PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	How socioeconomic inequalities impact pathways of care for coronary artery disease among elderly patients. Study protocol for a qualitative longitudinal study
AUTHORS	Schröder, Sara Lena; Fink, Astrid; Schumann, Nadine; Moor, Irene; Plehn, Alexander; Richter, Matthias

VERSION 1 - REVIEW

REVIEWER	Julian Perelman Escola Nacional de Saúde Pública, Universidade Nova de Lisboa
REVIEW RETURNED	22-Apr-2015

GENERAL COMMENTS	This paper presents the protocol of a study examining why socioeconomic (SE) characteristics may influence the pathway of care for coronary artery disease (CAD). The paper is well written, the topic is of major relevance, and the study is very promising because it tackles an issue for which many questions remain. Many papers have been written on SE inequalities in CAD care, but almost none addresses the causes of such inequalities. This study is expected to fulfill this gap. On the negative side, if the findings of the study will certainly be original and relevant, the protocol of the study is not. In the absence of findings, we would expect the protocol to present some methodological innovation, but this is not the case. The interest of the paper is thus limited, notwithstanding the future relevance of results. Other major comments: 1. There is a vast literature that examines the gender and race inequalities in CAD treatment, which explores causality mechanisms. I recommend to look at this literature, and in particular the following papers, which also use qualitative approaches: Arber, S., McKinlay, J., Adams, A., Marceau, L., Link, C., & O'Donnell A. (2006). Patient characteristics and inequalities in doctors' diagnostic and management strategies relating to CHD: a video-simulation experiment. Social Science and Medicine, Jan;62(1), 103-15. Schulman, KA, Berlin, JA, Harless, W, Kerner, JF, Sistrunk, S, Gersh, BJ, Dube, R, Taleghani, CK, Burke, JE, Williams, S, Eisenberg, JM, Escarce, JJ. (1999). The effect of race and sex on physicians' recommendations for cardiac catheterization. New England Journal of Medicine, Feb 25;340(8), 618-26. 2. To enhance the relevance of the topic, I would mention that the German health system ensures universal coverage and low payments (am I wrong?), so that inequalities are a paradox that deserves a deep investigation.

	3. The papers on gender inequality in CAD essentially point that GP referral is a major issue to explain discrepancies in treatment. When the patient reaches the hospital, inequalities are minor; the inequalities appear well before, in the adequate diagnosis and referral for specialized care. I would strongly recommend to include more specific questions about care during the period from first symptoms to hospitalization. 4. The “low SES” category should be defined. 5. The sample size (60) should be justified. 6. Important biases may be present because no data are collected on the disease’s characteristics. I suggest collecting data on comorbidities and type of disease, using closed questions. 7. It would be interesting to compare the inequalities detected in interviews with those measured in traditional quantitative studies. To do that, I would recommend collecting additional data using closed questions about the treatment received and its timing (e.g. catheterization, cardiac stress test, angioplasty, etc.). 8. In case these last two issues cannot be addressed, they should be discussed in a Limitations section.

REVIEWER	Olaf von dem Knesebeck Department of Medical Sociology University Medical Center Hamburg-Eppendorf Germany
REVIEW RETURNED	10-Aug-2015

GENERAL COMMENTS	This is a very interesting and highly relevant paper. I have a couple of remarks that should be considered before publication. - The authors should explain the difference between access and utilisation. Although they seem to make a difference (e.g. line 28, page 3) they sometimes seem to use access and utilisation interchangeably (e.g. line 48ff., page 3). A clear differentiation might also be helpful in identifying factors explaining inequalities in care as access can be seen as a characteristic of the supply side while utilisation is more a patient attribute. - The authors state: "Care will be taken to ensure a gender balance, and due account of multi-morbidity and different levels of severity of disease." How was this done? - As baseline data collection is completed could you give information on the realised sample? - What questions were used to assess access, utilisation and quality? - Is there evidence that income is not a reliable indicators of SES among older people? - Please refer to the present theoretical models you are mentioning in your paper (e.g. line 57, page 8). I see a contradiction to the Introduction whrere you state that there is no scientific theory (line 41, page 4). - Please check the tense. It seems odd to read that the interviews will be conducted when one knows that this is already done.

VERSION 1 – AUTHOR RESPONSE

Reviewer 1:
General comment
This paper presents the protocol of a study examining why socioeconomic (SE) characteristics may

influence the pathway of care for coronary artery disease (CAD). The paper is well written, the topic is of major relevance, and the study is very promising because it tackles an issue for which many questions remain. Many papers have been written on SE inequalities in CAD care, but almost none addresses the causes of such inequalities. This study is expected to fulfill this gap. On the negative side, if the findings of the study will certainly be original and relevant, the protocol of the study is not. In the absence of findings, we would expect the protocol to present some methodological innovation, but this is not the case. The interest of the paper is thus limited, notwithstanding the future relevance of results.

Reply: Thank you very much for your interest in the topic and for your comprehensive review of the manuscript. We increased the methodological and substantive innovation by adding the following aspects to the revised manuscript:
- we underlined the importance of the study for complementing the national and international state of research more specific,
- further, we included detailed information on the interview guide, that contains retro und prospective aspects of the treatment and care of coronary artery disease,
- at least we figured out more detailed the importance of the longitudinal design of the study as longitudinal qualitative studies have rarely been carried out currently.

There is a vast literature that examines the gender and race inequalities in CAD treatment, which explores causality mechanisms. I recommend to look at this literature, and in particular the following papers, which also use qualitative approaches:
Arber, S., McKinlay, J., Adams, A., Marceau, L., Link, C., & O'Donnell A. (2006). Patient characteristics and inequalities in doctors' diagnostic and management strategies relating to CHD: a video-simulation experiment. Social Science and Medicine, Jan;62(1), 103-15.
Schulman, KA (1999). The effect of race and sex on physicians' recommendations for cardiac catheterization. New England Journal of Medicine, Feb 25;340(8), 618-26.

Reply: Thank you very much for the advice. We agree that race and gender are important topics. However, due to the fact that the study is conducted as a single-center study in East Germany, we cannot analyse race differences as the number of migrants in Saxony-Anhalt is below 2%. Gender is an important aspect in our study and was taken into account in the sampling: 40% of the recruited patients are women. Since the study protocol provides no discussion chapter, it is difficult for us to integrate the thematically interesting approach of the two papers. We will analyse and discuss gender inequalities in forthcoming publications of this study.

To enhance the relevance of the topic, I would mention that the German health system ensures universal coverage and low payments (am I wrong?), so that inequalities are a paradox that deserves a deep investigation.

Reply: Information on the German health care system has been added on page 5 of the revised manuscript: “So far, there is only limited research on socioeconomic differences in CAD-treatment in Germany. The available evidence showed socioeconomic inequalities in access and utilization, but no clear influence of SES has been identified in the conducted studies. Due to the fact that the German health care system provides comprehensive coverage for most medical and hospital services, it is not based on user fees at point of health care services. Patients have to pay very low out of pocket payments, limited to 1-2% of their annual gross income. This circumstance should provide equitable access based on medical needs rather than SES. This contradiction is addressed in this study through finding factors that cause socioeconomic differences of CAD care in Germany.”

The papers on gender inequality in CAD essentially point that GP referral is a major issue to explain discrepancies in treatment. When the patient reaches the hospital, inequalities are minor; the inequalities appear well before, in the adequate diagnosis and referral for specialized care. I would strongly recommend to include more specific questions about care during the period from first symptoms to hospitalization.

Reply: The first question in the interviews aims to get information concerning the complete pathway starting from the first symptoms of the heart disease. Thereby past experiences with care of coronary artery disease among the patients have been taken into account and are reported by the patients in a narrative way. We attached the interview guide to the revised manuscript as online supplementary data.

The “low SES” category should be defined.

Reply: The SES category is now defined on page 8 of the revised manuscript: “Values from 6 to 8 points are considered high SES, this includes all patients with a degree from university or technical school. Patients with less than 6 points are classified as having a low SES; this includes mainly patients with 10 or less years at school and a company-based apprenticeship.”

The sample size (60) should be justified.

Reply: Since recruitment has been completed meanwhile, the sample size was updated through the manuscript. The sample size was justified by adding and revising the following sentences on page 6 of the revised manuscript: “In order to cover the greatest possible variety and diversity of experiences in relation to access, utilization and quality of care, patients have been sampled purposively using a maximum variation sampling strategy until theoretical saturation was reached. Patients with the most frequent clinical manifestations – stable angina pectoris, acute coronary syndrome and cardiac arrhythmia – have been selected and grouped. In accordance to the maximum variation sampling strategy we aimed to recrute one third of patients with each clinical manifestation and around half of the patients from a high SES group. Additionally we aimed to recrute around 50% women and took multi-morbidity and different levels of severity of CAD into account. 19 (40%) women and 29 men have been interviewed at T1. 34 (71%) patients were multi-morbid and, 27 (56%) patients had a long history of CAD and long-time experiences with care, and 18 (37.5%) patients had a higher severity of CAD with three vessel disease or stenosis of the left mainstem, stents, or a bypass. The distribution of the patients to diagnosis and SES can be seen in table 1. “

Important biases may be present because no data are collected on the disease’s characteristics. I suggest collecting data on comorbidities and type of disease, using closed questions.

Reply: Information on the sampling strategy have now been added to the revised manuscript on page 6: “patients have been sampled purposively using a maximum variation sampling strategy until theoretical saturation was reached.” Gender, “existence of comorbidities”, “severity level of CAD”, and “duration of treatment” have been used to maximize variation in the sample and to ensure the diversity of patient experiences.

It would be interesting to compare the inequalities detected in interviews with those measured in traditional quantitative studies. To do that, I would recommend collecting additional data using closed

questions about the treatment received and its timing (e.g. catheterization, cardiac stress test, angioplasty, etc.). In case these last two issues cannot be addressed, they should be discussed in a Limitations section.

Reply: Due to the limited funding of the project it is not possible to conduct a broad mix method strategy. We considered that collecting additional data about the received treatment, using closed questions is not helpful due to the small sample size that would not allow any sufficient statistical analysis. Due to the fact that there is no Limitations section in this study protocol, we will discuss this issue in forthcoming publications of this study.

Reviewer 2:
General comment
This is a very interesting and highly relevant paper. I have a couple of remarks that should be considered before publication.

Reply: Thank you very much for your interest in the paper and the helpful review of the manuscript.

The authors should explain the difference between access and utilisation. Although they seem to make a difference (e.g. line 28, page 3) they sometimes seem to use access and utilisation interchangeably (e.g. line 48ff., page 3). A clear differentiation might also be helpful in identifying factors explaining inequalities in care as access can be seen as a characteristic of the supply side while utilisation is more a patient attribute.

Reply: Access and utilisation are now defined clearly in the manuscript by adding the following sentence to the revised manuscript on page 4: “In the majority of international studies, access and utilization have not been clearly differentiated. Access to health care is predominantly a characteristic of care providers and the health system, and is influenced by geographic, financial and cultural barriers. Access is limited if offered and required health services cannot be used without these barriers. Utilization of health care is predominantly a characteristic of patients and influenced by their preferences and possibilities.”

The authors state: "Care will be taken to ensure a gender balance, and due account of multi-morbidity and different levels of severity of disease." How was this done?

Reply: Information on the sampling strategy (maximum variation sampling strategy) have been added to the manuscript. Gender, “existence of comorbidities”, “severity level of CAD”, and “duration of treatment” have been used to maximize variation in the sample and to ensure the diversity of patient experiences.

As baseline data collection is completed could you give information on the realised sample?

Reply: Since recruitment has been completed meanwhile, we added information on the sample size to the revised manuscript on page 6: “19 (40%) women and 29 men have been interviewed at T1. 34 (71%) patients were multi-morbid and, 27 (56%) patients had a long history of CAD and long-time experiences with care, and 18 (37.5%) patients had a higher severity of CAD with three vessel disease, stenosis of the left mainstem, stents, or a bypass. The distribution of the patients to diagnosis and SES can be seen in table 1.“

What questions were used to assess access, utilisation and quality?

Reply: Access, utilization and quality was assessed through the narrative description of the patient´s pathway of care and treatment in the interviews. The interview guides have now been attached to the manuscript to be published as online supplementary data.

Is there evidence that income is not a reliable indicators of SES among older people?

Reply: We have changed the relevant passage in the revised manuscript and now elaborate in more detail why income in older age groups is critically discussed as a SES measure: “Data on income have not been collected to determine SES. For older people and pensioner income is a problematic indicator for SES for several reasons. First, retirement is often associated with a decline in income and therefore financial assets are discussed to be a better measure than income for SES of older people. Second, income presents a sensitive personal issue, and questions on this topic thus frequently remain unanswered. (Grundy E, Holt G. The socioeconomic status of older adults: how should we measure it in studies of health inequalities? Journal of epidemiology and community health 2001;55(12):895–904. Robert S, House JS. SES differentials in health by age and alternative indicators of SES. Journal of aging and health 1996;8(3):359–388.)”

Please refer to the present theoretical models you are mentioning in your paper (e.g. line 57, page 8). I see a contradiction to the Introduction whrere you state that there is no scientific theory (line 41, page 4).

Reply: We thank the reviewer for the advice. We corrected the relevant paragraph in the revised manuscript on page 4: “So far, no comprehensive scientific theory on the factors that might lead to socioeconomic inequalities in health care exists. Existing models for the genesis of health inequalities assume that education, income and occupational status do not have any direct influence on health inequalities; the relationship between social inequality and inequalities in health care is rather mediated by factors.”

Please check the tense. It seems odd to read that the interviews will be conducted when one knows that this is already done.

Reply: The tense has been adjusted to the submission-date of the revised manuscript.

VERSION 2 – REVIEW

REVIEWER	Olaf von dem Knesebeck Department of Medical Sociology, University Medical Center Hamburg-Eppendorf, Germany
REVIEW RETURNED	21-Sep-2015

GENERAL COMMENTS	I have only one minor comment: The following sentence you have added is unclear to me: "Existing models for the genesis of health inequalities assume that education, income and occupational status do not have any direct influence on health inequalities; the relationship between social inequality and inequalities in health care is rather mediated by factors.[33–35]"