

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Understanding eating behaviours, mental health, and weight change in young adults: Protocol paper for an international longitudinal study
<b>AUTHORS</b>	Whatnall, Megan; Fozard, Therese; Kolokotroni, Katerina Z; Marwood, Jordan; Evans, Tamla; Ells, Louisa; Burrows, Tracy

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Barcelo-Soler, Alberto Institute of Health Research of Aragon (IIS)
<b>REVIEW RETURNED</b>	07-Jun-2022

<b>GENERAL COMMENTS</b>	<p>The subject of study and the objectives set out in the manuscript are considered highly relevant given the increase in the prevalence rates of multi-mobility in recent years.</p> <p>The work is correctly written, and presents in an orderly and appropriate manner the different sections required by the journal in this type of manuscript (protocol). In addition, all elements such as the STROBE Statement—Checklist are included.</p> <p>However, I would recommend including a "discussion" section where the impact that the expected results could have on the development of clinical practice as well as on the creation of new therapeutic approaches is concisely stated. I would also recommend including in more detail all the strengths and weaknesses identified by the authors, as well as their possible influence on the development of the research, including recommendations to control possible biases or limitations. However, as the journal does not specifically require this section, the decision to include it or not is left to the discretion of the authors of the manuscript.</p>
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<b>REVIEWER</b>	Brenton-Peters, Jennifer The University of Auckland Faculty of Medical and Health Sciences, Psychological Medicine
<b>REVIEW RETURNED</b>	17-Jun-2022

<b>GENERAL COMMENTS</b>	<p>Understanding eating behaviours, mental health, and weight change in young adults: Protocol paper for an international longitudinal study</p> <p>Review:</p>
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	<p>Thank you for the opportunity to review your work. This is an incredibly important area of study. Overall the study is justified and detailed. I suggest revising for clarity and readability. I hope the following comments/suggestions with strengthen the submission. All the best.</p> <p>Abstract</p> <p>The urgency of investigating the impact of COVID-19 on behaviours could be mentioned in the Abstract Introduction as it seems to be the major rationale of the study.</p> <p>Introduction</p> <p>I recommend editing the Introduction for clarity. Suggestions provided below.</p> <p>The use of 'this' in the first paragraph makes it unclear. Suggest revision for clarity – For instance see below:</p> <p>"This is in response to high national prevalence of obesity, disordered eating, mental ill-health and related health conditions and risk factors in these two countries 2 3. "</p> <p>Change to...</p> <p>"Changes in research and policy (?) is in response to high national prevalence of obesity, disordered eating, mental ill-health, related health conditions and risk factors..."</p> <p>Pg 4 line 8-13 Revise for clarity – 'also' is overused in this paragraph.</p> <p>Pg 4 line 24-28 Revise for clarity – Suggestions below</p> <p>Another more recent consideration for research is the impact of the COVID-19 pandemic has exacerbated relationships between mental health, eating behaviours and weight gain, whilst increasing demand and necessitating changes to service delivery for weight management and mental health services 21-24.</p> <p>Pg 4 line 48-52 Good point. Please provide reference.</p> <p>Methods</p> <p>Study design – there is a lot of information here-for clarity I would suggest using smaller paragraphs to guide the reader.</p> <p>Pg 5 line 5 Suggest moving the definition of Prolific up to the first time it is mentioned (I see the definition later down the page line 39). I would recommend a more detailed description as well. Do they do the recruitment for you? How does this limit/strengthen your study population?</p> <p>If I understand correctly – Qualtrics is how you are collecting your data? Prolific is how you recruited the sample, REDCap is how you collect the sub-survey? If this is not correct please clarify in the study design.</p>
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	<p>Pg 6 line19 What are the strengths/limitations of using this site to recruit participants? E.g., does the fact that this site pays for questionnaires be a factor, who wouldn't be able to use this site? (potentially add to limitations)</p> <p>Pg 5 line 48 Perhaps start a new paragraph for the sub-survey</p> <p>Study measures</p> <p>Pg 6 line 42 Good to see the utilisation of attention check questions and really great to see engagement young adults with a lived experience of the psychological impact of weight management.</p> <p>For clarity – add a new paragraph at line 48 (The Survey was pretested... ) this ensures this important information doesn't get lost in a large paragraph.</p> <p>Pg 11 line 57 – how was the 'open response' question worded?</p> <p>Data Analysis Plan</p> <p>Pg 12 line 43 'but are not limited to'?</p> <p>A protocol is to confirm that research will remain focused on specific, agreed-upon aims/objectives. I wonder if a better way to word the above is 'addition exploratory analysis may be completed as indicated.'</p> <p>Pg 12 line 50 Secondary analysis #2 Mixed methods? Does the qualitative data come from the open response? More clarity on how the open responses are collected to justify how this analysis will be completed (maybe a section in the measures of qualitative data?)</p> <p>Pg 13 line 8 There is an opportunity for more elaboration of the PPI involvement and interpretation of the results – this is a strength of the study – please provide more detail on how their interpretation of the results is important to the study outcomes (e.g., informing policy and practice).</p> <p>Limitations of the study? I think it is mentioned throughout –and in the highlights but a paragraph to summarise the limitations could be an addition to the protocol manuscript.</p>
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## VERSION 1 – AUTHOR RESPONSE

### Reviewer 1

Comment	Response	Changes to manuscript and location
<p>The subject of study and the objectives set out in the manuscript are considered highly relevant given the increase in the prevalence rates of multi-mobility in recent years.</p> <p>The work is correctly written, and presents in an orderly and appropriate manner the different sections required by the journal in this type of manuscript (protocol). In addition, all elements such as the STROBE Statement—Checklist are included.</p>	<p>Thank you very much for your review and suggestions. We have incorporated the suggested changes from all reviewers into the manuscript and believe this has improved the manuscript.</p>	<p>See below for specific changes</p>
<p>However, I would recommend including a "discussion" section where the impact that the expected results could have on the development of clinical practice as well as on the creation of new therapeutic approaches is concisely stated. I would also recommend including in more detail all the strengths and weaknesses identified by the authors, as well as their possible influence on the development of the research, including recommendations to control possible biases or limitations. However, as the journal does not specifically require this section, the decision to include it or not is left to the discretion of the authors of the manuscript.</p>	<p>Thank you for the suggestion. A discussion section has been added to the manuscript, in response to both reviewer comments. Within this is further detail on implications, strengths and limitations of the study.</p>	<p>Page 12, Line 40: <b>DISCUSSION</b> The knowledge gained from this longitudinal study will fill important gaps in the evidence base for young adults, informing health service delivery, and future observational and interventional research in eating, mental health and weight related behaviours. Importantly, this includes knowledge of how services could work together for better patient outcomes. A deeper understanding of temporal relationships and causality between changes in eating behaviours, mental health, health related behaviours and weight, and their predictors, can not only help to identify avenues for intervention but also for prevention, by identifying factors for negative and positive changes over time. This information can be used to direct individuals to appropriate services, and develop more effective targeted interventions and services. In particular, the ability to inform preventative efforts/interventions targeting young adults before the onset of multi-</p>

		<p>morbidity, is critical to optimising quality of life, and reducing disease burden, healthcare utilisation and subsequent economic costs. Dissemination is a key component of this study, and the plans to share findings with key stakeholders working within public health, local authority, and weight management service providers, users and the general public will help to maximise impact. It is also anticipated that this study will identify areas of enquiry for further research, including observational and interventional studies.</p> <p>The overarching strengths of this study will be the longitudinal evidence related to eating behaviours, mental health, health related behaviours and weight, and their predictors, in young adults (18-35 years), and the large sample size stratified by gender and body mass index. Multiple validated tools have been included for each key measure, to provide a comprehensive assessment from different perspectives. Additionally, PPI members supported the development of the survey and amendments were made in response to their feedback to optimise readability and usability. PPI members are to be involved throughout, with their input critical to the understanding and interpretation of results, and generation of ideas to inform policy, practice and research.</p> <p>Attrition is a potential study limitation, as the population group includes young adults, who typically show higher attrition rates than other adult age groups <sup>1</sup>. In addition, few studies run on the Prolific platform have been undertaken for 12 months duration or longer <sup>2</sup>, therefore the attrition of platform participants over time is currently unknown. Although participation relies on technological access of participants, which may exclude socioeconomically deprived</p>
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		groups, the use of online methods does facilitate the recruitment of broad and diverse populations internationally, and is an accepted data collection method which may also encourage greater self-disclosure for some <sup>3, 4</sup> . As Prolific participants are paid for their contribution, this may also potentially influence the profile of survey completers.
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## Reviewer 2

Comment	Response	Changes to manuscript and location
Thank you for the opportunity to review your work. This is an incredibly important area of study. Overall the study is justified and detailed. I suggest revising for clarity and readability. I hope the following comments/suggestions with strengthen the submission. All the best.	Thank you for your review. We have incorporated the suggested changes from all reviewers into the manuscript and believe this has improved the manuscript.	See below for specific changes
Abstract The urgency of investigating the impact of COVID-19 on behaviours could be mentioned in the Abstract Introduction as it seems to be the major rationale of the study	We have added to the introductory sentence to mention the COVID-19 pandemic here as suggested.	Page 1, Line 25: Understanding the complexities of change in eating behaviours, mental health, wellbeing and weight is crucial to inform health care and service provision, particularly in light of the exacerbating effects of the COVID-19 pandemic.
Introduction I recommend editing the Introduction for clarity. Suggestions provided below. The use of 'this' in the first paragraph makes it unclear. Suggest revision for clarity – For instance see below: “This is in response to high national prevalence of obesity, disordered eating, mental ill health and related health conditions and risk factors in these two countries 2 3. “ Change to... “Changes in research and policy (?) is in response to high national	Thank you for your suggestions. We have clarified what is meant by 'this' in the opening paragraph of the introduction.	Page 2, Line 36: This knowledge is especially pertinent in the UK and Australia given current research and policy is driving for improved health care that addresses multi-morbidity and determinants of health <sup>5, 6</sup> . This research and policy direction is in response to high national prevalence of obesity, disordered eating, mental ill-health and related health conditions and risk factors in these two countries <sup>5, 6</sup> .

prevalence of obesity, disordered eating, mental ill-health, related health conditions and risk factors..."		
Pg 4 line 8-13 Revise for clarity – 'also' is overused in this paragraph	The wording in this paragraph has been revised to remove unnecessary use of 'also'.	<p>Page 3, Line 8: Furthermore, research also points to broader associations between overweight and obesity and common mental disorders like depression <sup>7</sup>.</p> <p>Page 3, Line 16: Many studies also consider a limited number of health behaviours/outcomes despite known interrelationships between these factors, and studies are often in general adult samples rather than specific life stages of adulthood such as young adulthood.</p>
Pg 4 line 24-28 Revise for clarity – Suggestions below Another more recent consideration for research is the impact of the COVID-19 pandemic has exacerbated relationships between mental health, eating behaviours and weight gain, whilst increasing demand and necessitating changes to service delivery for weight management and mental health services 21-24 .	The wording of this sentence has been changed as suggested.	<p>Page 3, Line 22: The COVID-19 pandemic has exacerbated relationships between mental health, eating behaviours and weight gain, whilst increasing demand and necessitating changes to service delivery for weight management and mental health services <sup>8-11</sup>.</p>
Pg 4 line 48-52 Good point. Please provide reference	A reference has been added to support this point.	<p>Page 3, Line 43: For example, weight management services often exist in isolation to mental health services. However, when individuals present with multiple needs it is unclear which to prioritise in stepped care models or if both should be actioned simultaneously <sup>26</sup>.</p> <p>Ref 26. Jones RA, Mueller J, Sharp SJ, et al. The impact of participant mental health on attendance and engagement in a trial of behavioural weight management programmes: secondary analysis of the WRAP randomised controlled trial. <i>International Journal of Behavioral Nutrition and Physical Activity</i> 2021;18(1):146. doi: 10.1186/s12966-021-01216-6</p>



<p>Methods</p> <p>Study design – there is a lot of information here-for clarity I would suggest using smaller paragraphs to guide the reader</p>	<p>We have added two sub-headings to break this paragraph up into three smaller sections</p>	<p>Page 4, Line 22: Study Design</p> <p>Page 4, Line 30: Data collection</p> <p>Page 4, Line 40: Sub-study component</p>
<p>Pg 5 line 5 Suggest moving the definition of Prolific up to the first time it is mentioned (I see the definition later down the page line 39). I would recommend a more detailed description as well. Do they do the recruitment for you? How does this limit/strengthen your study population?</p>	<p>Thank you for your suggestions. In addressing the above comment regarding the study design paragraph we have broken this up into sub-headings with data collection (i.e. where Prolific is introduced) being the second sub-section. Logically it flows to have study design first followed by data collection and therefore we have not changed this order. We have added further detail on recruitment via Prolific to the recruitment section in the methods, and comment on related strengths and limitations to the newly added discussion section.</p>	<p>Page 5, Line 20: Participants were sourced via Prolific, with invitations sent by the researchers to potentially eligible participants based on the inclusion criteria and their demographic characteristics as collected by Prolific.</p> <p>Page 13, Line 10: The overarching strengths of this study will be the longitudinal evidence related to eating behaviours, mental health, health related behaviours and weight, and their predictors, in young adults (18-35 years), and the large sample size stratified by gender and body mass index. Multiple validated tools have been included for each key measure, to provide a comprehensive assessment from different perspectives. Additionally, PPI members supported the development of the survey and amends were made in response to their feedback to optimise readability and usability. PPI members are to be involved throughout, with their input critical to the understanding and interpretation of results, and generation of ideas to inform policy, practice and research.</p> <p>Attrition is a potential study limitation, as the population group includes young adults, who typically show higher attrition rates than other adult age groups <sup>1</sup>. In addition, few studies run on the Prolific platform have been undertaken for 12 months duration or longer <sup>2</sup>, therefore the attrition of platform participants over time is currently unknown. Although participation relies on technological access of participants, which may exclude socioeconomically deprived groups, the use of online methods does</p>



		facilitate the recruitment of broad and diverse populations internationally, and is an accepted data collection method which may also encourage greater self-disclosure for some <sup>3, 4</sup> . As Prolific participants are paid for their contribution, this may also potentially influence the profile of survey completers.
If I understand correctly – Qualtrics is how you are collecting your data? Prolific is how you recruited the sample, REDCap is how you collect the sub-survey? If this is not correct please clarify in the study design.	Yes this is correct. Prolific is a platform to recruit study participants however it is not a survey platform. Survey platforms must be used and participants are directed to them through Prolific to complete surveys.	NA
Pg 6 line19 What are the strengths/limitations of using this site to recruit participants? E.g., does the fact that this site pays for questionnaires be a factor, who wouldn't be able to use this site? (potentially add to limitations)	A discussion section has been added to the manuscript, in response to both reviewer comments. Within this a more detailed section on strengths and limitations of the study has been included with further comment on using the Prolific platform.	<p>Page 13, Line 11:            The overarching strengths of this study will be the longitudinal evidence related to eating behaviours, mental health, health related behaviours and weight, and their predictors, in young adults (18-35 years), and the large sample size stratified by gender and body mass index. Multiple validated tools have been included for each key measure, to provide a comprehensive assessment from different perspectives. Additionally, PPI members supported the development of the survey and amends were made in response to their feedback to optimise readability and usability. PPI members are to be involved throughout, with their input critical to the understanding and interpretation of results, and generation of ideas to inform policy, practice and research.</p> <p>Attrition is a potential study limitation, as the population group includes young adults, who typically show higher attrition rates than other adult age groups <sup>1</sup>. In addition, few studies run on the Prolific platform have been undertaken for 12 months duration or longer <sup>2</sup>, therefore the attrition of platform participants over time is currently unknown. Although</p>

		<p>participation relies on technological access of participants, which may exclude socioeconomically deprived groups, the use of online methods does facilitate the recruitment of broad and diverse populations internationally, and is an accepted data collection method which may also encourage greater self-disclosure for some<sup>3, 4</sup>. As Prolific participants are paid for their contribution, this may also potentially influence the profile of survey completers.</p>
<p>Pg 5 line 48 Perhaps start a new paragraph for the sub-survey</p>	<p>We have added two sub-headings to break the Study Design paragraph up into three smaller sections, including a 'sub-study component' sub-heading</p>	<p>Page 4, Line 22: Study Design</p> <p>Page 4, Line 30: Data collection</p> <p>Page 4, Line 40: Sub-study component</p>
<p>Study measures Pg 6 line 42 Good to see the utilisation of attention check questions and really great to see engagement young adults with a lived experience of the psychological impact of weight management.</p>	<p>Thank you, we agree that attention check questions are useful and patient and public involvement is a critical aspect to the study.</p>	<p>NA</p>
<p>For clarity – add a new paragraph at line 48 (The Survey was pretested... ) this ensures this important information doesn't get lost in a large paragraph</p>	<p>A new paragraph under the sub-heading 'Survey testing' has been created to break this information up</p>	<p>Page 5, Line 43: Survey testing</p>
<p>Pg 11 line 57 – how was the 'open response' question worded?</p>	<p>We have added the survey question in brackets so readers can see the wording used.</p>	<p>Page 11, Line 8: The final survey question was an optional open response question (Is there anything else you would like to add regarding the survey or your responses/experiences?).</p>
<p>Data Analysis Plan Pg 12 line 43 'but are not limited to'? A protocol is to confirm that research will remain focused on specific, agreed-upon aims/objectives. I wonder if a better way to word the above is 'additional exploratory analysis may be completed as indicated.'</p>	<p>The wording has been updated as suggested.</p>	<p>Page 12, Line 1: The secondary research aims and proposed analyses include:</p> <p>Page 12, Line 18: Additional exploratory analyses may be completed as indicated.</p>

<p>Pg 12 line 50 Secondary analysis #2 Mixed methods? Does the qualitative data come from the open response? More clarity on how the open responses are collected to justify how this analysis will be completed (maybe a section in the measures of qualitative data?)</p>	<p>Yes the qualitative data comes from open response questions. We have added the open response questions in brackets throughout the study measures section where they are each described.</p>	<p>Page 7, Line 15: Lastly, an optional open response question was asked to gather their views on support options that would be most helpful in managing weight or eating behaviours in future (What support would you find most helpful in managing your weight or eating behaviours in the future?).</p> <p>Page 11, Line 8: The final survey question was an optional open response question (Is there anything else you would like to add regarding the survey or your responses/experiences?).</p>
<p>Pg 13 line 8 There is an opportunity for more elaboration of the PPI involvement and interpretation of the results – this is a strength of the study – please provide more detail on how their interpretation of the results is important to the study outcomes (e.g., informing policy and practice).</p>	<p>We have elaborated on PPI member involvement in the PPI section as well as within the strengths in the newly added discussion section.</p>	<p>Page 12, Line 26: For example, suggestions for research, policy and practice generated from study findings will be made in consultation with the PPI members.</p> <p>Page 13, Line 14: Additionally, PPI members supported the development of the survey and amends were made in response to their feedback to optimise readability and usability. PPI members are to be involved throughout, with their input critical to the understanding and interpretation of results, and generation of ideas to inform policy, practice and research.</p>
<p>Limitations of the study? I think it is mentioned throughout –and in the highlights but a paragraph to summarise the limitations could be an addition to the protocol manuscript.</p>	<p>A discussion section has been added to the manuscript, in response to both reviewer comments. Within this is a more detailed section on strengths and limitations of the study.</p>	<p>Page 13, Line 10: The overarching strengths of this study will be the longitudinal evidence related to eating behaviours, mental health, health related behaviours and weight, and their predictors, in young adults (18-35 years), and the large sample size stratified by gender and body mass index. Multiple validated tools have been included for each key measure, to provide a comprehensive assessment from different perspectives. Additionally, PPI members supported the development of the survey and amends were made in response to their feedback to optimise readability and usability. PPI members are to be involved throughout, with their input critical to the understanding and interpretation of results, and generation</p>

		<p>of ideas to inform policy, practice and research.</p> <p>Attrition is a potential study limitation, as the population group includes young adults, who typically show higher attrition rates than other adult age groups <sup>1</sup>. In addition, few studies run on the Prolific platform have been undertaken for 12 months duration or longer <sup>2</sup>, therefore the attrition of platform participants over time is currently unknown. Although participation relies on technological access of participants, which may exclude socioeconomically deprived groups, the use of online methods does facilitate the recruitment of broad and diverse populations internationally, and is an accepted data collection method which may also encourage greater self-disclosure for some <sup>3, 4</sup>. As Prolific participants are paid for their contribution, this may also potentially influence the profile of survey completers.</p>
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#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Brenton-Peters, Jennifer The University of Auckland Faculty of Medical and Health Sciences, Psychological Medicine
<b>REVIEW RETURNED</b>	16-Aug-2022
<b>GENERAL COMMENTS</b>	<p>Thank you for your revisions. I would recommend a minor revision of the first paragraph in the Discussion for clarity. This paragraph includes a lot of good points - perhaps break it into two paragraphs for readability?</p> <p>Thank you for your work in this area. I am looking forward to reading the full study. All the best.</p>

#### VERSION 2 – AUTHOR RESPONSE

##### Reviewer 2

Comment	Response	Changes to manuscript and location
Thank you for your revisions. I would recommend a minor revision of the first paragraph in the Discussion for clarity. This	Thank you very much for your additional review of the manuscript. As suggested, we have split the first paragraph of the	<p>Page 12, Line 30:</p> <p><b>DISCUSSION</b></p>

<p>paragraph includes a lot of good points - perhaps break it into two paragraphs for readability?</p> <p>Thank you for your work in this area. I am looking forward to reading the full study. All the best.</p>	<p>discussion into two shorter paragraphs and believe this has improved readability.</p>	<p>The knowledge gained from this longitudinal study will fill important gaps in the evidence base for young adults, informing health service delivery, and future observational and interventional research in eating, mental health and weight related behaviours. Importantly, this includes knowledge of how services could work together for better patient outcomes. Dissemination is a key component of this study, and the plans to share findings with key stakeholders working within public health, local authority, and weight management service providers, users and the general public will help to maximise impact. It is also anticipated that this study will identify areas of enquiry for further research, including observational and interventional studies.</p> <p>A deeper understanding of temporal relationships and causality between changes in eating behaviours, mental health, health related behaviours and weight, and their predictors, can not only help to identify avenues for intervention but also for prevention, by identifying factors for negative and positive changes over time. This information can be used to direct individuals to appropriate services, and develop more effective targeted interventions and services. In particular, the ability to inform preventative efforts/interventions targeting young adults before the onset of multi-morbidity, is critical to optimising quality of life, and reducing disease burden, healthcare utilisation and subsequent economic costs.</p>
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