Prevention Model on Pregnancy Complication as Early Warning Programs through Self Care Approach

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ABSTRACT

Introduction: About 500,000 pregnant women die and 50 million are due to complications from pregnancy. Technology programming models that can be operationalized in detecting the risk of pregnancy, through an early warning application system based on Android technology is required. This study aims to collect and analyze articles relating to the Prevention Model of the Complication of the Dangers of Pregnancy as an Early Warning Program through the Self Assessment approach

Methods: The design used is the literature review. Articles were collected using search engines such as EBSCO, Sciencedirect, Google Scholar and ProQuest. The criteria for the articles used were those published in 2010-2019. Search is done with keywords that are used to access the Application of Prevention of Pregnancy Hazard Model, Early Warning Program, Self Care.

Results: Based on the articles collected, the results of the lack of self-assets in detecting the danger of pregnancy early in pregnancy are predisposing factors for pregnancy complications. This condition causes pregnant women to experience problems that affect maternal safety, Lack of family support in helping pregnant women to detect the danger signs of pregnancy, the influence of local culture, especially in rural areas and the influence of parity or number of children born to mothers can affect the efforts of mothers to detect early signs of danger of pregnancy. Thus, early warning through therapy in the form of self care is needed in preventing the occurrence of complications of pregnant women from the dangers of pregnancy.

Conclusions: The ability of pregnant women to respond to pregnancy danger signs early is an important aspect in improving maternal health and reducing mortality. Various types of complications and physical conditions as a companion in pregnancy will cause complications for pregnant women, so the need for applicable and empirical prevention models as an early warning program and efforts to improve self Care.

Keywords: Prevention Model, pregnancy, early warning Program, Self-Care

Introduction

Complications in pregnant women and childbirth are complex problems, because the complications of assessment can lead to direct death of pregnant or childbirth 25% of maternal deaths occur during the first 24 hours after delivery and 50% of deaths occur one week after delivery, due to changes. The World Health Organization (WHO) estimates 303,000 deaths in 2015 at the end of the era of the Millennium Development Goals [1]. More than 99% of these deaths occur in low income holdings [1]. There are also estimated to be 27 million direct episodes of obstetric complications each year which contribute to long-term assessment and delivery

complications.

Various methods or programs have been developed by the Government of Indonesia to detect early pregnancy and childbirth complications such as monitoring the local area of Maternal and Child Health (PWS KIA), Maternal Cohort, Delivery of Maternity Planning Program (P4K), MCH Handbook, but this program has not shown results which is encouraging for the prevention of complications of pregnancy and childbirth. The program has not shown the expected results nationally, this can be seen from the coverage of handling complications of pregnancy and childbirth only reached 62.67% at the national level reaching 52.59% of the target of 85%, in addition to the scope of visits of pregnant women 4 times visiting health workers (K4) only reaches 90.18% nationally (1) (57).

Based on the problems obtained and along with the rapidly increasing technology, we need a media that can help and provide information quickly and practically. Android is a mobile operating system which is currently the topic of conversation today. Android is an open source operating system so that Android users can create a new application in it. In this case the researcher wants to make and design an application that contains information about diseases that might arise during pregnancy and can threaten the health of the mother during pregnancy and can diagnose a symptom experienced by someone especially pregnant women who are packaged in a mobile application system based on Android, And when this system is able to be applied in preventing the danger of pregnancy, furthermore, it will be treated as a survey of the behavior of pregnant women as a follow-up and to know of other factors that can affect the health and behavior of the mother during pregnancy and the determination of interventions that can be done in an effort to improve public health. Especially for pregnant women who are at risk to be able to do self care and avoid complications during pregnancy and childbirth.

The aim of Rivew Literartur is to identify and explain evidence-based knowledge related to the prevention of the dangers of pregnancy through a technology-based model and evaluate how healthy behaviors of pregnant women in self-care so as to prevent the duplication of the dangers of pregnancy.

We can describe the systematic review process in figure 1.
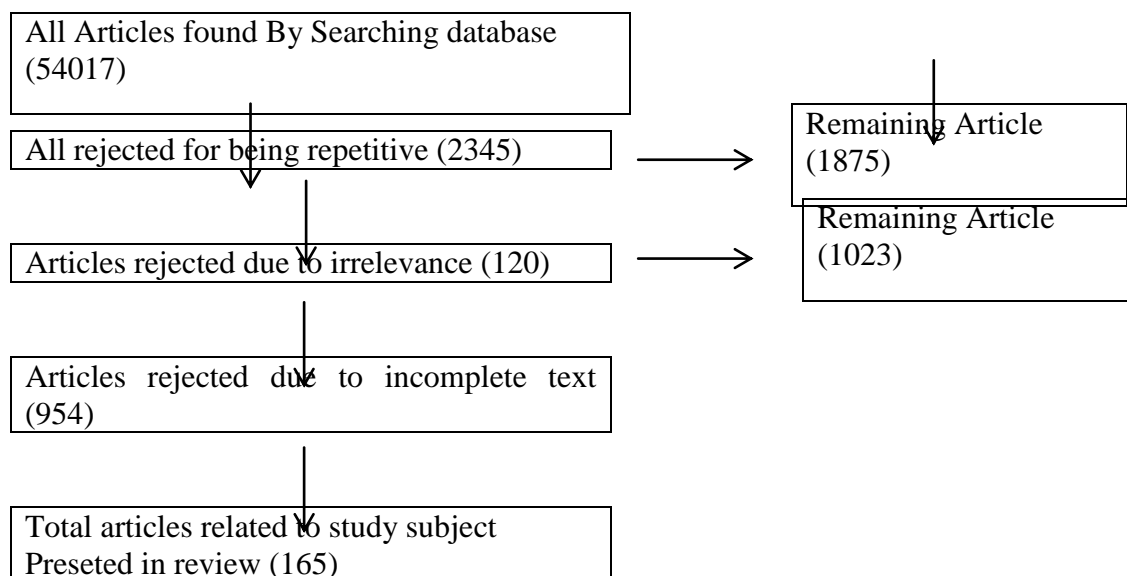
Figur 1. Input and Output diagram of Primary Studies to final Synthesis

Methods

Literartur sources in this study come from online database journals such as: Scihub, The Lancet, Pubmed, Google Scholar and EBSCO. Apart from other reference sources such as

textbooks from libraries, National Reports, as well as theses and dissertations. Proquest (Link from Unhas.ac.id Library) Pubmed, WHO, CDC, Google Scholar and several other websites providing articles.

Result and Discussion

Tabel 1. Information on 165Prevention Model On Pregnancy Complication As Early Warning Programs Through Self Care Approach

No	Research Title	Researcher's name (year)	Research methods	Research result	Recommendation
JURNAL HIGH RISK PREGNANACY					
1.	Women's Needs on Bed Rest during High-risk pregnancy and Postpartum Period: A Qualitative Study	MojganJanig horban (PhD)1, Zeinab Heidari (PhD)2, Azam Dadkhah (MSc)3, Fatemeh Mohammadi (PhD)4*	This qualitative study was conducted on women with high-risk pregnancies using the purposive sampling method.	According to the results, there are four main categories of needs that involve the need for psychosocial support, support for family and personal affairs, support for caring for children, and the need for economic support. The final category is the need for comprehensive support.	provision of family-centered support services based on coordination between the health department, support organizations, charities, social workers, and systems that provide psychological services and consultations are recommended.
2.	Review article Counselling about the Risk of Preterm Delivery: A Systematic Review	LauraLaura Pedrini,1 Federico Prefumo,1,2 Tiziana Frusca,1,3 and Alberto Ghilardi1(20 17)	quantitative study	From the available studies: First, providing written information before or during a consultation seems to have a positive effect, while no effect is detected when written material is given after consultation. Second, parents' choices about care appear to be influenced by aspects related to spiritual and / or pre-existing preferences, not by level of detail or by order information provided.	Further research is needed to validate these findings in a cross-cultural context and in real-world care settings.

3.	Maternal and fetal risk factors for stillbirth: population based study	Jason Gardosi*director* 1 *professor of maternal and perinatal health* 2, Vichithranie Madurasinghe *epidemiologist* 1, Mandy Williams *research midwife* 1, Asad Malik *data analyst* 1, André Francis *statistician* 1	Cohort research design. Establish a National Health Service area in the United Kingdom. Population 92 218 usually formed single including 389 stillbirths from 24 weeks of pregnancy	Results Multivariable analysis identified a significant risk of stillbirth parity (para 0 and para ≥3), ethnicity (Africa, Africa-Caribbean, India, and Pakistan), maternal obesity (body mass index ≥30), smoking, preexisting diabetes, and a history of mental health problems, antepartum bleeding, and fetal growth restriction (birth weight below 10) adjusted percentile birth weight). As a potentially modified risk factor, maternal obesity, smoking in pregnancy, and fetal growth restriction together account for 56.1% of stillbirths. Presence of fetal growth limitation is the highest risk	The single biggest risk factor is fetal growth that is not recognized as limiting, and prevention strategies need to focus on increasing antenatal detection.
4.	Women's Knowledge, Attitudes and Behavior about Maternal Risk Factors in Pregnancy	Giuseppe Esposito*, Rossella Ambrosio, Francesco Napolitano, Gabriella Di Giuseppe	Tujuan dari penelitian ini adalah untuk menilai tingkat pengetahuan, sikap dan perilaku wanita tentang faktor risiko utama ibu dalam kehamilan dan untuk mengidentifikasi faktor-faktor yang terkait untuk hasil utama yang menarik. Material dan metode Survei cross-sectional dilakukan pada 513 wanita hamil yang dipilih secara acak layanan rawat jalan ginekologi dari lima rumah sakit yang berlokasi di Naples, Italia.	Hanya 42% wanita yang benar mengetahui semua faktor risiko utama ibu dalam kehamilan (alkohol, merokok, merokok pasif dan obesitas). Hanya 21,7% wanita yang sangat khawatir menyebabkan kerusakan pada janin atau anak dengan perilaku berisiko mereka, dan 22,3% wanita melaporkan merokok selama kehamilan. Sekitar sepertiga wanita (28,9%) dilaporkan secara teratur minum alkohol sebelum kehamilan dan 74,8% dari wanita ini melaporkan berhenti minum alkohol selama kehamilan. Namun, hanya 27,3% wanita yang minum alkohol selama kehamilan memiliki niat untuk berhenti. Hanya 43,7% wanita menunjukkan hal itu selama rawat jalan pemeriksaan ginekologi mereka menerima informasi dari dokter tentang kemungkinan kerusakan yang dihasilkan dari semua faktor risiko utama dalam kehamilan (alkohol, merokok, perokok pasif dan obesitas).	wanita hamil tidak memiliki pengetahuan mengenai risiko utama ibu faktor-faktor. Wanita hamil mengaku menerima sedikit informasi selama pemeriksaan ginekologi dan, oleh karena itu, beberapa orang terus merokok dan minum alkohol selama kehamilan. Kami hasil menyarankan kebutuhan mendesak untuk desain intervensi untuk meningkatkan tingkat perempuan pengetahuan dan untuk mempromosikan perilaku yang tepat sehubungan dengan faktor risiko utama

5.	Antenatal Care Utilisation and Content between Low-Risk and High-Risk Pregnant Women	Ping Ling Yeoh1,3*, Klaus Hornetz2, Maznah Dahlui1(2016)	A retrospective study using multistage sampling techniques, in publicly funded schools health care clinic is done. The rate of antenatal use was assessed using modifications Adequacy of the utilization index of Prenatal Care that measures the time for treatment initiation and the ratio of visits observed to expected. Adequacy of antenatal care content assessed compliance to routine care according to local guidelines.	The use of intensive or "adequate-plus" antenatal care as defined by the modified index is noted in more than half of women at low risk. On the other hand, there is a 26% high risk women without the expected intensive use. Primary or uneducated high risk	A retrospective study using multistage sampling techniques, in a publicly funded school of health care clinics, was conducted. The rate of antenatal use was assessed using modifications The adequacy of the Prenatal Care utilization index that measures the time for treatment initiation and the ratio of visits to observed. Adequacy of antenatal care content was assessed adherence to routine care based on local guidelines.
6.	Maternal health care initiatives: Causes of morbidities and mortalities in two rural districts of Upper West Region, Ghana	Joshua Sumankuuro*, Judith Crockett, Shaoyu Wang	Methods A mixed methods approach was adopted to investigate the medical and non-medical causes of maternal and newborn morbidity and mortality in two rural areas in the Upper West Ghana Region Survey questionnaires, in-depth interviews and focus group discussions	Morbidity and mortality during pregnancy are associated with the direct causes of the urinary tract infections (48%), hypertensive disorders (4%), mental health conditions (7%), nausea (4%) and indirectly related diseases such as anemia (11%), malaria, HIV / AIDS, edema and hepatitis B (26%). Socioeconomic and cultural factors are identified as a significant basis for these complications and for morbidity and mortality during labor and postnatal care period	This finding provides a focused target and opens a window of opportunity for community-based health services run by Ghana Health Services to intensify health education

7.	Counselling about the Risk of Preterm Delivery: A Systematic Review	Laura Pedrini,1 Federico Prefumo,1,2 Tiziana Frusca,1,3 and Alberto Ghilardi	aims to describe the results of counseling for preterm birth. PubMed, Embase, and PsycInfo systematically sought (from 2000 to 2016) quantitative studies were identified, five random and four non random. All research conducted in the US, and half are based on simulated counseling sessions.	First, providing written information before or during a consultation seems to have a positive effect, while no effect is detected when written material is given after the consultation. Second, parents' choices about care appear to be influenced by aspects related to spiritual and / or pre-existing preferences, not by level of detail or by order information provided. Therefore, exploration of parental trust is very important to reduce the risk of misunderstanding and to guarantee choices that are in line with personal values.	Further research is needed to validate these findings in a cross-cultural context and in real-world care settings. In addition, the convergence of the conversation and the characteristics of the doctor involved in counseling must be discussed in further research.
8.	Identifying Factors Associated with Maternal Deaths in Jharkhand, India: A Verbal Autopsy Study	Nizamuddin Khan1, Manas Ranjan Pradhan2	Cross-sectional studies were conducted in two phases, and a multistage sampling design was used in selecting death for verbal autopsy. Informed consent was considered before verbal autopsy	Most of the people who died were poor (89%), not literate (85%), and housewives (74%). Again, 80% died in the community / at home, 28% died during pregnancy while another 26% died during childbirth. Anything antenatal care is received by only 28% of women, and only 20% of deliveries are carried out by experts traditional birth attendants (doctors and midwives). Delays in decision making, travel and care are compounded by ignorance about obstetric complications, inadequate use of maternal health services, poor health service infrastructure, and dangerous rituals are a major factor in the cause of maternal death in India	complications mostly in their homes revealed poor quality of labor and emergency obstetrics care services in the community, other than inadequate awareness of complications. This bad awareness and the use of services, and their encouragement for various aspects communication campaign to encourage labor by the late shaman
JURNAL EARLY WARNING PROGRAM (APLIKASI)					

9.	The Healthy Pregnancy Research Program: transforming pregnancy research through a ResearchKit app	Jennifer M. Radin 1, Steven R. Steinhubl1,2, Andrew I. Su1, Hansa Bhargava3, Benjamin Greenberg3, Brian M. Bot4, Megan Doerr4 and Eric J. Topol1,2(2018)	the data generated through the application, we aim to increase our understanding of the factors that promote healthy pregnancy for both mothers and developing fetus	smartphone-based research platform to capture a growing range of longitudinal, objective and subjective participants From the launch of this cohort study on March 16, 2017 to December 17, 2017,	During the first nine months of the spread Healthy Pregnancy ResearchKit application, we have registered more than 2000 participants from 50 states, and gathered more than 14,000 individuals This application can prove ongoing, constantly improving important source of insight to better understand individuals factors that create healthy pregnancies for all women. During the last decade there has been a shift in how to get pregnant women find and share health information related to pregnancy.
10	Mom-O-Meter: A self-help pregnancy Android app	Evan Duderewicz, MIS Brendan Harris, MIS (2011)	The aim of this project is to develop a self-supporting Android application to help pregnant women achieve healthy weight gain during pregnancy	An agile software development approach, the team gathers requirements, designs, and implements smartphone applications that use the Android and Google Health platforms.	This application empowers women to take their health into their own hands, and has the potential to reduce the short-term and long-term health risks associated with pregnancy weight gain for mother and child. This application is an example of ongoing advances from cellular technology in health care, which is driving a shift from reactionary treatment paradigms to prevention.

11	Study protocol: using a mobile phonebased application to increase awareness and uptake of sexual and reproductive health services among the youth in Uganda. A randomized controlled trial	Elly Nuwamanya 1* , Afra Nuwasiima1 , Janet U. Babigumira1 , Francis T. Asiimwe1, Solomon J. Lubinga2 and Joseph B. Babigumira2 (2016)	to improve access to SRH services and tools in low and middle income countries. This This paper presents protocols for pilot studies of new programs, mobile-based sexual and reproductive health	This research uses a rigorous evaluation method to ascertain the impact of mobile applications. We proposed a randomized controlled trial study to determine the causal effect of a mobile application in manufacturing awareness and increased use of sexual and reproductive health services in Uganda	This research seeks to prove the proof of concept of using mobile applications to enhance creation awareness and increased use of SRH tools and services among youth in Uganda
12	Development and pilot evaluation of a pregnancy-specific mobile health tool: a qualitative investigation of SmartMoms Canada	Lyra Halili1, Rebecca Liu1, Kelly Ann Hutchinson1 , Kevin Semeniuk1, Leanne M. Redman2 and Kristi B. Adamo1*(2 017)	the main purpose of this research is to apply a descriptive qualitative research design to assess acceptance, functionality, and future prospective from the SmartMoms Canada mHealth application. Methods: Two focus groups (n = 13) involving pregnant women and postpartum women organized the same day. Focus groups are transcribed verbatim and thematic analysis is carried out using manual encoding and NVivo software	Participants are technologically proficient and interact with several mHealth tools before testing The Canadian SmartMoms application. Six main themes emerge from thematic analysis: pregnancy-specific mHealth knowledge service, knowledge and attitude to guidelines for weight gain, weight tracking, strength of application, criticism and finally, Future suggestions for the application. Conclusion: Our thematic analysis finds that women positively see the potential of our application and offer constructive feedback to improve the next version	Participants sought more personalization and applications that enhanced interactivity, along with overall maternal health promotion including nutrition and mental health, in addition to weight tracking.

13	A Framework for Evaluating the Software Product Quality of Pregnancy Monitoring Mobile Personal Health Records	Ali Idri1 & Mariam Bachiri 1 & José Luis Fernández-Alemán2(2016)	(mPHRs) for monitoring pregnancy, which has been extracted from literature and mobile applications that are on the market.We also uses the ISO / IEC 25030 standard to suggest requirements which must be considered during quality evaluation from this mPHR.	The results obtained show that the requirements are related to user and application actions features have the greatest impact on external sub-characteristics from a software product quality model. The only sub-characteristic that is affected by all requirements is Conformity Conformity. Typical operability is affected by 95% of the lowest temporary requirements Impact level identified for Compatibility (15%) and Transferability (6%)	level of impact of mPHR for pregnancy monitoring requirements is discussed to provide appropriate recommendations for developers and mPHR stakeholders for pregnancy monitoring
14	Every pregnancy is different": Designing mHealth interventions for the pregnancy ecology	Tamara Peyton1, Erika Poole1, Madhu Reddy1, Jennifer Kraschnewski2 and Cynthia Chuang2(2017)	studies explore whether and how cell phones can be rotated role in helping low income women become healthier pregnancy, to achieve the right pregnancy weight gain.	Qualitative study of the experiences of pregnant women, us develop a set of design requirements for mobile design health interventions (mHealth) related to health pregnancy	Excessive gestational weight gain shows both short and short term long-term risks for mother and child. presents a series unique considerations for a nine month period from pregnancy that needs to be taken into account in cellular health
15	The Development OfRegita Model For prevention Of high Risk pregnanacy and child Birthh planned and anticipatoty	WayanAryawati)2016)	untuk memprediksi resiko terjadinya komplikasi pada ibu hamil dan bersalin dalam rangka menyusun pengembangan model pencegahan Resiko Tinggi Kehamilan Dan Persalinan Yang Terencana Dan Antisipatif (REGITA).	Jenis penelitian merupakan penelitian kasus kontrol. Populasi kasus dalam penelitian ini adalah semua ibu hamil dan melahirkan yang mengalami komplikasi kehamilan dan persalinan di Kota Bandar Lampung	Hasil tersebut akan dituangkan dalamPemograman simulator untukmenghasilkan suatu model pencegahankomplikas iRegita yang dapatdipergunakan untuk memperkirakan resiko kehamilan dan persalinan yang akan dihadapi oleh seorang ibu yang hamil.

16	Early warning systems in obstetrics: A systematic literature review	Aminu Umar1, Charles A. Ameh 1*, Francis Muriithi 2, Matthews Mathai(2019)	a systematic literature review of the obstetric early warning system peer-reviewed journals between January 1997 and March 2018 on Medline, CINAHL, SCOPUS, Direct Science, and Index EWS to detect clinical decline, or its effectiveness in improve clinical outcomes in obstetric inpatients	A total of 381 papers were identified, 17 of which met the inclusion criteria. Eleven of these included studies evaluating the accuracy of EWS predictions for obstetric morbidity and mortality, 5 studies assessed the effectiveness of EWS in improving clinical outcomes, meanwhile one study discussed both. Sixteen published versions of the EWS have been reviewed, 14 of them including five basic clinical observations (pulse, respiration rate, temperature, blood pressure, and level of awareness)	The midwifery EWS is effective in predicting severe morbidity (in the general obstetric population) and mortality (in critical obstetric patients). EWS can contribute to quality improvement treat, prevent progressive obstetric morbidity and improve health outcomes
17	The Health-e Babies App for antenatal education: Feasibility for socially disadvantaged women	Julia A. Dalton1³, Dianne Rodger2³, Michael Wilmore3,, Sal Humphreys3, Andrew Skuse2, Claire T. Roberts1, Vicki L. Clifton1	the Health-e Babies App trial, related to participant communication technology use, confidence to know where to look for help and mental health status, mother-fetus attachment and childcare beliefs. Involvement and use of the Baby e-Health Application measured by completing a questionnaire about the application and the data downloaded from participant's cellphone. Mental health status, self confidence and self efficacy were measured with a questionnaire	All women have similarities in terms of age, race, marital status, and education level. Of the 94 women (76%) who did not complete the trial, they were significantly more anxious as indicated by the State Trait Anxiety Inventory ($p = 0.001$ Student T-test) and more likely to become unemployed (50% vs 31%, $p = 0.012$ Student T-Test).	This study provides important information about the challenges associated with the implementation of a pregnancy app in a socially disadvantaged community. The data suggests that factors including social and mental health issues, financial constraints and technological ability can affect women's engagement with a mobile phone app.
JURNAL INTERENTION PREVENTION FOR HIGH RISK PREGNANACY					

18	Effectiveness of Home Visits in Pregnancy as a Public Health Measure to Improve Birth Outcomes	Kayoko Ichikawa1,2, Takeo Fujiwara2*, Takeo Nakayama1	a quasi-experimental cohort study in the city of Kyoto, Japan	In the propensity match score sample, women who received a home visit program had a lower chance of preterm birth (odds ratio [OR], 0.62; 95% confidence interval [CI], 0.39 to 0.98) and showed a difference of 0 , 55 weeks of gestational age (95% CI: 0.18-0.92) compared to suitable controlled samples. Although the program did not prevent LBW, it was found that home visits were from a trained public health nurses at least once during pregnancy are effective for preventing preterm birth, but not small for gestational age among high-risk pregnant women in Japan.	Further studies are needed to explain the mechanism of why receiving home visits late in pregnancy is more effective in preventing premature birth. This study has several limitations. First, this research is a quasi-experimental cohort design, so there may be unobserved variables and unknown confounding factors, such as the mother's personality or characteristic
19	The impact of universal home visits with pregnant women and their spouses on maternal outcomes: a cluster randomised controlled trial in Bauchi State, Nigeria	Anne Cockcroft, 1 Khalid Omer,2 Yagana Gidado,3 Muhammad Chadi Baba,3 Amar Aziz,2 Umaira Ansari,2 Adamu Ibrahim Gamawa,4 Yahaya Yarima,5 Neil Andersson1, 2(2018)	This cluster of randomized controlled trials tests the impact of universal home visits discussed these upstream risk factors with pregnant women and their partners, to trigger protective household actions pregnant women	randomly allocate four wards in the Local Government Authority Toro for immediate or postponed intervention. Ladies and gentlemen home visitors visit all pregnant women and their partners in two interventions ward every 2 months.	Home visits are reduced to the mother's head risk, increasing maternal outcomes without increasing use health services. This could have implications for others settings with poor access to antenatal quality

| 20 | Counselling about the Risk of Preterm Delivery: A Systematic Review | Laura Pedrini,1 Federico Prefumo,1,2 Tiziana Frusca,1,3 and Alberto Ghilardi1 | Systematic review to describe the results of counseling for preterm birth. PubMed, Embase, and PsycInfo systematically sought (from 2000 to 2016) | First result: No effect was detected when written material was given after consultation. Second, the choice of parents about care it seems to be influenced by aspects related to pre-existing spiritual and / or preferences, not by the level of detail or by order information provided. Therefore, exploration of parental trust is very important to reduce the risk of misunderstanding and to guarantee choices that are in line with personal values. | Further research is needed to validate these findings in a cross-cultural context and in real-world care settings. In addition, the centrality of the conversation and the characteristics of the doctor involved in counseling must be discussed in further research. |

Acknowledgments

Conclusion

The Counseling Approach Program for Pregnant Women is not very appropriate in assisting mothers in detecting danger signs of pregnancy so it needs to be done with the application of technology that is applied online through the Early Warning Program and Education Enhancement Application to improve the knowledge and skills of pregnant women through the involvement of husbands to prevent mothers Pregnancy from complications from the dangers of pregnancy and childbirth.

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