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Articles

Adapting educational messages for partners of pregnant women for use in mobile health technologies (mHealth)

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In this paper, we present aspects related to the development and evaluation of a Short Message Service (SMS) – PRENACEL (Prenatal in the Mobile) aimed at partners of pregnant women. This is a qualitative study with participatory methods developed in three stages. First, the messages of the MAMA (Mobile Alliance for Maternal Action) global program were translated. Then a group of experts evaluated those messages, assigning marks and suggesting changes to or exclusions of certain ones. The resulting messages that were consolidated from this stage were submitted to a focus group, formed by male Community Health Workers, who analyzed the language and the clearness of the messages. Each stage was evaluated by the leading researchers and the final content amounted to 62 text messages that were found to be appropriate for the partners of pregnant women. With the inclusion of participatory methods of evaluation it was possible to establish viable and accessible messages to the target public.

Keywords: Qualitative research. Text message. Fatherhood.

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Introduction

Information and communication technologies (ICTs) use tools such as computers, software, mobile phones, applications and other devices to enable the spread of information on various topics and make it easier to communicate with the users[1].

The World Health Organization (WHO) defines eHealth as the use of ICTs in a safe and cost-effective way for health support, and has been a priority strategy since 2005 with resolution WHA 58.28[2,3] The mHealth or mobile health strategy is defined as aiding public health practice with the use of mobile devices such as cell phones[3,4]. With the use of cell phones it is possible to conduct health surveys or even send educational messages by SMS (short message service)[3,4]. It is an innovative and promising field in a wide ranging study that arouses curiosity and can generate greater adhesion of the users to the information provided[4-6].

According to data from the American Research Center Pew Center Research, 91% of adult Americans and 97% of American young people (18-29 years old) have their own cell phone[7]. In Brazil, as in almost every country in the world, the use of the mobile telephone, through mobile handsets and smartphones, is the technological configuration that has spread faster. According to data from Anatel, in June 2017, Brazil had 242.1 million mobile lines in operation. The country has a high density in the number of telephone handsets, having 117.47 cell phones per 100 inhabitants[8]. Bringing health services to users through the use of mobile telephone services is a promising proposal to help people's health.

The inclusion of ICTs has spread in the country, but is still emerging and is present in a very small portion of the primary care teams. However, decentralized and interactive guidelines and care seem to achieve an increase in performance in relation to the health of its users, and it is possible to observe important advances in the use of information[1,9].

Health education is a practice based on social relations between health professionals and users and is a fundamental activity in the promotion, prevention and recovery of health[10,11]. Combining the use of technologies to propagate health education is a more interactive way to attract a population that is historically distant from the health services, this population is specifically the male population, especially young adults[12].

This technology can be used in many health programs, especially those that can attract "new users". This is the case with the prenatal care of the partner, which is a program recently launched by the Ministry of Health (MoH) and that intends to count on the greater participation of the future parents. The program aims to stimulate the performance of tests to evaluate the health of the partner, together with the monitoring of the pregnancy. There is also the intention to strengthen in these men the idea of taking care of themselves to take care of the family[13,14].

The use of this strategy can motivate and positively impact on the inclusion of partners of pregnant women with the purpose of engaging men in the context of maternal health and bringing them closer to health services during prenatal consultations, an important moment of preparation and accountability for the couple with the arrival of a baby[14,15].

The pregnant woman is vulnerable and needs support and a favorable family environment during pregnancy, which also helps in the healthy development of the

child. Cunningham et al.[16] suggested that mothers benefit by having a partner as a person of support in this period.

ICT resources have been recommended as a way to improve users' access to health information. It is a cost-effective strategy that can reach a large number of people and is also a way to meet the targets of the Sustainable Development Goals (SDG) agenda by 2030, one of these being maternal health[17]. However, in order for the resource to be used well, studies with an adequate methodological design must be carried out using the necessary rigor to achieve the purpose of the intervention.

Our study aims to discuss the process of developing and evaluating messages sent via SMS to the partners of pregnant women with a view to engaging them in the pregnancy-puerperal period and encouraging the acceptability of this content. These messages were prepared in the context of PRENACEL (Prenatal in the Cell Phone), which developed a bidirectional communication channel by sending short text messages (SMS) to the cell phone, addressing the Brazilian reality of pregnant women and partners using the National Health System (SUS) in a municipality in the state of São Paulo, providing information, receiving complaints and grievances, clarifying doubts and stimulating the engagement and demand for effective interventions during prenatal, delivery and the puerperium period[18].

Materials and methods

The qualitative method is able to present relevant information of the context to be worked in and enables us to evaluate in depth the content to be introduced in the messages for the partners. Thus, as in qualitative research, participatory methods prioritize reflection based on the data collected and the open potentialities of the knowledge of the social context as a basis for practical actions and to make intervention more acceptable. Participatory methods were used because they considered the subject to be studied as an essential element of the analysis, and because to promote transformation, it is necessary to make them part of the process[19].

We used data from the literature as well as some of the steps taken to support our evaluation of the content to be distributed among the partners[20]. To do so, we used cross-cultural adaptation, a panel of specialists and a focus group to evaluate the process of developing SMS content, which will be described in the following three steps.

Step 1

Messages categorized as educational material for pregnant partners were selected from the MAMA (Mobile Alliance for Maternal Action) global program. It is a program organized by the Office of the White House for Scientific and Technological Policy and the United States Department of State in partnership with the United States Agency for International Development (USAID). These messages are based on guidelines from the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) and serve as a strategic support for organizations around the world that use mobile technology to improve maternal, newborn and infant health from the fifth week of gestation to the third year of the child's life[21].

There is a content inserted in the MAMA program aimed at the partners of pregnant women with the objective of engaging them in the puerperal-pregnancy context and improving some aspects of maternal health as well as the healthcare of the future father.

The messages were adapted according to the recommendations of MAMA's own content development group so that the program could easily be disseminated in other countries and in different languages.

Transcultural adaptation was used as the basis for the development of this first stage. This method has the purpose of maintaining equivalence in relation to the concept and semantics of the material to be evaluated taking into account the singularities of the cultural context in which it will be inserted[22-24].

In order to adapt the messages of the MAMA program, the specificities of the Brazilian SUS were considered and the adaptations based on documents relating to the local SUS criteria, with emphasis on the municipal protocols for prenatal care, these being the Basic Attention Specifications no. 32 - Attention to low-risk prenatal care[25] and the BH Movement prenatal care booklet for Normal Childbirth (Belo Horizonte City Hall – MG, Brazil)[26].

During the process of preparing the messages, we first carried out an exhaustive reading of the set of messages to select the themes and contents that could be translated, adapted or excluded from the proposals suggested for the local reality.

The translation was carried out by a researcher fluent in the English language and specialist in maternal health.

Step 2

After the translation and adaptation of the content, the messages were evaluated, criticized and discussed with specialists in the field of maternal health, who formed a panel of experts. To achieve this, a structured form with the messages was prepared and sent via email.

In the form the experts assigned marks of between one, two and three for each message and each mark represented an evaluation. Mark one represented "irrelevant and inappropriate content. Exclusion is recommended". Mark two represented "relevant, but not adequate content. Partial revision is recommended". And Mark three as "very relevant and / or very suitable content. There are no suggestions". The messages were arranged on the form sent to the experts and in front of each message there were four columns, three with their respective marks and a column for further comments. In addition, at the end of the table, experts had to show the time spent on evaluating the messages and additional suggestions for content.

Step 3

To ensure that the messages had the appropriate language, and thus greater acceptability, for the target audience, a focus group was conducted with Community Health Workers (CHWs) of the male gender. Because of their connections and knowledge of the community, these professionals are key people to evaluate the language and content of the messages and also to offer help in the reconfiguration of the messages sent to the PRENACEL of the partner.

The focus group is a unique procedure within the context of qualitative research and is commonly used in market research. It employs and studies the interaction between the members of a group in order to create dialogue and to stimulate the participants to come to an understanding through the considerations set out between them. The benefits of this method are the planning and development of programs that aggregate the knowledge of the participants and they also make it possible to evaluate the best strategy to be used[27,28].

The focus group

The focus group was organized with the understanding and consent of the management of six family health units of the municipality and linked to a local university. The group consisted of eight male CHWs, in addition to the presence of a coordinator and an observer from the group. All the CHWs signed a Terms of Free and Informed Consent form (TFIC) relating to their participation in the group before starting. The main objective was to discuss the content, according to the understanding, language and vocabulary of each message focusing on SUS users.

To collect the information obtained from the group we used two audio recorders, with the group's consent. For the organization of the focus group, we stipulated that there would be two people, the coordinator and the observer, each having a specific assignment. The coordinator provided information on the project and clarified the objectives of the focus group. Using the questions generated from the discussion, she presented the messages and conducted the discussions, and in the end, summarized the assessment made by the CHWs regarding the messages and final conclusions of the group. The other group leader, the observer, was in charge of observing the participants and their reactions, as well as recording focus group discussions and evaluating the messages.

During the focus group dynamics, the coordinator presented each message with the use of visual resources composed of a laptop and data show. Each message was read by the coordinator, which was followed by the participants. Each of the messages was evaluated by the participants according to their relevance and suitability with grades from one through to three, according to the standards adopted during the step involving the panel of experts. In the end, the coordinator summarized the evaluation of the participants, listing the suggestions provided and, if there was consensus, the suggestions were evaluated by assigning a mark.

Results

Results - Stage 1

Translation to Portuguese and adaptation of MAMA messages

The MAMA program consisted of a total of 38 messages destined for partners. Of these, 23 messages were translated and the original content was retained. Four messages

were changed from the original and, although the content was the same, changes were made to adapt them to the reality of the local health services.

Eleven messages were excluded because they originally dealt with issues related to specific cultural contexts with themes involving malaria, tuberculosis, tetanus vaccine, and home birth preparation. We know that these issues are relevant in the pregnancy-puerperal context, but those responsible for the study considered that the message concerning vaccines had already been addressed and the messages on malaria, tuberculosis and home birth preparation did not suit the local municipal context.

In addition, 36 messages were included, based on the previously referred to documents, to address important issues in the context of maternal health, especially in regard to information on sexually transmitted diseases, encouragement of normal birth and partner participation.

At this stage, we report on the themes presented in the MAMA relevant to the social, economic and epidemiological context according to the official documents and the local health situation to prioritize important content for the target audience[19].

After the translation, the content of the messages translated to the Portuguese language was reviewed by the research team. In total, 63 messages were sent to prospective parents.

Results - Stage 2

Evaluation from the Panel of experts

This stage relied on the scientific knowledge of experts on the pregnancy-puerperal period to evaluate the messages resulting from the first stage and to correlate them with aspects of social relevance[19].

In a collaborative and voluntary manner, the three health professionals who participated in the panel of experts individually analyzed the messages according to the quality and importance of the content for the target audience, they also discussed the frequency and sequence initially specified for sending the messages. For this, they answered the evaluation form on the relevance and appropriateness of each of the proposed messages.

The three experts took, on average, 66 minutes to evaluate the messages. Two experts in the area of maternal health responded to the structured form by assigning marks and making suggestions to the content. Regarding the 63 messages, the results of the evaluation are described in Table 1. According to the first two experts, most of the messages were considered to have relevant content and could be used in the educational intervention of the partners. The third expert, a specialist in male health and masculinity, made their contribution at the bottom of the form with comments on the messages in general. They added their point of view on the importance and pertinence of the content being addressed, emphasizing that the use of messages via SMS is valid and that the messages were adequate, but pointed out that some of them were repetitive and this could be an obstacle to their acceptability (Table 1).

Table 1. Evaluation of the specialists regarding the 63 messages of the PRENACEL for partners

Panel of specialists	Marks				
Evaluator	1	2	3	Total of messages	Comments
Specialist 1	10(15%)	12(19%)	41(65%)	63(100%)	Delete repeated messages. Introduce the reminder of the partner's prenatal exam from the municipality. And there is doubt as to how the effectiveness of the intervention will be measured.
Specialist 2	1 (1.5%)	16(25%)	46(73%)	63(100%)	Could not exclude any messages as they are all very interesting. Some repetitions were observed.
Specialist 3	-	-	-	63(100%)	Very relevant and important messages. Be careful of excessive messages and repetition of messages so you do not pressure and discourage the partner

The responses from the panel of experts with comments and suggestions were re-evaluated by the researchers responsible, who, after discussion and consensus, edited a new version of the message content. No messages were discarded, but changes were made to 28 messages according to the experts' suggestions, especially regarding repetitive messages and respecting the limit of 160 characters provided for each message.

Results - Stage 3

Community Health Workers (CHW) focus group

This stage was important because it was conclusive and it counted on the collaboration of the public similar to our target audience, as well as being able to give voice to the social actors represented by the CHWs[29]. The focus group with the CHWs lasted 1 hour and 30 minutes. The technical terms were identified and revised so that they were not difficult for the target public to understand the meaning of the messages, the sequence of sending was also revised. Among the 63 messages, the CHWs assigned a mark of one for only one message (1.5%), two marks for 25 messages (39.6%) and three marks for 37 messages (58.7%).

The message that the CHWs suggested to exclude (marked with one) commented on the importance of prenatal care, but this message was scheduled for sending on the 32nd week of gestation, i.e., near the end of pregnancy. It was argued that it would be unnecessary, since the subject had been addressed earlier.

Among the messages evaluated with a mark of two, that is, for partial revision, the CHWs suggested changes in the order of the sentence or by replacing certain words in six messages. Among the remaining 19 messages, the criteria to be revised were categorized as: emphasis on language, attention to certain socioeconomic aspects of the target audience, improvement in the meaning of the sentence to avoid confusion in the understanding, reduction of message size, review of repetitive content and incentive for the companion's participation during the gestational period.

With additional comments from the CHWs, we could perceive the difficulty of understanding the technical terms in one of the messages (episiotomy) and the lack of clarification about the necessity of the pregnant individual to drink water, eat and choose the most comfortable position during labor. There was a suggestion from the group to include more messages about risk of alcohol and cigarette use and abuse and to remove excess messages with content related to massages at the time of delivery. In addition, the CHWs requested that this material be made available and used as support in their professional activities.

We would like to emphasize that this stage was especially important for us, since it put us in touch with the limitations of the CHWs regarding health education. This allowed us to reflect on how we were conducting our work process, as the CHWs did not have full control over all the content we presented. According to Fonseca[29], we are bound to think by following established social norms of a different context from ours, and only when we propose to know more, to delve deeper without judgments can we realize that these norms are "invisible", in other words, they are standards that are indispensable. The CHWs showed us information about difficulties that were not foreseen as "difficult issues". In this sense, we were able to change some approaches, reinforcing messages that we considered to be too simple, but which were reported as being essentially necessary to produce the material that would fit the demands of health education.

In the same sense that the focus group brought us new information about the degree of health education of CHWs, we also think the CHWs learned from us. We believe that the attitude of the CHWs in requesting the material for their own professional use somehow means that they also consider their professional practices. We believe that this shows that the discussions of the focus group had a positive impact for them, since in introducing new tools to help SUS users, this allowed them to take ownership of what was discussed and shared during the evaluation process.

Finalization

At the end of each stage, the messages went through the verification and evaluation of the project managers to ensure that the material sent was relevant, of a high quality, respecting the recommendations of the SUS, the suggestions of the specialists and the focus group, without losing the focus of the main objective which is the engagement of the partners of pregnant women. The sequence of the messages was reviewed by those responsible and 48 messages were reassigned to fit the stages of gestation. The message that was evaluated with a mark of one by the focus group was deleted.

At the end of the process the PRENACEL partner program had 62 text messages. It was decided that it was necessary to send one to two messages per week during the period of 5 to 42 weeks of pregnancy and postpartum. The content of the messages followed the companion's gestational period.

The final content of the messages covered several topics: encouraging the partner to follow prenatal consultations with his partner, conducting the necessary tests, information on syphilis, information on ferrous sulfate and folic acid supplementation of the woman, encouragement to the partner to discourage the pregnant woman from smoking or drinking alcohol, financial planning for the arrival of the baby, stimulation

of healthy eating and hydration of the women, hygiene care, guidelines on common signs in pregnancy, such as nausea and possible ways to avoid them, warnings about signs of risk, preparation of the couple for childbirth, incentive to find out about the maternity ward where the delivery will possibly happen, encouragement of normal birth, knowledge of the law in regard to the companion and encouragement of the partner's participation during childbirth.

Discussion

The use of participatory methods for planning and evaluating an intervention is important so that it reaches the target audience and culminates in the desired objectives. All interventions require careful planning, and so systematic and frequent reviews of the material to be used should be a key element of the study[20].

In this study, we focused on the criteria of qualitative research, as well as the procedures of participatory methods, such as reflection on the results of each stage, development of pertinent and relevant content for the target population, as well as making the developed material into something practical and feasible[19].

Our study had three stages of elaboration of the material to be disseminated through SMS messages: translation and cross-cultural adaptation of the content of the MAMA messages, evaluation by a panel of experts and then a focus group. All of these procedures were fundamental so that the objective of the study could be reached. We completed the preparation of the educational intervention material with 62 important and viable messages for parents. These steps for preparing the material to be developed are also present in other studies as discussed below.

While considering support techniques for parents, Fletcher et al.[20] planned and tested the quality and acceptability of SMS. The authors used four phases to develop the seventy messages that would be distributed by mobile phone to parents: firstly there was an evaluation by a panel of experts, followed by an evaluation by a sample of the target audience in relation to the messages developed, then a pilot test and finally an interview with the test participants. The final content was reviewed by the authors and distributed to the parents involved in the study. In regard to the parents, the authors concluded that the messages were easily understood and the participants of the research considered that receiving the content was important in the exercise of active parenting.

In a study that discussed the process of developing a mobile application called mDad (Mobile Advice Assisted Dad), the authors performed different steps and a different evaluation sequence. First, they raised possible barriers in the use of technologies and consulted with focus groups with the parents. Then, semi-structured interviews and telephone interviews were conducted, as well as brief evaluations using online research with the target audience to evaluate usability and acceptability of the material[30].

Laidlaw et al.[31] used two stages of focus groups to test the potential of technology resources to devise an mHealth intervention with health information that would be relevant to parents.

We used SMS messages to reach as many people as possible, since virtually all mobile devices are able to receive the material, which differs from the applications and other resources used, such as those used in the study of mDad, where it was necessary that the mobile has access to the internet, which limits the spread of this resource to some people[30].

In regard to the limitations of this study, we emphasize that the panelists' response was not as expected, since the content could have been evaluated by a greater number of experts so as to provide new and further suggestions, but the evaluation was voluntary and dependent on the availability of the professionals. A pilot test in sending the messages could also have been used to evaluate the messages, but due to the short time available to initiate the intervention, introduce the pilot test and evaluate the results, this became infeasible.

However, the methodological rigor that the project managers used in planning the steps, including the participatory methods of evaluating the content of the educational intervention was a positive point that brought objective and applicable results which allowed us to fulfill our purpose. This study helps to define in practice how other types of intervention can be evaluated before they are implemented so as to achieve the desired objectives.

Conclusions

With the introduction of these participatory methods it was possible to obtain information, foundations and guidelines for the planning of ICT in health. The stages of transcultural translation and adaptation, evaluation by the panel of experts and the focus group helped in the process of developing messages aimed at future parents.

We produced a package of 62 messages with an accessible language for the study population and with content focused on the aspects of gestation. These methodological resources made it possible for messages via SMS to be developed and organized to guide our target audience and, thus, to seek greater participation of the partners in the pregnancy-puerperal context, which thus makes it possible to have a safer maternity.

Authors' contributions

The author JPS conceived and elaborated the PRENACEL project. The author EMV was responsible for the technical coordination of the project, participated in the design of the study, field planning and development of tools for research. JPS translated messages from the global MAMA program and included new messages according to the following documents: Basic Attention Specifications, No. 32 - Attention to low risk prenatal care, and the BH Movement Pre-natal Booklet for Normal Birth. The author LPB organized the panel of experts, considered the results and organized, conducted and evaluated the results of the focus group with the CHWs. LPB, EMV and JPS evaluated and determined the final version of the messages for the partners in accordance with the findings in the last stage. LPB and EMV wrote this present article and all authors have reviewed and approved the final version of this article.

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References

1. Santos AF, Sobrinho DF, Araujo LL, Procópio CSD, Lima AMLD, Reis CMR, et al. Incorporação de tecnologias de informação e comunicação e qualidade na atenção básica em saúde no Brasil. Cad Saude Publica. 2017; 33(5):e00172815. doi: https://dx.doi.org/10.1590/0102-311X00172815.
2. World Health Organization. Health topic. Resolutions and decisions WHA58.28 eHealth. The Fifty-eighth World Health Assembly [Internet]. Geneva: WHO; 2005 [citado 16 Maio 2018]. Disponível em: http://apps.who.int/gb/archive/e/e_wha58.html
3. World Health Organization. Global difusion of eHealth: making universal health coverage achievable. Report of the third global survey on eHealth. Geneva: WHO; 2016 [citado 6 Out 2018]. Disponível em: http://www.who.int/goe/publications/global_diffusion/en/

4. World Health Organization. National eHealth Strategy Toolkit. World Health Organization and International Telecommunication Union [Internet]. Geneva: WHO; 2012 [citado 16 Maio 2018]. Disponível em: http://apps.who.int/iris/handle/10665/75211

5. Vital Wave Consulting. mHealth for development: the opportunity of mobile technology for healthcare in the developing world. Berkshire: Vodafone Foundation Partnership; 2009.

6. Mackert M, Guadagno MS, Donovan E, Whitten P. Including men in prenatal health: the potential of e-Health to improve birth outcomes. Telemed J E Health. 2015; 21(3):207-12. doi: https://dx.doi.org/10.1089/tmj.2014.0048.

7. Anderson J, Rainie L. Millennials will benefit and suffer due to their hyperconnected lives [Internet]. Washington: Pew Research Center; 2012 [citado 16 Maio 2018]. Disponível em: http://www.pewinternet.org/Reports/2012/Hyperconnected-lives/Overview.aspx

8. Brasil. Agência Nacional de Telecomunicações. Brasil encerra junho com 242,1 milhões de linhas móveis em operação [Internet]. Brasília: Anatel; 2017 [citado 16 Maio 2018]. Disponível em: http://www.anatel.gov.br/dados/destaque-1/283-movel-acessos-maio

9. Katz JE, Rice RE, Acord S. Utilizações da internet e da tecnologia móvel nos sistemas de saúde: temas organizacionais e sócio-culturais num contexto comparativo. In: Castells M, Cardoso G, organizadores. A sociedade em rede: do conhecimento à acção política. Lisboa: Imprensa Nacional, Casa da Moeda; 2005. p. 175-95.

10. L'Abbate S. Health education: a new approach. Cad Saude Publica. 1994; 10(4):481-90.

11. Machado MFAS, Monteiro EMLM, Queiroz DT, Vieira NFC, Barroso MGT. Integralidade, formação de saúde, educação em saúde e as propostas do SUS: uma revisão conceitual. Cienc Saude Colet. 2007; 12(2):335-42.

12. Courtenay WH. Constructions of masculinity and their influence on men's well-being: a theory of gender and health. Soc Sci Med. 2000; 50(10):1385-401.

13. Brasil. Ministério da Saúde. Blog da Saúde. Pré-natal do parceiro incentiva homens a cuidarem da saúde [Internet]. Brasília: Ministério da Saúde; 2014 [citado 17 Maio 2018]. Disponível em: http://www.blog.saude.gov.br/34746-pre-natal-do-parceiro-incentiva-homens-a-cuidarem-da-saude.html

14. Brasil. Ministério da Saúde. Guia do pré-natal do parceiro para profissionais de saúde [Internet]. Brasília: Ministério da Saúde; 2016 [citado 17 Maio 2018]. Disponível em: http://portalarquivos.saude.gov.br/images/pdf/2016/agosto/11/guia_PreNatal.pdf

15. Duarte G. Extensão da assistência pré-natal ao parceiro como estratégia de aumento da adesão ao pré-natal e redução da transmissão vertical de infecções. Rev Bras Ginecol Obstet. 2007; 29(4):171-4. doi: http://dx.doi.org/10.1590/S0100-72032007000400001.

16. Cunningham SA, Elo IT, Herbst K, Hosegood V. Prenatal development in rural South Africa: relationship between birth weight and access to fathers and grandparents. Popul Stud. 2010; 64(3):229-46.

17. Merrell RC, Doarn CR. Sustainable development goals and telemedicine. Telemed J E Health. 2016; 22(10):787-8.

18. Oliveira-Ciabati L, Vieira C, Frazon ACA, Alves D, Zaratini FS, Braga GC, et al. PRENACEL: a mHealth messaging system to complement antenatal care: a cluster randomized trial. Reprod Health. 2017; 14(1):146. doi: http://dx.doi.org/10.1186/s12978-017-0407-115.

19. Streck DR. Participatory research methodologies and popular education: reflections on quality criteria. Interface (Botucatu). 2016; 20(58):537-47.

20. Fletcher R, May C, Wroe J, Hall P, Cooke D, Rawlinson C, et al. Development of a set of mobile phone text messages designed for new fathers. J Reprod Infant Psychol. 2016; 34(5):525-34. doi: http://dx.doi.org/10.1186/s12889-017-4978-0.

21. MAMA. MAMA: Mobile Alliance for Maternal Action [Internet]. 2018 [citado 17 Maio 2018]. Disponível em: http://www.mobilemamaalliance.org/

22. Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. J Clin Epidemiol. 1993; 46(12):1417-32.

23. Herdman M, Fox-Rushby J, Badia X. A model of equivalence in the cultural adaptation of HRQoL instruments: the universalist approach. Qual Life Res.1998; 7(4):323-35.

24. Pacagnella RC, Vieira EM, Rodrigues OMJ, Souza C. Adaptação transcultural do female sexual function index. Cad Saude Publica. 2008; 24(2):416-26.

25. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Atenção ao pré-natal de baixo risco. Brasília: Ministério da Saúde; 2013.

26. Belo Horizonte (cidade). Secretaria de Municipal de Saúde. Caderneta de pré-natal do Movimento BH pelo Parto Normal [Internet]. Belo Horizonte; 2018 [citado 17 Maio 2018]. Disponível em: http://bhpelopartonormal.pbh.gov.br/redes_apoio/index. html

27. Krueger RA. Focus group: a practical guide for applied research. Thousand Oaks: Sage Publication; 1994.

28. Krueger RA, Casey AC. Focus group: a practical guide for applied research. 3a ed. Thousand Oaks: Sage Publication; 2000.

29. Fonseca C. Concepções de família e práticas de intervenção: uma contribuição antropológica. Saude Soc. 2005; 14(2):50-9. doi: http://dx.doi.org/10.1590/S0104-12902005000200006.

30. Lee SJ, Walsh TB. Using technology in social work practice: the mDad (Mobile Device Assisted Dad) case study. Adv Soc Work. 2015; 16(1):107-24.

31. Laidlaw R, Dixon D, Morse T, Beattie TK, Kumwenda S, Mpemberera G. Using participatory methods to design an mHealth intervention for a low income country, a case study in Chikwawa, Malawi. BMC Med Inform Decis Mak. 2017; 17(98). doi: http://dx.doi.org/10.1186/s12911-017-0485-6.

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