PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Protocol for a prospective, longitudinal mixed methods case study: Supporting a Model of Care for Healthier Adolescents (The MoCHA study)
AUTHORS	Hayes, Claire; Palmer, VJ; Simmons, Magenta; Hamilton, Bridget; Simons, Christine; Hopwood, Malcolm

VERSION 1 – REVIEW

REVIEWER	Elisa Pfeiffer University Hospital Ulm, Department of Child and Adolescent Psychiatry/ Prschotherapy
REVIEW RETURNED	11-Sep-2018

GENERAL COMMENTS	Review on *„Protocol for a prospective, mixed-method, single longitudinal case study: Supporting a Model of Care for Healthier Adolescents (The MoCHA study)“* This well-conducted study investigates the Model of Care and its effectiveness in an Australian inpatient unit from a clinician, adolescent and caregiver perspective, including qualitative and quantitative data through 3 measurement points. The study has several crucial strengths which are adequately addressed at the beginning of the manuscript. However, there are also factors limiting the generalizability of the findings such as collecting data at a single Australian setting or that patients that are admitted solely on a voluntary basis. No conclusions can be drawn on adolescents being admitted during a crisis or against their will. To my knowledge no standardized clinical interviews have been employed. This study is particularly important as many processes in clinical settings might seem like a “black box” to patients and their caregivers. A lot of effort should be put into disseminating the study results, especially in regard to informing minors and their caretakers. I found the manuscript well-written and comprehensive and just have the following questions and comments which should be addressed. **Introduction:**

	The introduction is well-written and informative. I only have minor comments: • Page 2: Putting the 3rd paragraph (line 40) in front of the 2nd paragraph or at least before the sentence “However, surprisingly, few studies (…)” (line 32) might increase readability. • Please clarify the setting: MoC in Australia. As models of care do differ widely across countries more information on inpatient treatment in general, especially in Australia, might be helpful for the reader. • Within the descriptions of the MoC (page 2 and 3) there seem to be quite some repetitions, please summarize the description of MoCs from different authors and shorten accordingly. • What do you mean by “the real thing” (page 4, line 22-26)? Please clarify. • You might want to include some information on how MoCs differ in either private or public settings. • Are MoCs in a clinical setting in Australia manualized? In Germany, for example, patients and their caregivers often receive (child-friendly) information on the MoC at admission. Please clarify. **Aims** • Please explain the MoCHA acronym (page 5, line 35) • I don’t understand why only patient outcomes are relevant for evaluating the effectiveness of the MoC (aim 3). Normally caregivers are included in the treatment which hopefully leads to changes within the family. Hence I would suggest also taking caregiver outcomes into account. The clinicians perception of symptom change/ improvement of the patient might be a relevant outcome as well. Please clarify. • What are the hypothesis of your study? **Methods:** • The time point of the clinicians’ assessment remains unclear (page 6, line 28). • The combination of qualitative and quantitative data is a real strength of the study! • Please describe in more detail how study participants were recruited and approached. • Inclusion criteria: Give their informed consent? • It might be helpful if you could describe the calculation of your sample size not only based on practical issues but also statistically (qualitative and quantitative component). Which testes will be employed in the quantitative component? Which effect size is targeted? How do these assumptions constitute the necessary sample size?

	• Study monitoring: Are future hospital admissions (after T2) assessed? This might have an impact on your T3 data and drop-out rate (page 9, line 24). • Is there a reason for not including detailed psychometric characteristics of the questionnaires? You might want to include some more information if you have not extended the word limit yet. • I think it is very helpful you added the measurement time points (page 10, line 24). • What do you mean by "longitudinal interviews" (page 10, line 44)? Please clarify. • I find it a bit confusing that recruitment and study design is repeatedly described in the description of the interviews (page 11, line 41-52; page 12, line 5-11). Please omit unnecessary repetitions. • You might want to think about moving the comprehensive description of the framework (page 13, beginning line 24 and table on page 14) to the introduction and study design. • The interview description is quite vague which makes it difficult to imagine what will be asked specifically. I would appreciate some more information on the interview content. • In the description of the quantitative data analysis I was wondering whether you would conduct a repeated measures ANOVA for main effect time and subsequent student t-tests to analyze differences between specific time points? • Did you mean "Student T-tests" instead of "significant t-tests" (page 16, line 35)? • Please check the citation of Mergen et al., 2016 on page 22. (Mergen, B. E., Arslan, H., Arslan, E., Mergen, H., Turgut, S. E., & Bernstein, I. H. (2016). Turkish Validity & Reliability of The Quick Inventory of Depressive Symptomatology Adolescent Version (QIDS-A17-SR) In Comparison with The Beck Depression Inventory-II Among Late Adolescents. *Klinik Psikofarmakoloji Bülteni-Bulletin of Clinical Psychopharmacology*, *26*(3), 303-309.)

REVIEWER	Stephanie Knaak, PhD Mental Health Commission of Canada, Canada
REVIEW RETURNED	10-Dec-2018

GENERAL COMMENTS	This study protocol proposes a well balanced and methodological sound research project. It is scientifically credible, and presented in an appropriate context. The focus on experiences of the adolescents and caregivers themselves a particular strength, alongside the other measures. The six month follow up is also appropriate. A few minor clarificaitons are needed. 1. I did not see disclosure of funding for this project. The study site is a private hospital and ethics approval has been granted by that private organization (Ramsey Healthcare). Are they also the funders of the study? if so, it would be important to disclose this, and indicate any potential conflicts of interest that may arise from this scenario.

	2. Limitations of the study should also be recognized at this stage. although many limitations arise through the process of conducting the research, there are some that could be indicated up front in terms of decisions made on scope, setting, methods etc. 3. More information on the process of coding and interpretation of the qualitative data is required in terms of how reflexivity will be addressed. Also, how many coders will be used? How will agreement be reached? Will codes or themes be provided back to participants for review and comment on interpretation?

REVIEWER	Anton Isaacs Monash University, Australia
REVIEW RETURNED	12-Dec-2018

GENERAL COMMENTS	The abstract states that the data collection was completed in October 2018. A protocol paper must be published at the commencement of the study and not after the data collection is complete. Nonetheless, having gone through the paper in detail, it appears quite sound although the authors are attempting to use a very new method of data analysis. Here are my further comments. Page 4 – line 28: Stating that this is a single case study is confusing. Perhaps remove the word, 'single'. What type of Mixed methods study are the authors planning to use? For e.g. See Designing and Conducting Mixed Methods Research by Creswell and Plano Clarke, 2011 Line 47: This looks like a within subject design. So the authors would need to use a paired t-test. Page 14 – Line 3: This is a complex study design. A flow chart for the study protocol will make it easier for the reader to understand. Page 16 – Line 3: A list of tentative questions (Interview schedule) that will be used for Adolescents and caregivers would be useful. Line 22: “Attention will be paid to the way in which adolescents attempt to manage their symptoms over time.” What does this mean? line 41: Is it acceptable to get consent directly from adolescents or will consent be obtained from the caregiver for the adolescent? Page 19 – Table 1: It is my opinion that Content analysis is a more appropriate method of analysis for the the type of data that the authors show in Table 1. Page 20 – line 3: Trajectory analysis is a new method of qualitative analysis, which still needs to be developed. Good luck to the authors for trying this out.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1		
Comment	**Response**	**Change to Manuscript**
Introduction: Page 2: Putting the 3rd paragraph (line 40) in front of the 2nd paragraph or at least before the sentence "However, surprisingly few studies (…)" (line 32) might increase readability.	We agree that moving the 3rd paragraph before the 2nd creates a more logical flow to readability.	Page 2, lines 8-17, highlighted in bold and red font.
Introduction: Please clarify the setting: MoC in Australia. As models of care do differ widely across countries more information on inpatient treatment in general, especially in Australia, might be helpful for the reader.	The authors agree that we need to clarify what is meant by MoC across the international literature. Although there is no clear inpatient MoC, the authors created a new paragraph providing more information about the MoC concept in Australia.	Page 2, lines 20-24, highlighted in bold and red font, new paragraph. Page 3, lines 1-4, highlighted in bold and red font, new paragraph.
Introduction: Within the descriptions of the MoC (page 2 and 3) there seems to be quite some repetitions, please summarize the description of MoCs from different authors and shorten accordingly.	Upon further review of the introduction, the authors agreed to remove several sentences, which appeared repetitive. We believe this provides a more succinct, less repetitive descriptions of MoCs from different authors.	The introduction has been slightly restructured, to avoid any unnecessary repetition. The following **sections of original submission** have been removed or altered (Page 2, lines 5-30, 43-46, page 3, lines 25-56, page 4, lines 2-5 have been removed).
Introduction: What do you mean by the "real thing" (page 4, line 22-26)? Please clarify.	The "real thing" was referring to the full description of a MoC in reality, as opposed to vague descriptions as to what it	This section has been removed to avoid repetition. **Section of original submission** has

	might be. This section has been removed due to repetition.	been removed (page 4, line 22-26).
Introduction: You might want to include some information on how MoCs from differ in either private or public settings.	Unfortunately, there is no clear inpatient MoC for adolescents within the literature. Therefore, the authors cannot make any comparisons of model differences between public and private. Our study is hoping to contribute to this very important gap to guide public and private settings.	No changes.
Introduction: Are MoCs in a clinical setting in Australia manualized? In Germany, for example patients and their caregivers often receive (child-friendly) information on the MoC at admission. Please clarify.	This is another area which is lacking in the literature. There is no clear indication as to whether a desirable adolescent inpatient MoC should be manualized or not. In the eventual findings of our study, we will be describing our MoC and what we provide (unmanualised MoC) and if, how and why it influences outcomes for adolescents.	No changes.
Aims: Please explain the MoCHA acronym (page 5, line 35).	This appears to be an error on our part. We have acknowledged this and explained the acronym.	Page 4, line 14, highlighted in bold and red font.
Aims: I don't understand why only patient outcomes are relevant for evaluating the effectiveness of the MoC (aim 3). Normally caregivers are included in the treatment which hopefully leads to changes	The authors have included the clinicians' perspectives for aim 2 and 3. We realise this was excluded and an error on our part. Thank you for highlighting this important area. The comments are very valid, as caregivers are indeed	Page 4, lines 19-24, highlighted in bold and red font. Page 5, lines 1-6, highlighted in bold and red font.

within the family. Hence, I would suggest also taking caregiver outcomes into account. The clinicians perception of symptom change/improvement of the patient might be a relevant outcome as well. Please clarify.	key players in the MoC and their perceptions are extremely relevant.	
Aims: What are the hypothesis of your study?	This study is exploratory in nature. As such, there are no hypotheses and we have included research questions instead.	No changes.
Methods: The time point of the clinicians' assessment remains unclear (page 6, line 28).	Clinicians will be invited to participate in one interview and these will be conducted between December 2017 and July 2018.	Page 5, lines 19-20, highlighted in bold and red font.
Methods: The combination of qualitative and quantitative data is a real strength of the study.	Thank you. We believe it is a key strength to our study, which aims to provide much more insight into what we currently know about inpatient units and from those who matter most.	No changes.
Methods: Please describe in more detail how study participants were recruited and approached.	We have provided more details in relation to recruitment for this study.	Page 8, lines 12-17, highlighted in bold and red font. Page 8, lines 19-24, highlighted in bold and red font.
Methods: Inclusion criteria: Give their informed consent?	All participants in the study will be provided with all relevant information outlining the study and risks associated. Participants can only consent once informed consent has been obtained. For adolescents, they needed to	Page 9, line 3, highlighted in bold and red font.

	consent as well as their caregivers, due to their age and vulnerability.	
Methods: It might be helpful if you could describe the calculation of your sample size not only based on practical issues but also statistically significant (qualitative and quantitative component). Which tests will be employed in the quantitative component? Which effect size is targeted? How do these assumptions constitute the necessary sample size?	It is not appropriate to describe the calculation of the sample size for the qualitative component in terms of statistical significance as this is not how sample size is determined for qualitative research. For the quantitative component, we propose a sample of 77 adolescents based on anticipated admission rates (90 adolescents annually approximately) for the recruitment period and assuming a consent rate of 85%. This estimated sample size is in keeping with previous adolescent inpatient research reporting mostly medium to large effect sizes.	No changes. Page 10, lines 1-4, highlighted in bold and red font.
Methods: Study monitoring: Are future hospital admissions (after T2) assessed? This might have an impact on your T3 data and drop-out rate (page 9, line 24).	Future hospital admissions are not assessed after T2 unless discussed by the participant in interviews. This potential limitation in the analysis will be acknowledged in the reporting.	No changes.
Methods: Is there a reason for not including detailed psychometric characteristics of the questionnaires? You might want to include some more information if you have not	We had the psychometric characteristics in previous versions of the manuscript prior to submission, but removed for word count reasons. Upon reading your comments, we agree that this is a key area which needs to be in the manuscript. Consequently, we have	Page 11, lines 16-20, highlighted in bold and red font.

extended the word limit yet.	incorporated this into the manuscript.	
Methods: I think it is very helpful you added the measurement time points (page 10, line 24).	Thank you. We thought it might be useful to do this for each questionnaire for clarity.	Page 11, lines 4,7,10,12, highlighted in bold and red font.
Methods: What do you mean by "longitudinal interviews" (page 10, line 44)? Please clarify.	This was an error and has subsequently been removed. Thank you for clarifying this.	Removed.
Methods: I find it a bit confusing that recruitment and study design is repeatedly described in the description of the interviews (page 11, line 41-52; page 12, line 5-11). Please omit unnecessary repetitions.	The authors have considered these comments and removed the sentences which appear repetitive. This led to the removal of some sentences and merging 'Interviews with adolescents and caregivers' and 'Interviews with clinicians'.	Page 13, lines 1-8, highlighted in bold and red font.
Methods: You might want to think about moving the comprehensive description of the framework (page 13, beginning line 24 and table on page 14) to the introduction and study design.	We agree that this could be situated in the introduction and study design section. Therefore, we have moved the comprehensive description to the study design section as suggested.	Page 6, lines 1-22, highlighted in bold and red font. Page 7, line 1.
Methods: The interview description is quite vague which makes it difficult to imagine what will be asked specifically. I would appreciate some more information on the interview content.	Upon careful consideration, the authors chose not to include all interview schedules in the manuscript. This decision was made based on the variety of schedules for adolescents and caregivers across three time phases in addition to clinician schedules. All interview schedules will be	Page 13, line 9, highlighted in bold and red font.

	available on request and this will be stated in the manuscript. However, we agree that further information needs to be provided in relation to the content of the interviews. Therefore, we have provided further information, which we hope provides more insight into the interview content.	
Methods: In the description of the quantitative data analysis I was wondering whether you would conduct a repeated measures ANOVA for the main effect time and subsequent student t-tests to analyse differences between specific time points?	Thank you for the suggestion and encouraging us to revisit this, which we considered in the initial stages of the protocol development. We agree that conducting a repeated measures ANOVA would help strengthen the project. Therefore, we have incorporated this into the protocol. This will also be reported in the finings.	Page 17, lines 7-9, highlighted in red and bold font.
Methods: Did you mean "Student T-tests" instead of "significant t-tests" (page 16, line 35)?	The authors will use paired t-tests to summarise changes in symptomatology at T1, T2 and T3. Apologies for the confusion here as this was an error. Thanks for clarifying.	See abstract, section Methods and analysis, line 20, highlighted in bold and red font. Page 16, line 18, highlighted in bold and red font.
Methods: Please check the citation of Mergen et al., 2016 on page 22. (Mergen, B.E., Arslan, H., Arslan, E., Turgut, S.E., & Bernstein, I.H. (2016). Turkish validity and reliability of the quick inventory of depressive symptomatology adolescent version (QIDS-	This citation has been noted. However, the design of the study was established by November 2016. The QID-SR was chosen based on an assessment of studies and adolescent populations in which the QID-SR was used.	No changes.

A17-SR) In comparison with the beck depression inventory-II among late adolescents. Klinik Psikofarmakolji Bulteni-Bulletin of Clinical Psychopharmacology, 26 (3), 303-309.		

Reviewer 2		
Comment	**Response**	**Change to Manuscript**
I did not see disclosure of funding for this project. The study site is a private hospital and ethics approval has been granted by that private organization (Ramsey Healthcare). Are they also the funders of the study? If so, it would be important to disclose this, and indicate any potential conflicts of interest that may arise from this scenario.	Thank you for highlighting this to us. We accept this was not stated in the manuscript. We have incorporated it into the revised manuscript.	Page 22, lines 16-18, highlighted in red and bold font.
Limitations of the study should also be recognized at this stage. Although many limitations arise through the process of conducting the research, there are some that could be indicated up front in terms of decisions made on scope, setting, methods etc.	The authors agree that a section outlining the limitations needs to be included in the manuscript. This amendment has been made.	Page 1, lines 10-13, highlighted in red and bold font. Page 17, lines 22-25, highlighted in red and bold font. Page 18, lines 1-7, highlighted in red and bold font.

More information on the process of coding and interpretation of the qualitative data is required in terms of how reflexivity will be addressed. Also, how many coders will be used? How will agreement be reached? Will codes or themes be provided back to participants for review and comment on interpretation?	Although the first author will be the main coder and analyser, the first author will be reporting the process during regular supervisory meetings. In addition, a smaller subsample will be double coded during the initial stages of analysis. However, this will not take place during the trajectory analysis stage, as this would be too difficult and likely interfere with the analysis process.	Page 16, lines 3-12, highlighted in red and bold font.

Reviewer 3		
Comment	**Response**	**Change to Manuscript**
The abstract states that the data collection was completed in October 2018. A protocol paper must be published at the commencement of the study and not after the data collection is complete.	The authors paid close attention to this and submitted the manuscript several months in advance of data collection having ceased. However, it was a lengthy process in terms of identifying appropriate reviewers. Once the authors received this feedback, we aimed to review promptly and return for hopeful publication in the 2018 period.	No changes.
Page 4 – line 28: Stating that this is a single case study is confusing. Perhaps remove the word, 'single'. What type of Mixed methods study are the authors planning to use? For e.g. See Designing and	The authors plan to use a (insert) case study. The authors agree that the use of the word ‘single’ is confusing and have subsequently removed this.	Removed.

Conducting Mixed Methods Research by Creswell and Plano Clarke, 2011		
Line 47: This looks like a within subject design. So the authors would need to use a paired t-test.	The authors will use paired t-tests to summarise changes in symptomatology at T1, T2 and T3.	See abstract, section Methods and analysis, line 20, highlighted in bold and red font. Page 16, line 18, highlighted in bold and red font.
Page 14 – Line 3: This is a complex study design. A flow chart for the study protocol will make it easier for the reader to understand.	Yes, the study design is complex. Therefore, we have made further amendments to Figure 1 so it is clearer for readers.	See Figure 1.
Page 16 – Line 3: A list of tentative questions (Interview schedule) that will be used for Adolescents and caregivers would be useful.	Upon careful consideration, the authors chose not to include all interview schedules in the manuscript. This decision was made based on the variety of schedules for adolescents and caregivers across three time phases in addition to clinician schedules. All interview schedules will be available on request and this will be stated in the manuscript. However, we agree that further information needs to be provided in relation to the content of the interviews. Therefore, we have provided further information, which we hope provides more insight into the interview content.	Page 13, line 9, highlighted in bold and red font.

Line 22: "Attention will be paid to the way in which adolescents attempt to manage their symptoms over time." What does this mean?	The authors acknowledge that this sentence might be confusing. The sentence suggests that the authors will observe for any changes in how adolescents cope or learn to live and manage their mental health symptoms from T1, T2 and T3. We have since changed the sentence, which should hopefully be clearer.	Page 12, lines 15-17, highlighted in bold and red font.
Line 41: Is it acceptable to get consent directly from adolescents or will consent be obtained from the caregiver for the adolescent?	Adolescent participants wishing to participate will provide informed consent as well as their caregivers due to their age and vulnerability. Upon reviewing the paper, we agree that this was not clearly indicated and should have been. Consequently, we have amended the eligibility criteria for Box 1.	Page 9, line 3, highlighted in bold and red font. Page 13, line 12, highlighted in bold and red font. Page 20, lines 7-10, highlighted in bold and red font.
Page 19 – Table 1: It is my opinion that Content analysis is a more appropriate method of analysis for the type of data that the authors show in Table 1.	We have chosen thematic analysis due to the semi-structured nature of the interview schedule, which is designed to allow for unexpected themes to arise. We also feel that thematic analysis is a more suitable precursor to the trajectory analysis. We have added further justification and clarification about this choice in the manuscript.	Page 14, lines 22-24, highlighted in bold and red font.
Page 20 – line 3: Trajectory analysis is a new method of qualitative analysis, which still needs to be developed.	The authors acknowledge this new mode of qualitative analysis and anticipate that it will be a useful framework and approach for observing and	No changes.

Good luck to the authors for trying this out.	reporting changes with adolescents over time. Some articles if you are interested in trajectory analysis: Meijer, E., Vangeli, E., Gebhardt, W. A., & Laar, C. van. (2018). Identity processes in smokers who want to quit smoking: A longitudinal interpretative phenomenological analysis. *Health*. https://doi.org/10.1177/1363459318817923 Grossoehme D, Lipstein E. Analyzing longitudinal qualitative data: the application of trajectory and recurrent cross-sectional approaches. *BMC Res Notes*. 2016;9:136. Published 2016 Mar 2. doi:10.1186/s13104-016-1954-1	

VERSION 2 – REVIEW

REVIEWER	Elisa Pfeiffer University Ulm, Child and Adolescent Psychiatry/Psychotherapy
REVIEW RETURNED	08-Jan-2019

GENERAL COMMENTS	The authors have sufficiently and clearly written this paper. They have provided a strong, coherent rationale for the study and described the methods sufficiently detailed. My concerns were addressed, I only have the following minor comments: • P.1: What do you mean by "(…) further evaluation of adolescents (…)" Please clarify.

	• Consider moving Table 1 to the introduction when discussing the gaps in the literature regarding MoC. • The abbreviation “MoC” is currently introduced twice within the text. • P.7, line 14: please reword “people” (e.g. adolescent). • Please comment on the issue that MoC are (often) not manualized/ standardized and whether that might be necessary. • Thank you for including a limitations sections. I recommend also stating the limitation I had raised in the previous review: future hospital admissions are not assessed after T2 unless discussed by the participants in the interview.

REVIEWER	Stephanie Knaak Mental Health Commission of Canada, Canada
REVIEW RETURNED	02-Jan-2019

GENERAL COMMENTS	The authors have adequately addressed the concerns raised by reviewers.

VERSION 2 – AUTHOR RESPONSE

Reviewer 1		
Comment	**Response**	**Changes to Manuscript**
P.1: What do you mean by “(…) further evaluation of adolescents (…)” Please clarify.	We realise this sentence requires further clarification. Therefore, we have edited this sentence to convey that this study plans to provide further evaluation of adolescents admitted to inpatient units and outcomes. The use of the term ‘further’ is because the evidence or research is limited in terms of what we know about adolescent inpatient units, models of care and outcomes.	Page 1, line 11, highlighted in bold and red font.
Consider moving Table 1 to the introduction when discussing the gaps in the literature regarding MoC.	The authors have move Table 1 to the introduction as suggested. We agree that this appears to have a more logical flow when reading.	Page 3, lines 11-14, highlighted in bold and red font. Page 4, table at the top of page, highlighted in bold and red font. Page 7, lines 4-6, highlighted in bold and red font.

The abbreviation “MoC” is currently introduced twice within the text.	The authors acknowledge this error and this has been corrected.	Page 5, line 12, highlighted in bold and red font.
P.7, line 14: please reword “people” (e.g. adolescent).	The authors have changed the term ‘people’ to ‘adolescents’.	Page 8, line 14, highlighted in bold and red font.
Please comment on the issue that MoC are (often) not manualized/ standardized and whether that might be necessary.	The authors apologise for not commenting on whether MoC are often manualised or not. The authors have incorporated two sentences to comment on this in the introduction. Unfortunately, few studies indicate whether their MoC is manualised. It is indeed one of the important limitations in current studies of inpatient units and models of care.	Page 2, lines 16-18, highlighted in bold and red font.
Thank you for including a limitations sections. I recommend also stating the limitation I had raised in the previous review: future hospital admissions are not assessed after T2 unless discussed by the participants in the interview.	Thank you for your suggestion and we have incorporated this into the limitations paragraph.	Page 19, lines 2-3, highlighted in bold and red font.