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Youth Health Trends in Northern Portugal: Analyzing Diet, Physical Activity, and Body Image

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Abstract: (1) Background: In the face of global concerns regarding unhealthy lifestyles among youths, understanding dietary habits, physical activity, and weight management strategies among third-cycle students in Portugal becomes essential. This study aims to evaluate the extent to which middle school students adhere to the Mediterranean diet and assess their physical activity habits and overall weight perceptions. (2) Methods: This study is a cross-sectional observational study. Using self-reported data from a sample of 232 students aged between 12 and 18, this study delved into their dietary patterns, engagement in physical activities, perceptions of weight, and weight management approaches, measured by the KIDMED and YRB questionnaires. (3) The results demonstrated that adolescents engaged in a varied diet, and 65.5% had recently engaged in physical activity. However, 25% reported exercise-related injuries, suggesting potential safety gaps. Extreme weight management practices were minimal, but a disparity in weight perception and weight loss desire emerged, hinting at underlying societal and media influences. Gender differences in certain habits were minimal. (4) Conclusions: While students were generally inclined towards healthy habits, there are evident areas of concern, particularly regarding safety in physical activities and weight perceptions. In the future, interventions should be implemented to increase students' literacy and raise awareness of the Mediterranean diet and physical well-being.

Keywords: dietary habits; physical activity; weight management; health; adolescents; students; Portugal

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1. Introduction

Diet and exercise are crucial for an individual's health and well-being. Research consistently demonstrates that a balanced diet and regular physical activity significantly reduce the risk of chronic diseases, including obesity, type 2 diabetes, cardiovascular disorders, and certain cancers [1]. In Portugal, childhood obesity has become a pressing public health issue, with recent studies revealing alarmingly high rates of overweight and obesity among younger populations [2]. The rising prevalence of sedentary lifestyles among Portuguese youth exacerbates these concerns, reflecting a broader European trend towards physical inactivity and unhealthy eating behaviors.

Childhood obesity rates have increased dramatically across Europe, with approximately 340 million children and adolescents now classified as overweight or obese [1]. The World Obesity Federation projects that by 2025, around 206 million children aged 5 to 19

will be living with obesity [2,3]. In Portugal, these trends present an urgent challenge, as high levels of obesity in childhood often require more complex and intensive medical interventions [4]. Notably, Portugal's historical adherence to the Mediterranean diet—a dietary pattern traditionally associated with positive health outcomes—has declined, particularly among younger generations [5]. This shift raises concerns regarding the dietary quality of Portuguese youth and its potential impact on long-term health.

The decline in physical activity is a growing concern in many countries, especially in urban areas where spaces for recreational and sports activities are limited. Most adolescents worldwide, including Portugal, do not meet the recommended levels of physical activity, predisposing them to health issues such as obesity, diabetes, hypertension, and cardiovascular diseases [1]. This trend is further complicated by the close relationship between physical and mental health in adolescents, affecting their overall quality of life and development [4].

The Mediterranean diet, characterized by high consumption of fruits, vegetables, whole grains, and lean proteins, has been shown to promote healthy weight management, improve physical performance, and reduce the risk of chronic diseases [1]. In particular, adherence to the Mediterranean diet is strongly inversely correlated with the incidence of non-communicable diseases such as cancer, metabolic syndrome, and cardiovascular diseases while also being associated with lower mortality rates [5–7]. Among adolescents, higher adherence to the Mediterranean diet has been linked to better anti-inflammatory capacity, physical fitness, and improved quality of life-related to health [5,8]. Despite these benefits, recent systematic reviews indicate a troubling decline in adherence to the Mediterranean diet across Mediterranean countries, including Portugal, especially among younger populations [5]. This decline underscores the need for targeted public health initiatives to revitalize and promote this dietary pattern within the Portuguese context.

Given the escalating trends of physical inactivity and unhealthy eating behaviors among Portuguese youth, understanding their dietary habits and physical activity levels is crucial. Such habits are not only linked to physical and mental health issues but also have the potential to impact academic performance and overall quality of life negatively [1]. This study aims to evaluate the extent to which middle school students adhere to the Mediterranean diet and assess their physical activity habits and overall weight perceptions. By examining these factors, the study aims to identify areas where interventions can be implemented to promote healthier lifestyles among adolescents, ultimately contributing to improved public health outcomes in Portugal. Additionally, the findings are expected to inform policy and support the development of strategies that encourage a return to healthier, more traditional dietary practices and more active lifestyles among Portuguese youth.

2. Materials and Methods

2.1. Study Design and Sample Size

This study employed a quantitative and descriptive research design, focusing on middle school students in a small city in northern Portugal. The sample comprised students aged 12 to 18, enrolled in grades seven through nine. Despite convenience sampling, which may introduce biases in representativeness, this method was chosen due to logistical limitations (e.g., accessibility to the student population in a single school). Furthermore, this choice was made to ensure the feasibility of data collection within a limited timeframe while still aiming to capture a broad demographic of the school's population.

2.2. Recruitment and Participants

Participants were recruited from the only school in a small town within the Braga district. The inclusion criteria specified that participants must be enrolled in grades 7 through 9 and aged between 12 and 18 years and have provided informed consent from both themselves and their legal guardians. Students who did not provide informed consent or could not complete the questionnaires were excluded from the study. To ensure voluntary

participation, the objectives and procedures of the study were clearly explained to the participants and their guardians. Despite using a convenience sample, efforts were made to maximize the diversity of participants within the school's population by including students from various academic tracks and socioeconomic backgrounds.

2.3. Data Collection and Measurement

Data were collected using a non-probabilistic convenience sampling method. The convenience sampling approach was chosen due to practical constraints, such as the study's limited scope to one school and the need for easy access to participants. However, this method raises concerns about the generalizability of the findings. To mitigate these concerns, the sample was drawn from all eligible students within the school, ensuring a broad cross-section of the student population.

Two validated questionnaires were administered during class periods, with students given 45 min to complete them. Data were collected using a Google Form link sent directly to the students' email addresses. The teacher introduced the questionnaire, explained its objectives, and clarified the students' questions during the completion process. This ensured the students fully understood the questionnaire while maintaining its self-administered format. The first part of the questionnaire gathered sociodemographic information (age, gender, living arrangements, parents' educational levels, and employment status). In contrast, the second part incorporated the Youth Risk Behavior Survey (YRBS) and the Mediterranean Diet Quality Index (KIDMED).

- Youth Risk Behavior Survey (YRBS): The YRBS was employed to assess specific risk behaviors among adolescents. This instrument was validated for the Portuguese population and adapted to ensure cultural and linguistic appropriateness for Portuguese students [9,10]. This study evaluated three behavior categories relevant to diet and physical activity—body weight management, physical activity, and dietary behaviors—alongside two open-ended questions regarding the respondents' weight and height. The selected domains were aligned with the study's objectives, focusing on health behaviors that impact diet and physical activity in Portuguese adolescents.
- Mediterranean Diet Quality Index (KIDMED): The KIDMED index is a widely used tool for assessing adherence to the Mediterranean diet among children and adolescents [11]. It is based on a 16-item questionnaire, with responses scored as either +1 (for adherence-supporting behaviors) or −1 (for behaviors undermining Mediterranean diet principles). Total scores classify diet adherence into three categories: optimal ($\geq$8), needs improvement (4–7), and poor ($\leq$3). The KIDMED was previously translated and validated for Portuguese adolescents and widely used, ensuring its relevance to this population [7,8,12]. The questionnaire was slightly adapted to reflect food consumption patterns specific to Portuguese youth, with changes made based on expert input from local dietitians familiar with adolescent nutrition in Portugal.

2.4. Statistical Methods

Data analysis was conducted using Excel 2023 and IBM SPSS statistical software version 29. The significance level was set at a p-value less than or equal to 0.05. The Kolmogorov–Smirnov test was employed to assess the normality of data. Descriptive statistics summarize sociodemographic characteristics and dietary and physical activity behaviors. Nominal variables were described in terms of absolute values and percentages (reported in terms of column) [13].

In contrast, continuous variables were characterized using measures of central tendency and dispersion (mean and standard deviation). The chi-square test of independence was utilized to analyze differences in probabilities between two groups, specifically differences in percentages. However, when any expected counts in the contingency tables fell below 5, indicating an inadequate sample size for the chi-square test of independence, Fisher's exact test (2 $\times$ 2 contingency Table) was employed.

The necessary n for a power of 0.80 and to detect a medium degree of association in the population at $\alpha = 0.05$ and one degree of freedom is $n = 87$; six degrees of freedom requires $n = 151$. The present study includes 232 participants, which is adequate for the analysis. For the chi-square test, the effect size index w is calculated by dividing the chi-square value by the number of scores and taking the square root, and it is considered small if $w = 0.10$, medium if $w = 0.30$, and large if $w = 0.50$.

An independent-sample *t*-test was used to compare KIDMED scores between genders. Similarly, the necessary n for the power of 0.80 to detect a medium difference between two independent sample means (d = 0.5) at $\alpha = 0.05$ is $n = 64$ in each group, and 232 participants are adequate for the analysis [13]. Furthermore, the data had no outliers, as assessed by inspection of a boxplot. KIDMED scores for each level of gender were normally distributed, and variances were homogeneous, as assessed by Levene's test for equality of variances.

Ordinal logistic regression analyzed the relationship between KIDMED scores and daily fruit consumption, and binary logistic regression assessed the likelihood of exercising to lose or avoid gaining weight based on KIDMED scores.

2.5. Ethics

Ethical approval was obtained from the University of Fernando Pessoa Ethics Committee (Approval Number: ESS/PI—205/21). All participants and their legal guardians were provided detailed information about the study, ensuring informed consent. Participants were assured of anonymity, and confidentiality was maintained throughout the study. Any questions or concerns raised by participants were addressed to ensure their complete understanding of the study's procedures and the voluntary nature of their participation.

All subjects gave their informed consent for inclusion before participating in the study.

3. Results

Of the 232 enrolled students, 119 were females (51.3%) and 113 were males (48.7%). Table 1 describes the distribution of students according to their age and school year. In total, 76.7% of students live with their parents. In comparison, 16.4% live only with their mother and 6.9% live in other housing solutions; 74.6% of the participants reported having married parents, while 19% said that their parents were divorced, and 6.4% reported other marital status.

Table 1. Participants' sociodemographic characteristics.

Age Group	*n* = 232	Percentage %	*n* = 113 Male	*n* = 119 Female
12 yr	40	17.2	21	19
13 yr	45	19.4	20	25
14 yr	89	38.4	41	48
15 yr	50	21.6	24	26
>16 yr	8	3.4	7	1
School Year				
7th grade	78	33.6	41	37
8th grade	42	18.1	13	29
9th grade	112	48.3	59	53

Legend: yr—years old.

Table 1 represents the distribution of students based on their sociodemographic and school-year characteristics.

There was no statistically significant association between gender and how the respondents described their weight ($p = 0.112$). There was no statistically significant association between gender and weight goal ($p = 0.642$).

Supplementary Table S1 describes the results from the Portuguese version of the risk behavior questionnaire (body weight, eating habits and physical activity domain).

Table 2 describes the proportion of participants who exercised, aiming to lose or avoid gaining weight, divided by gender.

Table 2. Participants who exercised and aimed to lose or avoid gaining weight.

Exercise Aiming to Lose or Avoid Gaining Weight ***n* = 232**	**Gender**		**Total**
	Female	**Male**	
No	50 (42%)	30 (26.5%)	80 (34.5%)
Yes	69 (58%)	83 (73.5%)	152 (65.5%)
Total	119 (100%)	113 (100%)	232 (100%)

A statistically significant association exists between having practiced exercise to lose weight or avoid gaining weight and gender ($\chi^2(1) = 6.138$, $p = 0.019$, $w = 0.23$ (Table 2)). Most male respondents report exercising to lose or avoid gaining weight, while the difference is not so evident for the female counterparts.

There was no association between gender and decreasing calorie intake to lose weight or avoid gaining weight ($p = 0.284$), the use of fasting techniques to lose weight ($p = 0.317$), or the use of unprescribed medication to aid weight control ($p = 0.236$). Furthermore, using laxatives or throw-up techniques to lose weight was not associated with gender ($p = 0.744$).

Concerning eating habits, there was no association between gender and the description of the eating habits ($p = 0.903$) or the report of fruit intake ($p = 0.084$). There was also no association between gender and the report of vegetable intake ($p = 0.303$), the report of eating and drinking before school ($p = 0.119$), or the habit of drinking milk ($p = 0.643$).

The physical activities that produced sweat and faster breathing, divided by gender, are described in Table 3.

Table 3. Exercise/physical activities in the last seven days that produce sweat.

Physical Activity That Produces Sweat (Days) ***n* = 232**	**Gender**		**Total**
	Female	**Male**	
0	16 (13.4%)	8 (7.1%)	24 (10.3%)
1	13 (10.9%)	6 (5.3%)	19 (8.2%)
2	30 (25.2%)	20 (17.7%)	50 (21.6%)
3	22 (18.5%)	12 (10.6%)	34 (14.7%)
4	17 (14.3%)	18 (15.9%)	35 (15.1%)
5	7 (5.9%)	23 (20.4%)	30 (12.9%)
6	4 (3.4%)	6 (5.3%)	10 (4.3%)
7	10 (8.4%)	20 (17.7%)	30 (12.9%)
Total	119 (100%)	113 (100%)	232 (100%)

There was a statistically significant association between gender and days spent participating in physical activity producing sweat (Fisher's exact test (7) = 22.34, $p = 0.002$, $w = 0.43$ (Table 3)). Most female participants practised 2 to 3 days a week, while male participants reported significantly more days of practice (5, 7 and 2) days a week.

Gender and days spent participating in physical activity that did not produce sweat did not demonstrate a statistically significant association ($p = 0.575$).

Table 4 describes the number of strength exercises the respondents engaged in over the last seven days, divided by gender.

There was a statistically significant association between gender and days spent participating in strengthening exercises (Fisher's exact test (7) = 28.73, $p < 0.001$, $w = 0.49$ (Table 4)). Most participants tend not to perform strengthening exercises and those who do tend to choose to do so 1 to 2 days a week.

Table 4. Strength exercises the respondents engaged in in the last seven days.

Strengthen Exercise (Days) *n* = 232	Gender		Total
	Female	Male	
0	56 (47.1%)	29 (25.7%)	85 (36.6%)
1	21 (17.7%)	16 (14.2%)	37 (15.9%)
2	21 (17.7%)	16 (14.2%)	37 (15.9%)
3	7 (5.9%)	13 (11.5%)	20 (8.6%)
4	5 (4.2%)	13 (11.5%)	18 (7.8%)
5	1 (0.8%)	10 (8.8%)	11 (4.7%)
6	0 (0.0%)	6 (5.3%)	6 (2.6%)
7	8 (6.7%)	10 (8.8%)	18 (7.8%)
Total	119 (100%)	113 (100%)	232 (100%)

The following variables did not present a significant association with gender: time spent watching TV ($p = 0.317$); days spent in physical education classes ($p = 0.224$); and the number of minutes they spent exercising or playing a sport ($p = 0.099$).

Table 5 describes the number of sports teams the respondents attended, divided by gender.

Table 5. The number of sports teams attended.

Amount of Sports Teams Attended *n* = 232	Gender		Total
	Female	Male	
0	67 (56.3%)	47 (41.6%)	114 (49.1%)
1	40 (33.6%)	42 (37.2%)	82 (35.3%)
2	7 (5.9%)	19 (16.8%)	26 (11.2%)
≥3	5 (4.2%)	5 (4.4%)	10 (4.3%)
Total	119 (100%)	113 (100%)	232 (100%)

There was a statistically significant association between gender and the number of sports teams attended (Fisher's exact test = 8.991, $p = 0.027$, $w = 0.28$). Most female participants did not participate in team sports, and male participants were almost equally distributed between not participating in and participating in one team sport.

Gender and need to see a healthcare provider did not demonstrate a statistically significant association ($p = 0.417$).

Supplementary Table S2 provides a comprehensive overview of the results obtained from the KIDMED questionnaire, which assesses the study participants' adherence to the Mediterranean diet. There was no association between eating one piece of fruit daily and gender ($p = 0.503$), eating two or more pieces of fruit daily ($p = 0.515$), or having regular fish meals ($p = 0.293$). Furthermore, no association was found between gender and the habit of consuming fast food regularly ($p = 0.885$),the inclusion of beans in meals ($p = 0.376$), the inclusion of rice or pasta regularly ($p = 0.380$), the use of cereals and derivatives at breakfast ($p = 0.579$), or the inclusion of nuts in the diet ($p = 0.128$). There was no association between gender and the use of olive oil at home ($p = 0.716$), the habit of eating sweets ($p = 0.866$), the use of dairy and derivatives daily ($p = 0.163$), the use of cakes for breakfast ($p = 0.847$), or the use of dairy and derivatives at breakfast ($p = 0.768$).

The proportion of participants who reported eating vegetables regularly, divided by gender, is described in Table 6.

A chi-square homogeneity test was run, and there is a statistically significant association between the two variables ($\chi^2(1) = 6.212$, $p = 0.016$, $w = 0.23$).

The proportion of participants who fast-forwarded or skipped breakfast, divided by gender, is described in Table 7.

Table 6. The proportion of participants who reported eating vegetables regularly divided by gender (absolute value and percentage).

Vegetable Consumption *n* = 232	Gender		Total
	Female	Male	
No	22 (18.5%)	37 (32.7%)	59 (25.4%)
Yes	97 (81.5%)	76 (67.3%)	173 (74.6%)
Total	119 (100%)	113 (100%)	232 (100%)

Table 7. The proportion of participants that fast-forward or skip breakfast is divided by gender (absolute value and percentage).

Skipped Breakfast *n* = 232	Gender		Total
	Female	Male	
No	75 (63%)	86 (76.1%)	161 (69.4%)
Yes	44 (37%)	27 (23.9%)	71 (30.6%)
Total	119 (100%)	113 (100%)	232 (100%)

A chi-square homogeneity test was run, and there is a statistically significant association between the two variables ($\chi^2(1) = 4.670$, $p = 0.033$, $w = 20$).

Generally, there was moderate adhesion to the Mediterranean dietary pattern, as shown in Table 8.

Table 8. Adhesion to the Mediterranean dietary pattern—KIDMED score.

Kidmed Score	*n* = 232	Percent %
Low adhesion	21	9.1
Moderate adhesion	109	47.0
High adhesion	102	44.0
Total	232	100
Mean and SD	6.98 ± 2.36	

An independent-sample *t*-test was run to determine whether scores differed between males and females, and no differences ($p = 0.639$) were found.

The effects of the KIDMED scoring on the likelihood that participants had exercised in the last 30 days to lose or avoid gaining weight were statistically significant ($\chi^2(4) = 5.08$, $p = 0.024$, $w = 0.21$). The model explained 3.0% (Nagelkerke R2) of the variance in exercising to lose weight and correctly classified 65.5% of the cases. The variable adhesion to the Mediterranean diet (Kidmed score) was statistically significant, with higher adherence to the Mediterranean diet associated with an increased likelihood of tending to exercise to lose weight ($p = 0.026$). Those who did not exercise, aiming to lose or avoid gaining weight, were less likely to adhere to a Mediterranean diet. They presented 0.76 times higher odds of not exhibiting an adequate diet.

Cumulative odds ordinal logistic regression with proportional odds was run to determine the effect of the KIDMED scoring on the self-reported daily dose of fruit consumption. There were proportional odds, as assessed by a full likelihood ratio test comparing the fitted model to a model with varying location parameters ($\chi^2(3) = 6.47$, $p = 0.091$). The deviance goodness-of-fit test indicated that the model fit was good ($\chi^2(47) = 45.820$ $p = 0.521$), with zero frequencies in 30.8% of cells. The final model statistically significantly predicted the dependent variable over and above the intercept-only model ($\chi^2(1) = 51.85$, $p < 0.001$). An increase in the KIDMED scoring (towards higher adherence to the Mediterranean diet) was associated with an increase in the odds of a higher daily dose of fruit consumption, with an odds ratio of 1.48 (95% CI [1.33 to 1.66], $\chi^2(1) = 4654$, $p < 0.001$).

4. Discussion

This study comprehensively examined the demographic characteristics, dietary habits, physical activity patterns, and weight perceptions of 232 middle-school students in Northern Portugal. Our primary objective was to explore the associations between students' adherence to the Mediterranean diet, physical activity levels, and weight perceptions during their third education cycle. These findings provide valuable insights into potential risk factors that can inform strategies to promote healthier adolescent lifestyles.

4.1. Adherence to the Mediterranean Diet

The KIDMED questionnaire revealed moderate adherence to the Mediterranean diet among students, suggesting that while some positive dietary habits are present—such as fruit, vegetable, and fish intake—there remains significant room for improvement. This aligns with previous studies indicating a decline in adherence to the Mediterranean diet among adolescents in Mediterranean countries, including Portugal [5,14].

Interestingly, no significant gender differences were found in dietary adherence, challenging the assumption that gender is essential in shaping dietary habits during adolescence. This suggests that factors such as family influence, socioeconomic status, and cultural norms may substantially impact adolescent food choices [15,16]. Research indicates that family dietary patterns and parental habits play crucial roles in shaping adolescent eating behaviors, particularly in Mediterranean countries where family meals and traditional eating practices are culturally embedded [16]. This finding underscores the importance of involving families in interventions promoting the Mediterranean diet among adolescents.

Students' diets can be improved by increasing their consumption of whole grains, legumes, and nuts and replacing unhealthy fats with olive oil. Promoting these changes, especially within family settings, can lead to significant long-term health benefits [17,18]. Public health initiatives should also aim to revitalize the traditional Mediterranean dietary pattern, addressing the sociocultural shifts contributing to its decline among younger generations [19–21].

4.2. Physical Activity Habits

Our findings indicate a significant gender difference in physical activity levels, with more male students engaging in activities that result in sweating and faster breathing than female students. This supports previous research showing that males are generally more physically active than females during adolescence [22,23]. The gender gap in physical activity is multifaceted, influenced by various factors including societal expectations, cultural norms, and educational opportunities.

In many cultures, including Portugal, physical activity is often more socially encouraged for boys. At the same time, girls may face barriers such as gender stereotypes, lower self-efficacy, or a lack of access to appropriate facilities [23]. Schools and community programs should address these barriers by creating more inclusive environments that promote physical activity for all students, particularly girls. Research shows that girls are more likely to participate in activities like dance or group fitness, often less prioritized in school physical education programs [24]. Tailoring physical activity programs to match girls' preferences and addressing societal influences discouraging their participation could help close the gender gap.

Moreover, physical activity levels are critical for long-term health outcomes, as active adolescents are more likely to become active adults. Encouraging increased participation in physical activity during adolescence, particularly for females, is essential for reducing the risk of chronic diseases such as obesity, cardiovascular conditions, and mental health issues [4,23]. To this end, public health campaigns should target the physical benefits of exercise and its cognitive and social advantages, particularly for adolescent girls who may experience more pressure related to body image [23,24].

4.3. Weight-Related Behaviors

No significant gender differences were observed in weight perceptions or weight-related goals among the students, suggesting that both male and female students share similar views on body weight. However, gender differences emerged in weight-related physical activity behaviors, with more males exercising to lose or avoid gaining weight than females. This finding aligns with research suggesting that while boys may focus more on physical activity to manage weight, girls may experience different pressures regarding body image, often influenced by media portrayals and societal expectations [25].

Body image plays a critical role in adolescents' psychological well-being, and societal pressures—particularly from media—can significantly impact how young people perceive their bodies. Recent research highlights that media influence, including social media, exacerbates body dissatisfaction among adolescents, particularly girls, by promoting unrealistic beauty standards [26]. These pressures can lead to unhealthy weight control practices, such as fasting, over-exercising, or using diet pills, which were not significantly observed in our study population but are common concerns in adolescent health [25,26].

In addressing body image concerns, schools and health programs should promote positive body image and self-acceptance among adolescents, encouraging healthy weight management without contributing to harmful body ideals. Promoting body diversity in media representations and fostering environments that support self-esteem and body confidence can mitigate the adverse effects of societal pressures on body image [24,27].

4.4. Limitations

Several limitations should be considered when interpreting these findings. First, the study was conducted in a specific geographic area, and the sample may only partially represent the broader adolescent population in Portugal. Future research should include more diverse samples to enhance the generalizability of the results. Second, using self-reported data introduces the potential for response bias, as students may have answered in ways they believed to be socially desirable. However, despite these limitations, our findings offer valuable insights into Portuguese adolescents' dietary and physical activity habits and provide a foundation for future interventions to promote healthier behaviors.

5. Conclusions

This study provides a comprehensive overview of adolescents' dietary habits, physical activity levels, and weight perceptions in the third cycle of education in Northern Portugal. Our findings revealed moderate adherence to the Mediterranean diet and significant gender differences in exercise intensity. These results underscore the need for holistic, gender-sensitive approaches addressing this age group's dietary and physical activity behaviors.

In light of these findings, there is a clear and pressing need for targeted, evidence-based interventions at the family, school, and community levels. School-based health promotion programs, such as the "National Program for the Promotion of Healthy Eating" (PNPAS) and "National Program for the Promotion of Physical Activity" (PNPAF) in Portugal, in Portugal, can provide a strong foundation for enhancing student health and well-being. Studies can provide a strong foundation for enhancing student health and well-being.

Policy Implications and Recommendations: Our findings should inform the development of future health promotion programs that are culturally relevant and tailored to adolescents. Given the critical role that schools play in shaping student behaviours, school-based interventions should be expanded to include the following:

- Nutritional Education: Integrating curriculum elements that promote the Mediterranean diet, emphasizing the consumption of whole grains, legumes, nuts, and olive oil. These lessons should be reinforced through school meal programs, ensuring alignment between education and practice.
- Physical Activity Promotion: Schools should implement gender-sensitive physical activity programs that cater to the preferences and needs of both boys and girls.

Introducing a wider variety of activities, including those that appeal to girls (such as dance or group fitness), could help close the gender gap in physical activity.

- Parental Involvement: Family-centered interventions should be encouraged, as research consistently highlights the role of parental dietary habits and physical activity in shaping adolescent behaviour. Programs that involve parents in promoting healthy eating and physical activity at home are likely to yield more sustainable outcomes.

At the policy level, collaboration between schools, healthcare professionals, and policymakers is essential to implement and sustain these initiatives. In particular, local health authorities and municipalities should actively support school-based programs by providing resources and funding and creating environments conducive to physical activity (e.g., safe spaces for exercise). Community engagement through partnerships with sports clubs and local businesses could also enhance these efforts.

Future Research Directions: To deepen the understanding of adolescent health behaviors, future research should employ longitudinal or experimental designs that explore the causal relationships between dietary habits, physical activity, and health outcomes. Additionally, studies should examine a broader range of determinants, including socioeconomic status, cultural influences, and peer dynamics, which may impact adolescent behaviors.

Importantly, future research should also focus on developing and assessing the efficacy of targeted interventions. These interventions should be evaluated for their ability to improve dietary and physical activity habits, mental health, and body image, which are closely linked to overall well-being. Integrating these findings into national health strategies could further contribute to Portuguese adolescents' long-term health and development.

By taking proactive and coordinated action at the family, school, community, and policy levels, we can foster healthier behaviors among adolescents, ultimately contributing to improved health outcomes and a brighter future for all.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/youth4040097/s1, Table S1: YRB questionnaire results, Table S2: Results of the KIDMED questionnaire.

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Guidelines and Standards Statement: The study followed GCP (Good Clinical Practice). The Strengthening the Reporting of Observational Studies in Epidemiology Guidelines (STROBE) were followed to ensure that our manuscript presents comprehensive, clear, and transparent reports of our methodology and findings.

Use of Artificial Intelligence: In this manuscript, the program Grammarly 1.58.2.0 was used only and exclusively for English language improvement and support—more precisely, only for translation. The authors are fully responsible for the originality, validity, and integrity of their manuscript's content.

Conflicts of Interest: The authors declare no financial or non-financial competing interests concerningthis article's research, authorship, and publication. Additionally, the authors confirm that the research presented in this manuscript was conducted independently and objectively, without any influence from personal or professional relationships, affiliations, or financial interests.

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