Reviewer’s report

Title: Factors associated with low patient satisfaction in out-of-hours primary care in Denmark - a population-based cross-sectional study

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Reviewer: Sivera Berben

Reviewer’s report:

General: I would like to complement the authors on the work they have put into this study. Their article addresses a relevant research question: namely which factors are associated to high and low patient satisfaction in out-of-hours primary care in Denmark? However, I have some major concerns regarding the used research methodology, the unclear definition/operationalization of the factors under study, the hypothesis on potential confounding factors is not explicated, the underpinning of the statistical methods used (why convert five-scale answers to dichotomous data?) and which factors are put into the modeling for the adjusted Odds Ratio's and why? Furthermore, as the authors describe that patient name, gender, age and postal codes are present in the database, I have major concerns about the respect for privacy of patients, the traceability of the data (and patients), and how patient data in different data systems are matched (without a trusted third party???), as the authors do not describe how they addressed any of these issues.

Introduction

In the introduction the authors describe patient related factors as: socio-economic status, age and self-perceived health. In the methods the reader finds out that other relevant factors are: the patients' area of residence, gender, severity of the health problem (according to the GP), and existence of a chronic disease. Are these also relevant factors? Where do the authors explicit what are patient factors, what are GP-related factors (age and gender?) and what are organizational related factors (waiting time = only one factor)?

Methods

Design & setting:

The authors describe how the data collection of the OOH-PC works, that does not cover a description of the setting. Here one would like to know more about the rural and urban area and why patients outside of central Denmark were not included in the study?

Data management:

Why were patients categorized into five age groups? Based on which literature? This is not explained and the used classification is not a general accepted one.
As described earlier: the reader would like to know what do the authors define as patient related factors, what are GP-related factors, and what are organizational related factors? How where they operationalized? Then I would like to know how data were collected (and not the other way around). It is very confusing that the authors in the different tables use slightly different terms: general perceived health - self perceived health. Furthermore: GP-assessed severity of contact is presented as a patient characteristic (table 2) and as an organizational or GP-related factor (table 4)

It is confusing that the authors dichotomize data, and in the results section they do not consistently describe missing data in the tables 1 and 2, and they use different terms for ' missing data' and 'don't know'. Regarding the organizational factor 'experienced waiting time' by patient: why was the answer 'neutral' recoded as a missing value? This seems not adequate, as a neutral answer is something different as a missing value. If the authors wanted to end up with dichotomous variables in order to calculate (crude and adjusted) Odds Ratios, than again this is the other way around. The method of analyses follows the research question, operationalizing of factors, the data and furthermore the underlying modeling. The same question can be raised for the factor ' satisfaction with the contact'. A neutral answer is something different as 'I don't know'. It is even more confusing that in table 1 the options neutral and don't know for these variables are presented. This seems sloppy....

Concerning the data management I have questions about the matching of data of two different databases DREAM with OOH-PC. It is not allowed to use data that were not originally gathered for this research purpose, unless criteria of privacy, traceability of data and use of a trusted third party (in case of a set of unique patient identifiers (name, age, gender, postal code)) are described. Although the authors describe a waiver of ethical approval, they do not describe any of these issues. Furthermore, it seems strange from an international perspective that people who receive social assistance or are on sick leave are classified as 'not self supporting'. People on sick leave are usually temporarily not at work, however paid by their employer.

Statistical analysis:

The authors describe that the multivariate modeling and underlying hypothesis are based on the literature, however they do not describe the hypothesis and modeling in the article. As such, the reader has to guess what the authors have put into the modeling and why? Possible confounding factors remain unclear, and in the analyses table 3. And 4. It is not clear why the authors for the adjusted OR for 'Residence', 'general perceived health', and 'employment status' have included 6 factors and for the variable: ' self reported chronic disease' they included five factors. Why is the other patient related factors 'GP associated severity of the contact' not analyzed? Or is that a organizational factor? (table 4?).

Results

The authors describe that 24,9% of the patients was excluded from the survey, which is a large selective non-response bias. This is a limitation of the study, and should be more discussed. Based on table 1 the group of respondents and non -respondents were statistically significant on
all measured variables: gender, age, and residence for all types of contacts. This limitation is discussed.

Presentation of results is unclear (see previous mentioned points of feedback in methods session), specifically in the tables.

Table 2:

The variables: 'overall satisfaction' and 'patient perceived waiting times' are defined as patient characteristics, but these seem to me outcomes at patient level? Is that the same as patient characteristics? Again a clear definition of variables and factors is missing. The variable 'GP-assessed severity of contact' is that a patient characteristic? Numbers and proportions of variables can vary because of missing data. It is not clear for the reader what the number of missing values is for each presented variable. E.g. self perceived health in case of telephone consults (total n=1789) is not reported by n=803 patients, that influences the interpretation of results.

Table 3:

The authors stratified the analysis according to the contact type. However it is not clear why and how the authors choose to include a number of factors into the adjustment of the odds ratio and other factors not. Without a rationale for the modeling of confounding factors this process remains very unclear: For instance why is employment status excluded in the adjustment of OR in 'general perceived health' and 'self reported chronic disease', and why was it included in the adjustment of OR in 'residence'? It is necessary that the authors describe their assumptions and the way of modeling, before presenting the results. Currently it is not transparent and not repeatable.

The same feedback applies to table 4.

Why do the authors include: ref 1: 5, ref 2: 7 and ref 3: 6 different factors in the analysis? Why those factors? And why were other factors not included? How can these analyses be adequately adjusted (for instance n=1745 contact in telephone consults) when the amount of patients that reported on the adjustment variables (n= 979) is much lower? This means that many missing values were included in the adjusted modeling? This seems not to result in a reliable outcome.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

No

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
No

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