Author’s response to reviews

Title: The effectiveness of using a WeChat account to improve exclusive breastfeeding in Huzhu County Qinghai Province, China: protocol for a randomized control trial

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Version: 2 Date: 09 Aug 2019

Author’s response to reviews:

Aug 9th, 2019

Dear BMC Public Health Editor,

Thank you for your review and valuable suggestions. We have carefully revised our paper according to the comments and suggestions given by the reviewers.

In this letter, we would like to provide a point-by-point response to all the comments. Reviewers’ comments are shown in bold, followed by our responses. In the manuscript, all the additions and changes are shown in track changes.

Comments in the review document
Reviewer reports:

Jane Scott (Reviewer 1):

This is an interesting study which proposes to use digital technology (WeChat) to support breastfeeding mothers.

1. Page 3 line 9. please cite the WHO breastfeeding recommendation correctly which is 'to continue to breastfeed to 2 years or beyond' NOT 'breastfeed as long as feasible' which is subjective.

Response: We would like to thank the reviewer for the thoughtful comments. We have replaced “be continuously breastfed as long as feasible” with “be continuously breastfed to 2 years or beyond” in Page 3 line 9 in the manuscript.

2. Page 3 paragraph 2. Please clearly define what you mean by 'exclusive breastfeeding rates'. For the most part you appear to be referring to the proportion of children under 6 months who are exclusively breastfed (EBF). However, this is not clear from the term exclusive breastfeeding rate'. Also make sure that the 'rates' that you are reporting are for the same breastfeeding outcome. EBF is commonly reported as 1) 'the proportion of children under 6 months who are EBF' or 2) the proportion of children who are EBF TO or AT six months. These rates are not the same and they need to be differentiated.

For instance reference 11 is reporting that 'only 25.2 percent of women (n= 38) reported they breastfed exclusively when the baby was 6 months old' i.e. % EBF AT 6 months. It is therefore likely that a larger percentage of children under 6 months were EBF. On the other hand references 10 and 12 are reporting the percentage of children under six months exclusively breastfed.

Response: We would like to thank the reviewer for the thoughtful comments. The “exclusive breastfeeding rates” in page 3 paragraph 2 refers to the proportion of children under 6 months who are exclusively breastfed. We agree with the reviewer that the “exclusive breastfeeding rates” in the reference 11 did not refer to exclusive breastfeeding rates under 6 months. We replaced “exclusive breastfeeding rates” with “exclusive breastfeeding rates under six months”, and deleted the sentence “25.2% in three Chinese cities (Beijing, Nanjing and HeFei)” and reference 11 in Ppage 3 paragraph 2.

3. Page 6 recruitment and randomisation

This is not a cluster-randomised trial with randomisation at the township level but involves randomisation of individuals. There is a possibility of contamination bias with women in an intervention group sharing information learned from WeChat with a friend in the same township who is in the control group. How do you propose to minimise the risk of contamination bias or at least measure this and adjust for this in your analysis?
Response: Only participants in the intervention group will be invited to subscribe to and register with “ke Xue Wei Yang (Optimal feeding)” module in the WeChat official account, therefore, anyone else cannot access to the information, as she doesn’t register with the platform. We added a sentence in Page 7 recruitment and randomization section to make it clear “As pregnant women in the control group cannot register with the “ke Xue Wei Yang (Optimal feeding)” module, they cannot access to the information in the module, which avoids contamination through direct sharing messages we sent in the WeChat.”

However, we cannot avoid mother’s face-to-face sharing, even in a cluster-randomized trial. We acknowledged this point as a limitation and added “In addition, as randomization units are individual pregnant woman, contamination may exist between intervention and control groups within the same township.” in Page 12 paragraph 2.

4. Page 7 Feeding lecture classroom

There will be quite a variation in weeks' gestation with some women being recruited in the first week of trimester 2 (14 weeks) and others being recruited towards the end of trimester three (36 weeks). Will mothers be grouped according to weeks' gestation and messages sent out tailored to their stage of pregnancy or weeks postpartum? For instance, will all women receive information on weaning time at the same time which for some women could be while they are still pregnant, and not relevant at that time, but for others could be in the postpartum period and after the event? An important advantage of using digital technology is the ability to tailor and target messages and deliver infant age relevant information. It is unclear if this is a feature of the proposed messaging program.

Response: Actually, all the key breastfeeding knowledge and relevant infant feeding advice message has been published in the feeding lecture classroom before the baseline. All the pregnant women and mothers in the intervention group can log in the feeding lecture classroom to read and learn all those breastfeeding messages.

In addition, we suppose that there are three key stages for mothers, late pregnancy (37 weeks or above), the first month after postpartum and 4 months after postpartum, during which breastfeeding information needs to be strengthened. Three sets of tailored messages will be sent to all pregnant women and mothers at these stages via their WeChat on Monday, Wednesday and Friday every week. Specifically, for the late pregnancy stage, information on getting ready for breastfeeding and key breastfeeding recommendations will be sent to pregnant women whose gestational weeks are 37 weeks or above. For the first month after postpartum stage, the key breastfeeding recommendations and breastfeeding problems encountered for both mother and child will be sent to new mothers. For the 4 months after postpartum stage, information on starting complementary feeding at 6 months to avoid introducing complementary food too early or too late will be sent to mothers whose children were 4 months old or above. We had added this explanation in Page 7 and Page 8.
5. Page 8 Baby growth chart

Page 8 line 34 How will immediate feedback be given in relation to baby's growth? Will there be an algorithm that uses the information that mothers enter to generate one of several standard messages or will the information be manually reviewed by an expert. If so how will the expert manage to provide 'immediate' or 'instant' feedback?

Response: When mothers enter the weight and height data of their children in the baby growth chart module, the system can automatically give feedback messages which tell mothers whether their children’s weight and height are in the normal range. There is no feedback from experts. We replaced “feedback on how well their children grow” with “a feedback message on whether their children’s weight and height are in the normal range” in Page 8 Baby growth chart section.

6. Page 9 Duration of EBF and any BF is to be recorded in months. Are these completed months? How would someone who exclusively breastfed to 14 weeks be recorded as 3 or 4 months duration?

Response: We would like to thank the reviewer for the useful comments. Yes, “months” here we mean “completed months”. However, we re-reviewed the literatures, and found using “weeks” to record duration of exclusive breastfeeding and any breastfeeding is more accurate than “months”. We replaced “months” with “weeks” for duration of exclusive breastfeeding and breastfeeding in Page 9 in the manuscript.

Data collection

7. Page 9 line 55 I am not sure if the follow-up questionnaires referred to here on line 55 which are to be administered via telephone interview are the same at those referred to on the top of page 10 as being distributed to mothers through WeChat. Will telephone interviews be used to collect follow-up information from both intervention and control mothers, or just control mothers. This is not entirely clear.

Response: Sorry for the unclear description. The follow-up questionnaires are the same for both telephone interview and WeChat data collection. Only follow-up data collected by telephone interview will be used to evaluate the effectiveness of the intervention. The reason why we collect the same data through WeChat is that we would like to assess the response rate and data quality of WeChat as a method of data collection. The aim is not related to the RCT design. To avoid confusion, we deleted final paragraph in Page 10.
8. Page 11 the possibility of contamination between intervention and control mothers in the same township should be acknowledged as a limitation.

Response: Thank you. We added “In addition, as randomization units are individual pregnant woman, contamination may exist between intervention and control groups within the same township.” in Page 12 in the manuscript.

9. Minor issues

Page 2 line 7 and elsewhere 'down trend' should read 'downward trend'
Response: We changed “down trend” to “downward trend” in Page 2 line 7 in the manuscript.

Page 2 line 20 should read 'will be excluded'
Response: We changed “were be excluded” to “will be excluded” in Page 2 line 20 in the manuscript.

Page 4 line 23 should read 'the more actively' (not active)
Response: We changed “the more active” to “the more actively” in Page 4 line 23 in the manuscript.

Page 5 line 30 should read 'six townships' not counties
Response: Sorry for the mistake. We changed “six counties” to “six townships” in Page 5 line 30 in the manuscript.

Page 8 table 1 ' Specific guidance for women who had caesarean section' appears twice.
Response: Thank you. We deleted the second “Specific guidance for women who had caesarean section” in Page 8 Table 1 in the manuscript.

Reviewer 2 (Reviewer 2): PEER REVIEWER ASSESSMENTS:

REQUESTED REVISIONS:

Topic:

Since the study is limited only in Huzhu County, it should also come in the title.

Response: We would like to thank the reviewer for the thoughtful comments. We revised title as this: “The effectiveness of using a WeChat account to improve exclusive breastfeeding in Huzhu County Qinghai Province, China: protocol for a randomized control trial”.
Background:

How many were registered in WeChat: one billion or 20 million? Is public or official accounts is less than the overall?

Response: There are more than 20 million public or official accounts registered in the WeChat platform. We re-reviewed the reference cited which stated that:” According to WeChat, the number of registered WeChat Official Account has reached 20 million, and active Official Account reached 3.5 million by September 2017.” [1]

Why this study is focussed in rural areas of China rather than urban areas, while the users of WeChat are more likely to be in urban areas which, I assume, have lower rates of exclusive breastfeeding.

Response: We would like to thank the reviewer for the thoughtful comments. Firstly, according to the latest Chinese national data, the exclusive breastfeeding rate under six months was low in both rural areas and urban areas (18.9% for urban-metropolis, 17.5% for urban-middle or small cities, 18.5% for rural-general areas, and 21.2% for rural-poor areas), not quite different between rural and urban areas (p=0.902) [2]. Secondly, this project is funded by UNICEF China, which requires us to conduct researches in Rural Qinghai Province. Our study team has been conducting child nutrition programs in Huzhu County, Qinghai Province since 2012, and we found that exploring new delivery channels of infant feeding interventions is needed in the country.

Methods:

Design:

Please state sample size for intervention and control group as well as the sampling unit?

Response: As described in the “Sample size and sampling” section in the manuscript, the sample size was calculated as 93 for the intervention and control group, respectively, and we will enroll 200 pregnant women respectively for both groups to compensate for possible refusal and loss to follow-up. We added “The sampling unit is individual pregnant woman and we will enroll 200 pregnant women for both intervention and control group, respectively.” in the “Design” section in the manuscript.
How is it ensured that only intervention group will receive the WeChat breastfeeding education? Women in control groups may access the information via others account?

Response: Only participants in the intervention group will be invited to subscribe to and register with “ke Xue Wei Yang (Optimal feeding)” module in the WeChat official account, therefore, anyone else cannot access to the information, as she doesn’t register with the platform. We added a sentence in Page 7 recruitment and randomization section to make it clear “As pregnant women in the control group cannot register with the “ke Xue Wei Yang (Optimal feeding)” module, they cannot access to the information in the module, which avoids contamination through direct sharing messages we sent in the WeChat.

Study area:

Please provide the study population size of Huzhu county (i.e the number of women with reproductive ages and expected number of annual pregnancies). Based on this study population size, the total sample of 400 to be randomised may be less.

Response: The total population of Huzhu County was 401,105 in 2017, which has been described in the manuscript. In addition, there are a total of 91,321 women with reproductive ages and 4325 pregnant woman in 2017. The sample size for this study was calculated based on exclusive breastfeeding rate under 6 months, therefore 400 is sufficient.

We added “In addition, there were a total of 91,321 women at reproductive ages and 4325 pregnant women in 2017.” in the “Study area” section in the manuscript.

Sample size and sample?

Will the authors separate intervention and control townships out of total 13 townships and how many pregnant women were there in intervention and control arm in total?

Response: Actually, the sampling unit is individual pregnant woman, not township. We randomized all the eligible pregnant women out of total 13 townships to either intervention group or control group. We estimated to enroll 200 eligible pregnant women for intervention and control group, respectively. We added “The sampling unit is individual pregnant woman.” in the “Sample size and sampling” section in the manuscript to make it clear.

What is meant by the group?

Response: “per group” here means “the intervention group and control group”. We replaced “per group” with “for intervention and control group, respectively.” in Page 6 paragraph 2.
How will the random selection of pregnant women be done?

Response: As described in the “Recruitment and randomization” section in the manuscript, an independent statistician who will not participate in recruitment or data collection will generate 400 random numbers using Microsoft Excel. She will use the median of the random numbers as a threshold. Random numbers lower or equal to the median will be allocated to the intervention group and random numbers higher than the median will be allocated to the control group. The random numbers and the allocated group will be printed on small cards, and kept in opaque, sealed envelopes.

After an eligible pregnant woman agrees to participate and has signed the written consent form, a researcher will give the next envelope in sequence to her, and she will open the envelope to check the random number to determine the assigned group.

Recruitment and randomisation:

If the women are randomised from the same township, how is the control group prevented from accessing the educational app or material?

Response: Only participants in the intervention group will be invited to subscribe to and register with the breastfee “ke Xue Wei Yang (Optimal feeding) ” module in the WeChat official account, therefore, anyone else cannot access to the information, as she doesn’t register with the platform. We added a sentence in Page 76 recruitment and randomization section to make it clear “As pregnant women in the control group cannot register with the “ke Xue Wei Yang (Optimal feeding)” module, they cannot access to the information in the module, which avoids contamination through direct sharing messages we sent in the WeChat.

Intervention:

Is the WeChat app pre-tested?

Response: Yes, the Wechat feeding health education platform “ke Xue Wei Yang (Optimal feeding) ” module was pre-tested in Huzhu County in Aug 2018. Semi-structure interviews were conducted among 17 pregnant women in their second or third trimester and 16 mothers who had a child aged 0-6 months to learn their use experience of the platform. The pregnant women and mothers generally accepted the platform, as they thought the information was easy to understand and useful. They also suggested that both videos and text&picture should be delivered to mothers, as some mothers like video, while some like text&pictures. We also added this explanation in Page 9. The detailed description of the methods and results of the pre-test will be reported elsewhere (manuscript in preparation).
Control group:

In routine antenatal and postnatal health care, health workers are supposed to provide breastfeeding education. How much this is applicable to the study area in China? Do health workers not provide any such education? If yes, this may affect to truly assess the effect of WeChat.

Response: Yes, China initiated a national Basic Public Health Service program in 2009 to provide universal basic public health services for all residents, in which maternal and child health care workers are required to provide face-to-face counseling to women during antenatal care visits, hospital delivery, newborn home, postnatal care and child health care visits. The Basic Public Health Service program is also implemented in Huzhu County, which we consider as “the routine antenatal and postnatal health care”. Health workers may or may not provide breastfeeding education for pregnant women in both intervention group and control group, however, we have no such data to assess how well health workers perform their tasks. RCT design with individual pregnant woman as sampling unit could balance the routine health care in both intervention and control groups, and hence to truly assess the effect of WeChat. We also stated that in the study design part “Pregnant women at 14-36 weeks will be randomized to routine antenatal and postnatal care or routine care plus the WeChat breastfeeding education.”

Outcome measurement:

To which group secondary outcomes are assessed?

Response: All the secondary outcomes are assessed for both intervention group and control group. We added “for both intervention group and control group” after “secondary outcome” in Page 10 paragraph 2.

Data collection:

Where face-to-face interviews take place?

Response: The baseline face-to-face interviews will take place in township hospitals. We added two sentences “Pregnant women will be asked to come to township hospitals. Those who meet the eligibility criteria will be given full information about the study. After signing the written informed consent, they will be interviewed to collect baseline data.” in Page 10 paragraph 5.

Looking forward to hearing from you soon.

With kindest regards,

Yanfeng Zhang

On behalf of all authors