviše, pozitivni rezultati socijalne dobrobiti sugeriraju da studentske teretane služe kao socijalne mikrozajednice koje doprinose socijalnoj interakciji među studentima, zajedničkim ciljevima i neformalnim mrežama podrške koje jačaju njihov osjećaj pripadnosti (Belošević i Ferić, 2022; Blažević i Hromin, 2024; Wilson, 2022).

Zadovoljstvo infrastrukturnim sadržajima postalo je važno kao kontekstualno kritično obilježje koje je utjecalo na iskustva studenata. U skladu s literaturom o kampuskoj rekreaciji i dizajnu okoliša, studenti su razinu zadovoljstva ocijenili znatno višom za teretane nego za objekte u parkovima, pri čemu su bolja dostupnost opreme, percipirana sigurnost i kontrola klimatski uvjeta bili glavni razlozi njihovih preferencija (Feng i Li, 2018; Liao i sur., 2022). Rezultati regresije pružili su dodatne dokaze da je zadovoljstvo rekreacijskim objektima značajan prediktor opće dobrobiti, podržavajući ideju o ulozi operativnih i dizajnerskih odluka kao neizravnih intervencija za zdravlje. Ovi nalazi doprinose suvremenim dizajnerskim perspektivama za hibridne unutarnje/vanjske rekreacijske ekološke sustave koji stvaraju veću dostupnost i jednakost putem zasjenjenih vanjskih prostora i fitness zona s određenim dizajnerskim svrhom (Wang, 2025). Iako je ukupna angažiranost bila visoka, rezultati također ukazuju na nedostatak ravnoteže u angažiranosti studentskih podgrupa. Niži angažman među populacijama može biti uvjetovan rodnim iskustvima, tjelesnim slikama i kulturnim pogledima na teretanske prostore, prema prethodnim istraživanjima (Knowlton i Newland, 2024; Wilson, 2022). Kako bismo prevladali ove prepreke, potrebno je ne samo raditi na infrastrukturi, već i razvijati programe koji su osjetljivi na rodne aspekte, uključivost i psihološku sigurnost. Integracija podržavajućih programa kao što su mentorski programi, programi prilagođeni početnicima i digitalna podrška za vođenje može pomoći u smanjenju prepreka za sudjelovanje, osobito za studente koji su manje samopouzdana ili manje upoznati s treningom otpora (Hublin i sur., 2021; Jabučanin i sur., 2025; Ružić-Baf i sur., 2023). Ove bi mjere odgovarale institucionalnim brigama vezanim uz Ciljeve održivoga razvoja 3 (Dobro zdravlje i blagostanje) i 4 (Kvalitetno obrazovanje) koji predlažu fokus na uključivanje i metode razvoja studenata temeljene na dokazima (Ujedinjeni narodi, 2025; UNICEF, 2025).

Postoji nekoliko ograničenja koja bi do danas trebala biti prepoznata. Presječni, korelacijski dizajn ne dopušta izvođenje uzročnih zaključaka o vezama između angažmana u bodybuildingu, zadovoljstva infrastrukturnim sadržajima i ishoda za dobrobit. Korištenje podataka temeljenih na samoprocjenjivanju nosi rizik od pristranosti u sjećanju i efekta društvene poželjnosti. Osim toga, uzorak je prikupljen samo s urbanih

sveučilišta u Metro Manili, a uključivao je samo studente koji su već sudjelovali u aktivnostima temeljenim na otporu i bio je ograničen na redovne studente, te stoga nije primjenjiv na ruralna područja i među neaktivnom populacijom. Preporuča se da buduća istraživanja koje će se koristiti longitudinalnim ili eksperimentalnim dizajnima unutar različitih institucionalnih okružja kako bi se prevladale takve slabosti.

Zaključak

Na osnovi rezultata ovoga istraživanja može se zaključiti da je praksa bodybuildinga uz podršku odgovarajuće institucionalne infrastrukture i motivacijskih uvjeta pozitivno povezana s tjelesnom, psihološkom i socijalnom dobrobiti studenata. Povišene razine sudjelovanja i intrinzične motivacije ukazuju na to da je trening snage postao sastavni dio dobrobiti studenata na urbanim kampusima. Studenti su također izvijestili da primjećuju poboljšanja u svojem tjelesnom zdravlju, kao i emocionalnoj dobrobiti i socijalnoj povezanosti. Rezultati dodatno ilustriraju važnu ulogu koju rekreacijski sadržaji na kampusu igraju u oblikovanju ishoda dobrobiti. Zadovoljstvo sadržajima teretane i parkova postalo je značajan prediktor opće dobrobiti, čime se naglašava važnost dobro održanih, lako dostupnih i promišljenih rekreacijskih prostora. Iako su unutarnji prostori za vježbanje općenito bili favorizirani, ograničena upotreba vanjskih parkova sugerira da postoji neiskorišteni potencijal koji se može u njima iskoristiti, a koji se može aktivirati strateškim dizajnerskim poboljšanjem i ciljanim programiranjem. Zajedno, ovi rezultati podupiru stav da se bodybuilding može promatrati kao prikladna alternativa za unaprjeđenje dobrobiti, koja je u skladu s globalno istaknutim ciljevima zdravlja i obrazovanja.

Preporuke

Na temelju empirijskih dokaza, formalno uvođenje bodybuildinga na sveučilišta kao dio dobrobiti i rekreacije studenata trebalo bi uključivati planirane module treniranja, programe mentorstva vođene vršnjacima i obrazovne programe o zdravlju koji se fokusiraju na tjelesnu, psihološku i sociološku vrijednost treninga otpora. Integracija ovih odredbi u okviru organizacijske dobrobiti može potaknuti održivu kulturu zdravlja, otpornosti i povećanoga sudjelovanja studenata na kampusima. Planeri kampusa i administratori trebali bi se usredotočiti na pristupačnost, sigurnost i fleksibilnost u objektima poput teretana i parkova. Strateška ulaganja trebala bi biti usmjerena osiguravanje opskrbe adekvatnom opremom, klimatski otpornih struktura i dizajna učinkovitog upravljanja gužvama te inkluzivne prostorne organizacije (uključujući raznolike demografske skupine korisnika). Uvođenje zasjenjenih vanjskih fitness prostora kao i kombinacija unutarnjih i vanjskih sadržaja može potaknuti sudjelovanju studenata koji preferiraju ili zahtijevaju alternativu konvencionalnim unutarnjim prostorima. Operativne prepreke, kao što su ograničeno radno vrijeme i gužve u vršnim satima, prepreke su koje je potrebno ublažiti promišljenim raspoređivanjem i dizajnom programa. Implementacija sustava vršnjačkoga mentorstva, progresivni koraci prema

razvoju vještina te izgradnja digitalne pomoći i korištenja (npr. mobilne aplikacije za pomoć u učenju i organizaciji dana), mogu dodatno smanjiti prepreke sudjelovanju i proširiti koristi od bodybuildinga na manje aktivne ili oprezne populacije.

Na kraju, buduća istraživanja trebala bi ispitati dugoročni utjecaj bodybuildinga na akademske ishode, osobito u odnosu na emocionalnu regulaciju i zadržavanje studenata. Također je potrebno poticati komparativne studije na regionalnoj i/ili kulturnoj razini kako bi se procijenila prenosivost bodybuildinga kao strategije dobrobiti. Holistički, podatkovno utemeljen pristup može doprinijeti tome da bodybuilding ne ostane samo individualna aktivnost, već da postane sastavni dio strateškoga institucionalnoga pristupa usmjerenoga na razvoj zdravih, inkluzivnih i dinamičnih kampusnih zajednica.