

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	A 10-year postintervention follow-up of adolescents participating in the management of overweight and social inequalities (PRALIMAP-INÈS intervention): The PRALIMAP-CINeCO survey protocol
AUTHORS	Legrand, Karine; Manneville, Florian; Langlois, Johanne; Böhme, Philip; Dosda, Arnaud; Beguinet, Mélanie; Briançon, Serge; Spitz, Elisabeth; Lecomte, Edith; Omorou, Abdou Y

VERSION 1 - REVIEW

REVIEWER NAME	<i>Rickman, Amy</i>
REVIEWER AFFILIATION	Slippery Rock University of Pennsylvania, ERS
REVIEWER CONFLICT OF INTEREST	Na
DATE REVIEW RETURNED	30-Jan-2024

GENERAL COMMENTS	<p>There is a lot of value to publishing the protocol of this study because it is important work in an area that is a worldwide issue/problem. However, in its' current format I feel this article is not publishable. Below I tried to highlight some examples of why I checked No on the review checklist. I included the number from the checklist and tried to highlight at least one example of why I checked No on the checklist.</p> <ol style="list-style-type: none">1. The research question is poorly worded-page 7 (lines 26-33)-reword.4. Methods need clarified and written more clearly (e.g., secondary objective-page 8, lines 10-12 and lines 50-55).5. Discuss the consent form for the participants or re consent for the follow-up study.6. For example, elaborate on secondary outcomes-outcome #3-page 8-elaborate on this outcome will be measured (page 8-lines 41-48).8. Many references were cited in French-unable to read. Format of some references needed updated/were lacking proper/consistent format.15. The standard of English needed to be improved (e.g., Primary objective-page 7-lines 28-33-difficult to understand). There were quite a few instances of poor English/difficulty understanding what the authors were meaning in quite a few areas.
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REVIEWER NAME	<i>Hill, Andrew</i>
REVIEWER AFFILIATION	University of Leeds, Medicine
REVIEWER CONFLICT OF INTEREST	Na
DATE REVIEW RETURNED	12-Feb-2024

GENERAL COMMENTS	<p>This protocol paper reports on a 10-year follow up of a weight management intervention that took into account young people's socio-economic status. I note that this protocol is presented some 15 months into a 24-month data collection period (Figure 1). The likely sample size is good if the estimated 60% follow-up participation is achieved.</p> <p>There are a number of issues that the authors should consider:</p> <ol style="list-style-type: none"> 1. There is an expectation that all publications regarding obesity use person-first language (e.g. https://www.obesityaction.org/action-through-advocacy/weight-bias/people-first-language/). I would also recommend the authors look to the involvement of an English language editor. There are several examples of odd word choice and phrasing (e.g. corpulence, p.6). 2. The first part of the introduction should be better organised. There is a single very long paragraph that could be divided into shorter paragraphs each dealing with a different issue. I would recommend including more detail of the original trial, its design, and findings. I understand that the original trial had 3 intervention arms. I don't recall seeing any of this detail referred to in the present protocol analysis. It would make more sense to report the main findings once and be clearer about findings regarding social inequalities. 3. More detail regarding patient and public involvement. At present, it appears that PPIE involvement amounted to a single focus group that helped only with participant recruitment. 4. p.10. Was the self-report questionnaire set administered in person or on-line? How were missing data and/or non-completions managed? 5. P.10. The figure rating scale assesses body shape rather than body weight. It is not calibrated to a specific BMI value. 6. P.11. EAT-26 is a screening measure that assesses attitudes and behaviours associated with eating disorders (it doesn't assess anorexia and bulimia). 7. An indication of how long the battery of questionnaires took participants to complete would be helpful. Was there any financial incentive offered to participants to complete any of the study components? 8. P.12. There is reference later to the analysis of open questions in the survey. Were these in relation to the experience of the original intervention? 9. P.12. There was an option to complete step 3 by teleconference. Just how were the anthropometric measures collected when the visit was not in person? 10. P.12. Was there an interview schedule developed for the biographical interview? 11. P.13 Declined to participate may be a better term than "refused to participate." 12. Discussion. There are several parts to this section that simply repeat parts of the introduction. This should be avoided.
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REVIEWER NAME	<i>Lazorick, Suzanne</i>
REVIEWER AFFILIATION	Department of Public Health, Brody School of Medicine, East Carolina University, Public Health
REVIEWER CONFLICT OF INTEREST	Na
DATE REVIEW RETURNED	04-Mar-2024

GENERAL COMMENTS

I commend the authors for planning this 10 year follow up on a previously completed, successful intervention study. The planned methods are ambitious and appropriate, and the results will be an important contribution.

While overall the methods are clear and the paper is well-written, there are several edits suggested to strengthen the descriptions and language to support full understanding for the reader, and/or minor edits for English grammar

Details provided below by section, and page/line:

General comments-

Please review and make sure the same terminology is used throughout especially when referring to the previous trial, the planned study, participants, outcomes, measures, etc. For example, when referring to the original trial- there are places that "intervention" is used, or "obesity management" or "overweight care management strategy". Suggest revise and in every place use the exact same terminology.

Use standard, commonly used terms for obesity-related outcomes in research studies. A few examples where terms used may not be correct/optimal:

- "access to care" (page 3 line 8-10)- this generally applies to care in a health care setting, but the intervention was in a school setting. Please clarify or elaborate- did the trial actually link participants to treatment in healthcare? As generally understood- "access" does not seem to be the appropriate term.

"corpulence" is not a commonly used term with clear understanding for the reader. Suggest use the actual measure (weight, BMI, waist circumference", or generally- anthropometric measures); or- another descriptor such as weight status, severity of or degree of overweight/obesity. If insist on using corpulence—please define for the purpose in the study/paper. For most English speakers, corpulence is simply a "nicer" term (but rarely if ever used) to say large body habitus, or "fatness" and this does not seem what is intended here.

"evolution" as used may not be appropriate- to describe the series of life events in the 10 year interval in the lives of participants, or the trajectory of weight status over time.

Specific comments/edits:

Abstract:

P3, line 8-10 – reword for clarity- as written "short term" refers to access to care? Was this meant to relate to short term duration of or outcome of the intervention? Also, as above- is "access to care" the appropriate term?

P3 line 33- reorder for clarity/grammar: to record waist circumference and weight and height for BMI calculation.

P3 line 38- recommend replace "qualitative" with other descriptor of the interviews- structured, semi-structured, unstructured? (by definition the interview itself is qualitative; use term when referring to the method or the analyses)

Line 47- conformity declaration was done with...

Key words: suggest additional- longitudinal follow up; obesity intervention; school-based

Introduction:

P5 line 12, "this figure"- it is not clear which it refers; replace "this"

	<p>with “the percent obese” increases to...</p> <p>P5 line 42 omit “do”</p> <p>P6 line 7-8, revise for intended meaning: did the trial actually reduce the social inequalities in girls? (seems doubtful that social status of participants changed) Or did it result in similar outcomes in girls regardless of social status?</p> <p>P6 line 12- states “both” but then lists 3 things... revise</p> <p>P7 line 40, Aims: primary Objective- this is wordy and difficult to understand- recommend revise for clarity example of possible rewording that would be more clear-- Evaluate the long-term (after 10 years) impact on [obesity measures..] in participants of the PRALIMAP-INES trial, a school-based overweight care management strategy conducted with adolescents in 2014.</p> <p>P7 line 38- as above—suggest new terminology instead of “evolution of corpulence” Perhaps- investigate the changes in weight status over time as measured by body mass index</p> <p>Data collection</p> <p>P10 line 54- cannot be anonymous if plan to link to previous measures; is this the right term?</p> <p>P11-line 5- revise wording- self report by completing the questionnaires and attend the medical visit</p> <p>P11 line 10- obtain anthropometric measures (instead of “corpulence”)</p> <p>P11 line 38- ? word “tough”.</p> <p>Assume FAS criteria are standard- if yes, reference the source for cut off of 6.</p> <p>P12, line 25-26- awkward wording- “asked to participants”, reword. Will be obtained from participants, or will be queried. (if these will also be from ad hoc questionnaires—then include in the previous sentence about alcohol, sleep etc.</p> <p>P12, line 54-56- sentence is confusing, reword for intended meaning. Not sure what is meant by “in complementary”</p> <p>P13, line 3-4, reword- assess recollection regarding the experience in the study (positive, negative memories; utility)</p> <p>P13 line 19, any specifics for accuracy (e.g shoes off), device to be used, and training of staff to use standard procedures</p> <p>P 13 Line 21- device specs</p> <p>P 13 Line 40, as above- suggest descriptive word for interview type rather than qualitative (such as structured, semi-structured, etc.)</p> <p>P13 line 40- change wording-- to collect (or obtain) these data</p> <p>P14- please provide more information about how and by who the interview guide was developed, was it tested/piloted, revised?</p> <p>P14- how will interviews be coded? All by 1 person or multiple coders? Any plan for resolving discrepancies?</p> <p>P17 line 45-46, ? missing word- team’s interdisciplinary _____</p> <p>Discussion:</p> <p>P17, First paragraph- revise second sentence for clarity and intended meaning, as suggested when stating aim on p7—what (specifically and clearly) do you aim to evaluate? The very long parenthetical clause about the original study loses the reader. Also don’t just restate prior information, instead lead the reader to important points you intend to highlight in the discussion (Through this proposed 10 year follow up study after a school based intervention in adolescents, we aim to...</p> <p>P19, line 35, “to” promote (or “for” promotion of)</p> <p>P19, line 40, suggest reword, “be with” is not typical terminology-</p>
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who are still experiencing overweight or obesity P20, line 12, there is evidence

VERSION 1 – AUTHOR RESPONSE

Reviewer # 1

Prof. Amy Rickman, Slippery Rock University of Pennsylvania

Comments to the Author:

There is a lot of value to publishing the protocol of this study because it is important work in an area that is a worldwide issue/problem. However, in its' current format I feel this article is not publishable. Below I tried to highlight some examples of why I checked No on the review checklist. I included the number from the checklist and tried to highlight at least one example of why I checked No on the checklist.

We would like to thank the reviewer for the comments, which improved the quality of the article.

1. The research question is poorly worded-page 7 (lines 26-33)-reword.

As suggested, the research question is now reworded.

Page 7: The primary objective is to evaluate the long-term (after 10 years) effect on BMI in participants of the PRALIMAP-INÈS trial, a school-based overweight management intervention conducted with adolescents in 2012-2015.

4. Methods need clarified and written more clearly (e.g., secondary objective-page 8, lines 10-12 and lines 50-55).

As suggested by the reviewer, the secondary objectives are now clarified.

Pages 7-8: The secondary objectives are as follows:

1. To describe the sociodemographic and health characteristics of young adults.
2. To describe the care pathway for adolescents related to overweight or obesity and all the major health events occurring from the postintervention period to young adulthood.
3. To identify the determinants of changes in health and psychosocial characteristics during the transition from adolescence to young adulthood overall and by adolescent characteristics (i.e., socioeconomic status, and overweight course).
4. To identify trajectories of health status in adolescence according to the immediate effect of the PRALIMAP-INÈS intervention, and according to the change after 10 years.
5. To deepen the understanding of the trajectories of young adults with regard to social aspects that may influence health behaviour.

5. Discuss the consent form for the participants or re-consent for the follow-up study.

The consent of the participants in the PRALIMAP-INÈS intervention and the current follow-up visit has now been clarified.

Page 10: All participants included in the PRALIMAP-INÈS intervention had given their consent to participate in the PRALIMAP-INÈS intervention.

Pages 11-12: The consent for 2nd and 3rd steps will be asked to participants during the 1st step.

6. For example, elaborate on secondary outcomes-outcome #3-page 8-elaborate on this outcome will be measured (page 8-lines 41-48).

As suggested, measurements of secondary outcomes are now clarified.

Pages 8-9: The secondary outcomes are as follows:

o For secondary objectives 1 and 2: Sociodemographic characteristics (age, sex, marital status, family situation, educational level, occupation type) and health characteristics (BMI and BMI z-score, physical activity and sedentary behaviour according to the Global Physical Activity Questionnaire [GPAQ] 32, eating habits according to a food frequency questionnaire

33, tobacco and alcohol consumption using ad-hoc questionnaire, quality of life using the Quality of life Short Form 12-item [SF12] 34), health events, actions taken or medical follow-up related to overweight or obesity, and any major events that occurred from the postintervention period to young adulthood;

o For secondary objective 3: Changes in characteristics (social [e.g., family situation, relationship with family using ad-hoc questions], economic [e.g., income, financial support using ad-hoc questions], psychosocial [i.e., coping using the Brief Cope questionnaire 35, self-esteem using the Rosenberg Self-Esteem (RSE) scale 36, emotion regulation using the Emotion Regulation Scale (DERS) 37, the quality of life using the SF12 34, and health events) and health behaviours (i.e., eating habits from a food frequency questionnaire 33, eating disorders using the Eating Attitudes Test-26 (EAT) 38, physical activity and sedentary behaviours using the GPAQ 32, temperament in eating and physical activity using self-reported questionnaires 39, alcohol and tobacco consumption and sleep quality using self-reported ad-hoc questionnaires) from adolescence to young adulthood overall and according to adolescent characteristics (i.e., socioeconomic status measured according to the WHO Family Affluence Scale (FAS) 40, and overweight course);

o For secondary objective 4: Improved, worsened or stable health characteristics (i.e., BMI, weight status, body image perception using the Stunkard's Figure Rating Scale 41, psychosocial characteristics and health behaviours [as detailed for secondary objective 3] according to the immediate effect of the PRALIMAP-INÈS intervention, and according to the change after 10 years;

o For secondary objective 5: Analyses of biographical interviews to gain a deeper understanding of young adults' trajectories in terms of social aspects that could influence health behaviours.

8. Many references were cited in French-unable to read. Format of some references needed updated/were lacking proper/consistent format.

The bibliography is now edited as suggested. In addition, references cited in French are now translated to English in square brackets.

See bibliography.

15. The standard of English needed to be improved (e.g., Primary objective-page 7-lines 28-33-difficult to understand). There were quite a few instances of poor English/difficulty understanding what the authors were meaning in quite a few areas.

As suggested by the reviewer the English is now improved using the Nature English Language editing (<https://authorservices.springernature.com/language-editing/>).

See changes throughout the manuscript.

Reviewer # 2

Prof. Andrew Hill, University of Leeds

Comments to the Author:

This protocol paper reports on a 10-year follow up of a weight management intervention that took into account young people's socio-economic status. I note that this protocol is presented some 15 months into a 24-month data collection period (Figure 1). The likely sample size is good if the estimated 60% follow-up participation is achieved.

We would like to thank the reviewer for the comments, which improved the quality of the article.

There are a number of issues that the authors should consider:

1. There is an expectation that all publications regarding obesity use person-first language (e.g. <https://www.obesityaction.org/action-through-advocacy/weight-bias/people-first->

language/). I would also recommend the authors look to the involvement of an English language editor. There are several examples of odd word choice and phrasing (e.g. corpulence, p.6).

As suggested by the reviewer the English is now improved using the Nature English Language editing (<https://authorservices.springernature.com/language-editing/>). In addition, corpulence is now changed for actual measure.

See changes throughout the manuscript.

Page 7: The primary outcome is the change in BMI from the time of inclusion in the PRALIMAP-INÈS intervention to 10 years after inclusion in the PRALIMAP-INÈS intervention.

Page 11: During this discussion the professional will collect general information (family status, occupation type//education level), anthropometric measures (height/weight) and data regarding the experience of the PRALIMAP-INÈS intervention.

2. The first part of the introduction should be better organised. There is a single very long paragraph that could be divided into shorter paragraphs each dealing with a different issue. I would recommend including more detail of the original trial, its design, and findings. I understand that the original trial had 3 intervention arms. I don't recall seeing any of this detail referred to in the present protocol analysis. It would make more sense to report the main findings once and be clearer about findings regarding social inequalities.

As suggested by the reviewer, the Introduction is reorganized by splitting the single long paragraph and adding details of the original PRALIMAP-INÈS trial. The PRALIMAP-INÈS trial had 3 intervention arms: 1: standard management (i.e., five 2-h educational sessions) of overweight and obesity for socially advantaged adolescents, 2: standard management of overweight or obesity for one-third of socially less advantaged adolescents, 3: standard and strengthened management (including, according to adolescents' needs, motivational interviewing, physical activity equipment, food workshops, specialized hospital management of obesity) of overweight or obesity for two-thirds of socially less advantaged adolescents. The main result was a significant reduction in the social gradient of weight by 23.3% (beta = 0.021 [0.001 to 0.041]; P = 0.04). This result consisted of the comparisons of arms 1 and 3.

Pages 4-5: In this context, the PRALIMAP-INÈS intervention 15 was implemented between 2012 and 2015 and aimed to investigate whether a strengthened management strategy to prevent and reduce overweight could have an effect on adolescents of lower socioeconomic status equivalent to that on adolescents of higher socioeconomic status. The PRALIMAP-INÈS intervention was a mixed, prospective and multicenter intervention including 35 state-run schools. The intervention included adolescents with overweight or obesity, aged 13–18 years for 3 consecutive academic years. One-year interventions were implemented with data collection before (Time 0) and after the intervention (Time 1, at the end of the academic year, and Time 2, 1 year later). The PRALIMAP-INÈS intervention included three arms: 1) standard management (i.e., five 2-h educational sessions) of overweight and obesity for adolescents from higher socioeconomic status, 2: standard management of overweight or obesity for one-third of adolescents from lower socioeconomic status, 3: standard and strengthened management (including, according to adolescents' needs, motivational interviewing, physical activity equipment, food workshops, specialized hospital management of obesity) of overweight or obesity for two-thirds of adolescents from lower socioeconomic status. The main result - difference in BMI z-score changes between arms 3 and 1 - was a significant reduction in the weight social inequalities by 23.3% 16. In other words, it showed that a school-based socially adapted intervention grounded in the proportionate universalism principle was effective in reducing social inequalities 16,17.

3. More detail regarding patient and public involvement. At present, it appears that PPIE involvement amounted to a single focus group that helped only with participant recruitment. Patient and public involvement consisted in a focus group to help with participant recruitment. We also had support from local media (Tv news, radio, newspapers) and stakeholders (e.g.,

nurses) to promote our study and help with participant recruitment. It is now clarified. In addition, included young adults were asked to talk about the study with young adults who had participated in the PRALIMAP-INES intervention and with whom they were still in contact. Page 11: Patient and public involvement: An exploratory focus group with six participants from the PRALIMAP-INES intervention helped to define the contact strategy (exploratory work in Figure 2). According to opinions of the young adults who participated in the focus group, it will be necessary to use multiple solicitation methods to maximize the success rate (mail, SMS, phone calls, social networks, etc.). The focus group participants suggested using their network to mobilize their friends to participate in the follow-up (all of them were still in contact with their classmates), and offering financial incentives to young adults. In addition, support from local media (TV news, radio, newspapers) and stakeholders (e.g., nurses) will help promote our study and recruit participants. Last, included young adults were asked to talk about the study with young adults who had participated in the PRALIMAP-INES intervention and with whom they were still in contact (this idea was proposed during the focus group).

4. p.10. Was the self-report questionnaire set administered in person or on-line? How were missing data and/or non-completions managed?

After being contacted to participate in the study (1st step), participants are asked to complete the online questionnaire (2nd step) prior to the medical visit (3rd step). If the questionnaire was not completed at the medical visit, participants were asked to complete it in person. It is now clarified in the data collection section.

Pages 12 and 14: 2nd step - self-report questionnaire: Young adults will be invited to complete the self-report questionnaire online (estimated duration: 45 minutes) with a secure link [...] Follow-up will be performed to ensure that the young adults complete the questionnaires; if they do not complete the questionnaire, they will be contacted again before the medical visit (3rd step). If the questionnaire is not completed prior to medical visit, it will be completed in person during the medical visit. A financial incentive (20€ gift card) was offered to young adults who completed the questionnaire.

5. P.10. The figure rating scale assesses body shape rather than body weight. It is not calibrated to a specific BMI value.

As suggested, "body weight" is now changed to "body shape".

Page 12: Body image perception: The Stunkard's Figure Rating Scale will be used to assess the young adults' perception of their body shape as well as their ideal body shape 35.

6. P.11. EAT-26 is a screening measure that assesses attitudes and behaviours associated with eating disorders (it doesn't assess anorexia and bulimia).

As suggested, "anorexic and bulimia" is now changed to "eating disorders".

Lifestyle and nutritional (eating habits and physical activity) attitudes and behaviours: Eating habits will be measured by a food frequency questionnaire 33, and eating disorders will be screened using the EAT 38.

7. An indication of how long the battery of questionnaires took participants to complete would be helpful. Was there any financial incentive offered to participants to complete any of the study components?

The time required to complete the questionnaire battery was estimated to be 45 minutes. A financial incentive (20€ gift card) was offered to young adults who completed the questionnaire. This idea was proposed during the focus-group. It is now clarified.

Page 12: 2nd step - self-report questionnaire: Young adults will be invited to complete the self-report questionnaire online (estimated duration: 45 minutes) with a secure link.[...].

Page 11: The focus group participants suggested using their network to mobilize their friends to participate in the follow-up (all of them were still in contact with their classmates), and offering financial incentives to young adults.

Page 14: Follow-up will be performed to ensure that the young adults complete the questionnaires; if they do not complete the questionnaire, they will be contacted again before

the medical visit (3rd step). If the questionnaire is not completed prior to medical visit, it will be completed in person during the medical visit. A financial incentive (20€ gift card) was offered to young adults who completed the questionnaire.

8. P.12. There is reference later to the analysis of open questions in the survey. Were these in relation to the experience of the original intervention?

The analysis of open questions in the survey refers to the care pathway related to overweight or obesity and all health components occurring during the last 10 years, and the experience of participating in the PRALIMAP-INÈS intervention. It is now clarified.

Page 17: The responses to open questions of the self-report questionnaire (specifically care pathway related to overweight or obesity and all health components occurring during the last 10 years, and experience of participating in the PRALIMAP-INÈS intervention) and the data collected by interviews during the check-up visit related to lasting changes (for at least 3 months) in physical activity and sedentary behaviour, eating habits, and the motivations for these changes or the initiatives to change weight will be analysed by identifying themes and clarifying links.

9. P.12. There was an option to complete step 3 by teleconference. Just how were the anthropometric measures collected when the visit was not in person?

When the visit was conducted by videoconference, participants were asked to weigh and measure themselves (height and waist circumference) before the visit, if possible. Participants were then asked to report their measurements during the videoconference. It is now clarified.

Page 15: When the visit was conducted by videoconference, participants were asked to weigh and measure themselves (height and waist circumference) before the visit, if possible. Participants were then asked to report their measurements during the videoconference.

10. P.12. Was there an interview schedule developed for the biographical interview?

Interviews were scheduled on a visit-by-visit basis. Once a young adult agreed to be interviewed by the sociologist, the sociologist contacted the young adult 2 to 6 weeks later to make an appointment

Page 15: Semi-structured biographical interview: To collect these data, 40 young adults will be invited (asked during the 3rd step) to participate in a 1-hour semi-structured interview with a sociologist. Interviews were scheduled on a visit-by-visit basis. Once a young adult agrees to be interviewed by the sociologist, the sociologist will contact the young adult 2 to 6 weeks later to make an appointment. The interview will be conducted by telephone or video conference or in the same place as the check-up visit.

11. P.13 Declined to participate may be a better term than “refused to participate.”

As suggested, “refused to participate” is now changed to “declined to participate”.

Page 10: Accurate and regular supervision will be implemented by the research team to coordinate participant contact (who is solicited, who accepts, who declines).

Page 16: Comparisons of the initial data between the young adults included in the PRALIMAP-CINeCO trial and those who declined to participate will be conducted using the Chi-square test or Fisher’s exact test for categorical variables, and Student’s t test for quantitative variables.

12. Discussion. There are several parts to this section that simply repeat parts of the introduction. This should be avoided.

As suggested, repeated parts of the introduction are now avoided from the discussion section (1st and 2n paragraphs).

Pages 20-21: Health-promoting behaviours adopted during adolescence can have significant long-term effects on health outcomes and overall well-being. Through this proposed 10-year follow-up study of the PRALIMAP-INÈS intervention, a school-based overweight management

intervention in adolescents, we aim to increase knowledge of life course trajectories from adolescence to young adulthood regarding weight and health behaviours, and social, economic, and educational dimensions. Indeed, the originality of this project lies in the long-term postintervention and life transition period of follow-up. Studies investigating the effectiveness of overweight management strategies in adolescents are common 54–56, but those investigating post-intervention effects, especially during the transition from adolescence to adulthood are lacking. In a literature review, St George et al. showed that only one of the 74 included obesity prevention interventions had a follow-up period that had a duration greater than 10 years but involved early childhood 57. However, childhood and adolescent obesity confer major risks of excess and premature morbidity and mortality, which may be evident before the age of 30 years in both sexes 19,58. The management of obesity requires follow-up lasting from several years to a lifetime, depending on the complexity, as recommended by the French National Authority for Health59. Thus, in the current study, the analysis of scalable trajectories of health behaviours (eating habits, physical activity, sedentary behaviour, etc.) from adolescence to young adulthood will allow for the identification of their determinants to take preventive measures for the development and maintenance of healthy behaviours.

Reviewer # 3

Dr. Suzanne Lazorick, Department of Public Health, Brody School of Medicine, East Carolina University

Comments to the Author:

I commend the authors for planning this 10 year follow up on a previously completed, successful intervention study. The planned methods are ambitious and appropriate, and the results will be an important contribution.

While overall the methods are clear and the paper is well-written, there are several edits suggested to strengthen the descriptions and language to support full understanding for the reader, and/or minor edits for English grammar

We would like to thank the reviewer for the comments, which improved the quality of the article.

Details provided below by section, and page/line:

General comments-

Please review and make sure the same terminology is used throughout especially when referring to the previous trial, the planned study, participants, outcomes, measures, etc. For example, when referring to the original trial- there are places that “intervention” is used, or “obesity management” or “overweight care management strategy”. Suggest revise and in every place use the exact same terminology.

As suggested, the same terminology is now used throughout the manuscript.

See changes throughout the manuscript.

Use standard, commonly used terms for obesity-related outcomes in research studies. A few examples where terms used may not be correct/optimal:

- “access to care” (page 3 line 8-10)- this generally applies to care in a health care setting, but the intervention was in a school setting. Please clarify or elaborate- did the trial actually link participants to treatment in healthcare? As generally understood- “access” does not seem to be the appropriate term.

Hospital specialized management of obesity was proposed to the adolescent with proven obesity. The aim was to improve access to highly specialized medicine for obesity-related problems. Therefore, it does not apply to all adolescents in the PRALIMAP-INES trial and could

be confusing to readers. Therefore, "access to care" is now deleted.

Abstract: The short-term effectiveness of the PRomotion de l'ALimentation et de l'Activité Physique – INÉgalités de Santé” (PRALIMAP-INÈS) intervention to reduce social inequalities in overweight and obesity management among adolescents between 2012 and 2015 was evidenced.

Page 3: Adolescents who participated in a school-based intervention aimed at reducing social inequalities in overweight and obesity management will be contacted 10 years later, when they are young adults.

“corpulence” is not a commonly used term with clear understanding for the reader. Suggest use the actual measure (weight, BMI, waist circumference”, or generally- anthropometric measures); or- another descriptor such as weight status, severity of or degree of overweight/obesity. If insist on using corpulence—please define for the purpose in the study/paper. For most English speakers, corpulence is simply a "nicer" term (but rarely if ever used) to say large body habitus, or “fatness” and this does not seem what is intended here. As suggested corpulence is now changed for actual measure.

Page 7: The primary outcome is the change in BMI from the time of inclusion in the PRALIMAP-INÈS intervention to 10 years after inclusion in the PRALIMAP-INÈS intervention.

Page 11: During this discussion the professional will collect general information (family status, occupation type//education level), anthropometric measures (height/weight) and data regarding the experience of the PRALIMAP-INÈS intervention.

“evolution” as used may not be appropriate- to describe the series of life events in the 10 year interval in the lives of participants, or the trajectory of weight status over time.

We agree with the reviewer and have now used "change" instead of "evolution. The word "evolution" would refer to a particular kind of change that happens gradually, usually as a result of natural processes, while the word "change" refers to any kind of change.

See changes throughout the manuscript

Specific comments/edits:

Abstract:

P3, line 8-10 – reword for clarity- as written “short term” refers to access to care? Was this meant to relate to short term duration of or outcome of the intervention? Also, as above- is “access to care” the appropriate term?

The sentence is now clarified.

Page 2: The short-term effectiveness of the PRomotion de l'ALimentation et de l'Activité Physique – INÉgalités de Santé” (PRALIMAP-INÈS) intervention to reduce social inequalities in overweight and obesity management among adolescents between 2012 and 2015 was evidenced.

P3 line 33- reorder for clarity/grammar: to record waist circumference and weight and height for BMI calculation.

The sentence is reworded as suggested.

Page 2: A check-up visit will be scheduled by a clinical research nurse to record waist circumference and weight and height for BMI calculation, and to construct the health care pathway from adolescence to young adulthood.

P3 line 38- recommend replace “qualitative” with other descriptor of the interviews- structured, semi-structured, unstructured? (by definition the interview itself is qualitative; use term when referring to the method or the analyses)

“Qualitative” is now changed to “semi-structured”.

Page 2: Forty young adults will be invited to participate in a semi-structured interview conducted by a sociologist to deepen the understanding of trajectories regarding social aspects that are likely to influence health behaviours in young adults.

Line 47- conformity declaration was done with...

The sentence is now reworded as suggested.

Page 2: The PRALIMAP-CINeCO trial was approved by French Persons Protection Committee (no. 2021-A00949-32) and a conformity declaration was made with French National Commission for Data Protection and Liberties

Key words: suggest additional- longitudinal follow up; obesity intervention; school-based
Introduction:

As suggested, keywords are now added.

Page 3: Keywords: adolescent; life change events; obesity intervention; longitudinal follow-up; school-based

P5 line 12, "this figure"- it is not clear which it refers; replace "this" with "the percent obese" increases to...

The sentence is now reworded as suggested.

Page 4: In France, the latest data show that almost half of the French population were affected by an excess weight, with 17% being with obesity (body mass index (BMI) ≥ 30 kg/m²) and 2% suffering from severe and complex obesity (BMI ≥ 40 kg/m²) but the percent obese figure increases to 24% for individuals in the lowest income category 3.

P5 line 42 omit "do"

The sentence is now reworded as suggested.

Page 4: In this context, the PRALIMAP-INÈS intervention 15 was implemented between 2012 and 2015 and aimed to investigate whether a strengthened management strategy to prevent and reduce overweight could have an effect on adolescents of lower socioeconomic status equivalent to that on adolescents of higher socioeconomic status.

P6 line 7-8, revise for intended meaning: did the trial actually reduce the social inequalities in girls? (seems doubtful that social status of participants changed) Or did it result in similar outcomes in girls regardless of social status?

This part was unclear. Accordingly, with a reviewer's comment, the entire paragraph is now rewritten without mentioning differences between boys and girls, since the main message is that the PRALIMAP-INES reduced social inequalities in weight.

See changes in the introduction section (3rd and 4th paragraphs).

P6 line 12- states "both" but then lists 3 things... revise

The word "both" is now deleted to avoid confusion.

Page 6: However, the contribution of these factors is essential for identifying unhealthy trajectories at an early stage and diversifying and tailoring potential intervention strategies.

P7 line 40, Aims: primary Objective- this is wordy and difficult to understand- recommend revise for clarity

example of possible rewording that would be more clear-- Evaluate the long-term (after 10 years) impact on [obesity measures..] in participants of the PRALIMAP-INES trial, a school-based overweight care management strategy conducted with adolescents in 2014.

The objective is now reworded as suggested.

Page 7: The primary objective is to evaluate the long-term (after 10 years) effect on BMI in participants of the PRALIMAP-INÈS intervention, a school-based overweight management intervention conducted with adolescents in 2012-2015.

P7 line 38- as above—suggest new terminology instead of "evolution of corpulence"

Perhaps- investigate the changes in weight status over time as measured by body mass index

“Evolution of corpulence” is now changed to “change of the BMI”.

Page 7: The primary outcome is the change in BMI from the time of inclusion in the PRALIMAP-INÈS intervention to 10 years after inclusion in the PRALIMAP-INÈS intervention.

Data collection

P10 line 54- cannot be anonymous if plan to link to previous measures; is this the right term? In fact, data cannot be anonymous. It is the analysis of such data that will be anonymous. It is now clarified.

Page 11: The data collected will be analysed anonymously.

P11-line 5- revise wording- self report by completing the questionnaires and attend the medical visit

The sentence is now reworded as suggested.

Page 11: The clinical research assistant or nurse will explain the study and encourage the young adults to self-report by completing questionnaires (2nd step) and attend the medical visit (3rd step).

P11 line 10- obtain anthropometric measures (instead of “corpulence”)

The sentence is now reworded as suggested.

Page 11: During this discussion the professional will collect general information (family status, occupation type/education level), anthropometric measures (height/weight) and data regarding the experience of the PRALIMAP-INÈS intervention.

P11 line 38- ? word “tough”.

A “hr” was omitted from the word “through”. This is now clarified.

Page 12: The FAS will be used to define socioeconomic status through six questions exploring the availability of a personal bedroom, bathrooms in the home, the presence of family cars, dishwashers, and computers and opportunities for family holidays.

Assume FAS criteria are standard- if yes, reference the source for cut off of 6.

The reference source for cut off of 6 is now added (Boyce W, Torsheim T, Currie C, Zambon A. The Family Affluence Scale as a Measure of National Wealth: Validation of an Adolescent Self-Report Measure. Soc Indic Res. 2006;78(3):473-487. doi:10.1007/s11205-005-1607-6).

Page 12: It will be provided a score ranging from 0 to 13, and the participants will then be dichotomized as “advantaged” (i.e., FAS score ≥ 6) and “less advantaged” (i.e, FAS score < 6) 42.

P12, line 25-26- awkward wording- “asked to participants”, reword. Will be obtained from participants, or will be queried. (if these will also be from ad hoc questionnaires—then include in the previous sentence about alcohol, sleep etc.

Participants will be asked about significant past changes (for at least 3 months) in lifestyle and nutritional attitudes and behaviours. It is now clarified.

Page 13: Participants will be asked about significant past changes (for at least 3 months) in their lifestyle and nutritional attitudes and behaviours.

P12, line 54-56- sentence is confusing, reword for intended meaning. Not sure what is meant by “in complementary”

The sentence is now clarified.

Page 14: In addition, the major life events, daily hassles and their impact, whether disruptive or not, on personal, school, and professional life will be measured.

P13, line 3-4, reword- assess recollection regarding the experience in the study (positive,

negative memories; utility)

The sentence is now reworded as suggested.

Page 14: Experience of participating in the PRALIMAP-INÈS intervention: assess recollection regarding the experience in the study (positive, negative memories; utility).

P13 line 19, any specifics for accuracy (e.g shoes off), device to be used, and training of staff to use standard procedures

Young adults were asked to remove their shoes and socks, clinical research nurses were trained for use the bioelectrical impedance scale, and already trained for use measuring rode and tape. Prior to recruitment, a procedure was established to standardize visits and measurements. It is now clarified.

Pages 14-15: 3rd step - Visit: The check-up visit will be performed by a clinical research nurse either face to face or by videoconference (if the young adult cannot or does not wish to come in for the visit). Prior to recruitment, a procedure was established to standardize visits and measurements. The visit will last 1 hour, and the following data will be collected:

o Height (with a measuring rod)

o Weight, percentage of fat mass, percentage of lean body mass and estimated visceral fat level (shoes and socks off) (with a bioelectrical impedance scale (model: TANITA DC 430 MAS). Clinical research nurses were trained for use the bioelectrical impedance scale.

o Abdominal circumference (with a measuring tape)

o All measures taken to lose weight during the past 10 years (consultation, educational intervention type, frequency, etc.) and all health events occurring during the past 10 years.

P 13 Line 21- device specs

The model of the bioelectrical impedance scale is TANITA DC 430 MAS. It is now clarified.

Page 14: Weight, percentage of fat mass, percentage of lean body mass and estimated visceral fat level (shoes and socks off) (with a bioelectrical impedance scale (model: TANITA DC 430 MAS). Clinical research nurses were trained for use the bioelectrical impedance scale.

P 13 Line 40, as above- suggest descriptive word for interview type rather than qualitative (such as structured, semi-structured, etc.)

The sentence is now reworded as suggested.

Page 15: Semi-structured biographical interview: To collect these data, 40 young adults will be invited (asked during the 3rd step) to participate in a 1-hour semi-structured interview with a sociologist.

P13 line 40- change wording-- to collect (or obtain) these data

The sentence is now reworded as suggested.

Page 15: Semi-structured biographical interview: To collect these data, 40 young adults will be invited (asked during the 3rd step) to participate in a 1-hour semi-structured interview with a sociologist.

P14- please provide more information about how and by who the interview guide was developed, was it tested/piloted, revised?

The interview guide was developed in working sessions with sociologists and members of the research team before the start of the study. The guide was then presented to the Coordination Committee, which suggested some edits. The edited guide was then tested and slightly revised (i.e. follow-up questions) by the sociologists after the first interviews. It is now clarified.

Page 16: The interview guide was developed in working sessions with sociologists and members of the research team before the start of the study. The guide was then presented to the Coordination Committee, which suggested some edits. The edited guide was then tested and slightly revised (i.e. follow-up questions) by the sociologists after the first interviews.

P14- how will interviews be coded? All by 1 person or multiple coders? Any plan for resolving discrepancies?

The interviews will be double coded by two different sociologists. In case of discrepancies, a discussion between the sociologists will take place. If no agreement is reached after this discussion, the discrepancies will be discussed by the sociologists and the Coordination Committee. It is now clarified

Page 16: The interview data will be recorded, transcribed in full, and double coded by two different sociologists. In case of discrepancies, a discussion between the sociologists will take place. If no agreement is reached after this discussion, the discrepancies will be discussed by the sociologists and Coordination Committee.

P17 line 45-46, ? missing word- team's interdisciplinary _____

The sentence is now clarified.

Page 20: The interdisciplinarity of the teams for data interpretation and analysis in this mixed approach is a key element.

Discussion:

P17, First paragraph- revise second sentence for clarity and intended meaning, as suggested when stating aim on p7—what (specifically and clearly) do you aim to evaluate? The very long parenthetical clause about the original study loses the reader.

Also don't just restate prior information, instead lead the reader to important points you intend to highlight in the discussion

(Through this proposed 10 year follow up study after a school based intervention in adolescents, we aim to...

As suggested, the first paragraph is now reworded.

Page 20: Health-promoting behaviours adopted during adolescence can have significant long-term effects on health outcomes and overall well-being. Through this proposed 10-year follow-up study of a school-based overweight management intervention in adolescents, we aim to increase knowledge of life course trajectories from adolescence to young adulthood regarding weight and health behaviours, as well as social, economic, and educational dimensions.

P19, line 35, “to” promote (or “for” promotion of)

The sentence is now clarified.

Page 22: Finally, support from local media (TV news, radio, newspapers) and stakeholders (e.g., nurses) will also be used to promote our study.

P19, line 40, suggest reword, “be with” is not typical terminology- who are still experiencing overweight or obesity

The sentence is now reworded as suggested.

Page 22: Beyond the scope of this study, appropriate support should be offered to young adults who participated in the PRALIMAP- INÈS trial, and who are still experiencing overweight or obesity and may be less willing to participate in an overweight and obesity prevention intervention.

P20, line 12, there is evidence

The sentence is now reworded as suggested.

Page 23: For example, there is evidence that such intervention facilitate access to care by

removing travel barriers and reducing costs for patients, promote access for young patients who are sometimes resistant to the constraints of face-to-face group sessions, and encourage skill development and knowledge acquisition at an individual's own pace.

VERSION 2 – REVIEW

REVIEWER NAME	<i>Hill, Andrew</i>
REVIEWER AFFILIATION	University of Leeds, Medicine
REVIEWER CONFLICT OF INTEREST	Na
DATE REVIEW RETURNED	19-Apr-2024

GENERAL COMMENTS	Thank you for a very thorough response to the points raised.
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REVIEWER NAME	<i>Lazorick, Suzanne</i>
REVIEWER AFFILIATION	Department of Public Health, Brody School of Medicine, East Carolina University, Public Health
REVIEWER CONFLICT OF INTEREST	Na
DATE REVIEW RETURNED	19-Jul-2024

GENERAL COMMENTS	<p>The authors have done a very good job addressing the concerns and suggestions of reviewers. A few minor suggestions are provided in comments in the marked copy of the manuscript - attached file.</p> <p>waist vs abdominal circumference-- use same term throughout</p> <p>for primary outcome- because participants were adolescents at times T0 and T1, T2-- and will be adults at time T3, and the proportion with very high BMI for age (> 23) was fairly low at baseline-- to increase your change to detect effect and assess for differences, you may want to consider using BMI z-score as the primary outcome, while still running analyses on BMI, etc.</p> <p>Use term participants rather than young adults when referring to study methods.</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer #2

Prof. Andrew Hill, University of Leeds

Comments to the Author:

Thank you for a very thorough response to the points raised

We are grateful to the reviewer for his comments, which have contributed to the quality improvement of the article.

Reviewer #3

Dr. Suzanne Lazorick, Department of Public Health, Brody School of Medicine, East Carolina University

Comments to the Author:

The authors have done a very good job addressing the concerns and suggestions of reviewers. A few minor suggestions are provided in comments in the marked copy of the manuscript - attached file.

We are grateful to the reviewer for his comments, which have contributed to the quality improvement of the article.

Waist vs abdominal circumference-- use same term throughout

As suggested, only "waist circumference" is now use throughout the manuscript.

Page 9: Have participated in the PRALIMAP-INÈS intervention, and thus was considered eligible for this intervention (with a BMI above the IOTF threshold (Cole et al. 2000) of reduced overweight of 1 kg/m² for age and sex and/or an waist circumference greater than the McCarthy McCarthy cut-offs for age and sex (McCarthy, Jarrett, and Crawley 2001) and having completed a medical interview).

Page 13: Waist circumference (with a measuring tape)

for primary outcome- because participants were adolescents at times T0 and T1, T2-- and will be adults at time T3, and the proportion with very high BMI for age (> 23) was fairly low at baseline-- to increase your change to detect effect and assess for differences, you may want to consider using BMI z-score as the primary outcome, while still running analyses on BMI, etc.

As noted by the reviewer, participants will be adults (> 19 years of age) at T3. However, BMI z-score reference values are only available up to the age of 19. Therefore, it would not be possible to measure the change in BMI z-score from inclusion in the PRALIMAP-INES intervention to adulthood. Therefore, we will use BMI as primary outcome.

Use term participants rather than young adults when referring to study methods.

As suggested, “participants” rather than “young adults” is now used in the method section.

See changes throughout the Methods section.

Please see attached file for additional comments from reviewer 3.

As suggested, several sentences are now reworded.

Abstract: The short-term effectiveness of the PRomotion de l'ALIMENTation et de l'Activité Physique – INÉgalités de Santé” (PRALIMAP-INÈS) intervention to reduce social inequalities in overweight and obesity management among adolescents between 2012 and 2015 was demonstrated.

In France, the latest data show that almost half of the French population were affected by an excess weight, with 17% being with obesity (body mass index (BMI) ≥ 30 kg/m²) and 2% suffering from severe and complex obesity (BMI ≥ 40 kg/m²) but the percent with obesity increases to 24% for individuals in the lowest income category.

Page 10: The data collected will be de-identified prior to analyses.

Page 14: The interview data will be audiorecorded, transcribed in verbatim, and double coded by two different sociologists.

Concerning social security benefits: “Explain for international readers”

As suggested, social security benefits is now clarified.

Be enrolled in or receiving social security benefits (i.e., social security is the public health insurance system that covers all life risks).

Concerning the recruitment paragraph: “The paragraph above says they will be contacted and invited, but this provides results after recruitment. If recruitment has already been completed—then the previous paragraph needs to be revised to past tense

?? The section before this suggests they have already been asked. Review and revise these sections to match what has occurred vs is planned.”

As suggested, the paragraph is now clarified.

Pages 9-10: Adolescents who were included in the PRALIMAP-INÈS intervention (i.e., n= 1419) will be contacted by a clinical research associate or nurse, and asked to participate in the study, given information about the process and asked to participate in a follow-up visit (Figure 2). We estimated that 40% of adolescents may not be included in the current study (10%: unknown address, 15%: unsuccessfully contacted and 15%: declined to participate). Therefore, the potential number of participants will be 852 (60%). Clinical research associate or nurse will use contact details (home address, phone number, email address and parental address and phone number) and measurements collected during the PRALIMAP-INÈS at T0. Beforehand, an information letter will be sent to the address provided during the PRALIMAP-INÈS intervention to present the study to the participants and inform them that contact will be made. Accurate and regular supervision will be implemented by the research team to coordinate participant contact (who is solicited, who accepts, who declines).

Self- measure of waist circumference not likely to be accurate; any instructions provided? Weight?

Participants were asked to measure their waist circumference with a measuring tape. Participants were also asked to weigh themselves and to measure their height. This is now clarified.

Page 14: When the visit was conducted by videoconference, participants were asked to measure themselves (weight, height and waist circumference [using a measuring tape]) before the visit, if possible.

As above, due to stage of growth during intervention, may be need to use BMI z score as primary outcome to assess for change over time.

As noted by the reviewer, participants will be adults (> 19 years of age) at T3. However, BMI z-score reference values are only available up to the age of 19. Therefore, it would not be possible to measure the change in BMI z-score from inclusion in the PRALIMAP-INES intervention to adulthood. Therefore we will use BMI as primary outcome.