

Detection of pregnancy risk: A Literature Review

Ririn Indriani^{*1,2}, Sri Wahyuni³, Kun A Susiloretni¹

1 Poltekkes Kemenkes Semarang, Indonesia

2 Poltekkes Kemenkes Malang Indonesia

3 Poltekkes Kemenkes Surakarta, Indonesia

** ririnindrianimiori79@gmail.com*

ABSTRACT

Other symptoms and danger signs of pregnancy such as pregnancy outside the womb, infection of amniotic fluid, leakage of amniotic fluid before termination of pregnancy, bleeding without any signs of labor, must be detected by health cadres, before being referred to a more adequate health facility. In the millennial era unhealthy eating patterns and lifestyles associated with excess weight gain (obesity), diabetes mellitus, cholesterol and pregnancy complications, concomitant diseases such as heart disease, cholesterol, mothers exposed to alcohol, cigarettes or narcotics must be know.

This study aimed to know the effectiveness of media books for pregnancy detection. The keywords used were detection of pregnancy risk, symptoms and signs of pregnancy

This literature review used articles from Google Scholar, Science Direct, Pubmed, DOAJ published from 2010 to 2020. The inclusion criteria are full text articles, using English language, survey research, workshop, and pilot study to health promotion. The exclusion criteria are articles was non English language, incomplete articles, case study.

Containing symptoms and danger signs is effective for risk detection in early pregnancy.

Keywords : Detection of Pregnancy Risk, Symptoms, Signs Of Pregnancy

Received June 15, 2020; Revised July 8, 2020; Accepted August 14, 2020



STRADA Jurnal Ilmiah Kesehatan, its website, and the articles published there in are licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

BACKGROUND

As much as 3-14% hypertension is the main cause of maternal death, in other words 30,000 maternal deaths out of 500,000 deaths are caused by hypertension in pregnancy, with early symptoms of pre-eclampsia, eclampsia, stroke, to liver, kidney and heart damage, so detection is needed. early to prevent these complications. Other symptoms and danger signs of pregnancy such as pregnancy outside the womb, infection of amniotic fluid, leakage of amniotic fluid before termination of pregnancy, bleeding without any signs of labor, must be detected by health cadres, before being referred to a more adequate health facility. In the millennial era unhealthy eating patterns and lifestyles associated with excess weight gain (obesity), diabetes mellitus, cholesterol and pregnancy complications, concomitant diseases such as heart disease, cholesterol, mothers exposed to alcohol, cigarettes or narcotics must be known by women (Maseresha, 2016).

Lifestyle and unhealthy eating patterns associated with excess weight gain (obesity), diabetes mellitus, cholesterol and pregnancy complications, comorbidities such as heart disease, cholesterol, mothers exposed to alcohol, cigarettes or narcotics must be known by health (Hallscots, 2014). A study states that the first step in making timely referrals is knowledge of the danger signs and complications of pregnancy. Screening for danger signs of pregnancy in early pregnancy is one of the main strategies to reduce maternal mortality. Pregnant women and families can recognize the danger signs of pregnancy, to immediately seek health services, so that by increasing knowledge about detection of pregnancy risk it is expected that pregnant women will more quickly get health services according to the case they are experiencing. In contrast to research in Tanzania which states that antenatal care, programs include health promotion, prevention, detection, and treatment of disease. This health promotion contains information for preparation for delivery so that pregnant women realize that pregnancy and childbirth complications cannot be predicted (Dogra et al, 2019). Some conditions that become complications of pregnancy that should be known by pregnant women are fever in malaria endemic areas, coughing for more than 2 weeks, vaginal discharge and itching in the pubic area, recurring diarrhea, palpitations, anxiety and sleeplessness. The impact of repeated coughing for more than 2 weeks on the mother can cause respiratory infections and on the fetus can cause low birth weight babies (Teng et al, 2015). Anxious feelings during excessive pregnancy also have an impact on the well-being of the mother and fetus. The period of pregnancy should be passed by the mother as a pleasant period so that the fetus also feels happy and its growth in the womb will also take place maximally. Awareness to know and detect early on pregnancy danger signs will be able to increase efforts to reduce MMR by speeding up early detection and obtaining health services that are appropriate to the case. In line with research conducted in Malaysia which used a questionnaire about pregnancy danger signs, it was found that the knowledge of pregnant women about detection of pregnancy risks still needs to be improved. Strong relationships and a sense of togetherness make community members feel more concerned about health issues so there is a desire to detect risks to health problems (Witteveen, 2016; Ali, 2017).

METHODS

This literature review used articles from Google Scholar, Science Direct, Pubmed, DOAJ published from 2010 to 2020. The inclusion criteria are full text articles, using English language, survey research, workshop, and pilot study to health promotion. The exclusion criteria are articles was non English language, incomplete articles, case study. The keywords used were : Detection of pregnancy risk, symptoms and signs of pregnancy

RESULTS

The results of a research database are 280 articles. as many as 97 articles have similarities or similarities to the title, 167 articles are not relevant. after using the inclusion and exclusion criteria 8 articles were found that are suitable for this literature

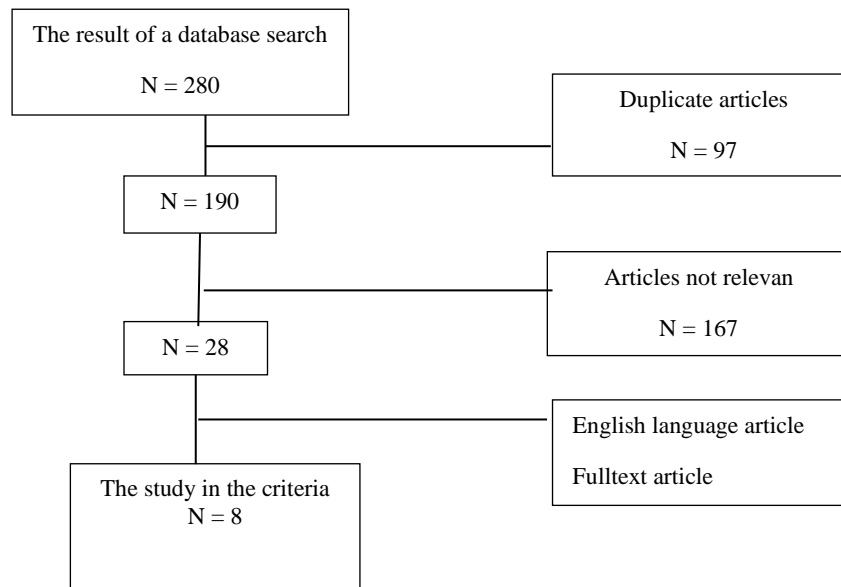


Figure . Flowchart of the exclusion process and final selection

Table . The research risk pregnancy

Author	Respondent	Sampel	Age	Desain	Experience (Month)	Result	<i>p</i>
Xinliang 2014	3202 participant	Pregnant women	15-45	A cross-sectional survey using our previously developed preconception instrument was conducted	14	2806 of them and 0,001 their partners have completed the questionnaire, at a rate of 87.6%, 1011 were from Jiangsu and 1795 were from Hebei. Statistical significance was obtained for maternal age ($P < 0.001$), body mass index ($u = 13.590$, $P < 0.001$), education ($\chi^2 = 916.33$, $P < 0.001$), occupation ($\chi^2 = 901.78$, $P < 0.001$), health status/common disease, immunization status, and need for	

						preconception care
Shelley 2012	182 participants	Pregnant women	<20- ≥40	Workshop effectiveness was evaluated using an RCT	7	Significantly more0,011 women in the intervention met pregnancy fruit guidelines at time 2 (+4.3%, p = 0.011) and had a clinically-relevant increase in physical activity (+27 minutes/week) compared with women who only received the resource (ITT). Women who attended the workshop increased their consumption of serves of fruit (+0.4 serves/day, p = 0.004), vegetables (+0.4 serves/day, p = 0.006), met fruit guidelines (+11.9%, p < 0.001), had a higher diet quality score (p = 0.027) and clinically- relevant increases in physical activity (+21.3 minutes/week) compared with those who only received the resource (PP).
Xiaosong 2019	831 pregnant women who underwent data NIPT at 12–22 weeks of gestation	All clinical data was analyzed with patient identification on anonymize d. Inclusion criteria of	35	This was a retrospective cohort study. Maternal plasma cfDNA levels and pregnancy outcomes were obtained from NIPT Screening System and hospitalization	14	Maternal cfDNA0,016 levels were significantly higher in women diagnosed with intrahepatic cholestasis of pregnancy (ICP) and preeclampsia (PE) compared to pregnant women with non-pregnancy complications

				the cohort were as follows: 1) pregnant women between 18 and 50 years old; 2) were between 12 and 22 weeks of gestation; 3) had negative NIPT results and gave birth in our hospital; 4) singleton pregnancy, live birth without birth defects.	records, respectively. Logistic regression analysis was performed to investigate the relationship between cfDNA levels and pregnancy complications (after adjusting for confounding factors)		(NPC) (median cfDNA 7.07, 6.42 vs. 5.99 ng/mL). Increase in cfDNA levels were associated with an increased risk for ICP (adjusted-OR=1.20, 95% CI: 1.07–1.34) and PE (adjusted-OR=1.14, 95% CI: 1.02–1.26). In addition, increase in cfDNA levels were associated with risk of GDM, and was dependent on maternal age (maternal age≥35 years: adjusted-OR=1.16, 95% CI: 1.04–1.29; maternal age < 35 years: adjusted-OR=0.85, 95% CI: 0.73–0.99).
Rebecca 2018	831 pregnant women who underwent NIPT at 12–22 weeks of gestation	Pregnant women	18	Very few participants preferred their physicians to make the final decision about treatment either with (6%) or without (1%) their input. About half of participants (48%) preferred to make the final decision about treatment after considering their physicians' opinion, whereas roughly equal proportions preferred making decisions with their physicians	2	Participants who preferred tight control (49%) were more often white (odds ratio [OR] : 2.38; 95% confidence interval [CI]: 1.18-4.55), with a university education / professional qualification (OR 1.95; 95% CI: 1.02-3.7), and had greater knowledge about pregnancy hypertension and pregnancy complications (OR 1.37; 95% CI: 1.15-1.65). Participants	

				(22%) or independently (24%).	
Gillian 2019	24 participants	Gestasional age 4-12 weeks	This pilot study used a randomised step-wedge design in six Aboriginal Medical Services (AMSs) in Australia: four services in New South Wales, one in Queensland, and one in South Australia.	10	Pregnant women- (n=22; 47% (95% CI: 32%, 63%) eligible) and HPs (n=50; 54% (95% CI: 44%, 64%) eligible) were recruited over 6 months with retention rates of 77% (95% CI: 57%, 90%) and 40% (95% CI: 28%, 54%) respectively
Anna 2013	29 partisipant		Behaviour change-techniques (BCTs) were identified within the literature and used to inform a communication tool to support medical students in discussing health-related behaviour change with patients.	23-55	One-sample t-tests ^{0,002} showed that judges reliably mapped BCTs onto six of the seven Tent Pegs domains (confidence rating means ranged from 4.0 to 5.1 out of 10, all p \leq 0.002). Only BCTs within the 'empowering people to change' domain were not significantly different from the value zero (mean confidence rating = 1.2, p > 0.05); these BCTs were most frequently allocated to the 'addressing thoughts and emotions' domain instead.
Widyawati 2015	23 responden	264 pregnant women	25-50 >50 a qualitative method with semi-structured interviews	12	A healthy and-supportive organisation knows its employees, understands their needs and maintains

						and improves their level of competence by providing a combination of facilities, learning resources and training for their employees
Jesicca 2020	13 responden	173 pregnant women	-	Randomised controlled trials	-	A healthy and-supportive organisation knows its employees, understands their needs and maintains and improves their level of competence by providing a combination of facilities, learning resources and training for their employees

DISCUSSIONS

Health promotion tools not only help in overcoming the ignorance of clients and detecting pregnancy risk, but increase competence in detecting pregnancy risk (Zibellini, 2020). In line with research which states that complications during pregnancy such as dizziness, swelling on the face and legs, water coming out before there are signs of labor, heart palpitations, nausea and vomiting throughout the day, use of drugs or chemicals that are not needed by pregnant women (La-Orpipat, 2019). Therefore, detection for pre-eclampsia in the first trimester, which is now supported by an international obstetrics and gynecology association, is highly recommended for all women at 11-13 weeks' gestation, followed by serial aspirin and maternal administration and fetal surveillance via ultrasound (Vikraman, 2020). Unlike the research on cases of reducing anxiety. The method of using a booklet should not be recommended for pregnant women in clinical practice in obstetrics(18). It has been realized that women's behavior is influenced by their environment. As such, the program is relevant in supporting cultural traditions with a family focus and even helps educate behavior for a healthier life (Miller, 2012; Ahmadian, 2020). The skills in interacting with diverse populations, various walks of life, and also close to the community to give examples and applications about health (Duysburgh, 2013). In other studies data were collected by questionnaire. After the questionnaire was developed, four medical informatics experts and obstetricians / gynecologists checked for content validity. Statistical tests (Marginal Homogeneity Test) confirm this questionnaire ($r = 0.9$). Data were analyzed using SPSS, version 19.0. Descriptive statistics (frequency, percentage, and average) are calculated. Chi-square analysis was performed to determine the relationship between internet use, and frequency of internet use. The results are presented as follows: of the 385 pregnant women who were invited to fill out the

questionnaire, three (1%) did not agree to participate in the study (Lamminpaa, 2015). Studies conducted at Tabriz Iran show that the most important sources of information for pregnant women are doctors, midwives, nurses, the internet and print media (Muzik, 2010; Hosseini, 2018). This finding is consistent with the results of other studies in the sense that in all of these studies, the health profession is the main source (Lane-Cordova, 2019). Lack of timely access to a doctor can be a reason for mothers who report that their doctor is not their first source of information to find information. Unlike other studies where all health professions are considered in one class, we separate doctors, midwives / nurses in our questionnaire and as the main source of information are midwives / nurses (61/22%) (Macedo, 2020; Santos et al, 2020).

CONCLUSION

Health during pregnancy risk detection material can be used as an early pregnancy detection.

REFERENCES

- Maseresha N, Woldemichael K, Dube L. Knowledge of obstetric danger signs and associated factors among pregnant women in Erer district, Somali region, Ethiopia. *BMC Womens Health*. 2016;16(1):1–8. Available from: <http://dx.doi.org/10.1186/s12905-016-0309-3>
- Halscott TL, Ramsey PS, Reddy UM. First trimester screening cannot predict adverse outcomes yet. *Prenat Diagn*. 2014;34(7):668–76.
- Ekta Dogra, Sathiabalan Murugan, Anubhuti Sharma AKA. Itching During Pregnancy – Should it be Handled in Routine or on Priority? – Role of Community Medicine Health Post in Bridging the Gaps in the Health System. *Int J Heal Syst Implement Res*. 2019;3(1):75–83.
- Teng SP, Zuo TC, Jummaat FB, Keng SL. Knowledge of pregnancy danger signs and associated factors among Malaysian mothers. Vol. 23, *British Journal of Midwifery*. 2015. 800–806 p.
- Witteveen AB, De Cock P, Huizink AC, De Jonge A, Klomp T, Westerneng M, et al. Pregnancy related anxiety and general anxious or depressed mood and the choice for birth setting: A secondary data-analysis of the deliver study. *BMC Pregnancy Childbirth* [Internet]. 2016;16(1). Available from: <http://dx.doi.org/10.1186/s12884-016-1158-7>
- Ali A, Zaman U, Mahmud S, Zahid G e. S, Kazi M, Petri WA, et al. Impact of maternal respiratory infections on low birth weight - a community based longitudinal study in an urban setting in Pakistan. *BMC Pregnancy Childbirth*. 2017;17(1):1–7.
- Zhao X, Jiang X, Zhu J, Li G, He X, Ma F, et al. Factors influencing the quality of preconception healthcare in China: Applying a preconceptional instrument to assess healthcare needs. *BMC Pregnancy Childbirth*. 2014;14(1):1–10.
- Wilkinson SA, McIntyre HD. Evaluation of the “healthy start to pregnancy” early antenatal health promotion workshop: a randomized controlled trial. *BMC Pregnancy Childbirth*. 2012;12.
- Yuan X, Zhou L, Zhang B, Wang H, Jiang J, Yu B. Early second-trimester plasma cell free DNA levels with subsequent risk of pregnancy complications. *Clin Biochem* [Internet]. 2019;71(16):46–51. Available from: <https://doi.org/10.1016/j.clinbiochem.2019.07.001>
- Metcalfe RK, Harrison M, Hutfield A, Lewisch M, Singer J, Magee LA, et al. Patient

- Preferences and Decisional Needs When Choosing a Treatment Approach for Pregnancy Hypertension: A Stated Preference Study. *Can J Cardiol.* 2020;36(5):775–9.
- Gould GS, Bovill M, Pollock L, Bonevski B, Gruppette M, Atkins L, et al. Feasibility and acceptability of Indigenous Counselling and Nicotine (ICAN) QUIT in Pregnancy multicomponent implementation intervention and study design for Australian Indigenous pregnant women: A pilot cluster randomised step-wedge trial. *Addict Behav* [Internet]. 2019;90(October 2018):176–90. Available from: <https://doi.org/10.1016/j.addbeh.2018.10.036>
- Chisholm A, Hart J, Mann K, Peters S. Development of a behaviour change communication tool for medical students: The “Tent Pegs” booklet. *Patient Educ Couns* [Internet]. 2014;94(1):50–60. Available from: <http://dx.doi.org/10.1016/j.pec.2013.09.007>
- Widyawati W, Jans S, Utomo S, van Dillen J, Janssen LLML. A qualitative study on barriers in the prevention of anaemia during pregnancy in public health centres: Perceptions of Indonesian nurse-midwives. *BMC Pregnancy Childbirth.* 2015;15(1):1–8.
- Zibellini J, Muscat DM, Kizirian N, Gordon A. Effect of health literacy interventions on pregnancy outcomes: A systematic review. *Women and Birth* [Internet]. 2020;(2019):1–7. Available from: <https://doi.org/10.1016/j.wombi.2020.01.010>
- Arora C. Development and Validation of Health Education Tools and Evaluation Questionnaires for Improving Patient Care in Lifestyle Related Diseases. *J Clin Diagnostic Res.* 2017;11(5):9–12.
- La-Orpipat T, Suwanrath C. Pregnancy outcomes of adolescent primigravida and risk of pregnancy-induced hypertension: a hospital-based study in Southern Thailand. *J Obstet Gynaecol (Lahore)* [Internet]. 2019;39(7):934–40. Available from: <https://doi.org/10.1080/01443615.2019.1581736>
- Vikraman SK, Elayedatt RA. Pre-eclampsia screening in the first trimester—preemptive action to prevent the peril. *J Matern Neonatal Med* [Internet]. 2020;0(0):1–9. Available from: <https://doi.org/10.1080/14767058.2020.1767059>
- A.Da Silva Santos A, Rodrigues ARM, Moura da Silveira MA, Paiva Rodrigues D, de Jesus Silva Bezerra dos Anjos S, Júnior ARF, et al. Metasynthesis of educational strategies used to promote prenatal health. *J Obstet Gynaecol (Lahore)* [Internet]. 2020;40(2):147–52. Available from: <https://doi.org/10.1080/01443615.2019.1604642>
- Miller G. Application of Theory to Family-Centered Care: A Role for Social Workers. *Soc Work Health Care.* 2012;51(2):89–106.
- Ahmadian L, Khajouei R, Kamali S, Mirzaee M. Use of the Internet by pregnant women to seek information about pregnancy and childbirth. *Informatics Heal Soc Care* [Internet]. 2020;00(00):1–11. Available from: <https://doi.org/10.1080/17538157.2020.1769106>
- Duysburgh E, Ye M, Williams A, Massawe S, Sié A, Williams J, et al. Counselling on and women’s awareness of pregnancy danger signs in selected rural health facilities in Burkina Faso, Ghana and Tanzania. *Trop Med Int Heal.* 2013;18(12):1498–509.
- Lamminpää R. Advanced Maternal Age, Pregnancy and Birth [Internet]. Eastern Finland: Department of Nursing Science, Faculty of Health Sciences, University of Eastern Finland Kuopio; 2015. 37–43 p. Available from: Publications of the University of Eastern Finland Dissertations in Health Sciences%0A

- Muzik M, Marcus SM, Flynn H, Rosenblum KL. Depression during pregnancy: Detection, comorbidity and treatment. *Asia-Pacific Psychiatry*. 2010;2(1):7–18.
- Hosseini E, Janghorbani M, Aminorroaya A. Incidence, risk factors, and pregnancy outcomes of gestational diabetes mellitus using one-step versus two-step diagnostic approaches: A population-based cohort study in Isfahan, Iran. *Diabetes Res Clin Pract* [Internet]. 2018;140:288–94. Available from: <https://doi.org/10.1016/j.diabres.2018.04.014>
- Lane-Cordova AD, Khan SS, Grobman WA, Greenland P, Shah SJ. Long-Term Cardiovascular Risks Associated With Adverse Pregnancy Outcomes: JACC Review Topic of the Week. *J Am Coll Cardiol*. 2019;73(16):2106–16.
- Macedo TCC, Montagna E, Trevisan CM, Zaia V, de Oliveira R, Barbosa CP, et al. Prevalence of preeclampsia and eclampsia in adolescent pregnancy: A systematic review and meta-analysis of 291,247 adolescents worldwide since 1969. *Eur J Obstet Gynecol Reprod Biol* [Internet]. 2020;248(March):177–86. Available from: <https://doi.org/10.1016/j.ejogrb.2020.03.043>
- A.Da Silva Santos A, Rodrigues ARM, Moura da Silveira MA, Paiva Rodrigues D, de Jesus Silva Bezerra dos Anjos S, Júnior ARF, et al. Metasynthesis of educational strategies used to promote prenatal health. *J Obstet Gynaecol (Lahore)* [Internet]. 2020;40(2):147–52. Available from: <https://doi.org/10.1080/01443615.2019.1604642>