Original article

Underweight Status, ~~body~~ Body ~~image~~Image, and ~~weight~~ Weight ~~loss~~ Loss ~~measures~~ Measures among ~~adolescents~~ Adolescents in Saudi Arabia: ~~is~~ Is it a ~~fad~~ Fad or is ~~there~~ There ~~more~~ More ~~going~~ Happening~~on~~?

[Author names, with degrees]

Author affiliations

[a] [Institution a]

[b] [Institution b]

Corresponding author: [Name]

[Postal address]

Phone:

Fax:

1

Commented [AUTHOR1]: Dear Author:

Thank you for giving me an opportunity to edit your manuscript.

As instructed, I have checked the whole manuscript, and have checked that the manuscript complies with the formatting and other requirements for submission to *Journal of Adolescent Health* as an original article.

I have checked the manuscript carefully for grammar, language, consistency, flow, logic, and overall readability. I have also made all the necessary changes to ensure consistent formatting throughout the document as per journal guidelines.

Commented [AUTHOR2]: Original Articles are full-length scientific reports on the results of original research. Text is limited to 3500 words with a 250-word structured abstract, 5 tables/figures, and 40 references. Original articles should include a 50-word Implications and Contribution summary statement.

Commented [AUTHOR3]: The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc.

Commented [A4]: _IMPORTANT:_ Guidelines on the presentation of in-text citations are conflicting.

Guideline 1: Reference style should follow that of the AMA Manual of Style, 10th edition

Commented [A5]: Files should be set in 12-point double-spaced type. The manuscript file should follow the general instructions on style/arrangement, and, in particular, the reference style. Pages in the manuscript file should be numbered consecutively.

I have ensured that these requirements are met.

Commented [AUTHOR6]: This title has 131 characters, so it is within the limit of 140 characters.
The journal uses title case (the first letter of each word in capital letters) for journal article titles.

Commented [AUTHOR7]: **Essential title page information**
• Title. Concise and informative (titles are limited to 140 characters).
• Author names and affiliations. Include the full names of all authors, as well as the highest academic degrees and the departmental and institutional affiliation of each.

E-mail:

Abbreviations

BMI, body mass index; CDC, United States Centers for Disease Control and Prevention; CI, confidence interval; KSA, the Kingdom of Saudi Arabia; OR, odds ratio; SES, socioeconomic status; WHO, World Health Organization

Commented [AUTHOR8]: Formatting of funding sources List funding sources in this standard way to facilitate compliance to funder's requirements:
Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].
It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.
If no funding has been provided for the research, it is recommended to include the following sentence:
This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Commented [AUTHOR9]: Please specify any conflicts of interest.

Abstract

Purpose: Adolescence is ~~considered to be~~ a pivotal point ~~in~~ during which optim~~um~~al nutrition and eating habits are developed. ~~Although tackling the~~ Attention has been focused on addressing the obesity epidemic, but limited attention has been ~~much discussed,~~ given to addressing the issue of being underweight and of body image ~~is often neglected.~~ . This study ~~was carried out~~ aimed to ~~get a better understanding of~~ determine the underweight status among adolescents in the Kingdom of Saudi Arabia~~,~~ and ~~exploring~~ explore self-perceptions of body image and weight- loss measures among underweight adolescents.

Methods

: Data from Jeeluna®, a national cross-sectional school-based survey, were utilized. Jeeluna® assessed the health status and health-risk behaviors of adolescents in school through data obtained ~~by~~ using a self-administered questionnaire, ~~anthropologic~~ anthropometric measurements, and laboratory ~~investigations~~ tests.

Results:

A total of 12,463 adolescents participated, of whom 14.9% (18.0% of boys and 12.4% of girls) were underweight. ~~Eighteen percent of adolescent males and 12.4% of females were found to be underweight, representing 14.9% of adolescents collectively. Forty-five percent of~~ Of the underweight participants, 45% were happy with their weight. Underweight ~~females~~ girls aged 10–14 years were ~~also the group~~ most likely to engage in purging (1.6%).

Conclusion

: The ~~U~~underweight status is prevalent among adolescents in Saudi Arabia and ~~deserves more~~ warrants greater attention as a public health issue.

Commented [AUTHOR10]: A concise and factual abstract is required. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separately from the article, so it must be able to stand alone.
The abstract should be provided in a structured table format with the following bolded headings:
Purpose, Methods, Results, and Conclusions. Emphasis should be placed on new and important aspects of the study or observations. Only common and approved abbreviations are acceptable, and they must be defined at their first mention in the abstract itself.

Commented [AUTHOR11]: The edited abstract has 164 words, so it is well within the limit of 250 words.

Commented [AUTHOR12]: I changed the heading to match the heading given in the journal instructions.

Commented [A13]: A literature gap, or research gap, is an unexplored topic revealed during a literature search that has scope for research or further exploration. Please note the gap in the literature on the topic has been not been appropriately addressed.

When you mention limited attention, it implies previous studies have been conducted. It is important to expound why exactly was this study undertaken. What limitation of the previous study was addressed in this one.

Please consider including this information. However, please be mindful about the stipulated word limit before the addition of any new information. I will be happy to recheck the Abstract once again should you choose to add any additional information.

Commented [A14]: Please provide the study period and location of this study.

Commented [A15]: Please provide details of this study, i.e., the duration, sample size, etc.

Commented [AUTHOR16]: It is unclear why you included this in the abstract because it is not a primary result, and is not mentioned in either the results or the discussion sections. I suggest that you remove this sentence and add some more primary results, specifically the results of the multivariable logistic regression analysis of predictors of being underweight.

Commented [A17]: The use of greater attention implies a comparison. Please clarify over what exactly should underweight status be considered. Perhaps you mean, "*The underweight status is prevalent among adolescents in Saudi Arabia and warrants greater attention as a public health issue than that paid to obesity.*"

3

Key words: Underweight, body image, the Kingdom of Saudi Arabia

Implications and contribution

This study of a nationally representative sample of adolescents in Saudi Arabia found a relatively higher prevalence of being underweight (14.9%) than that in other countries with similar economic and cultural characteristics. Underweight status among adolescents warrants greater attention as a public health issue.

1. Introduction

Adolescence, the age from 10 to 19 years, is a ~~time of~~ critical stage in the development ~~in~~of ~~an~~ individual~~'s~~' cognitive, emotional, and social characteristics~~,~~ as well as their physical growth ~~and development~~. The study of this ~~important~~ age group has gained global attention as ~~it represents~~adolescence is a critical intervention point, ~~as we now know through the~~ from a life course ~~lens to~~ health~~, that to decrease disease burden in adulthood, we need to promote~~ perspective. Promotion of a healthy lifestyle and ~~prevent~~prevention of risky behaviors in adolescence ~~[[~~can decrease the disease burden in adulthood.[1], [2], [-3]]].

~~Around~~Adolescents account for approximately 1.2 billion of the world's total population ~~are considered to be in the adolescent age group~~, of whom 88% ~~of which are~~live in developing countries, including the Arab world.[4]~~].~~ ~~As for~~In the Kingdom of Saudi Arabia (KSA), ~~around~~ approximately 14.5% of the 33 million total population ~~are comprised of~~fall within this age

group.~~ [5]. Yet,~~ yet few studies have focused ~~attention and literature dedicated to the~~ on the health needs of adolescents in the region~~., which is~~ [6] Studies of adolescents are essential ~~in~~for guiding related polic~~ies~~~~y, has been generated only in the past several years [6]..~~

One area of study is the nutritional profile of adolescents~~, which is essential to informed decision-making~~ because ~~of~~ dietary behavior ~~playing~~plays a crucial role in development, and addressing dietary behavioral problems is a prerequisite for decreasing the disease burden in adulthood. While the prevalence of obesity in adolescents is ~~on the rise~~increasing and ~~certainly~~ receives ~~much~~considerable attention, ~~this~~being ~~condition now coexists with being~~ underweight~~. The consequence of this~~ is also an issue. This paradox is ~~often~~ referred to as "the double burden of malnutrition" and presents a challenge to public health.~~ [7].~~ Being underweight has been associated with a variety of health conditions including musculoskeletal, respiratory, intestinal, and psychiatric disorders and adverse pregnancy outcomes.~~, and psychiatric disorders [8,9]~~ as well as stunting, pubertal delay, and a weakened immune system.~~ [10].~~

Global health reports by the World Health Organization (WHO) have shown that although obesity rates are ~~on the rise~~increasing, rates of a moderate or severe underweight status are higher than rates of obesity among children and adolescents~~—as defined by World Health Organization (WHO) guidelines~~. This burden is increasingly concentrated in Africa and South Asia. Globally, the prevalence of a moderate to severe underweight status was 8.4% and 12.4% among boys and girls, respectively, in 2016.~~ [11].~~

~~While available~~Available studies on adolescent nutritional profile in the KSA have largely focused on obesity, ~~which is seen as an epidemic, there are very limited~~and few studies ~~examining the other extreme of~~have examined low body mass index (BMI) in adolescents. ~~One available~~A study ~~done~~conducted in Riyadh ~~seems to suggest~~revealed that underweight status

Commented [AUTHOR30]: Cite a reference. Should reference 11 be cited here?

prevalence is ~~alarmingly high compared to~~higher than that in other similar countries in the region. [12]. However, ~~their~~the sample size was limited and the study only included ~~females in the age group of~~girls aged 12–15 years.

The only nationally representative study addressing ~~this~~the prevalence of being underweight in the KSA is the Jeeluna® study, ~~in which we reported the~~which found a 15.2% prevalence of being underweight (BMI below the 5th centile for age and ~~gender~~sex) ~~to be 15.2%~~ among a sample of over 12,500 adolescents. [6].

~~2.~~ Methods

Data for this study were ~~taken~~extracted from the Jeeluna® study, which ~~is~~was a school-based, national, cross-sectional study conducted in 282 schools across all 13 regions of the KSA, ~~in the~~ 2011–2012 academic year ~~of 2011–2012.~~. The study used a ~~student population proportionate,~~ stratified, multi-stage, clustered sampling method to select a representative sample of adolescents, with sampling probability proportionate to the population size. Data ~~collection involved~~were collected using a self-administered questionnaire, anthropometric measurements, and ~~blood samples for~~ laboratory ~~investigations~~tests.

The self-administered questionnaire was guided by preexisting internationally recognized surveys with psychometric properties aimed to address health-risk behaviors among adolescents. The study questionnaire underwent several rounds of review by experts and was pilot-tested for clarity and appropriate wording to ensure comprehension among the target study group. The questions were formulated in congruence with those included in the Youth Risk Behavior Survey[38] and the Global School-based Student Health Survey with cultural adaptations.[39]

Commented [A31]: Please also describe here the findings of Alanazi et al (EJHM, 2018) who evaluated prevalence of underweight status among adolescents in northern KSA.

Commented [AUTHOR32]: Note: It is not necessary to include an ® sign after the study name.

Commented [AUTHOR33]: Use the terms sex (biological attribute) and gender (shaped by social and cultural circumstances) carefully in order to avoid confusing both terms.

Commented [A34]: A literature gap, or research gap, is an unexplored topic revealed during a literature search that has scope for research or further exploration. Please note the gap in the literature on the topic has been not been appropriately addressed.

It is important to expound why exactly was this study undertaken. What limitation of the Jeeluna study was addressed in this one.

Please consider including this information.

Commented [AUTHOR35]: At the end of the introduction, provide a clear and concise statement about the objectives of the present analysis.
This statement is somewhat confusing because it is unclear how this previous report on the Jeeluna study differs from the current analysis, and there are small discrepancies in the sample size (>12,500 vs. 12,463) and the reported prevalence of underweight (15.2% vs, 14.9%). These inconsistencies need to be resolved.

Commented [AUTHOR36]: The selection of observational or experimental subjects (patients or experimental animals, including controls) should be clearly described in the Methods section. The methods, apparatu...

Commented [AUTHOR37]: The methods section must provide a statement about ethics approval, and a statement about informed consent.

Commented [A38]: The inclusion and exclusion criteria of the subjects in the Jeeluna study should be described here. Furthermore, please clarify whether any additional exclusion criteria were applied in your current analysis.

Commented [A39]: As the findings of blood analyses are not reported in the results section, please delete this statement or include the relevant results.

Commented [A40]: The in-text citations will have to be revised. I am unable to do so as no reference list has been provided.

Commented [A41]: To allow other researchers to reproduce your results, please present the questions included in the self-administered questionnaire.

Commented [AUTHOR42]: I moved this up from the discussion section because it did not tie in with the rest of the discussion. However, I suggest that you leave this ...

Details of the study methods have been published previously.[6] Trained staff measured the height to the nearest 0.5 cm using a wall-mounted height chart and weight to the nearest 0.1 kg using a digital scale while students were lightly dressed and without shoes.

Participants were classified as being underweight, having healthy weight, being overweight, or being obese based on whether their BMI was in the <5th, 5th–84th, 85th–94th, or ≥95th percentile for their age and sex, according to the US Centers for Disease Control and Prevention (CDC) growth charts.[13] Data were weighted to ensure that they were nationally representative. Domains relevant to this study included (1) family; (2) educational level; (3) nutrition and dietary behaviors; (4) activities, including physical activity; and (5) health status. These relevant variables in these domains were extracted from the dataset and analyzed.

Additionally, other variables of interest in the questionnaire were age, sex, area of residence (urban or rural), nationality, school grade, frequency of exercise, and diagnosis of a chronic or mental illness. Data analysis was performed using SPSS version 25.0 (IBM Corp., Armonk, NY, USA). Descriptive analysis was conducted first. Participants were described in terms of their sociodemographic characteristics. The association between dietary behaviors and weight of the participants was evaluated using the chi-square test. The odds ratio (OR) and 95% confidence intervals (CIs) were calculated for each of the potential explanatory variables in relation to the outcome (underweight). Stepwise logistic regression was performed to determine the independent predictors of being underweight. P values < 0.05 indicated statistical significance.

~~3.~~ **Results**

> **Commented [AUTHOR49]:** Results should be presented in a logical sequence in the text, table(s), and illustration(s). Only critical data from the table(s) and/or illustration(s) should be repeated in the text.

A total of 12,463 adolescents aged 10–19 years ~~participated. Fifty-one percent were adolescent males. Participants' ages ranged between 10 and 19 years,~~ with a mean age of 15.8 (standard deviation [SD]: 1.8) years participated in this study ~~(1.8). The~~; 51% were boys. Most ~~large majority of the~~ students ~~was~~ were of Saudi nationality (82.8%) and lived in urban cities (97.9%). ~~Eighteen percent~~The prevalence of being ~~adolescent males and 12.4% of females were found to be~~ underweight according to the CDC definition~~, representing~~ was 14.9% ~~of adolescents collectively.~~(18.0% among boys and 12.4% among girls). Of the participants, ~~(~~52.6%~~)~~ had ~~more than~~> 5 siblings~~,~~ and ~~(~~34.9% ~~)~~had ~~between 3 and~~ 3–5 siblings.

> **Commented [A50]:** In the last paragraph of the introduction section, you state that the study had a sample of over 12,500 and that the prevalence of underweight was 15.2%.
> In the results section (here), you report the 12,463 adolescents participated, and that the prevalence of underweight was 14.9%.
> Clarify the reason for the discrepancies in these 2 sets of figures. (The clarification can be added to the discussion, if relevant. It should not be added to the results section.)

~~Disparities can be noted among adolescents in different regions within the KSA as shown in (Table 1). With Madinah having the highest frequency~~The prevalence of being underweight ~~males~~differed significantly regionally (Table 1) and was the highest in Madinah in boys (28.3%) and Najran ~~having the highest frequency among females~~in girls (29.0%)~~,~~ and the lowest (1.0%) in the Northern Borders region ~~has the lowest for males (1.0%),~~in boys and Aljouf ~~has the lowest for females~~ (3.1%~~), P value < .05~~%) in girls.

> **Commented [A51]:** The definite article "the" is used before nouns that are unique or one of a kind. Superlatives such as "highest" and "fastest" make the nouns that follow them unique. Hence, they are preceded by the definite article "the" (e.g. "Sam is the fastest runner in his class")

> **Commented [AUTHOR52]:** Note: In the English language, this city is usually transliterated as Medina. I suggest that you use the common English spelling.

~~Fig. 1 depicts the~~The prevalence of being underweight by age ~~for both males~~ and ~~females.~~sex is shown in Figure 1. A similar trend ~~is~~was observed among both ~~genders where~~sexes. The prevalence ~~peaks~~of being underweight peaked at ~~the age of~~ 12 ~~for males~~years among boys and 13 ~~for females,~~ years among girls and then ~~declines~~declined and ~~stabilizes~~stabilized for the rest of adolescence. However, ~~males start off at the age of~~boys aged 10 and 11 ~~with much~~years had a

lower ~~rates compared to females, then rapidly increase to the peak.~~ prevalence of being underweight than girls.

The relationship between body image perception, weight-loss behaviors, and weight status is summarized in Table 2.

~~Stepwise logistic regression was carried out to determine the independent predictors of underweight adolescents (Table 4).~~ The predictors of being underweight are shown in Table 3. The strongest association was found with having a monthly family income of < 5000 Saudi Riyals (OR: 2.0, 95% CI: 1.5–2.7), ~~and~~ having ~~more than~~> 5 siblings (OR: 1.8, 95% CI: 1.5–2.3), ~~followed by~~ being of the male sex (OR: 1.6, 95% CI: 1.4–1.7), and living in an urban city versus rural area (OR 1.5, CI 1.0–2.3).

~~Finally, logistic regression analysis was performed to identify predictors of underweight after control for confounding effects. Results showed that~~ Multivariable logistic regression analysis revealed that predisposing factors for being underweight ~~among adolescents~~ included~~:~~ skipping meals (OR:= 1.1, 95% CI:= 1.0–1.2) and not being satisfied with body image (OR:= 1.7, 95% CI:= 1.5–1.9) (Table ~~5~~4).

~~4.~~ Discussion

This is the first national study to investigate the ~~correlates~~predictors, including perceptions of body image and weight-loss behaviors, of being underweight among adolescents in the KSA~~, including perceptions of body image and weight loss behaviors, and has thus provided many valuable insights~~. The prevalence of being underweight at 14.9% ~~of adolescents are underweight, which~~ is ~~alarmingly~~ high~~er~~ ~~compared to~~than that in other countries ~~of~~with similar

economic and/or cultural characteristics. A high proportion of underweight participants reported being happy with their weight or wanting to lose more weight. This should be addressed in the context of body image disturbance. It is relevant to contrast these rates with those found in other countries in the Middle East and North African region. A study conducted in Qatar found that 8.6% and 5.8% of boys and girls, respectively, were underweight.[15] A study of adolescents aged 11–17 years conducted in Egypt found that 12.6% of adolescents were underweight based on WHO growth charts, with boys more commonly affected.[16] A study conducted in Palestine found that 5% and 12% of adolescents in two different cities were underweight.[17] A study conducted in Istanbul, Turkey, found that 14.4% of boys and 11.1% of girls were underweight.[18]

In a study of 61,603 girls from 40 low- and middle-income countries, the prevalence of moderate and severe thinness, as defined by WHO growth charts, was 6.30%.[19] In European countries and Australia, the prevalence of being underweight among children and adolescents is approximately 4–8%.[20,21] However, these results may not be comparable with the results of the present study because they used different methodology and cut-offs. In a multicountry study, the highest prevalence of being underweight was found in China (11.5% in girls and 14.4% in boys) and the lowest prevalence in the United States (3% in girls and 3.6% in boys). Brazilian and Russian adolescents had intermediate prevalence of being underweight (6.5% in girls, 10.6% in boys and 8.6% in girls, 7.7% in boys, respectively).

[22]. These rates draw attention to the fact that ratesThe relatively high prevalence of being underweight in the KSA seem to be much higher, and there is a definite points to a need for intervention.

The peak prevalence of being underweight at the age of 12–13 years could be due to the variable onset of puberty among pupils, where, with the rate steadily goes down in subsequent yearsprevalence of being underweight decreasing after puberty. [23]. The age of at puberty and the hormonal profile were not assessed in this the current study, but other studies reported the onset of puberty to be inversely associated with being underweight, as a higher proportion of the well-nourished were among those who have reached puberty in the sample. [24].

The disparities of in underweight prevalence reported byfound in the present study may be due to several underlying factors, such as differences in socioeconomic conditions, urbanization, culture, and health-promoting behaviors, including diet and exercise. [29]. The These findings provide a foundation for prioritizing these regions for intervention efforts and further research. It is also possible that students tend to be influenced by the weight status of the social majority inof their schools, causing them to adapt to itpeers. [30]

A statistically significant difference was also found for underweight prevalence among those residing in urban cities versus rural areas (OR 1.5, CI 1.0–2.3). In the present study, living in an urban city was a risk factor for being underweight, which suggests that the urban lifestyle may predisposes adolescents to being underweight.

In exploring the association between socioeconomic status (SES) and underweight status, SES was inferred using adolescent-reported family income and the number of siblings. The study showed that these two factors were associated with the largestgreatest risk factors forof being underweight status, suggesting that SES plays a bigmajor role and should be targeted with that

Commented [AUTHOR68]: References 25-28 have not been cited. Either cite these references or renumber the references accordingly.

Commented [AUTHOR69]: I moved this to the results section. Results should not be reported in the discussion section.

intervention strategies. ~~,~~ should target adolescents from families with a low SES. However, ~~it should be noted that~~ although these measures provide an indication, they cannot fully capture the various dimensions of family SES. ~~The association with low SES should be put into context, as the~~This finding does not necessarily imply that access to food is the only ~~implicated~~ factor responsible. Other related factors such as parenting practices ~~,~~ may explain a significant part of the difference, as families with low SES may be less educated or have less time, and parents are thus ~~are~~ unable to teach ~~kids~~their children about nutrition. ~~[~~[31,32] ~~].~~

Some studies have found that poorer children who live in high SES neighborhoods have better educational outcomes and fewer behavioral problems than poor children who live in lower SES neighborhoods ~~possibly~~, suggesting that education and social norms ~~are the~~play a dominant ~~factors~~role. ~~[~~[33,34] ~~].~~ This suggests that there is room for ~~e~~affective intervention beyond simply improving SES. ~~The literature also suggests that~~In some studies conducted in developing countries, high SES ~~is sometimes~~has been found to be associated with an increased prevalence of overweight status; however, ~~the opposite trend is seen~~ in developed countries, ~~where~~ low SES is associated with increased prevalence of overweight status. ~~[~~[35,36] ~~].~~ Therefore, the literature supports the idea that low-income individuals are more likely to be either underweight or overweight ~~compared to~~than their high-income peers. ~~[~~[37] ~~].~~

Underweight status is prevalent among adolescents in the ~~KSA, and~~KSA and deserves more attention as a public health issue. Although obesity is now ~~seen as~~considered an epidemic, policy-makers should not neglect the other extreme of ~~malnutrition, and~~malnutrition and should adopt effective strategies and intervention programs to ~~also tackle~~ address being underweight. Our study ~~demonstrates~~shows that the ~~there is an alarmingly high~~ prevalence of being underweight among adolescents in the KSA is higher ~~compared to~~than that in other similar countries.

> **Commented [A70]:** I moved this paragraph before the limitations as it ties up the study before moving on to the drawbacks of the study.

> **Commented [AUTHOR71]:** I changed "tackle" to "address" for a more formal tone.

Furthermore, it suggests that socioeconomic factors and body image disturbance play ~~a dominant~~an important role. ~~Though some~~Although this study provides new knowledge ~~has been generated from this study, many more~~about the prevalence of being underweight and its determinant among adolescents in the KSA, the results also raise new questions~~have arisen.~~. This study has some limitations. Given that ~~the study is~~this was cross-sectional study, we ~~cannot~~are unable to establish ~~causality~~a causal link between ~~the dependent~~risk factors and ~~independent variables; however, our~~being underweight. However, the study ~~offers~~identified several possible risk factors associated with being ~~an~~underweight ~~adolescent in the KSA,~~; thus, more in-depth longitudinal studies should be ~~done to better reflect on this situation~~conducted to gain a better understanding of the causes of being underweight among adolescents in the KSA. Additionally, self-administered surveys may be associated with recall bias~~,~~ and a high cognitive burden as physical activity and dietary assessment were based on individuals' assessments and memory and not objective measurements. ~~Additionally, some~~Some ~~of the~~information may have been considered sensitive, and despite repeated reassurance that confidentiality would be maintained, some items may have been ~~under reported.~~underreported. Finally, the hormonal profile of ~~adolescents~~participants was not measured ~~to be~~; thus, puberty status was not ~~taken into~~consider~~ation~~ed when evaluating heights and weights~~, which may not be comparable among participants who have reached puberty and others who have not~~.

~~The questionnaire used had underwent several rounds of review by experts, and was pilot-tested for clarity and appropriate wording to ensure comprehension among the target study group. The questions were formulated in congruence with those included in the Youth Risk Behavior Survey [38] and the Global School-based Student Health Survey with cultural adaptations [39].~~

> **Commented [AUTHOR72]:** This paragraph discusses the limitations of the study, so I added an introductory sentence.

> **Commented [AUTHOR73]:** It is best not to use the word "additionally" to start two consecutive sentences.

> **Commented [AUTHOR74]:** I moved this to the methods section because it does not tie in with the rest of the discussion. However, I suggest that you leave this paragraph out, as it does not affect the interpretation of the study results.

5. Conclusion

Further research should aimbe conducted to provide a better our understanding of how factors within family SES, school SES, and community SES interact to influence healthy nutritional status. Furthermore, the implementation ofconsideration should be given to implementing a surveillance program should be considered to observe changing trends and monitor results of intervention programs. It is suggested that The prevalence of being underweight frequency is increasing in European countries. [11]; further Further studies would need toshould be conducted to determine whether the KSA is following a similar trend.

References

[1]

[2]

Figure caption

Figure 1. [Insert the figure title and legend here.]

Commented [AUTHOR75]: Articles published in the *Journal of Adolescent Health* do not have a separate conclusion session, so I deleted the heading

Commented [A76]: I moved this paragraph to the end as future scope of a study is rightly placed here.

Commented [A77]: The number of references is within the limit of 40.

Commented [AUTHOR78]: The titles of journals should be abbreviated according to the style used in the list of Journals Indexed for MEDLINE, posted by the NLM on the Library's web site, http://www.nlm.nih.gov/tsd/serials/lji.html. Reference style should follow that of the AMA Manual of Style, 10th edition, as shown in the following example:
1. Standard journal article:
References should list all authors when four or fewer; when more than four, only the first three should be listed, followed by 'et al.'
Aalsma MA, Tong Y, Wiehe SE, et al. The impact of delinquency on young adult sexual risk behaviors and sexually transmitted infections. J Adolesc Health 2010;46:17-24. DOI: 10.1016/j.jadohealth.2009.05.018.

Commented [A79]: The number of figures/tables is within the limit of 5.