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.

This paper was submitted to a another journal from BMJ but declined for publication following peer review. The authors addressed the reviewers' comments and submitted the revised paper to BMJ Open. The paper was subsequently accepted for publication at BMJ Open.

(This paper received three reviews from its previous journal but only two reviewers agreed to published their review.)

ARTICLE DETAILS

TITLE (PROVISIONAL)	Multimorbidity, eHealth and implications for equity: A cross-sectional survey of patient perspectives on eHealth
AUTHORS	Mangin, Dee; Parascandalo, Jenna; Khudoyarova, Olga; Agarwal, Gina; Bismah, Verdah; Orr, Sherrie

VERSION 1 – REVIEW

REVIEWER	Stewart Mercer University of Glasgow, Scotland
REVIEW RETURNED	28-Jun-2018

GENERAL COMMENTS	This is a very important paper which deserves to be published. The key finding, that patients with multimorbidity are the ones most disinterested in eHealth, is novel and important. The study was well conducted with an excellent response rate, and a good sample size. I only have a few suggestions and queries. In the abstract the conclusions talk about the inverse care law and health inequalities. Since this is not mentioned earlier in the abstract, and the authors do not seemed to have actually measured SES, I think this should be removed. It appears from the results that SES at patient level was not measured. This is a significant omission, given that multimorbidity and internet use are both socially patterned. Can the authors explain why this information was not collected in the questionnaire (for example educational attainment, or area-based deprivation scores from postcodes). It should be mentioned as a limitation in the discussion. I am also unclear as to why the authors used >5 medications as their definition of multimorbidity, when they also collected self-reported long-term conditions. Why was it thought better to use prescription count (a proxy for multimorbidity) rather than the actual count of conditions? Also were the prescriptions self-reported or generated from the practice records. This all needs to be explained more clearly. I consider these minor changes.

REVIEWER	Michaela Louise Schiøtz Cross-sectoral Research Unit, Capital Region, Denmark
REVIEW RETURNED	10-Jul-2018

GENERAL COMMENTS	Thank you for the opportunity to review the manuscript ”Multimorbidity, eHealth and implications for equity: A cross-sectional survey of patient perspectives on eHealth”. The aim of the study is to examine access and attitudes towards eHealth among patients attending family medicine clinics with a focus on those with multimorbidity. This is done using a cross sectional survey of consecutive patients attending consultations with family physicians. Overall comments: The scope of the study is relevant and interesting. However, patient perspectives of the theme eHealth is accessed in very general terms. As eHealth is a very broad term a more nuanced picture of the patients’ perspectives than a dichotomized answer and short qualitative responses would have been interesting. Further, the manuscript lacks references to studies conducted in the same area both in the introduction section and in the discussion section. Specific comments: Introduction: An extended discussion about what new knowledge this study adds to the field should be included using references to similar studies conducted focusing on multimorbidity and eHealth e.g. Zulman et al. 2014; Steele Gray et al. 2014; Runz-Jørgensen et al. 2017. Results: References is lacking for the statement “This is consistent with the known association between increasing multimorbidity with age… etc.” The section at page 13 starting with “There was no difference between male and female respondents in reporting of computer use… etc.” seems irrelevant as the focus of the manuscript is multimorbidity and eHealth. The results from the qualitative analysis is presented in dots in the text. Presenting the qualitative results in a table would make it easier to overview. Discussion: In general, the results should be compared with and discussed against results from other similar studies. The design of the study using questionnaire should be added as a limitation of the study as this design does not allow for a more thoroughly insight into patient perspectives of eHealth.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Reviewer Name: Stewart Mercer
Institution and Country: University of Glasgow, Scotland
Competing Interests: None declared

- This is a very important paper which deserves to be published. The key finding, that patients with multimorbidity are the ones most disinterested in eHealth, is novel and important.
The study was well conducted with an excellent response rate, and a good sample size.

We were pleased to receive these positive comments and have addressed the suggestions below to strengthen the manuscript.

I only have a few suggestions and queries.
- In the abstract the conclusions talk about the inverse care law and health inequalities. Since this is not mentioned earlier in the abstract, and the authors do not seemed to have actually measured SES, I think this should be removed.
It appears from the results that SES at patient level was not measured. This is a significant omission, given that multimorbidity and internet use are both socially patterned. Can the authors explain why this information was not collected in the questionnaire (for example educational attainment, or area-based deprivation scores from postcodes). It should be mentioned as a limitation in the discussion.

We agree with this comment. At the time of the survey, we collected postcodes from patients, however at the time of the survey the Harper government had some years previously suspended the data collection via long form census in Canada, and our discussions with Stats Canada indicated there was no other measure of deprivation to use. We had felt at that point that access to and ownership of devices was a manifestation to some extent of manifest SES as it related to eHealth, and likely better than census data from nearly 10 years prior. We agree entirely a SES measure would be interesting: the census was re-instituted by the Trudeau government in 2016 and mapping is now available so we have now mapped this to the postcode data we collected and added in to the results - it did not change our main findings.

- I am also unclear as to why the authors used >5 medications as their definition of multimorbidity, when they also collected self-reported long-term conditions. Why was it thought better to use prescription count (a proxy for multimorbidity) rather than the actual count of conditions?

We did not collect data on self-reported long term conditions, though we did consider this.
We used prescription count for 2 reasons:
Firstly because it is a proxy for complexity of care and we were interested in using the data in informing initiatives and questions around polypharmacy and burden of care and eHealth. There are various definitions of multimorbidity that include, or not, risk factors, diseases and geriatric syndromes. Some current work by the authors (in a paper in final draft) has linked these definitions to functional outcomes and it is clear that the way multimorbidity is defined is inconsistently related to functional outcomes.
The second reason is pragmatic – our experience in comparing chart audit to patient self report of conditions in multimorbidity showed that patient report was very inaccurate compared to manual chart audit, whereas medication reporting is more accurate. This study was unfunded and we simply did not have the resources to employ someone to chart audit nearly 700 charts.
Considering these 2 factors, and our need to keep the survey as short as possible to maximise response rate we chose medication number as an indicator. We have added some text to explain this a little more in the paper.

- Also were the prescriptions self-reported or generated from the practice records.

We have clarified that prescription medicines were self reported

This all needs to be explained more clearly.
I consider these minor changes.

Reviewer: 2
Reviewer Name: Michaela Louise Schiøtz
Institution and Country: Cross-sectoral Research Unit, Capital Region, Denmark
Competing Interests: None declared

Thank you for the opportunity to review the manuscript ”Multimorbidity, eHealth and implications for equity: A cross-sectional survey of patient perspectives on eHealth”. The aim of the study is to examine access and attitudes towards eHealth among patients attending family medicine clinics with a focus on those with multimorbidity. This is done using a cross sectional survey of consecutive patients attending consultations with family physicians.

Overall comments:
- The scope of the study is relevant and interesting. However, patient perspectives of the theme eHealth is accessed in very general terms. As eHealth is a very broad term a more nuanced picture of the patients’ perspectives than a dichotomized answer and short qualitative responses would have been interesting.

We agree however we aimed with this study to gather quantitative data on extent of issues, which necessitated a high response rate. In this clinical setting where appointments are every 15 minutes this necessitated pragmatic tradeoffs on survey length and accessibility to maximise response rate (a usual patient response rate for surveys in the primary care setting is around 25%)

- Further, the manuscript lacks references to studies conducted in the same area both in the introduction section and in the discussion section.

We have added these – thank you for the helpful links.

Specific comments:
Introduction:
- An extended discussion about what new knowledge this study adds to the field should be included using references to similar studies conducted focusing on multimorbidity and eHealth e.g. Zulman et al. 2014; Steele Gray et al. 2014; Runz-Jørgensen et al. 2017.

We have added text to the introduction ad included the suggested references, thank you. (We could not find a relevant Zulman reference from 2014 but found one from 2015 among existing users of eHealth technology who had multimorbidity)

Results:
- References is lacking for the statement “This is consistent with the known association between increasing multimorbidity with age… etc.”

We have added a reference for this statement.

- The section at page 13 starting with “There was no difference between male and female respondents in reporting of computer use… etc.” seems irrelevant as the focus of the manuscript is multimorbidity and eHealth.

We have deleted these comments

- The results from the qualitative analysis is presented in dots in the text. Presenting the qualitative results in a table would make it easier to overview.

We have converted this to a table presentation as suggested.

Discussion:
- In general, the results should be compared with and discussed against results from other similar studies.

We have added this to the discussion

- The design of the study using questionnaire should be added as a limitation of the study as this design does not allow for a more thoroughly insight into patient perspectives of eHealth.

We have added this to the limitations section

VERSION 2 – REVIEW

REVIEWER	Stewart Mercer University of Glasgow, Scotland
REVIEW RETURNED	14-Sep-2018

GENERAL COMMENTS	Thank you for making the suggested changes, I am now happy for this paper to be published.

REVIEWER	Michaela Louise Schiøtz Cross Sectoral Research Unit Centre for Clinical Research and Prevention The Danish Capital Region Denmark
REVIEW RETURNED	08-Oct-2018

GENERAL COMMENTS	Thank you for the opportunity to re-review this manuscript. I have now reviewed the revised version of the manuscript and find that the requested revisions have been made in a satisfactory way. I have no further comments.