

PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (<http://bmjopen.bmj.com/site/about/resources/checklist.pdf>) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Swallowing behaviours and feeding environment in relation to communication development from early infancy to six years of age: A scoping review protocol
AUTHORS	Flowers, Heather; Bérubé, Daniel; Ebrahimipour, Mona; Perrier, Marie-France; Moloci, Sarah; Skoretz, Stacey

VERSION 1 – REVIEW

REVIEWER	Ylenia Nicolini University of Parma, Unit of Neuroscience, Italy
REVIEW RETURNED	06-Feb-2019

GENERAL COMMENTS	<p>The manuscript entitled «Swallowing behaviours and feeding environment in relation to communication development from early infancy to six years of age: A scoping review protocol» submitted for consideration of publication in BMJ Open reports a protocol which proposes a scoping review aimed at identifying the existing literature concerning the influence of swallowing and feeding behaviour on communication development from postnatal period to six years of age.</p> <p>I think this is a very interesting protocol on an important topic, as it provides guidelines to structure a comprehensive review deepening communication development after birth and through developmental stages (till 6 years of age).</p> <p>Although the protocol is mainly focused on how swallowing and feeding behaviours may have affected communicative capacities in infants and children, I think the authors should also take into account the importance of caregiver-child interaction immediately after birth. The reciprocal affective relationship between the mother (or the main caregiver) and the infant, which is mediated by frequent face-to-face interactions and vocalizations, has indeed been demonstrated to have profound effects on children's cognitive development and communicative skills. I think it could be helpful to include a section considering how caregiver-child synchrony is able to predict subsequent child's joint attention and language development.</p> <p>Importantly, beyond considering postnatal period only, it could be interesting to include a section reviewing existing literature on the influence of prenatal environment on children's communicative skills. Does maternal behavior have some effects on children's communication development? (as an example see Ferrari et al., 2016 https://www.frontiersin.org/articles/10.3389/fpsyg.2016.00354/full).</p>
-------------------------	--

	<p>Is maternal diet during pregnancy influencing infants' language development?</p> <p>Some minor comments are provided below:</p> <ul style="list-style-type: none"> - pp. 3 line 15: "Whether..[...] beyond". Please, clarify or rephrase this sentence. - pp. 8 line 20: "A recent [...] feeds". Please, clarify or rephrase this sentence.
--	--

REVIEWER	<p>Vishakha Rawool Department of Communication Sciences & Disorders The University of Mississippi, Oxford, MS 38655 USA</p>
REVIEW RETURNED	03-Mar-2019

GENERAL COMMENTS	<p>This is a very well designed study protocol and should be accepted. Authors may wish to consider the following minor revisions:</p> <ol style="list-style-type: none"> 1. One of the secondary questions listed on page 10 related to the swallowing related impairments that can compromise or delay the onset of communicative function. In this category, please consider middle ear dysfunction or otitis media that can be caused by swallowing difficulties. For details related to this connection see the discussion section of the following article: Rawool, V. W. (2017). Prevalence of auditory problems in children with feeding and swallowing disorders. <i>Journal of Speech, Language, and Hearing Research</i>, 60(5), 1436-1447.. Transient hearing loss due to otitis media could lead to auditory processing deficits and language delays. (Cai, T., & McPherson, B. (2017). Hearing loss in children with otitis media with effusion: a systematic review. <i>International journal of audiology</i>, 56(2), 65-76.) Feeding related verbal interactions will be less effective during episodes of middle ear dysfunction. 2. Provide the rationale for excluding the <i>Journal of Speech, Language and Hearing Research</i> or include it in Table 1.
-------------------------	--

REVIEWER	<p>Mrs. Malou Stoffels Amsterdam UMC, the Netherlands</p>
REVIEW RETURNED	16-May-2019

GENERAL COMMENTS	<p>General : the protocol is very clear and explicit.</p> <p>Abstract: The abstract is balanced and complete; however the aim could be more specific. Moreover, I would avoid the term 'forward and backward chaining' as I think this sounds too much like jargon for an abstract.</p> <p>Rationale/objectives: Although the aims and objectives are clear and substantiated by the literature, the scope of the review is not entirely clear from the rationale and the objectives, particularly concerning the age group of interest.</p> <p>Framework: The authors state that they conduct a scoping review to 'provide an evidence map for key concepts and definitions', whereas the previously stated aim was to find literature about associations. I would suggest to align the aims/objectives as stated in various sections with the research question.</p> <p>The authors state that they will use the Prisma-P reporting checklist for protocols, however, it is not clear whether they indeed completed the checklist.</p>
-------------------------	--

	<p>In the methods section, only the first five stages of the Arksey and o'Malley framework are followed, without explanation why the sixth step is missing.</p> <p>Stage 1: The overall broad research question is suggesting a causal inference by choosing the wording 'what factors influence...'. Given the scoping nature of the research, I imagine that searching for studies addressing causal links is too restrictive. This restriction is indeed not reflected in the selection criteria. I suggest to change the research question accordingly.</p> <p>The third secondary question involves the feeding environment, including mode, setting and interactive constructs. I think the word 'environment' is a somewhat misleading term to cover all these aspects including the feeding process itself and I would suggest to change it.</p> <p>Stage 2: Although the search strategy is very well articulated, in the last paragraph, I don't understand how '16 journals, 4 conference proceedings and 6 grey literature sources' have been selected, how they have been used to find target papers, and whether the same inclusion criteria have been applied to information from these resources.</p> <p>Also, information is missing about when the searches will be conducted.</p> <p>Stage 4: The table that will be used for data extraction seems very clear and complete. However, I wonder why both independent variables such as physiology and behaviors and dependent variables such as communication development are listed under 'study' outcomes. A separation of the two would be helpful.</p> <p>Stage 5. The authors elaborate on various forms of data presentation. However, it is not clear if and how the authors will include qualitative aspects of the reviewed studies (such as rigour of data analyses) in their analyses.</p> <p>Information pertaining to 'swallowing-feeding functions' and domains of communication development will be represented in charts. Maybe the authors could specify what kind of information they understand as 'swallowing-feeding functions' (does this include environmental factors?) , as this seems to be the core of their review.</p> <p>As in the introduction, the authors state that gaps in the literature will be identified. I suggest that the authors elaborate on how these gaps will emerge.</p>
--	---

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

1. Although the protocol is mainly focused on how swallowing and feeding behaviours may have affected communicative capacities in infants and children, I think the authors should also take into account the importance of caregiver-child interaction immediately after birth. The reciprocal affective relationship between the mother (or the main caregiver) and the infant, which is mediated by frequent face-to-face interactions and vocalizations, has indeed been demonstrated to have profound effects on children's cognitive development and communicative skills. I think it could be helpful to include a section considering how caregiver-child synchrony is able to predict subsequent child's joint attention and language development.
 - We have added content to the background, addressing the importance of early caregiver-child interactions immediately after birth.

2. Importantly, beyond considering postnatal period only, it could be interesting to include a section reviewing existing literature on the influence of prenatal environment on children's communicative skills. Does maternal behavior have some effects on children's communication development? (as an example see Ferrari et al., 2016)
 - Alongside the added content from comment #4, we have included research on prenatal infant behaviour in relation to maternal voice. The information is presented as emerging inquiry, but not as content that we can feasibly address in our scoping review given its existing breadth.
3. Is maternal diet during pregnancy influencing infants' language development?
 - We purposefully excluded nutritional factors in our operational definition of feeding, because they are beyond the scope of the current review. To illustrate, our Medline search alone already yields >1500 potential abstracts, and so including nutritional information would not be feasible. We have acknowledged the relevance of the reviewer's point by describing this point as a potential limitation in the section on strengths and limitations.
4. Some minor comments on pp. 3 line 15: "Whether...[...] beyond". Please, clarify or rephrase this sentence and pp. 8 line 20: "A recent [...] feeds". Please, clarify or rephrase this sentence
 - We have clarified both sentences accordingly.

Reviewer: 2

5. One of the secondary questions listed on page 10 related to the swallowing related impairments that can compromise or delay the onset of communicative function. In this category, please consider middle ear dysfunction or otitis media that can be caused by swallowing difficulties. For details related to this connection see the discussion section of the following article: Rawool, V. W. (2017). Prevalence of auditory problems in children with feeding and swallowing disorders. *Journal of Speech, Language, and Hearing Research*, 60(5), 1436-1447. Transient hearing loss due to otitis media could lead to auditory processing deficits and language delays. (Cai, T., & McPherson, B. (2017). Hearing loss in children with otitis media with effusion: a systematic review. *International journal of audiology*, 56(2), 65-76.) Feeding related verbal interactions will be less effective during episodes of middle ear dysfunction.
 - We acknowledge and support the notion that there is a relationship between dysphagia and otitis media, which in turn has negative ramifications for the developing communicative system. We have read and included the articles suggested by the reviewer.
6. Provide rationale for excluding the JSLHR or include it.
 - In fact, we feel that the *Journal of Speech, Language, and Hearing Research* should be included in our list of journals to search as suggested by the reviewer. We have added it to Table 2 and made corresponding changes to the manuscript.

Reviewer: 3

7. The abstract is balanced and complete; however the aim could be more specific. Moreover, I would avoid the term 'forward and backward chaining' as I think this sounds too much like jargon for an abstract.
 - We have rendered the aim statement more specific and removed the term 'forward and backward chaining' from the abstract
8. Although the aims and objectives are clear and substantiated by the literature, the scope of the review is not entirely clear from the rationale and the objectives, particularly concerning the age group of interest.
 - Thank you for requesting precision about the age range. We have clarified that the age range of interest is from birth to <6,0 years (inclusive of the first five years).
9. The authors state that they conduct a scoping review to 'provide an evidence map for

key concepts and definitions', whereas the previously stated aim was to find literature about associations. I would suggest to align the aims/objectives as stated in various sections with the research question.

- We have rephrased the framework purpose, aligning it more closely with the overarching purpose as suggested
- 10. The authors state that they will use the Prisma-P reporting checklist for protocols, however, it is not clear whether they indeed completed the checklist.
 - We have now included the checklist as a supplementary table
- 11. In the methods section, only the first five stages of the Arksey and o'Malley framework are followed, without explanation why the sixth step is missing.
 - Because Arskey and O'Malley (2005) indicated that the sixth step was optional, we did not initially include it. However, given the reviewer's comments, we have added a paragraph about how we plan to seek consultation by caregivers and practitioners before undertaking knowledge translation activities.
- 12. Stage 1: The overall broad research question is suggesting a causal inference by choosing the wording 'what factors influence...'. Given the scoping nature of the research, I imagine that searching for studies addressing causal links is too restrictive. This restriction is indeed not reflected in the selection criteria. I suggest to change the research question accordingly.
 - Indeed, the question was not intended to reflect exclusively causal relationships. We have changed the word "influence" to "are associated with".
- 13. The third secondary question involves the feeding environment, including mode, setting and interactive constructs. I think the word 'environment' is a somewhat misleading term to cover all these aspects including the feeding process itself and I would suggest to change it.
 - We have now clarified that environment relates to external stimuli with respect to the feeding process and context in the operational definitions section.
- 14. Stage 2: Although the search strategy is very well articulated, in the last paragraph, I don't understand how '16 journals, 4 conference proceedings and 6 grey literature sources' have been selected, how they have been used to find target papers, and whether the same inclusion criteria have been applied to information from these resources.
 - We have elaborated on the process of additional source selection and searching now in stage 2.
- 15. Also, information is missing about when the searches will be conducted.
 - We have clarified that searches will be complete within six months of protocol publication.
- 16. Stage 4: The table that will be used for data extraction seems very clear and complete. However, I wonder why both independent variables such as physiology and behaviors and dependent variables such as communication development are listed under 'study' outcomes. A separation of the two would be helpful.
 - We thank the reviewer for this excellent suggestion and have separated the variables accordingly.
- 17. Stage 5. The authors elaborate on various forms of data presentation. However, it is not clear if and how the authors will include qualitative aspects of the reviewed studies (such as rigour of data analyses) in their analyses.
 - We chose not to include risk of bias or any other such quality analyses in the scoping review. Also, because the intent was to obtain a sense of the extent of the literature in the area, we do not intend to review rigour of specific data analyses. We have elaborated in stage five. Nevertheless, once we have a categorization of domains within the body of literature, we may conduct systematic reviews for particular questions. At that point, we would conduct quality assessments and meta-analyses, if applicable.
- 18. Information pertaining to 'swallowing-feeding functions' and domains of communication development will be represented in charts. Maybe the authors could specify what kind of information they understand as 'swallowing-feeding functions' (does this include environmental factors?) , as this seems to be the core of their review.

- We have operationalized the term “environment” in the manuscript (as indicated in our response to comment #15)
19. As in the introduction, the authors state that gaps in the literature will be identified. I suggest that the authors elaborate on how these gaps will emerge.
- We believe that our primary question lends itself to enough diversity that we will identify categories of studies along with themes and gaps. At this point, we are unable to discern what literature exists and where gaps may arise. However, we suspect that gaps will arise according where findings are vague or absent in certain domains. Additionally, we have clarified that we will seek input from clinicians and caregivers. They may identify gaps that we might otherwise miss (see response to comment #13). Similarly, by posing secondary questions, we were providing a template for areas of interest or inquiry that may or may not have an associated body of literature. Even if there is, we will be able to extrapolate particular themes and identify gaps. For example, if we find that the literature reports communication development in breast versus bottle fed infants, we may query why studies are lacking on multimodal feeding (breast, bottle, and/or other modes).

VERSION 2 – REVIEW

REVIEWER	Malou Stoffels Amsterdam UMC, locatie VUmc, the Netherlands
REVIEW RETURNED	28-Jun-2019

GENERAL COMMENTS	<p>Dear authors,</p> <p>Thank you for your clear and complete responses to the suggestions and subsequent improvement of the work.</p> <p>Although I'm very satisfied with the explanations, I still find the term 'feeding environment' somewhat confusing, as I myself would not consider feeding mode or social interactions 'external stimuli'. However, I can imagine that the authors reconsider the terminology when analysing their search results.</p> <p>I think this protocol can be the basis for a very interesting and rigorous study and I'm looking forward to reading the results.</p>
-------------------------	---