PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Parental assessment of disease severity in febrile children under 5 years of age: a qualitative study
AUTHORS	Kuijpers, Dora; Peeters, Daphne; Boom, Nina; van de Maat, Josephine; Oostenbrink, Rianne; Driessen, Gertjan

VERSION 1 – REVIEW

REVIEWER	Christie Cabral University of Bristol, UK
REVIEW RETURNED	17-Sep-2020

GENERAL COMMENTS	The key issue with this paper is that, as it stands, is that it doesn't add anything novel to the literature. It claims: "This is the first study to give a profound overview of what parents take into account when assessing disease severity in their child." and in the discussion "this is the first study that fully takes the parent's perspective into account regarding judgment of disease severity in their febrile child." However, there are many published studies that have looked at how parents assess disease severity in their child, several of which are cited by this paper (Walsh et al 2007; van den Bruel et al 2005; Ingram et al 2013 to name a few). There are also many that have focused on parents views of fever in children, again some of which are cited by the paper (e.g. Sham et al 2016) and some which are omitted (e.g. Kelly et al 2016 BMC Public Health 16:54). The finding that parents recognise (or identify) as an indicator of illness when their child's behaviour is different to 'normal' and the influence of their prior experience is well established in the literature, again some of which are cited by the paper (e.g. Kai 1996; Ingram et al 2013). The authors need to look at the wider literature and identify what their study adds. The limitation from the entire sample being recruited from parents who attended A&E with their child is acknowledged but the implications are not discussed. There is ample literature on studies of parents recruited from emergency and from community setting, but there is no discussion of whether there was anything in the findings that indicates that parents who attend A&E have different or similar views to parents as a whole. The sample is described as purposive, but it is not clear what characteristics parents were purposively sampled on. This should be stated in the methods and implications discussed under strengths and limitations - for example lower education (which is proxy for lower socio-economic status) parents are under-represented but there is good representation of fathers (often studies on this topic have samples comprised mainly of mothers).

	In Table 1 it says 'mothers present at interview' and 'fathers present at interview' - the methods needs to make clear how many interviews were with one parent on their own and how many were with diads (mother and father together) and (if this happened) how many with a mother and father of the same child but interviewed separately. Interviews with diads are very different to interviews with individuals and there needs to be more detail about how this data was analysed.

REVIEWER	Shijian Liu Shanghai Children's Medical Center, Shanghai Jiao Tong University School of Medicine.
REVIEW RETURNED	26-Oct-2020

GENERAL COMMENTS	The manuscript of bmjopen-2020- 042609 entitled" Parental assessment of disease severity in febrile children under 5 years of age: a qualitative study", the authors surveyed 37 patients, the topic is interesting, however some concerns existed and needed to be considered to improve for this manuscrpit. Major points 1. Why authors choose febrile children as research subjects are not very clear? Early judgement should be critical or related to the treatment or prognosis for the target disease, however it seems that febrile illness is not. 2.The judgement by two professional pediatric clinicians are essential for this study; 3. The sample size 37 is limited in this qualitative study, sample size calculation is helpful. 4. This study did not examine the correlation between parent-reported symptoms and disease severity as judged by health professionals. 5. Lines 16-24 page 7, more objective results should be described in the results section. 6. Lines 26-28 page 7, the sentence "Parents used the normal behavior and physical features of their child as a reference frame for judging disease severity" should be placed in the method section. The following description in the conclusion section Abstract should be more summary. Minor points 1. The format of tables does not conform to the BMJ Open journal, please revise. 2. Line 41 page 10, DK should be full name in the first time.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Comments to the Author: The key issue with this paper is that, as it stands, is that it doesn't add anything novel to the literature. It claims: "This is the first study to give a profound overview of what parents take into account when assessing disease severity in their child." and in the discussion "this is the first study that fully takes the parent's perspective into account regarding judgment of disease severity in their febrile child." However, there are many published studies that have looked at how parents assess disease severity in their child, several of which are cited by this paper (Walsh et al 2007; van den Bruel et al 2005; Ingram et al 2013 to name a few). There are also many that have focused on parents views of fever in children, again some of which are cited by the paper (e.g. Sham et al 2016) and some which are omitted (e.g. Kelly et al 2016 BMC Public Health 16:54). The finding that parents recognise (or identify) as an indicator of illness when their child's behaviour is different to

'normal' and the influence of their prior experience is well established in the literature, again some of which are cited by the paper (e.g. Kai 1996; Ingram et al 2013). The authors need to look at the wider literature and identify what their study adds.

Thank you for this comment. We agree that this statement might be too firm, however, we do think that we add something new to the literature. Indeed, there is a substantial number of studies that have shown why parents come to the emergency room or what symptoms they perceive as alarming symptoms. However, we present a more integral view than published so far. We did not only investigate a range of signs and symptoms that parents considered alarming, but at the same time also what they considered as reassuring. Therefore, we were able to give an overall picture of the full parental perspective of the febrile child, described as symptoms parents can recognize themselves.
Additionally, we found that parents are not able to describe and recognize specific symptoms of disease that they did not have experienced or have seen before. This has not been published previously. Especially for dyspnoea this is an interesting finding related to the data from Blacklock et al (Arch Dis Child, 2011), who describe that there is little agreement in clinicians' and parents' observations in respiratory illness.

We changed the sentence
"This is the first study to give a profound overview of what parents take into account when assessing disease severity in their child" to
"This study presents an integral overview of what parents take into account when assessing disease severity in their child"

We changed the sentence "This is the first study that fully takes the parent's perspective into account regarding judgment of disease severity in their febrile child." to "This study presents an integral perspective regarding parental judgement of disease severity in their febrile child."

Please note that we did not omit reference *Kelly et al 2016 BMC Public Health 16:54 (*reference 16 in the paper). We think that we included all the relevant papers in the reference list.

The limitation from the entire sample being recruited from parents who attended A&E with their child is acknowledged but the implications are not discussed. There is ample literature on studies of parents recruited from emergency and from community setting, but there is no discussion of whether there was anything in the findings that indicates that parents who attend A&E have different or similar views to parents as a whole.

We agree that our findings might not be generalized to parents as a whole. This limitation is mentioned in the discussion: 'the generalizability of the results is restricted to a hospital setting.'.

The sample is described as purposive, but it is not clear what characteristics parents were purposively sampled on. This should be stated in the methods and implications discussed under strengths and limitations - for example lower education (which is proxy for lower socio-economic status) parents are under-represented but there is good representation of fathers (often studies on this topic have samples comprised mainly of mothers).

The sampling method was not purposive as such. This was an omission in the use of the English language. The selection was mainly driven by availability of parents who consented and who had enough time to complete the interview in the ER and on the wards. Next, we looked at the age of the patients and whether parents had experience with health problems with their children before. This has been changed in the methods section:

"A sample of parents of children with fever aged one month to five years was recruited. We aimed to obtain maximum variation within the sample in terms of patient age and the experience of parents with diseases in their children"

We added to the discussion that there is an under representation of parents with a low SES.

In Table 1 it says 'mothers present at interview' and 'fathers present at interview' - the methods needs to make clear how many interviews were with one parent on their own and how many were with diads (mother and father together) and (if this happened) how many with a mother and father of the same child but interviewed separately. Interviews with diads are very different to interviews with individuals and there needs to be more detail about how this data was analysed.

Thank you for this comment, this is very interesting indeed. We have added the number of interviews with diads in the table 1. Interviews with diads and interviews with one parent were not analyzed in a different way, but we did not find major differences in the data of these interviews.

Reviewer: 2

Comments to the Author
The manuscript of bmjopen-2020- 042609 entitled" Parental assessment of disease severity in febrile children under 5 years of age: a qualitative study", the authors surveyed 37 patients, the topic is interesting, however some concerns existed and needed to be considered to improve for this manuscript.

Major points
1. Why authors choose febrile children as research subjects are not very clear? Early judgement should be critical or related to the treatment or prognosis for the target disease, however it seems that febrile illness is not.

Thank you for your comments. Serious bacterial infections (target diseases) in children start in an a-specific way, fever being the most important initial symptom. In addition to fever, alarming symptoms can point towards serious infections.

Therefore we stated in the introduction that we investigate febrile illnesses, because early treatment in case of serious infection is essential: "It is essential to distinguish serious infections from minor infections to reduce morbidity and mortality. Recognition of disease severity by parents and subsequent healthcare seeking behaviour of parents is the first step in this process."
This is why we investigate 'the first step' in healthcare seeking behaviour, parental recognition of disease severity in febrile children. Because febrile illness is one of the most common presenting symptoms at the ED in paediatrics, we have chosen to focus on febrile disease instead of a specific target disease. For this reason, it is common in paediatrics to investigate febrile illness, or to select a patient sample based on fever (Examples: (1-5)).

2.The judgement by two professional pediatric clinicians are essential for this study;

All investigators are also medical doctors that work at the pediatric departments of different hospitals. DK and NK coded the transcripts independently. During the further process of data interpretation, a third researcher (GD) joined for the (final) analysis.

3. The sample size 37 is limited in this qualitative study, sample size calculation is helpful.

In most qualitative studies, sample size is based on data saturation. The sample size in a qualitative study should be sufficiently large and varied to demonstrate the aims of the study(6). Therefore, the sample size could not be calculated beforehand in our study.

4. This study did not examine the correlation between parent-reported symptoms and disease severity as judged by health professionals.

Indeed, we did not investigate this correlation. In this study our aim was to find which signs and symptoms could be recognized by parents. The correlation between parent-reported symptoms and disease severity is very interesting and should be investigated in future research with a different study design, a quantitative study with larger sample size. We added this comment to the conclusion.
5. Lines 16-24 page 7, more objective results should be described in the results section.

We have corrected this in the abstract.

6. Lines 26-28 page 7, the sentence "Parents used the normal behavior and physical features of their child as a reference frame for judging disease severity" should be placed in the method section. The following description in the conclusion section Abstract should be more summary.

In our perception, this quote is a finding of our qualitative research and therefore should not be placed in the method section. This is an important finding of our study and for this reason the sentence was placed in the results and the conclusion section.

Minor points
1. The format of tables does not conform to the BMJ Open journal, please revise.

This has been adjusted.

2. Line 41 page 10, DK should be full name in the first time.
We are not used to write down full names in the methods sections of qualitative research. We have adjusted the sentence in order to make it more clear that the abbreviations in the method section are initials of the researchers.

We changed the sentence
"Interviews were audio recorded and transcribed verbatim by DK, […]." to
"Interviews were audio recorded and transcribed verbatim by the first author (DK), […]."

Formatting amendments
Please add a section to the Abstract titled 'Participants' and give a brief description of the cohort.

We added this section to the abstract.

References

1. Nijman RG, Vergouwe Y, Thompson M, van Veen M, van Meurs AH, van der Lei J, et al. Clinical prediction model to aid emergency doctors managing febrile children at risk of serious bacterial infections: diagnostic study. BMJ. 2013;346:f1706.
2. Sahm LJ, Kelly M, McCarthy S, O'Sullivan R, Shiely F, Rømsing J. Knowledge, attitudes and beliefs of parents regarding fever in children: a Danish interview study. Acta Paediatr. 2016;105(1):69-73.
3. Oostenbrink R, Thompson M, Steyerberg EW, members E. Barriers to translating diagnostic research in febrile children to clinical practice: a systematic review. Arch Dis Child. 2012;97(7):667-72.
4. van de Maat JS, van Klink D, den Hartogh-Griffioen A, Schmidt-Cnossen E, Rippen H, Hoek A, et al. Development and evaluation of a hospital discharge information package to empower parents in caring for a child with a fever. BMJ Open. 2018;8(8):e021697.
5. Nijman RG, Jorgensen R, Levin M, Herberg J, Maconochie IK. Management of Children With Fever at Risk for Pediatric Sepsis: A Prospective Study in Pediatric Emergency Care. Frontiers in Pediatrics. 2020;8(607).
6. Fusch PI, Ness LR. Are We There Yet? Data Saturation in Qualitative Research. The Qualitative Report. 2015;20(9):1408-16.