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LIFESTYLE CHARACTERISTICS OF STUDENTS WHO ARE OVERWEIGHT, OBESE, OR HAVE NORMAL BODY WEIGHT

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Abstract/Izvleček

This study examines the differences in body composition and lifestyle habits between normal-weight (NW) and overweight/obese (OW&O) university students. A sample of fifty-five students aged 21–25 years completed validated questionnaires (HLPCQ, IPAQ-SF, WHO-5) and underwent body composition analysis using the InBody 270 device. Statistical analyses included independent sample t-tests and Cohen's d effect sizes. OW&O students had significantly higher scores for body fat, fat-free mass, and skeletal muscle mass. While body composition differences were evident, lifestyle habits did not significantly differ between weight groups. Bias in lifestyle and well-being self-assessment calls for the development of more objective assessment tools and further research.

Keywords:
body composition, eating habits, sleeping habits, physical activity, social balance.

Značilnosti življenskega sloga študentov z normalno telesno maso, prekomerno telesno maso in debelostjo

Namen raziskave je raziskati razlike v telesni sestavi in življenjskih navadah med študenti z normalno telesno težo (dalje NTT) in študenti s prekomerno telesno težo in debelostjo (dalje PTT in D). Vzorec zajema 55 študentov, starih od 21 let do 25 let, ki so izpolnili standardizirane vprašalnike (HLPCQ, IPAQ-SF, WHO-5) in opravili meritve telesne sestave z napravo InBody 270. V sklopu statistične analize je bil izveden t-test za neodvisne vzorce ter izračunan kazalec Cohenov d za oceno velikosti učinkov. Študenti skupine PTT in D so imeli statistično značilno višje vrednosti telesne maščobe, brezmaščobne mase in mase skeletnih mišic. Čeprav so bile razlike v telesni sestavi očitne, se življenjske navade med skupinami ne razlikujejo statistično značilno. Pristranskost pri samoocenjevanju življenjskega sloga in dobrobiti kliče po oblikovanju objektivnejših merskih instrumentov in nadaljnjih raziskavah.

Ključne besede:
telesna sestava, prehranjevalne navade, spalne navade, gibalna dejavnost, socialno ravnovesje.

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Introduction

Overweight and obesity are global health problems that continue to spread rapidly, especially in the developed world, and are becoming an increasing threat to public health (WHO, 2017). According to the World Health Organization, they are among the most common causes of many chronic diseases, including cardiovascular disease, type 2 diabetes, certain cancers and musculoskeletal diseases (Blüher, 2019). Being overweight is often associated with a higher risk of hypertension, blood lipid disorders, inflammation, and metabolic disorders, making it an important risk factor for poorer quality of life and premature death (Hunot et al., 2016).

The problem of obesity is evident not only in the adult population, but also in young people and students, which is of particular concern as the period of adolescence is crucial for the formation of lifestyle habits and healthy eating and physical activity patterns that have a long-term impact on an individual's health (Rahmani et al., 2015). Studies have shown that weight gain often occurs among students, especially at the beginning of the academic period when young people are faced with new challenges and responsibilities, such as lifestyle changes, the stress of study commitments and changes in eating habits (Ogden et al., 2015). In many cases, these changes have a negative impact on eating patterns, physical activity and overall health, leading to an increase in cases of obesity and overweight among students (Mourtakos et al., 2015). Furthermore in student population weight status and the level of physical fitness are closely related (Matejek & Planinšec, 2016).

The increase in the prevalence of obesity and overweight among young students is not only a health problem but an issue with broad socio-economic impact. The health costs of obesity-related diseases are placing an increasing burden on health systems, while at the same time increasing the risk of a reduction in productivity and quality of life for individuals. In this context, it is important to note that obesity and overweight are not only physiological but also psychological problems, since they are associated with a higher risk of developing depression, anxiety, low self-esteem and social isolation (Hunot et al., 2016).

The association between body mass and lifestyle is complex and involves many factors, such as dietary habits, physical activity, stress, genetic factors, social and cultural factors, and other environmental factors (Chooi et al., 2019). Irregular food consumption, eating fast food and increased consumption of high-calorie snacks

and sugary drinks are among the key risk factors contributing to overweight (Kremmyda et al., 2008). Students, especially in urban settings, often do not have time to prepare healthy meals, leading to increased consumption of unhealthy foods. At the same time, in most cases, sedentary lifestyles are also increasing, as students often spend long hours in front of computers, for study commitments or leisure, which has the effect of reducing physical activity and increasing the risk of weight gain (Mokdad et al., 2003).

Another crucial factor influencing student eating habits and physical activity is the level of stress they face. Research has shown that stress can have a significant impact on eating habits, either leading to overeating or causing reduced appetite (Tomiyama, 2019). Young people are exposed to greater likelihood of experiencing stress and this period is critical for developing effective and constructive coping strategies (Dolenc, 2015). Students facing high levels of stress due to study commitments often seek comfort in unhealthy eating habits, such as consuming high-calorie snacks or sugary drinks, which can lead to weight gain (Dahlin et al., 2005). In addition, stress and sleep deprivation are associated with a greater risk of weight gain since they affect the hormonal balance that regulates appetite. Students experiencing long-term stress may be more prone to consume unhealthy foods such as high-fat and high-calorie meals, which further increases the risk of becoming overweight (Tomiyama, 2019).

These factors and their associations with obesity and overweight among students pose a number of challenges for the prevention of these conditions. At the same time, there is a need for targeted interventions and programmes to help students change their eating habits, promote physical activity, and manage stress. Programmes that include education on healthy eating patterns, the importance of physical activity and stress management techniques can make a significant contribution to the prevention of obesity and overweight. It is also important for universities and higher education institutions to focus on creating an environment conducive to healthy lifestyles, including providing access to healthy food options and opportunities for physical activity (Johnson et al., 2006).

In Slovenia, where we are also facing a growing problem of overweight among young people, it is important to focus on specific lifestyle habits and factors that influence students' body weight. In a study conducted among Slovenian university students, we will examine the prevalence of overweight and obesity and explore the links between body mass, eating habits, physical activity, and stress levels. Studying these

factors will help in the design of effective preventive measures to enable students to take responsibility for their health and prevent health problems in the future.
Since students are often in a period when their eating habits and lifestyles are changing, it is right to focus on this period as key to developing healthy habits that will help students maintain a normal body weight and health throughout their lives. Through research that includes an analysis of the factors associated with obesity and overweight, we aim to obtain valuable data that will contribute to understanding the causes of these problems and allow the development of targeted interventions to manage these global health problems.

Research objectives and hypotheses

The main aim of this study is to investigate the differences in body composition and lifestyle habits between normal weight and overweight/obese university students. We hypothesise that overweight and obese students will have significantly higher scores on body composition parameters (e.g., body fat, skeletal muscle mass) and lower scores on measures of lifestyle quality, including physical activity, dietary habits, and well-being. By examining these variables, the study aims to provide insights that can serve as a basis for interventions targeting lifestyle-related obesity risk in university students.

Methods

Research sample

The study was conducted on a non-random sample of pre-service teachers in primary education. The sample consisted of 55 students aged between 21 and 25 years (M = 22.3 years, SD = 1.045), of whom 47 participants (85.5%) were female (N = 47; 85.5%) and 8 participants (14.5%) were male.

Data collection procedures

The data collection process involved the administration of the questionnaires in a physical format. Participants first completed the HLPCQ, IPAQ-SF, and WHO-5 questionnaires. Immediately afterward, measurements of body height and body composition were conducted following a standardized protocol, which was explained to participants prior to testing.

To ensure consistency and accuracy in the body composition assessment using the InBody 270 device, participants were instructed to follow the preparatory guidelines outlined in the *InBody270 User's Manual (2021).*

Ethical considerations

Participation in the study was voluntary, and informed consent was obtained from all participants prior to data collection. Participants were assured of the anonymity and confidentiality of their responses. The study was conducted in accordance with the ethical standards of the university's research committee.

Methodological characteristics of instruments

In this study, we utilized three validated questionnaires to assess various aspects of lifestyle, physical activity, and well-being: the Healthy Lifestyle and Personal Control Questionnaire (HLPCQ), the International Physical Activity Questionnaire – Short Form (IPAQ-SF), and the World Health Organization Well-Being Index (WHO-5). Additionally, body composition was measured using the InBody 270 device, and body height was assessed using a height measuring device.

Healthy Lifestyle and Personal Control Questionnaire (HLPCQ) is a 26-item validated tool designed to measure the frequency of adopting positive lifestyle habits using a 4-point Likert scale (1 = Never or rarely, 2 = Sometimes, 3 = Often, 4 = Always). The introductory phrase for each item is "How often….?" The questionnaire consists of five subscales: (1) Healthy dietary choices (7 items, maximum score: 28), (2) Dietary harm avoidance (4 items, maximum score: 16), (3) Daily routine (8 items, maximum score: 32), (4) Organized physical activity (2 items, maximum score: 8), and (5) Social and mental balance (5 items, maximum score: 20). The total HLPCQ score ranges from 26 to 104, with higher scores indicating better control over lifestyle habits. The questionnaire has demonstrated good psychometric properties in previous research (Darviri et al., 2014).

International Physical Activity Questionnaire – Short Form (IPAQ-SF) is a widely used instrument designed to assess physical activity levels over the past seven days. It consists of seven items measuring time spent in vigorous-intensity activities, moderate-intensity activities, walking, and sedentary behaviour. The results allow for classification into three activity levels: low, moderate, and high. The IPAQ-SF has been validated in various populations and has demonstrated good reliability (Marinšek et al., 2022).

The *World Health Organization Well-Being Index (WHO-5)* is a brief, self-reported measure of subjective well-being. It consists of five positively worded statements related to mood, vitality, and general well-being, assessed using a 6-point Likert scale (0 = At no time, 5 = All the time). The total score ranges from 0 to 25, with higher scores indicating better well-being. The raw score is converted into a percentage (0–100) by multiplying by four. A total score below 13 suggests low well-being and the need for further screening for depression according to ICD-10 criteria (WHO, 2024).

Body composition was assessed using the InBody 270 device, which provides detailed information about overall body composition. Body height was measured using a height measuring device to ensure accurate anthropometric assessment.

Statistical methods

The data were analysed using IBM SPSS STATISTICS 29 software for the Windows operating system. Descriptive statistics, including arithmetic means (M) and standard deviations (SD), were calculated for all measured variables related to body composition and lifestyle parameters.

To examine differences between normal-weight (NW) and overweight and obese (OW&O) groups, an independent samples t-test was performed. This test assessed whether there were statistically significant differences between the two groups across various parameters, including body composition variables (proteins, minerals, fat mass, fat-free mass, skeletal muscle mass, and body fat percentage) and lifestyle factors (physical activity levels, dietary habits, daily routine, and personal control over lifestyle choices). The significance level was set at $p < 0.05$.

Effect sizes were calculated using Cohen's d to determine the magnitude of the differences between groups. Effect sizes were interpreted according to conventional thresholds, where $d = 0.2$ indicates a small effect, $d = 0.5$ a medium effect, and $d = 0.8$ or higher a large effect.

For the analysis of categorical variables and trends in lifestyle behaviours, participants were grouped according to specific categories, such as levels of physical activity, dietary habits, and daily routines. Differences between groups in these categorical variables were analysed using cross-tabulations and relevant statistical tests.

All statistical analyses were conducted with a significance level of $p < 0.05$. In cases where multiple comparisons were made, appropriate corrections were applied to minimize the risk of Type I errors.

Results and interpretation

Differences in body composition in normal weight (NW) students and overweight and obese students (OW&O)

The independent sample t-test and Cohen's d results from this study provide insights into the body composition differences between normal weight (NW) and overweight and obese (OW&O) groups across various parameters, including proteins, minerals, body fat, fat free mass, and skeletal muscle mass. These findings are contextualized within recent literature to understand the implications and significance of these differences.

Table 1

Differences in body composition in normal weight (NW) students and overweight and obese (OW & O) students

Variables	NW		OW & O		t (55)	p	Cohen's d
	M	SD	M	SD			
Proteins (kg)	9.63	1.84	10.70	1.88	-2.002	.025	-.575
Minerals (kg)	3.38	.60	3.83	.61	-2.624	.006	-.754
Fat (kg)	14.57	5.04	30.80	12.72	-5.215*	<.001	-1.950
FFM (kg)	48.62	9.10	54.16	9.25	-2.109	.020	-.606
SMM (kg)	27.02	5.54	30.27	5.67	-2.023	.024	-.581
Body fat (%)	23.26	7.75	35.49	9.54	-5.085	<.001	-1.461

Protein and Mineral Content

The overweight and obese group has a higher protein mass ($M = 10.70$ kg, $SD = 1.88$) than the normal weight group ($M = 9.63$ kg, $SD = 1.84$). This difference is statistically significant ($p < .05$), with a medium effect size (Cohen's $d = -0.575$), suggesting a noticeable but moderate increase in protein mass in the overweight/obese group. The overweight and obese group ($M = 3.83$ kg, $SD = 0.61$) has significantly higher mineral content than the normal weight group ($M = 3.38$ kg, $SD = 0.60$). This significant difference ($p < .01$) has a medium-to-large effect size (Cohen's $d = -0.754$), indicating a substantial increase in mineral content among the overweight/obese group.

The current study's findings reveal a statistically significant increase in both protein and mineral content among the overweight and obese group, with medium effect sizes. This increase aligns with findings by Zamboni et al. (2008), who found that overweight and obese adults often show higher absolute values of lean body components, including protein content, compared to leaner individuals. This is attributed to the generally higher body mass in overweight/obese individuals, which is accompanied by increases in both adipose and lean tissues. Moreover, the higher mineral mass may be partially explained by greater bone mass and mineral density, as noted in studies by Ho-Pham et al. (2014), suggesting that body weight positively correlates with bone density because of mechanical loading effects.

The current findings showing increased protein and mineral content in the overweight and obese group are consistent with recent findings by Jannsen et al. (2000), who reported that individuals with higher BMI have more lean tissue, which naturally contains protein and minerals. This supports the notion that, while overweight individuals may exhibit increased protein and mineral masses, these values reflect the overall increase in body mass rather than improved metabolic health. Additionally, Ho-Pham et al. (2014) found that higher body weight is positively correlated with increased bone mineral density, possibly as a result of the mechanical loading effect of excess weight, which enhances bone mineral content—a trend that aligns with the findings of the current study.

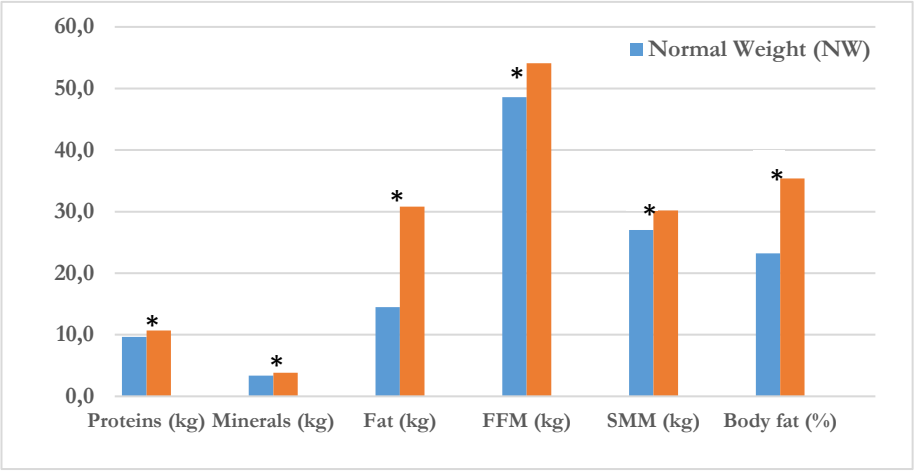
Body Composition and Body Fat (Body Composition and Adiposity)

Body fat is significantly higher in the overweight and obese group (M = 30.80 kg, SD = 12.72), compared to the normal weight group (M = 14.57 kg, SD = 5.04). With a very large effect size (Cohen's d = -1.950), this difference is not only highly significant but also represents a strong disparity in body fat between the two groups. Body fat percentage is significantly higher in the overweight and obese group (M = 35.49 %, SD = 9.54) than in the normal weight group (M = 23.26 %, SD = 7.75). With a very large effect size (Cohen's d = -1.461), this shows a significant and substantial difference, with the overweight/obese group having a notably higher body fat percentage.

The significantly higher body fat and body fat percentage observed in the overweight and obese group is consistent with extensive research indicating that adiposity measures are markedly higher among overweight and obese individuals compared to their normal-weight counterparts. Studies by Flegal et al. (2016) and Heymsfield

and Wadden (2017) have documented similar findings, where obese individuals consistently display elevated body fat levels due to excess energy storage in adipose tissue, a result of chronic energy imbalance. This pattern is also corroborated by Heymsfield (2005), who observed that excess body fat is the primary differentiator in body composition profiles across BMI categories, thus reinforcing the substantial disparities reported here. The observed significant differences in body fat and body fat percentage between normal-weight and overweight/obese groups align with findings in recent research. For example, Shea et al. (2012) documented similar patterns, noting that increased body fat is a consistent characteristic of overweight and obese groups.

Their findings reinforce the idea that higher adiposity is a primary contributor to the excess weight seen in these populations. These studies emphasize that elevated body fat levels are strongly associated with metabolic risk factors, which underscores the importance of examining body composition beyond weight alone.



Graph 1
*Statistically significant differences in body composition in NW and OW&O groups (*statistically significant differences)*

Fat-Free Mass and Skeletal Muscle Mass

The overweight & obese group (M = 54.16 kg, SD = 9.25) has significantly more fat-free mass than the normal weight group (M = 48.62 kg, SD = 9.10). This difference ($p < .05$) shows a medium effect size (Cohen's d = -0.606), suggesting a moderate increase in fat-free mass for the overweight/obese individuals.

There is a statistically significant difference in skeletal muscle mass ($p < .05$), with the overweight & obese group having a higher mass (M = 30.27 kg, SD = 5.67)

compared to the normal weight group (M = 27.02 kg, SD = 5.54). The medium effect size (Cohen's d = -0.581) indicates a moderate distinction in muscle mass between the groups.

Regarding fat-free mass and skeletal muscle mass, the present study found statistically significant but moderate increases in these measures among overweight and obese individuals compared to normal-weight participants. These findings align with those reported by Stenholm et al. (2009), who found that overweight and obese individuals tend to have higher absolute lean mass, potentially as a compensatory physiological response to increased body weight. Similarly, Morgan et al. (2020) indicated that lean body mass, including skeletal muscle, can be higher in individuals with greater body weight, a phenomenon partly explained by the need for increased musculoskeletal support of excess adipose tissue. However, Prado et al. also noted that relative muscle quality might be compromised in obese individuals because of fat infiltration into muscle tissue, an aspect not directly assessed in the current study. The current study found significant, though moderate, increases in fat-free mass and skeletal muscle mass in the overweight and obese group. This observation is supported by research from Rahemi et al. (2015), who reported that individuals with higher BMI tend to have greater absolute lean mass due to both increased muscle mass and connective tissue adaptations in response to excess body weight. Nonetheless, Rahemi and colleagues highlighted that, while lean mass might increase with body weight, the muscle quality and function may be compromised as a result of intramuscular fat accumulation. Similarly, Tallis et al. (2018) noted that increased lean mass in overweight individuals is typically not proportional to the fat mass increase, suggesting potential imbalances in muscle function and strength.

Differences in life-style parameters in Normal weight (NW) students and Overweight & Obese (OW&O) students

The independent sample t-test and Cohen's d results from this study provide insights into the lifestyle differences between normal weight (NW) and overweight & obese (OW&O) groups across various parameters, including physical activity, dietary habits, daily routines, and personal control over lifestyle choices. These findings are contextualized within recent literature to understand the implications and significance of these differences.

Table 2

Differences in Vigorous Physical Activity (hours) in the last seven days in Normal weight (NW) students and Overweight & Obese (OW & O) students

Variables	NW		OW & O		*t* (55)	*p*	*Cohen's d*
	M	*SD*	*M*	*SD*			
Vigorous PA in last 7 days (h)	3.11	2.09	2.17	1.69	1.661	.040	.477

Physical Activity

In terms of vigorous physical activity over the past week, the NW group reported a mean of 3.11 days (SD = 2.09), compared to 2.17 days (SD = 1.69) for the OW&O group. Results of ANOVA show that the difference is statistically significant (t(55) = 1.661, p = .040, Cohen's d = .477). Findings align with those by Davis et al. (2006), who reported that overweight and obese individuals are generally less active in high-intensity physical activities compared to their normal-weight peers. The moderate effect size observed here (Cohen's d = .477) suggests a noticeable trend in the expected direction, supporting the need for targeted physical activity interventions among overweight populations to reduce associated health risks.

Table 3

Differences in life-style parameters in Normal weight (NW) students and Overweight & Obese (OW & O) students

Variables	NW		OW & O		*t* (55)	*p*	*Cohen's d*
	M	*SD*	*M*	*SD*			
Healthy Dietary Choices	16.24	3.66	15.11	3.07	1.131	.131	.325
Dietary Harm Avoidance	9.73	1.92	9.00	1.53	1.404	.083	.404
Daily Routine	17.70	4.70	15.39	3.97	1.797	.039	.516
Organised PA	5.32	1.94	4.61	1.61	1.345	.092	.387
Social and Mental Balance	14.35	2.16	14.00	3.13	.487	.314	.140
Healthy Lifestyle and Personal Control	63.35	10.54	58.11	8.98	1.811	.038	.520

Dietary Choices

Healthy dietary choices showed a small, non-significant difference between the NW (M = 16.24, SD = 3.66) and OW&O groups (M = 15.11, SD = 3.07), with a t-value of 1.131 and p-value of .131. A Cohen's d of .325 indicates a small effect size, suggesting minimal differences in healthy eating behaviours across groups. Recent studies, such as those by Costlow et al. (2025), emphasize that while diet quality is

critical for weight management, other factors like socio-economic status and environmental access to healthy foods can influence dietary choices independently of weight status. This might explain the lack of significant dietary differences observed here.

Dietary Harm Avoidance

Neither did the dietary harm avoidance parameter, which reflects the tendency to avoid harmful food choices, differ significantly between groups ($t(55) = 1.404$, $p = .083$, Cohen's $d = .404$). This small-to-moderate effect size suggests that both groups may display similar tendencies in avoiding detrimental dietary behaviours, supporting the findings of Dao et al. (2020), who argue that dietary behaviours may not vary significantly between weight categories, owing to shared cultural and environmental influences on food choices.

Daily Routine

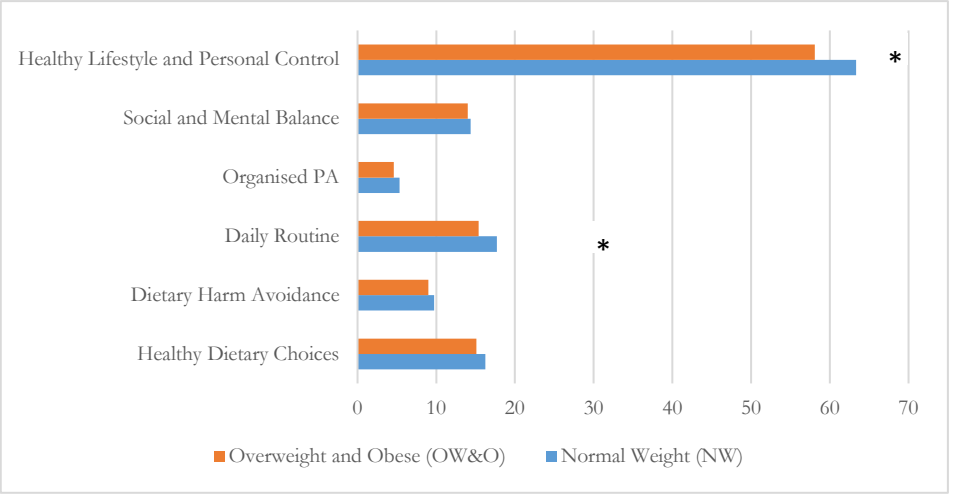
The daily routine parameter, encompassing structured daily activities, showed a statistically significant difference, with NW individuals reporting higher scores ($M = 17.70$, $SD = 4.70$) than OW&O individuals ($M = 15.39$, $SD = 3.97$). The t-value of 1.797 and p-value of .039, coupled with a moderate effect size (Cohen's $d = .516$), indicate that individuals in the NW group are more likely to engage in consistent daily routines. This finding is consistent with Bach (2025), who found that structured routines are associated with better weight management outcomes, since routines help reinforce healthy habits and reduce impulsive behaviours, which can contribute to weight gain.

Organized Physical Activity

While organized physical activity was higher among NW individuals ($M = 5.32$, $SD = 1.94$) than OW&O individuals ($M = 4.61$, $SD = 1.61$), this difference was not statistically significant ($t(55) = 1.345$, $p = .092$, Cohen's $d = .387$). The moderate effect size observed here suggests that participation in organized physical activities may be somewhat lower among the overweight and obese group. This finding aligns with recent observations by Deforche et al. (2006), who reported that overweight individuals often report less engagement in organized physical activities because of perceived physical and social barriers.

Social and Mental Balance

Both groups scored similarly in terms of social and mental balance, with a non-significant difference (t (55) = .487, p = .314, Cohen's d = .140), indicating that social and mental well-being are consistent across weight groups. This finding supports Emmer et al. (2020), who emphasized that social and mental factors might not directly correlate with weight status but instead reflect broader individual differences in coping and support networks.



Graph 2

*Scores on the Healthy Lifestyle and Personal Control Questionnaire (*statistically significant differences)*

Healthy Lifestyle and Personal Control

Finally, the overall score for healthy lifestyle and personal control was significantly higher in the NW group (M = 63.35, SD = 10.54) compared to the OW&O group (M = 58.11, SD = 8.98), with t(55) = 1.811, p = .038, and a moderate effect size (Cohen's d = .520). This suggests that individuals with normal weight may have greater perceived control over their lifestyle choices, a finding that aligns with recent research by Infurna et al. (2011), who observed that greater perceived control over health behaviours is associated with lower BMI and better health outcomes. The significance of personal control in lifestyle choices is increasingly recognized as a crucial factor in maintaining a healthy weight.

Limitations of the study

This study is subject to several limitations. First, the small, non-random sample (N = 55) of pre-service teachers limits the generalisability of the results to broader student populations. Secondly, all lifestyle variables (diet, physical activity, and well-being) were assessed using self-assessment questionnaires, which may be susceptible to biases such as social desirability and inaccurate recall. Future studies should incorporate more objective measurement tools (e.g., accelerometers, dietary logs, biochemical markers) to increase the validity of lifestyle assessment.

Conclusion

In conclusion, the findings on body composition align with those from the existing literature, showing that overweight and obese individuals have higher fat and lean mass. However, the lack of significant differences in physical activity and diet across groups is unexpected and calls for further study. Future research should include objective measures of physical activity and muscle quality to clarify links between body weight, body composition, and lifestyle behaviours. Surprisingly, no significant differences were found between the normal-weight and overweight/obese groups in high-intensity activity, diet, or healthy habits. These results are somewhat surprising, since other research, such as that by Ekelund et al. (2015), has shown a tendency for individuals with higher BMI to report lower physical activity levels. However, variations in self-reported physical activity measures, as observed by Prince et al. (2008), may influence these results, potentially underestimating the actual activity discrepancies across groups. Furthermore, socio-environmental factors, which heavily impact physical activity and dietary behaviours, may mediate lifestyle choices independently of body weight, as suggested by Baum and Ruhm (2009).

Interestingly, this study found no significant differences in high-intensity physical activity levels, healthy dietary choices, or other lifestyle habits between normal-weight and overweight/obese individuals. This contrasts with studies like Hansen et al. (2013), who reported that individuals with higher BMI often engage in lower physical activity levels, particularly in vigorous activities. However, as research by Klesges et al. (2004) suggests, self-reported physical activity may not reliably capture differences in actual activity intensity and duration, particularly among overweight individuals, who may over-report activity levels because of social desirability bias.

Additionally, environmental, and socio-economic factors affecting dietary and physical activity patterns could play a role, as suggested by Adams (2020), indicating that weight status alone may not fully predict lifestyle choices.

Overall, the study's findings align with recent research, particularly in showing higher adiposity and lean mass in overweight/obese compared to normal-weight individuals. Body composition differences—body fat, fat-free mass, and muscle mass—were most notable, with higher values in the overweight/obese group.

These insights can inform targeted health promotion programmes in universities, especially for future teachers who influence healthy habits.

Preventative strategies could include structured physical activity programmes, stress management, andnutrition education tailored to academic lifestyles. Integrating such content into teacher training could promote lasting healthy behaviours.

However, the lack of significant lifestyle differences warrants further investigation. Future research would benefit from using objective physical activity tracking and exploring the potential impact of muscle quality on health outcomes in overweight populations, given the potential discrepancies in muscle function despite increased lean mass.

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