

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Continuity of care and delivery of diabetes and hypertensive care among regular users of primary care services in Chile, a cross-sectional study
AUTHORS	Leniz, Javiera; Gulliford, Martin

VERSION 1 – REVIEW

REVIEWER	Hung-Yi Chiou Taipei Medical University
REVIEW RETURNED	05-Dec-2018

GENERAL COMMENTS	<p>Javiera Leniz investigated the continuity of care was not associated either with better control of the disease in diabetic and hypertensive patients among individuals with public health insurance in Chile. Continuity of care is a critical issue for primary care. But in this study, there are a lack of important data and inaccurate on the analysis.</p> <ol style="list-style-type: none">1. The Chilean Health National Survey does not contain the personal information of patients, namely body weight, height, family history, socioeconomic status, genetic factors, laboratory examination results, smoking and alcohol consumption, which means the patients that enrolled in this study could not exclude the variation in these factors.2. This study objective is to explore factors related to continuity of care and its association with delivery of diabetes and hypertensive care. The conclusion shows “ Continuity of care was not associated with better chronic diseases control. Findings suggest patients with chronic conditions have better continuity of care access”. It’s means the study purpose want to examine the continuity of care whether effect the delivery of diabetes and hypertensive care. Then the outcome should be the “delivery of diabetes and hypertensive care” not “continuity of care levels”.3. The study lacks the information about measure of continuity of care levels such as the distribution of visits to different physicians and number of visits to each physician.4. One may argue that the level of physicians might be a potential confounder.5. It is obvious that the process of monitoring the progress of cardiovascular disease in hypertension and diabetes after a period of active treatment is very important6. Patients received different with agents that may effect on the development of cardiovascular disease.7. Based on the health resource, health follow up and pharmacotherapy managements the finding could be different for treatment of chronic disease worldwide.
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REVIEWER	Sir Denis Pereira Gray Exeter UK
REVIEW RETURNED	06-Dec-2018

GENERAL COMMENTS	<p>Thank you for inviting me to assess this article. I am pleased to do so.</p> <p>I have no conflicts of interest either financial or professional.</p> <p>The methodology is standard and satisfactory.</p> <p>STRENGTHS</p> <p>This article has several strengths:</p> <p>It is the first report of continuity of care in Chile which as far I know has appeared in the English language. Continuity of care is an important topic and is currently attracting considerable attention. Diabetes is a good disease to study as it is growing in prevalence and is seen by some as constituting an 'epidemic'. The authors examine both process measures and outcomes.</p> <p>WEAKNESSES</p> <p>Terminology</p> <p>There is inconsistency of terminology with the title using the words "public health" while later in the text they make it clear they are examining the work of general practitioners. It would be more logical to alter the title to include the words general practice/primary care.</p> <p>Statement about continuity</p> <p>The authors state that the evidence of the benefits of continuity of care is "controversial. This is not a fair academic statement in 2018, as it implies that there is strong evidence both for and against the benefits.</p> <p>The position is that there is one important article on the benefit of discontinuity and a fair number of studies on continuity and benefit which found no difference.</p> <p>There are however, literally hundreds of articles showing positive benefits on aspects of medical care as varied as: patient satisfaction, adherence to medical advice, uptake of personal preventive procedures, reduced use of accident and emergency departments, and reduced use of hospital admissions, particularly for ambulatory care sensitive conditions.</p> <p>The authors are correct to note that these are all observational studies and do not specifically enable a conclusion of causation to be drawn. However, they are themselves submitting an observational study to you, so they presumably think it is appropriate evidence worthy of publication.</p> <p>However, there have been a small number of RCTs on the impact of continuity of care, notably by Wasson et al (1984), and Tracey et al. (2013) which are all positive for the benefit of continuity. Sandall</p>
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et al. (2016) is a Cochrane Review in favour of continuity in midwifery. These are not observational and, as RCTs, provide a higher level of evidence in support of the value of continuity of care.

BMJ Open

The authors have chosen BMJ Open for this submission. so it seems reasonable to draw their attention to the systematic review you published in BMJ Open in June 2018 (where I declare an interest as a co-author, Pereira Gray et al., 2018; BMJ Open), which showed that continuity of doctor care was associated with reduced mortality, which they do not cite.

Whilst this is still a review of observational studies, mortality is such a powerful outcome that it implies that there are multiple factors acting within the term 'continuity of doctor care' which are of benefit to patients. Moreover these studies were from over nine different countries with different cultures, languages, and health systems, implying the existence of a human effect.

Essentially, the evidence for and against benefits for patients continuity is not in equipoise but favours continuity of care.

Findings

These authors deal only with outcomes and find no effect overall from continuity of care on people with diabetes. This is important. However, while outcomes are currently fashionable, in the previous decades, process measures were in fashion and still matter.

The authors find a strong association between having a personal, generalist doctor and patients having had eye tests and foot tests. They list these in their results but make no comment about them in their summary/conclusions.

However, some of the main complications from which people with diabetes suffer are those affecting the eyes and lower limbs. Diabetes is a major cause of blindness in all countries and the rate of amputations due to diabetes in the UK is attracting considerable concern. It is therefore illogical when they make two interesting and important findings about the process of care not to recognise them in their conclusions.

This is particularly relevant as there is an important report in the literature (O'Connor et al., 1998), which they do not cite. This shows that people with diabetes had significantly more comprehensive care if they identified with a regular doctor or nurse in an American Health Maintenance Organisation.

CONCLUSION

This is a potentially important article using a database not previously reported. However, these problems are so important that they debar publication in its present form.

I think this article could be made publishable if the authors make the major changes suggested here:

	<p>Resolving ambiguities in the title, giving a more balanced comment on continuity of care, and Giving proper recognition to their own findings that continuity of GP care in Chile was associated with important improved processes of care for people with diabetes.</p> <p>Professor Sir Denis Pereira Gray OBE HonDSc FRCP FRCGP FMedSci</p> <p>Emeritus Professor, University of Exeter, UK</p> <p>References for the Assessment</p> <p>O'Connor PJ Desai J Rish WA et al. (1998) Is having a regular provider of diabetes care related to intensity of control? J Fam Pract 1998; 47 :290-97</p> <p>Pereira Gray D Sidaway-Lee K White E Thorne A and Evans P H (2018) Continuity of care with doctors: a matter of life and death? A systematic review of continuity of care and mortality BMJ Open; 8 :e021161</p> <p>Sandal J et al. (2016) Midwife-led continuity models of care compared with other models of care for women during pregnancy, birth and early parenting Cochrane Review</p> <p>Tracy, S.K., Hartz, D.L., Tracy, M.B., Allen, J., Forti, A., Hall, B., White, J., Lainchbury, A., Stapleton, H., Beckmann, M. and Bisits, A., 2013. Caseload midwifery care versus standard maternity care for women of any risk: M@ NGO, a randomised controlled trial Lancet; 382 (9906) :1723-1732.</p> <p>Wasson JH Sauvigne AE Moglelnicki RP et al. (1984) Continuity of outpatient medical care in elderly men : A randomised trial JAMA; 1984 252 :2413-7</p>
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REVIEWER	Nida Khan Association for Social Development, Pakistan
REVIEW RETURNED	07-Mar-2019

GENERAL COMMENTS	<p>This seems to be a very interesting research as it provides an insight of the context-specific factors affecting continuity of care in Chile. Just a small query would be that; how was it assured that during the second home visit, that the patient was actually fasting and had not taken anything before the visitor made a home visit and assessed the patient. It is interesting to know because in a randomized controlled trial on Diabetes in Pakistan we found that despite the patients being asked to visit the health facility before eating anything, they did not mind taking a cup of tea (with sugar) or snack claiming that they haven't eaten anything (which meant a breakfast), which for us proved to be a challenge in getting accurate measurement results using fasting blood glucose testing. So I think keeping in view there might be similar challenges in other countries it might be helpful to include what measures were taken to ensure that the patient was fasting? Were they informed about the second</p>
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	visit before? Was the visit always made early in the day for all patients? etc
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VERSION 1 – AUTHOR RESPONSE

REVIEWER: 1

Reviewer Name: Hung-Yi Chiou

Javiera Leniz investigated the continuity of care was not associated either with better control of the disease in diabetic and hypertensive patients among individuals with public health insurance in Chile. Continuity of care is a critical issue for primary care.

Thank you for this supportive comment.

But in this study, there are a lack of important data and inaccurate on the analysis.

1. The Chilean Health National Survey does not contain the personal information of patients, namely body weight, height, family history, socioeconomic status, genetic factors, laboratory examination results, smoking and alcohol consumption, which means the patients that enrolled in this study could not exclude the variation in these factors.

Thank you for this comment. The Chilean Health National Survey includes some socioeconomic and clinical information such as body weight, smoking and socioeconomic status, which are described in table 1. The survey also performed a blood test in the second visit to the participant (as mentioned in the first paragraph of method section), and therefore has information on blood pressure and glycosylate hemoglobin that is also reported in table 1. Some of these factors were included in the multivariate model as confounders if they were significantly associated with continuity of care in the univariate analysis. However, we agree unmeasured confounders might have biased observed associations, as in any observational epidemiological study. Therefore, we added the sentence “As in any observational epidemiological study, unmeasured confounders might have biased the associations found in this study” (Page 14 lines 20-22) to the discussion section.

2. This study objective is to explore factors related to continuity of care and its association with delivery of diabetes and hypertensive care. The conclusion shows “ Continuity of care was not associated with better chronic diseases control. Findings suggest patients with chronic conditions have better continuity of care access”. It's means the study purpose want to examine the continuity of care whether effect the delivery of diabetes and hypertensive care. Then the outcome should be the “delivery of diabetes and hypertensive care” not “continuity of care levels”.

Thank you for this useful comment. You are correct, our aim was to explore the association of continuity of care with both, diabetes and hypertension care and control and our outcome is the delivery of diabetes and hypertensive care, as well as disease control. We agree this is not clear in the abstract and in the main text. We changed the ‘Primary and secondary outcome measures’ section in the abstract to ‘proportion of hypertensive and diabetic patients with a blood pressure < 140/90 mmHg and HbA1c < 7.0%respectively, self-report of diagnosis, treatment, and recent foot and ophthalmologic exams’ in the abstract (Page 2 lines 18-20). We added the subheading ‘primary and secondary outcomes variables’ (Page 6, line 27-42) and refined the description of the Health National Survey methods to better explain how these outcomes were measured (Page 5 lines 25-45).

3. The study lacks the information about measure of continuity of care levels such as the distribution of visits to different physicians and number of visits to each physician.

Thank you for this comment. We agree the measure of continuity of care used in this study has some limitations. It does not capture the length and strength of the relationship with the GP, as number of visits with the physician or other measures of continuity of care do (such as the continuity of care index). However, it considers the individual's perspective by recognising a GP as a main provider. It has also been widely used in the literature and therefore, useful for comparisons with other studies.¹⁻⁵ We discuss these limitations in the first paragraph of the subheading 'strengths and limitations' of the study in the discussion section (Page 14, lines 1-18). But we added some references of other studies that used the same metric for continuity of care in the discussion section (references 35 to 39).

4. One may argue that the level of physicians might be a potential confounder.

Thank you for this comment. We believe the reviewer refers to the level of experience and competence of physicians. We agree the measure of provider affiliation does not account for the quality of the doctor-patient encounter or the quality of care provided. An individual might have a good continuity of care with a physician that does not follow the standard recommendations for diabetes care, and therefore have no impact on disease control. Accounting for the quality of care provided by each physician might help to solve that problem. However, we did not have information on physician's characteristics to be able to adjust for that variable. We added the sentence 'We did not have either information on physicians' characteristics that might influence the quality of care received by patients' (Page 14, lines 35-38) commenting on this limitation of the study in the discussion.

5. It is obvious that the process of monitoring the progress of cardiovascular disease in hypertension and diabetes after a period of active treatment is very important

Thank you for this comment. We agree this is a limitation of the study. We added the sentence 'Patients with better continuity of care were more likely to have been receiving pharmacological treatment for their disease. The cross-sectional design of this study cannot rule out the possibility that patients with a diagnosis of diabetes and hypertension had a better continuity of care as a consequence of the process of monitoring the disease treatment, due to lack of temporality in the measurement of both variables' (Page 14, lines 22-29) in the discussion section to acknowledge this limitation. We also comment about that in the conclusions (Page 14, lines 53-56).

6. Patients received different with agents that may effect on the development of cardiovascular disease.

Thank you for this comment. We agree the treatment received by patients is an important determinant of the level of disease control. We did not have information about the type of treatment each patient was receiving and therefore, it was not possible to adjust for that relevant variable. We added the 'We did not have information about the type of treatment each patient was receiving or the appropriateness of that treatment and therefore, it was not possible to account for the fact that some individuals might have been receiving pharmacological schemes that might be more effective to achieve control of the disease' (Page 14, lines 29-35) explaining that limitation in the discussion section.

7. Based on the health resource, health follow up and pharmacotherapy managements the finding could be different for treatment of chronic disease worldwide.

Thank you for this comment. We agree the generalizability of these findings might be limited by differences in health care resources and systems and therefore we added the sentence 'differences in

health care resources and treatments in different settings might limit the generalizability of these findings' (Page 13, lines 53-54) commenting on this limitation at the end of the discussion.

REVIEWER: 2

Reviewer Name: Sir Denis Pereira Gray

Thank you for inviting me to assess this article. I am pleased to do so.

I have no conflicts of interest either financial or professional.

The methodology is standard and satisfactory.

STRENGTHS

This article has several strengths:

- It is the first report of continuity of care in Chile which as far I know has appeared in the English language.
- Continuity of care is an important topic and is currently attracting considerable attention.
- Diabetes is a good disease to study as it is growing in prevalence and is seen by some as constituting an 'epidemic'.
- The authors examine both process measures and outcomes.

Thank you for these supportive comments.

WEAKNESSES

Terminology

There is inconsistency of terminology with the title using the words "public health" while later in the text they make it clear they are examining the work of general practitioners. It would be more logical to alter the title to include the words general practice/primary care.

Thank you for this useful comment. We agree the term 'public healthcare' is confusing and might mean different things in different context. We change it for 'primary care services' in the title (Page 1, lines 2-4) and the abstract (Page 2, line 15 and 25), but also clarified the population included in the subheading 'Population and sample' in the methods section (Page 5, line 52-54) and in the result section (Page 7, line 40).

Statement about continuity

The authors state that the evidence of the benefits of continuity of care is "controversial. This is not a fair academic statement in 2018, as it implies that there is strong evidence both for and against the benefits.

The position is that there is one important article on the benefit of discontinuity and a fair number of studies on continuity and benefit which found no difference. There are however, literally hundreds of articles showing positive benefits on aspects of medical care as varied as: patient satisfaction, adherence to medical advice, uptake of personal preventive procedures, reduced use of accident and emergency departments, and reduced use of hospital admissions, particularly for ambulatory care sensitive conditions. The authors are correct to note that these are all observational studies and do not specifically enable a conclusion of causation to be drawn. However, they are themselves submitting an observational study to you, so they presumably think it is appropriate evidence worthy of publication.

However, there have been a small number of RCTs on the impact of continuity of care, notably by Wasson et al (1984), and Tracey et al. (2013) which are all positive for the benefit of continuity. Sandall et al. (2016) is a Cochrane Review in favour of continuity in midwifery.

These are not observational and, as RCTs, provide a higher level of evidence in support of the value of continuity of care.

BMJ Open

The authors have chosen BMJ Open for this submission. so it seems reasonable to draw their attention to the systematic review you published in BMJ Open in June 2018 (where I declare an interest as a co-author, Pereira Gray et al., 2018; BMJ Open), which showed that continuity of doctor care was associated with reduced mortality, which they do not cite.

Whilst this is still a review of observational studies, mortality is such a powerful outcome that it implies that there are multiple factors acting within the term 'continuity of doctor care' which are of benefit to patients. Moreover these studies were from over nine different countries with different cultures, languages, and health systems, implying the existence of a human effect.

Essentially, the evidence for and against benefits for patients continuity is not in equipoise but favours continuity of care.

Thank you for this important comment. We apologise for missing the relevant articles mentioned by the reviewer and for the confusing statement regarding the 'controversy' in the evidence of continuity of care. We agree with the reviewer that there is plenty of evidence of the benefit of continuity of care. We were trying to make the point that an important proportion of the evidence comes from the US and European countries and therefore, evidence from other settings such low-middle income countries might be valuable, and we agree the statement was not fair. We deleted the sentence 'the quality of the evidence' and the words 'controversial' and 'observational' to clarify our sentence (Page 4, lines 28-30). We also added the articles suggested by the reviewer to the references (References 18, 19 and 21).

Findings

These authors deal only with outcomes and find no effect overall from continuity of care on people with diabetes. This is important. However, while outcomes are currently fashionable, in the previous decades, process measures were in fashion and still matter. The authors find a strong association between having a personal, generalist doctor and patients having had eye tests and foot tests. They list these in their results but make no comment about them in their summary/conclusions. However, some of the main complications from which people with diabetes suffer are those affecting the eyes and lower limbs.

Diabetes is a major cause of blindness in all countries and the rate of amputations due to diabetes in the UK is attracting considerable concern. It is therefore illogical when they make two interesting and important findings about the process of care not to recognise them in their conclusions.

This is particularly relevant as there is an important report in the literature (O'Connor et al., 1998), which they do not cite. This shows that people with diabetes had significantly more comprehensive care if they identified with a regular doctor or nurse in an American Health Maintenance Organisation.

Thank you for this useful comment. We agree we did not emphasised enough that finding of the study. We changed the conclusion statement in the abstract to 'Continuity of care was associated with higher odds of having a recent foot and ophthalmologic exam in patients with diabetes, but not with better diseases control' (Page 2, lines 41-43) and in the conclusion section (Page 14, lines 43-45) to highlight that finding. We also added the O'Connor reference to the Kitpinyochai one and emphasised the finding in the discussion (Reference 28).

CONCLUSION

This is a potentially important article using a database not previously reported. However, these problems are so important that they debar publication in its present form. I think this article could be made publishable if the authors make the major changes suggested here:

- Resolving ambiguities in the title
- Giving a more balanced comment on continuity of care, and

- Giving proper recognition to their own findings that continuity of GP care in Chile was associated with important improved processes of care for people with diabetes.

Thank you for these comments. We hope we had addressed them sufficiently in the corresponding statements above.

REVIEWER: 3

Reviewer Name: Nida Khan

This seems to be a very interesting research as it provides an insight of the context-specific factors affecting continuity of care in Chile.

Thank you for your supporting comment.

Just a small query would be that; how was it assured that during the second home visit, that the patient was actually fasting and had not taken anything before the visitor made a home visit and assessed the patient. It is interesting to know because in a randomized controlled trial on Diabetes in Pakistan we found that despite the patients being asked to visit the health facility before eating anything, they did not mind taking a cup of tea (with sugar) or snack claiming that they haven't eaten anything (which meant a breakfast), which for us proved to be a challenge in getting accurate measurement results using fasting blood glucose testing. So I think keeping in view there might be similar challenges in other countries it might be helpful to include what measures were taken to ensure that the patient was fasting? Were they informed about the second visit before? Was the visit always made early in the day for all patients? etc

Thank you for this relevant point. Participants were asked during the first visit to do not eat any food 11 hours prior the second visit. Participants with a diagnosis of diabetes were scheduled for the first visit in the morning, which was at 7AM. However, other participants without a clear diagnosis of diabetes might had been visited during the morning. Although, it is impossible to rule out the possibility that some participants were not fasting by the time the blood sample was taken, the sample was taken by a trained nurse that checked the participant had not have any food in the last 11 hours. We add this information to the method section ('Participants were asked during the first visit to do not eat any food 11 hours prior the second visit and participants with a diagnosis of diabetes were scheduled for the first visit in the morning' in Page 5, lines 35-38).