PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Effects of brief family psychoeducation for caregivers of people with schizophrenia in Japan provided by visiting nurses: protocol for a cluster randomised controlled trial
AUTHORS	Yasuma, Naonori; Sato, Sayaka; Yamaguchi, Sosei; Matsunaga, Asami; Shiozawa, Takuma; Tachimori, Hisateru; Watanabe, Kazuhiro; Imamura, Kotaro; Nishi, Daisuke; Fujii, Chiyo; Kawakami, Norito

VERSION 1 – REVIEW

REVIEWER	Jacqueline Sin University of Reading, School of Psychology and Clinical Language Sciences
REVIEW RETURNED	08-Oct-2019

GENERAL COMMENTS	This paper reports a cluster RCT protocol but the dates of the study is not reported, as a key criteria for consideration by BMC Open. While the paper is largely presented in an acceptable level of English, it is still plagued with language problems. An example is included here: " For example, in Japan, FPE does not incur a medical treatment fee, even if it is performed for a family." (p.5, lines 6-7) The tenses (past and future) change throughout the paper, and there are no dates included, apart from knowing that the study has obtained research ethics approval from the university, it is difficult to gauge the current state of the study conduct at this time. Methods regarding the cRCT design reads problematic and I have the impression it is due to the language problems of the team to convey the study design and procedures accurately. An example includes " In each agency, potential participants (caregivers of people with schizophrenia and people with schizophrenia) will be randomly extracted using a recruitment sequence table. The recruitment sequence table will be created using a random number generation method with the Stata statistical software program, version 15. Based on the recruitment sequence table, consent acquisition will be performed by visiting nurses who have attended a lecture on study design and ethical considerations.The study will include only caregivers who voluntarily agree to participate in the study. The average cluster size will be approximately five caregivers. " (p.7, lines 10-19). In other places, it is reported that the unit of cluster is agency, not caregivers. The study procedures as reported above is alarming - should recruitment and consent happen first prior to consent and then

	randomisation. However, as the cluster unit should be agency, all caregivers receiving services from the randomised agency will be automatically assigned into one of the two arms. While the above sentences report that "only caregivers are included in the study participation", later on in p.11, primary and secondary outcomes of the patients are listed alongside primary and secondary outcomes of carers. However, the sample size calculation reported hasn't considered the dual primary outcomes. The description of the intervention also raises concern of its feasibility. As it is a psychoeducation intervention trial, further consideration about measures to optimise treatment adherence/fidelity delivered by the nurses is essential.

REVIEWER	Maryam Tabatabaee Tehran University of Medical Sciences
REVIEW RETURNED	08-Nov-2019

GENERAL COMMENTS	The study protocol addresses an important topic in the field of mental health and provide a thorough design to study it. The manuscript is well-written and presents valuable information on designing a cluster randomized controlled trial for testing the effectiveness of family psychoeducation in Japan. In my opinion, the manuscript with improvements suggested in the below section, is acceptable for publication. I would suggest providing more accurate information regarding these points: o The authors fully described the randomization process of visiting nurse agencies and their clients. I was wondering how the “47 recruited visiting nurse agencies” have been chosen in the initial stage? o What are the components of TAU for families of people with schizophrenia? Do they receive any type of psychoeducation or supportive therapies? Please describe. o Could you please elaborate the following sentence? (in the limitation section) “each visiting nurse may not be able to complete all four sessions using the tool in the actual clinical setting”. What happens in the real setting?

REVIEWER	Trine Lise Bakken Oslo University Hospital, Ntaional Advisory Unit Intellectual Disability and Mnetal Health
REVIEW RETURNED	19-Nov-2019

GENERAL COMMENTS	Review BMJ Open Title:

	Effects of brief family psychoeducation for caregivers of people with schizophrenia in Japan provided by visiting nurses: protocol for a cluster randomized controlled trial. **Overall comments** I think this protocol gives a good picture about the research to come. I have, however, a few comments. The English language is good and an easy read for me, coming from Scandinavia. A few words about the mental health system in Japan should be added, in any case, in the article which presents the study with results. A major concern is that the heterogeneity of people diagnosed with schizophrenia is not addressed. **Abstract:** OK. It appears as a bit too long. **Introduction** In the introduction, Schizophrenia is firstly presented as a “chronic illness”, which is not in line with newer research (p. 4, second line). However, patients with long lasting heavy symptom burden may need long-term care, as stated in the third line. On page 3, line 44, it is written “…… 14.5%b in clinics”. Clinics should be presented as “outpatient services” or similar, unless it means something else? Beside these concerns, the introduction arguing about brief FPE is substantial, and is clearly enough to legitimize this forthcoming study. **Aim** The aim should be clearly presented as a hypothesis, a research question or simply a statement, for example “The aim of this study is to ……..”. A clear aim may create a direction of the method, setting, participants etc.

	Methods *Design*: OK presented. Setting: OK. *Hypothesis / research questions* – Missing – see "Aim". *Participants* – For caregivers: OK. For people with schizophrenia: People with a diagnosis of schizophrenia constitute a heterogeneous group of patients, which entail relatively large differences between patients regarding symptom load within the group. This is not discussed or even mentioned in the protocol. This may be a major issue, as the patient's symptom load impact caregivers. If you don't rate symptom load one way or another, differences between the intervention group and the control group may be biased. *Intervention:* OK *Measures* – OK. *Analysis* – OK. **Intervention program** At p.6, from line 36 (app.)., It is written that 70% will recover when adequately medicated. The reference for this statement is concerning first episode schizophrenia. The figures still seem very high, and do not correspond to newer research on prognosis in schizophrenia. The authors should reconsider this statement. What do you mean by "recovered"? **Control group** It should be explained shortly the content og TAU. **Secondary Outcome..** "Non-clinical" should be changed to sub-clinical. **Statistical analysis** Statistical analysis is used for population studies. As this is a sample study (?), Quantitative analysis is the correct term.

VERSION 1 – AUTHOR RESPONSE

Reply to Reviewer: 1
Thank you very much for your valuable suggestions. We have revised the manuscript in accordance with your suggestions. Revisions in the manuscript are shown as highlighted text below. Please have a look at the revised manuscript to see if we have responded to your comments appropriately.

Comment 1
This paper reports a cluster RCT protocol but the dates of the study is not reported, as a key criteria for consideration by BMJ Open.

Response: Thank you very much for your comment. We have added the planned start and end dates for the study to the manuscript.

The anticipated trial start date will be 1 October 2019 and the date of last follow-up date will be 31 May 2020. (page 6, lines 21–23)

Comment 2
While the paper is largely presented in an acceptable level of English, it is still plagued with language problems. An example is included here: " For example, in Japan, FPE does not incur a medical treatment fee, even if it is performed for a family." (p.5, lines 6-7)

Response: Thank you very much for your comment. After revision of the manuscript, it was proofread by native English speaker. We have attached the English certification as a supplementary file.

Comment 3
The tenses (past and future) change throughout the paper, and there are no dates included, apart from knowing that the study has obtained research ethics approval from the university, it is difficult to gauge the current state of the study conduct at this time.

Response: Thank you very much for your comment. We have corrected the tenses throughout the paper. Since the visiting nurse agencies have been already selected and the intervention program has already been developed, they were described in the past tense.

Comment 4
Methods regarding the cRCT design reads problematic and I have the impression it is due to the language problems of the team to convey the study design and procedures accurately. An example includes " In each agency, potential participants (caregivers of people with schizophrenia and people with schizophrenia) will be randomly extracted using a recruitment sequence table. The recruitment sequence table will be created using a random number generation method with the Stata statistical software program, version 15. Based on the recruitment sequence table, consent acquisition will be performed by visiting nurses who have attended a lecture on study design and ethical considerations. The study will include only caregivers who voluntarily agree to participate in the study. The average cluster size will be approximately five caregivers. " (p.7, lines 10-19). In other places, it is reported that the unit of cluster is agency, not caregivers. The study procedures as reported above is alarming - should recruitment and consent happen first prior to consent and then randomisation. However, as the cluster unit should be agency, all caregivers receiving services from the randomised agency will be automatically assigned into one of the two arms.

Response: Thank you very much for your comment. We are not going to conduct random allocation to the intervention or control group before obtaining informed consent from study participants. We will create the recruitment sequence table beforehand to avoid selection bias. If visiting nurses

intentionally recruit patients with mild disease and their families, the generalisability of this study will be weakened. We have emphasised this point so that readers would not be confused. We have revised the manuscript as follows:

At each agency, potential participants (caregivers of people with schizophrenia and people with schizophrenia) will be randomly ordered using a recruitment sequence table. To avoid selection bias, the recruitment sequence table will be created using a random number generation method in the Stata statistical software program, version 15. After attending a lecture on study design and ethical considerations, visiting nurses will recruit participants in order starting from the top of the recruitment sequence table until five participants have been recruited. The study will include only participants who voluntarily agree to participate in the study. (page 7, lines 9–16)

Comment 5
While the above sentences report that "only caregivers are included in the study participation", later on in p.11, primary and secondary outcomes of the patients are listed alongside primary and secondary outcomes of carers. However, the sample size calculation reported hasn't considered the dual primary outcomes.

Response: Thank you very much for your comment. We have revised the manuscript as follows.

The study will include only participants who voluntarily agree to participate in the study. (page 7, lines 15–16)

Secondary outcomes in people with schizophrenia (page 11, line 32)

Comment 6
The description of the intervention also raises concern of its feasibility.

Response: Thank you very much for your comment. Although we have developed the study design and intervention based on coproduction, there are still concerns about its feasibility in actual clinical settings. We have added this as a limitation:

Third, we designed the study and intervention based on coproduction, but there are still concerns about its feasibility in actual clinical settings. For example, participants might not complete all four sessions due to the condition of people with schizophrenia, family work, and family hospitalisation. These may lead to a high attrition rate during implementation. (page 14, lines 29–34)

Comment 7
As it is a psychoeducation intervention trial, further consideration about measures to optimise treatment adherence/fidelity delivered by the nurses is essential.

Response: Thank you very much for your comment. We have created a checklist to confirm how many sessions visiting nurses were actually able to conduct with the participants. We have added this information to the manuscript.

We will also create a checklist to confirm how many sessions visiting nurses were actually able to conduct with the participants. (page 8, lines 8–9)

Reply to Reviewer: 2
Thank you very much for your valuable suggestions. We have revised the manuscript in accordance with your suggestions. Revisions in the manuscript are shown as highlighted text below. Please have a look at the revised manuscript to see if we have responded to your comments appropriately.

Comment 1
The authors fully described the randomization process of visiting nurse agencies and their clients. I was wondering how the “47 recruited visiting nurse agencies” have been chosen in the initial stage?

Response: Thank you very much for your comment. The details about how the 47 visiting nurse agencies were recruited are described below and in the revised manuscript:

The corresponding author (NY) explained the purpose of this study to 68 visiting nurse agencies in four prefectures in Japan (Tokyo, Saitama, Kanagawa, and Chiba) through the organisation. Forty-seven visiting nurse agencies agreed to participate in the study. All the participating visiting nurse agencies are managed by one organisation. (page 6, lines 26–30)

Comment 2
What are the components of TAU for families of people with schizophrenia? Do they receive any type of psychoeducation or supportive therapies? Please describe.

Response: Thank you very much for your comment. Caregivers enrolled in the control group will receive usual care from the visiting nurses. They will not receive any type of psychoeducation or supportive therapies. We have revised the manuscript as follows:

Caregivers enrolled in the control group will receive usual care from visiting nurses. They will be put on a waiting list to receive the same intervention program after completing the 6-month follow-up assessment. They will not receive any type of psychoeducation or supportive therapies. (page 10, lines 17–20)

Comment 3
Could you please elaborate the following sentence? (in the limitation section) “each visiting nurse may not be able to complete all four sessions using the tool in the actual clinical setting”. What happens in the real setting?

Response: Thank you very much for your comment. We have added the following explanation of the actual clinical setting to the revised manuscript:

Third, we designed the study and intervention based on coproduction, but there are still concerns about its feasibility in actual clinical settings. For example, participants might not complete all four sessions due to the condition of people with schizophrenia, family work, and family hospitalisation. These may lead to a high attrition rate during implementation. (page 14, lines 29–34)

Reply to Reviewer: 3
Thank you very much for your valuable suggestions. We have revised the manuscript in accordance with your suggestions. Revisions in the manuscript are shown as highlighted text below. Please have a look at the revised manuscript to see if we have responded to your comments appropriately.

Comment 1
Introduction
In the introduction, Schizophrenia is firstly presented as a “chronic illness”, which is not in line with newer research (p. 4, second line). However, patients with long lasting heavy symptom burden may need long-term care, as stated in the third line. On page 3, line 44, it is written “…… 14.5%b in clinics”. Clinics should be presented as“outpatient services” or similar, unless it means something else?

Beside these concerns, the introduction arguing about brief FPE is substantial, and is clearly enough to legitimize this forthcoming study.

Response: Thank you very much for your comment. We have revised our manuscript as follows:

People with schizophrenia who have severe symptoms require long-term care, which imposes a significant burden on families providing such care. (page 4, lines 3–5)

A nationwide survey in Japan revealed that the implementation rate for FPE programs at psychiatric facilities are similarly low: 35.9% in hospitals and 14.5% in outpatient settings. (page 4, lines 30–32)

Comment 2
Aim
The aim should be clearly presented as a hypothesis, a research question or simply a statement, for example “The aim of this study is to ……..”. A clear aim may create a direction of the method, setting, participants etc.

Response: Thank you very much for your comment. We have revised our manuscript as follows:

Hypothesis and aims
We hypothesise that brief FPE provided by visiting nurses could alleviate the burden on families and caregivers of people with schizophrenia. The aim of this study is to clarify whether visiting nurses providing brief FPE to families caring for people with schizophrenia alleviates family burden through a cluster randomised controlled trial (cRCT). (page 6, lines 4–9)

Comment 3
Participants – For caregivers: OK. For people with schizophrenia: People with a diagnosis of schizophrenia constitute a heterogeneous group of patients, which entail relatively large differences between patients regarding symptom load within the group. This is not discussed or even mentioned in the protocol. This may be a major issue, as the patient’s symptom load impact caregivers. If you don’t rate symptom load one way or another, differences between the intervention group and the control group may be biased.

Response: Thank you very much for your comment. We will measure the severity of symptoms in people with schizophrenia using the Behaviour and Symptoms Identification Scale (BASIS-32). However, since this is a self-reported questionnaire, their symptoms may not be accurately measured. We have added this point to the limitations section.

Second, since subjects will provide data through a self-reported questionnaire, information bias or random error is possible. For example, the severity of symptoms in people with schizophrenia that impact a caregiver’s burden may not be accurately measured. (page 14, lines 26–29)

Comment 4
Intervention program
At p.6, from line 36 (app.)., It is written that 70% will recover when adequately medicated. The reference for this statement is concerning first episode schizophrenia. The figures still seem very high, and do not correspond to newer research on prognosis in schizophrenia. The authors should reconsider this statement. What do you mean by “recovered”?

Response: Thank you very much for your comment. We have revised our manuscript as follows:

In terms of prognosis, visiting nurses will emphasise that schizophrenia is not necessarily a disease with a bad prognosis. In people with their first episode of schizophrenia, about 70% will have a good intermediate to long-term outcome if they receive appropriate pharmacological therapy. (page 8, lines 34 – page8, line 1)

Comment 5
Control group
It should be explained shortly the content of TAU.

Response: Thank you very much for your comment. We have revised the manuscript as follows:

Caregivers enrolled in the control group will receive usual care from visiting nurses. They will be put on a waiting list to receive the same intervention program after completing the 6-month follow-up assessment. They will not receive any type of psychoeducation or supportive therapies. (page 10, lines 17–20)

Comment 6
Secondary Outcome.
“Non-clinical” should be changed to sub-clinical.

Response: Thank you very much for your comment. We have changed this word throughout the revised manuscript.

sub-clinical (page 11, line 3)

Comment 7
Statistical analysis
Statistical analysis is used for population studies. As this is a sample study (?), Quantitative analysis is the correct term.

Response: Thank you very much for your comment. We have revised the manuscript as you have suggested.

Quantitative analysis (page 12, line 35)

VERSION 2 – REVIEW

REVIEWER	Jacqueline Sin University of Reading, School of Psychology and Clinical Language Sciences
REVIEW RETURNED	27-Jan-2020

GENERAL COMMENTS	Many thanks for inviting me to re-review a revised version of this trial protocol. My review of the original version outlined a few concerns over the trial design, confusing the unit of randomisation between the nursing agency and the patients/family unit, and a fair amount of writing problems. I am pleased to note the improvement in the revised version. However, I remain concerned about the clarify of the trial design and my main concerns include:

	(1) On p.6 the schedule of the trial is described as "The anticipated trial start date will be 1 October 2019 and the date of last follow-up date will be 31 May 2020." Given the trial includes a 6-month follow-up and the intervention lasts for 4 weeks, that means the study would have to recruit all participants within the month of October 2019 with all participants completed the intervention by end of November 2019. Is it feasible? and is it pragmatic? Is the trial prospective at all? (2) The description of the randomisation is problematic (see pp. 7-8) - to start with it is reported that the unit of randomisation is the visiting nurse agencies "Visiting nurse agencies that meet the inclusion criteria will be randomly allocated to the intervention group (brief FPE program) or the control group. Randomisation will be stratified by the median of the average caseload of visiting nurses in each agency since the effect of the intervention might differ based on this factor". It is difficult to understand how and why the median of the average caseload the the visiting nurses in each agency is/should be used as the stratification factor. However, earlier on p.8 second paragraph, it reports that "At each agency, potential participants (caregivers of people with schizophrenia and people with schizophrenia) will be randomly ordered using a recruitment sequence table. To avoid selection bias, the recruitment sequence table will be created using a random number generation method in the Stata statistical software program, version 15". It kind of conveys that the unit of randomisation are the patient-carer DYAD, different from what is described under randomisation. However, it is seriously concerning for the randomisation sequence to be described as recruitment sequence. (3) While the description of the intervention is detailed, it reads unconvincing that the content can be delivered over 4 weekly 1-hour sessions. More importantly, in order to establish the effect of the intervention, a pre-specified minimal/essential requirement of content covered/sessions attended, i.e. per protocol definition, is required. Despite some significant improvement in writing, there remains a good extent of presentation problems (examples include the randomisation or recruitment, and the abstract). The authors are also advised to steer off from making unsubstantiated claims, e.g. p.14 - this study using a cRCT design is a better design

REVIEWER	Maryam Tabatabaee Tehran University of Medical Sciences, Iran
REVIEW RETURNED	19-Dec-2019

GENERAL COMMENTS	Thanks for responding to all questions and revising the manuscript.

REVIEWER	Trine Lise Bakken Oslo University Hospital, Oslo, Norway
REVIEW RETURNED	03-Jan-2020

GENERAL COMMENTS	Effects of brief family psychoeducation for caregivers of people with schizophrenia in Japan provided by visiting nurses: protocol for a cluster randomized controlled trial. Revision 1.

	The Authors have adressed most remarks. However, I still think the heterogenity of the group of people diagnosed With schzophrenia should be mentioned in the Method section under the heading Participant ..... . May be the Authors could add one entence describing patients getting services from visiting nurses? No further comments.

VERSION 2 – AUTHOR RESPONSE

Reply to Reviewer: 3

Thank you very much for your valuable suggestions. We have revised the manuscript in accordance with your suggestions. Revisions in the manuscript are shown as highlighted text below. Please review the revised manuscript to see if we have responded to your comments appropriately.

Comment 1

The Authors have adressed most remarks. However, I still think the heterogenity of the group of people diagnosed With schzophrenia should be mentioned in the Method section under the heading Participant ..... . May be the Authors could add one sentence describing patients getting services from visiting nurses?

Response: Thank you very much for your comment. We have added the following sentence in the manuscript (page 7, lines 21–22):

In addition, the inclusion criteria for people with schizophrenia are as follows: 1) diagnosis of schizophrenia based on the International Statistical Classification of Diseases and Related Health Problems, 10th revision and 2) receiving services from visiting nurses.

Reply to Reviewer: 1

Thank you very much for your valuable suggestions. We have revised the manuscript in accordance with your suggestions. Revisions in the manuscript are shown as highlighted text below. Please review the revised manuscript to see if we have responded to your comments appropriately.

Comment 1

Many thanks for inviting me to re-review a revised version of this trial protocol.

My review of the original version outlined a few concerns over the trial design, confusing the unit of randomisation between the nursing agency and the patients/family unit, and a fair amount of writing problems. I am pleased to note the improvement in the revised version. However, I remain concerned about the clarify of the trial design and my main concerns include:

(1) On p.6 the schedule of the trial is described as "The anticipated trial start date will be 1 October 2019 and the date of last follow-up date will be 31 May 2020." Given the trial includes a 6-month follow-up and the intervention lasts for 4 weeks, that means the study would have to recruit all participants within the month of October 2019 with all participants completed the intervention by end of November 2019. Is it feasible? and is it pragmatic? Is the trial prospective at all?

Response: Thank you very much for your comment. Due to the schedule of the visiting nurse agency that we have asked to participate in this trial, the study period is from the date of ethics approval (September 18, 2019) to May 31, 2020. We have corrected the anticipated trial start date. We have revised the manuscript as follows (page 6, lines 21–23): “The anticipated trial start date will be 18 September 2019 and the date of last follow-up will be 31 May 2020.”

Due to the short study period, the number of participants may not reach the target sample size. We have added this as a limitation. Unfortunately, we are going to analyze data with the number of participants obtained during this period (page 14, line 35–page 15, line 1): “Fourth, due to the short study period, the number of participants may not be able to meet the target sample size.”

Comment 2

(2-1) The description of the randomisation is problematic (see pp. 7-8) - to start with it is reported that the unit of randomisation is the visiting nurse agencies "Visiting nurse agencies that meet the inclusion criteria will be randomly allocated to the intervention group (brief FPE program) or the control group. Randomisation will be stratified by the median of the average caseload of visiting nurses in each agency since the effect of the intervention might differ based on this factor". It is difficult to understand how and why the median of the average caseload the visiting nurses in each agency is/should be used as the stratification factor.

(2-2) However, earlier on p.8 second paragraph, it reports that "At each agency, potential participants (caregivers of people with schizophrenia and people with schizophrenia) will be randomly ordered using a recruitment sequence table. To avoid selection bias, the recruitment sequence table will be created using a random number generation method in the Stata statistical software program, version 15". It kind of conveys that the unit of randomisation are the patient-carer DYAD, different from what is described under randomisation. However, it is seriously concerning for the randomisation sequence to be described as recruitment sequence.

(2-1)

Response: Thank you very much for your comment. We will use the median of the average caseload of visiting nurses in each agency as a factor for stratified randomization because the caseload size for which service quality can be maintained is generally fixed. For example, a caseload size for case management and outreach services is recommended. Please see the reference article denoted with an asterisk below. If a visiting nurse has too many patients, there is a concern that family support will be neglected. We have revised the manuscript as follows (page 7, lines 2–6):

Randomisation will be stratified by the median of the average caseload of visiting nurses in each agency. We used stratified randomisation based on this factor because the number of patients for whom a visiting nurse can maintain service quality is generally fixed.24 If a visiting nurse has too many patients, family support will probably be neglected.

* Mueser, K. T., Bond, G. R., Drake, R. E., & Resnick, S. G. (1998). Models of community care for severe mental illness: a review of research on case management. Schizophr Bull, 24(1), 37-74. doi:10.1093/oxfordjournals.schbul.a033314

(2-2)

Response: Thank you very much for your comment. We recognise that the description of random allocation and recruitment sequence was unclear in the last manuscript. We have used the terms “random allocation” and “randomly ordered list” in the new manuscript with reference to the following paper about cluster randomised controlled trials (RCTs):

* Slade, M., Bird, V., Le Boutillier, C., Williams, J., McCrone, P., & Leamy, M. (2011). REFOCUS Trial: protocol for a cluster randomised controlled trial of a pro-recovery intervention within community based mental health teams. BMC Psychiatry, 11, 185. doi:10.1186/1471-244x-11-185

In terms of “random allocation,” it will be conducted at the cluster level (visiting nurse agency level) using a random sequence table. On the other hand, a “randomly ordered list” will be used for recruitment of trial participants at the individual level in each agency after cluster randomisation. A randomly ordered list is created to recruit individual participants without selection bias during the recruitment phase. Specifically, the randomly ordered list prevents a staff member from choosing the preferred patients in his or her caseload. To prevent confusion during the process of randomisation at the cluster level and recruitment at the individual level, we have moved the “Randomisation at the cluster level” section next to the “Setting and site selection at the cluster level” section. In addition, we have revised the description of the recruitment procedure at the individual level and relevant terms with reference to the paper by Slade and colleagues referenced above (page 7, lines 23–30):

As part of the recruitment procedure at the individual level, all potential participants (caregivers of people with schizophrenia and people with schizophrenia) at each agency will be listed. Second, a randomly ordered list will be created using a random number generator in the Stata statistical software program, version 15, in order to avoid selection bias at the individual level. Third, visiting nurses who have attended a lecture on study design and ethical considerations will recruit participants in accordance with the randomly ordered list until five participants have been recruited. The study will include only participants who voluntarily agree to participate in the study.

Comment 3

(3-1) While the description of the intervention is detailed, it reads unconvincing that the content can be delivered over 4 weekly 1-hour sessions. More importantly, in order to establish the effect of the intervention, a pre-specified minimal/essential requirement of content covered/sessions attended, i.e. per protocol definition, is required.

(3-2)Despite some significant improvement in writing, there remains a good extent of presentation problems (examples include the randomisation or recruitment, and the abstract). The authors are also advised to steer off from making unsubstantiated claims, e.g. p.14 - this study using a cRCT design is a better design

Response:

(3-1) Thank you very much for your comment. We have added the minimal requirements for session attendance to the manuscript (page 8, lines 7): “Attendance of at least one session is required.”

(3-2) We have excluded all the sentences that you mentioned above from the manuscript. We have added the following sentences in the strengths and limitations section.

 The study incorporated a variety of viewpoints from caregivers, visiting nurses, and FPE experts based on the concept of coproduction and Patient and Public Involvement (PPI). (page 3, lines 8–10)

Second, this is the first cRCT of a brief FPE program, which could prevent contamination between the intervention and control groups. (page 14, lines 23–24)

VERSION 3 – REVIEW

REVIEWER	Jacqueline Sin University of Reading, School of Psychology and Clinical Language Sciences
REVIEW RETURNED	14-Mar-2020

GENERAL COMMENTS	Thank you for asking me to re-review this twice-revised manuscript. I am pleased to note all the amendments which have been undertaken and essentially explain the randomisation and recruitment much better. There are still a small number of minor writing errors throughout the paper. I attach a couple of examples below and the authors are advised to check through and proofread the paper thoroughly. p.5 "The components of FPE mainly include information sharing about the disorder, early warning signs, and relapse prevention as

	well as and skills training in coping, communication, and problem solving." P.13 "Factors 1, 6 2, 4, and 5 are assessed as the total score divided by the number of items answered 7 (mean score), while factor 3 is assessed based non the highest rating."

REVIEWER	Trine Lise Bakken Oslo University Hospital, Ntaional Advisory Unit Intellectual Disability and Mnetal Health
REVIEW RETURNED	09-Mar-2020

GENERAL COMMENTS	I think this paper should be published now. No further comments.

VERSION 3 – AUTHOR RESPONSE

Reply to Reviewer: 1

Comment 1
Thank you for asking me to re-review this twice-revised manuscript.
I am pleased to note all the amendments which have been undertaken and essentially explain the randomisation and recruitment much better.

There are still a small number of minor writing errors throughout the paper. I attach a couple of examples below and the authors are advised to check through and proofread the paper thoroughly.

p.5 "The components of FPE mainly include information sharing about the disorder, early warning signs, and relapse prevention as well as and skills training in coping, communication, and problem solving."

P.13 "Factors 1, 6 2, 4, and 5 are assessed as the total score divided by the number of items answered 7 (mean score), while factor 3 is assessed based non the highest rating."

Response: Thank you very much for your comment. After your suggestion, we have carefully checked the manuscript and the manuscript has also been proofread by a native English editor certified by ZENIS Co., Ltd. We attached the English certification. Thank you.

VERSION 4 – REVIEW

REVIEWER	Jacqueline Sin St George's, University of London
REVIEW RETURNED	26-Mar-2020

GENERAL COMMENTS	Thank you for the revisions undertaken.