ORIGINAL ARTICLE

# Development of a High-Risk Pregnant Women Class Model with the Application of Inter Professional Education - Collaboration Practice (IPE-CP)

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## ABSTRACT

**OBJECTIVE**: To obtain a procedural model for pregnant women aimed at pregnant women who are classified as high risk by implementing Inter-Professional Education - Collaboration Practice (IPE-CP).

**METHODOLOGY**: This study was carried out with the ADDIE research method. The study's purpose was to obtain a class model of pregnant women classified as high-risk by applying the IPE-CP concept. Data collection techniques include interviews, questionnaires, documentation, FGDs and expert input.

The model trial was conducted in 5 classes with a sample size of 100 pregnant women aged < 32 weeks. Quantitative data analysis uses descriptive-analytic and qualitative data validation, classification and triangulation.

**RESULTS:** A model for developing classes for pregnant women was obtained, with modification of activity procedures: The implementation team consisted of interprofessional collaboration, implementation of education with the application of IPE-CP, screening for high-risk pregnant women was carried out, and assistance was provided for high-risk pregnant women. The results of the trial of the feasibility of the highest model on the criteria of benefit with a score of 86.14 and SD. 12,171.

**CONCLUSION**: The IPE-CP Class Model for Pregnant Women is feasible to be implemented for pregnant women who are classified as high-risk. Suggestions for the need to develop a class model for pregnant women that are carried out by application or online system.


**KEYWORDS:** Model, Class of pregnant women, High Risk, Inter-professional Education-Collaboration Practice (IPE-CP)

## INTRODUCTION

The target for reducing the Maternal Mortality Rate (MMR) proclaimed by the United Nations (U.N.) in 2024 is 102/100,000 live births; in Indonesia, it is targeted at 183/100,000, and by 2030 it is expected to decrease to 131/100,000 live births[1]. The results of the Millennium Development Goals (MDGs) evaluation of MMR in Indonesia based on the 2015 Intercensus population survey were 305/100,000 live births.

The high maternal mortality rate (MMR) in Indonesia results from the low quality of health services and local government policies related to health that has not been maximized[2]. Efforts to reduce MMR include strengthening maternal health services at the primary health care level by prioritizing promotive and preventive efforts[3]. Preventive steps are in the form of providing education to pregnant women through pregnant women classes[4].

Guidelines for implementing the pregnant women class program are based on the technical manual for the pregnant class according to the Ministry of Health of the Republic of Indonesia in 2014[5]. The target class of pregnant women is aimed at all conditions of pregnant women; there is no special education for pregnant women classified as high-risk. Providing education following the mother's health condition is very much needed because pregnant women at high risk are very susceptible to complications that can threaten the life of the mother or the fetus caused as a direct result of the pregnancy and childbirth process[6]. The identification approach to Oechsle Anja 2020[7] and Mohamed Saffa 2019[8] risk is not an important reason. Still, on the contrary, the preparation of knowledge in pregnant women can further improve the welfare of the mother and fetus.

According to the author's observations, implementing the pregnant women's class program is currently less effective. The organizers of activities and educator facilitators are only active midwives, and other health professionals are less actively involved. For the program to be implemented more effectively and achieve maximum education for pregnant women, a strategy is needed, with the formation of an implementing team and educational facilitators involving various health workers from different backgrounds who collaborate, with patients. Families and communities in providing education to pregnant women[9,10].

Based on the background and existing problems, the researcher will research developing the pregnant mother class model used in Indonesia today by modifying the activity procedures: planning, implementation, mentoring, monitoring and evaluation with the application of IPE-CP. The purpose of this study was to obtain a class model for pregnant women aimed at pregnant women at high risk with the application of inter-professional education-collaboration practice (IPE-CP). The results of this study are expected that the existence of a class model for pregnant women is more effective and more focused for pregnant women to get precise information about maternal health problems during pregnancy so that with increased knowledge and attitudes of pregnant women, complications of pregnancy and childbirth can be prevented maximally.

## METHODOLOGY

This study was carried out with the ADDIE research method developed by Borg WR 1989[11] & Dick W 2001[12]. Includes the stages: Analyze, Design, Develop, Implement and Evaluate[11,]. The research focus includes needs analysis, planning, implementation, and monitoring. The study aimed to obtain a class model of pregnant women classified as high-risk by implementing Inter-professional Education-Collaboration Practice (IPE.Cp). The research was carried out in May-October 2020. The research locations were carried out at Public Health Centre (PKM) in five sub-districts (Tanjung Bintang, Penengahan, Ketapang, Way Urang and Karang Anyar), taken based on a random allocation from 17 sub-districts in the Southern Lampung district of Lampung province in Indonesia.

Based on research needs, the sampling technique for officers involved in the class of pregnant women was used purposive sampling and obtained a sample of 35 health workers. Qualitative data collection techniques were used for the study documentation, observation, interviews (in-depth interviews) by researchers and Focus Group Discussion (FGD) with FGD participants, all program implementers, and researchers, representatives of pregnant women, health cadres and experts.

The trial implementation of the feasibility of the model, and responses of participants who have attended classes for pregnant women, was carried out in five groups of classes for pregnant women. The Federer formula determines the number of samples for each class of pregnant women[13], obtaining 19 samples (rounded 20) for each group. The random sampling technique was used to collect the sample. The sample size was 100 pregnant women. The sample of this study is pregnant women under 32 weeks of gestation in the womb after 32 weeks, and there are still four weeks that can be used for the mentoring period for pregnant women before their birth.

The data collection tool used a questionnaire addressed to participants (pregnant women). Analysis of statistical results to see the average ± S.D. or frequency (percent) was managed and analyzed using SPSS, version 21, for quantitative data, using descriptive analysis and data interpretation according to Sudjana with a score range of 90-100 (very good), 80-90 (good), 70-80 (fairly good), 60-70 (poor) and < 60 (very bad)[14], for qualitative data, used data reduction, interpretation and triangulation.

## RESULTS

1. Potential and needs analysis **(Table I).**

**TABLE I: DISTRIBUTION OF POTENTIAL PREGNANT WOMEN CLASS PROGRAM SUPPORTERS**

| Potential Component | Public Health Centre PKM | | | | | Amount |
|---|---|---|---|---|---|---|
| | Tanjung Bintang | Penengahan | Ketapang | Way Urang | Karang Anyar | |
| Caregiver | 56 | 89 | 77 | 78 | 80 | 380 |
| Home City | 9 | 22 | 17 | 14 | 12 | 74 |
| Pregnant women class | 9 | 22 | 17 | 15 | 12 | 75 |
| Pregnant Women | 868 | 551 | 449 | 714 | 819 | 3.401 |
| Local Midwife | 10 | 22 | 17 | 14 | 20 | 83 |
| Health promotor | 185 | 289 | 225 | 370 | 295 | 1364 |

2. Design development and validation models

The design of the development model for the implementation of high-risk pregnant class procedures with the application of IPE-CP is based on a needs analysis, and seeing the potential and validation is carried out. The results of the FGD and input from the four models of the developed design procedures are: 1) Team formation is included in the planning procedure, and the implementation team consists of several health professionals. 2) Socialization is carried out at the village level by involving relevant stakeholders and the community. 3) Implementation procedure is carried out at the beginning of the activity screening; pregnant women at high risk are assessed, treated and monitored according to the problem. 4). Provision of education is carried out by applying IPE-CP. 5) Existence of cross-program and sector cooperation. 6) Mentoring is provided for pregnant women classified as high-risk until the mother goes through the process of giving birth. 7) Implementation of monitoring and evaluation is made into a series of activities.

3. The final results of the development of the IPE-CP pregnant women class procedure model, after revisions have been made, are as follows **Figure I.**

**FIGURE I: MODEL OF PREGNANT WOMEN CLASS (MINISTRY OF HEALTH RI 2014) AND THE RESULTS OF THE DEVELOPMENT OF THE CLASS MODEL FOR PREGNANT WOMEN (RESTIKOL)**

| **Model of pregnant women Class (Ministry of Health 2014) Before Development** |
|---|
| 1. Public needs analysis |
| 2. Preparatory meetings |
| 3. Build a team |
| 4. Socialization |
| 5. Preparation |
| 6. Implementation and Reporting |
| 7. Monitoring |
| 8. Evaluation |

| **The results of the Class model for pregnant women RESTIKOL** | | | |
|---|---|---|---|
| 1. Needs Analysis | | | |
| **2. Planning ( IPC Team)** | | | |
| 3. Socialization | | | |
| 4. Preparation at the Village levels | | | |
| Cooperation across programs & sectorial education maternal health | | 5. Implementation + Reporting | |
| | | **Screening High Risk (HR)** | |
| | | HR: Review + Treatment / Monitor | Not HR |
| | | Meeting 1 RESTKOL Class (IPE-Cp) | |
| | | Meeting 2 RESTKOL Class (IPE-Cp) | |
| | | Meeting 3 RESTKOL Class (IPE-Cp) | |
| | | Meeting 4 RESTIKOL material for pregnant women(IPE-Cp) | Capita Selecta |
| 6. Monitoring | | | |
| 7. Monitoring and Evaluation | | | |

The results of the development of the IPE-CP class model procedure for pregnant women obtained changes according to the needs and conditions in the field, namely as follows:

**Planning:** The implementation team for the class for pregnant women is a collaborative interprofessional team involving several related professions, namely: Doctors, Midwives, Nutritionists, Health Promotion staff, laboratory personnel and Sanitarians experts. Each profession has a straightforward task and is committed to educating pregnant women according to their expertise.

**Screening:** All pregnant women before getting the class for pregnant women; at the first meeting, screening was carried out; the purpose of the screening was to see whether the health status of pregnant women was included in the risk category or not, as input for the team to provide interventions according to the mother's condition.

**Implementation:** meetings in the class of pregnant women are carried out in four meetings with delivery through Inter-Professional Education - Collaboration Practice (IPE-CP). Educational materials on pregnancy, childbirth, care for newborns and postpartum and prevention of complications of pregnancy and childbirth. Pregnant women classified as high risk will have

their health conditions checked and given education and particular interventions according to their problems through cross-program and cross-sector collaboration. Among them are the Delivery Planning and Complication Prevention Program, the Supplementary Feeding Program and the administration of Fe tablets. The entire series of class activities for IPE-CP pregnant women are recorded and reported.

**Mentoring:** After the education package is complete, the mentoring process is continued by the IPC team in collaboration with cross-program and cross-sector teams with village officials and cross-sectoral assistance in the form of the Desa standby program. Assistance is carried out by monitoring the health development of pregnant women until the mother undergoes the process of giving birth to her baby.

4. Trial implementation and Evaluate of the IPE-CP pregnant class model

The design of the procedural model that has been tested can be implemented in five classes of pregnant women. After completing the pregnant women class activity procedures, participants and program implementers were asked to conduct an assessment of the feasibility of the model based on several assessment indicators by filling out a questionnaire; the following results were obtained **Table II.**

**TABLE II: PARTICIPANTS' RESPONSES ABOUT THE FEASIBILITY OF IMPLEMENTING A HIGH-RISK PREGNANT WOMAN CLASS WITH THE APPLICATION OF IPE-CP**

| Indicator | N | Mean | Median | Modus | SD | Min | Max |
|---|---|---|---|---|---|---|---|
| Benefits | 100 | 86,14 | 90 | 95 | 12.171 | 50 | 100 |
| Socialisation | 100 | 85.85 | 88 | 88 | 11.159 | 50 | 100 |
| Screening Pregnant women class | 100 | 83.84 | 85 | 75 | 11.117 | 50 | 100 |
| Content | 100 | 77.12 | 77.50 | 63 | 16.269 | 44 | 100 |
| Method | 100 | 78.52 | 81 | 81 | 10.408 | 50 | 94 |
| Facilitator's skill | 100 | 81.94 | 83 | 83 | 12.960 | 50 | 100 |
| Utilities | 100 | 82.32 | 81 | 75 | 10.585 | 50 | 100 |
| Audio-Visual Media | 100 | 79.64 | 78 | 75 | 12.240 | 50 | 100 |
| Implementation | 100 | 84.26 | 88 | 88 | 11.278 | 50 | 100 |
| Mentoring | 100 | 84.75 | 88 | 75 | 10.589 | 63 | 100 |

## DISCUSSION

### Planning (Inter-Professional Collaboration (IPC) team)

The development in planning the pregnant class is an implementation team consisting of a collaborative interprofessional team. The groups interact and influence each other, are responsible for achieving common goals associated with organizational objectives, and perceive themselves as a social entity within an organization[15,16].

Interprofessional Collaboration (IPC) is developing and maintaining effective working relationships between students, practitioners, patients/clients/families and communities to optimize health services[17]. Inter-professional collaboration is in line with the literature study of Bentley; Midwife–physician inter-professional collaboration can be defined by four dimensions (organizational, procedural, relational, and contextual)[18].

Judging from the results of the study of the potential of health workers at the PKM level, several professional health workers are already scattered in every village. The IPC team in implementing the maternity class program can be applied. A study related to the application of teamwork by Vestergaard E 2018[19] stated that inter-professional collaboration (IPC) had been emphasized as an effective method for improving patient care delivery. In line with the results of research by Borf E 2019[20] the application of inter-professional collaboration involving various professions in the provision of education positively affects the teaching and learning process. The IPC implementers who cooperate in implementing the class program for pregnant women classified as high risk are expected to be able to maximize the program objectives to be achieved.

### Implementation of Screening

Mothers are screened at the beginning of the class meeting to capture pregnant women classified as high-risk. High-risk pregnancies can increase the risk of abnormalities or harm to the mother and fetus[21,3]. Screening for pregnant women can detect maternal health early and prevent and provide early treatment so that further complications are not expected[22].

Zhao Y 2019[23] study on the importance of screening stated, "Every pregnant woman has risks in her pregnancy even though the early pregnancy shows normal conditions. Kim SY 2018[24] also believe that screening or early detection can be helpful for the early detection of prenatal conditions.

The results of the trial using the IPE-CP class model for pregnant women, seen from the responses of pregnant women about the implementation of screening, an average score of 86.1 was found in the good category. The same study by Creedy stated: Screening done through a mobile phone app can effectively screen for physical and mental health conditions[25]. The results showed that implementing screening for pregnant women is beneficial in the early detection of high-risk pregnancies. The results of pregnancy screening will make it easier for interprofessional teams to collaborate in planning the proper education according to the needs of pregnant women.

### 3. Implementation of Education with the application of Inter-Professional Education - Collaboration Practice (IPE-CP)

Interprofessional Education-Collaborative Practice (IPE-CP) is an interactive, group-based learning method that creates a collaborative learning atmosphere to create collaborative practice[26,10]. The purpose of IPE-CP is an inter-professional collaborative practice involving

various professions learning how to work together by providing the knowledge, skills and attitudes needed to collaborate effectively[27].

The development of the Inter-Professional Education - Collaboration Practice model, is also strengthened by the results of previous research. It was found that IPE-CP was very effective in increasing the knowledge and attitudes of pregnant women about balanced nutrition[28]. Similar research was conducted by Klode K 2020[29] and the result of Inter-professional collaboration was influenced by the relationships between professionals and sectors involved in antenatal care for pregnant women.

The results of the trial using the KIH model regarding the response of mothers to the implementation of IPE-CP obtained a score of 84.26 in the good category; this means that the application of Inter-Professional Education-Collaboration Practice (IPE-CP) is very appropriate to be carried out in increasing knowledge of pregnant women about how to prevent the early risk of pregnancy and childbirth complications. By obtaining information from experts, it is hoped that pregnant women can gain explicit knowledge of pregnancy care and preparation for the birth of their baby.

**4. Mentoring**

The implementation of mentoring is carried out after completing the pregnant women's class package meeting. The team carries out Mentoring in collaboration across programs and sectors with village administrators to encourage community participation in the Maternity Planning and Complications Prevention (P4K) Program[4]. Community involvement in implementing health program assistance is needed so that the maximum achievement of health targets can be achieved[30].

The process of mentoring is monitoring mothers who are at high risk during their pregnancy until the mother gives birth to her fetus. Every pregnant woman needs assistance during pregnancy, considering that every pregnancy has a stake in her pregnancy[23]; this shows that surveillance during pregnancy and early detection is essential in planning follow-up to minimize the risk to the mother or fetus[31]. The purpose of the assistance is to increase awareness and give special attention to pregnant women at greater risk[32].

The research results on the responses of pregnant women from mentoring activities obtained an average score of 84.26% (good category); this means the importance of mentoring activities for pregnant women. The results of the research support Asparian's "there is an effect of mentoring in the class of pregnant women on the visits of pregnant women to health service facilities with a p-value of 0.000 [33]. The same research study by Mardeni M 2020[34] results that professional health workers who conduct home visits (accompaniment) are more effective in improving maternal and fetal well-being, especially in developing countries.

In line with the results of research conducted by previous researchers, there is an effect of mentoring local food consumption (serwit) with the application of IPE-CP) on the nutritional status of pregnant women[35]. Assistance for pregnant women at high risk is very necessary, with the healthy development of pregnant women and their fetuses being monitored and can be handled appropriately and quickly if pregnant women experience problems in their pregnancy.

## CONCLUSION

This research obtained a class model for pregnant women, which aims to increase the knowledge of pregnant women who are classified as high risk by developing a class for pregnant women according to the condition of pregnant women and the availability of health workers. The procedural models developed include the pregnant women class implementation team from the Inter-professional Collaboration Team (IPC), screening to see the mother's health condition, and assistance to involve cross-program and cross-sector collaboration. Implementing classes for at-risk pregnant women with the Inter-Professional Education-Collaboration Practice (IPE-CP) can provide a good response from pregnant women, especially in terms of benefits. They can be applied as an alternative to providing education to pregnant women.
Pregnant women are at high risk, and further research is needed to obtain other procedures like an application or online system to prepare knowledge of pregnant women according to the needs of pregnant women in the local community.

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## AUTHOR CONTRIBUTIONS

Sudarmi S: Research design, data collection, analysis
Bertalina B: Research design, data analysis
Kusmiyati Y: Data collection, data analysis
Wahab A: Data collection, data analysis,

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