

ICASH-A021

## **THE EFFECTIVENESS OF "FLASH CARD" IN IMPROVING MOTHERS' KNOWLEDGE ON PREGNANCY**

**Tatarini Ika Pipitcahyani<sup>1</sup>, Citra Adityarini Safitri<sup>2\*</sup>**

- 1) *Poltekkes Kemenkes Surabaya,*
- 2) *Postgraduate Applied Science Program in Midwifery, Poltekkes Kemenkes Semarang, Semarang, Indonesia,*

\*Corresponding author E-mail:citraadityarini@gmail.com

### **ABSTRACT**

**Background:** The government has been supporting expecting mothers by providing pregnancy education courses in order to improve the quality of mother and child health and to reduce maternal mortality rate (MMR) and infant mortality rate (IMR). However, the existing activities are felt to be ineffective to accelerate the decline of MMR and IMR, therefore the government is reorganising its program by emphasising in knowledge and changes in mother and family behaviour. With the increase of awareness and behavioural change, it is expected that the public are more alert of the importance of pregnancy health.

**Aims:** To know the effectiveness of using flash cards as a method to educate the expecting mothers during pregnancy counselling class.

**Methods:** The study used pre-experimental pre-test and post-test control group designed with the intervention using flash card. This study was conducted from January to September 2016 with a population of 40 pregnant women and sampling by means of accidental sampling with 10 respondent. The research was designed by using Quasi-Experiment Wilcoxon statistical techniques.

**Results:** From Wilcoxon test, the results demonstrate a level of knowledge in the control group with a score of 0.59 sig ( $p > 0.05$ ). In the treatment group sig 0.05 ( $p > 0.005$ ) indicates a significant difference between the group using flip charts and the flash card group. From the Mann-Whitney test, the results yield sig 0.002 ( $p > 0.005$ ) which shows that flash card proved to increase the level of knowledge of pregnancy.

**Conclusion:** Counselling using a flash card is an effective method to educate the expecting mothers to better understand the knowledge of pregnancy health.

**Keywords:** counselling, knowledge, flash card, pregnant women

### **INTRODUCTION**

Pregnancy is the growth and development of an intrauterine fetus starting from conception to the onset of true labor that marks the beginning of the intrapartum period and the duration of normal pregnancy is 280 days (40 weeks or 9 months 7 days) calculated from the first day of the last menstrual period[1].

World Health Organization (WHO) socialises that pregnancy is a special thing and needs special attention from all family members. The normal pregnancy could be at any time change into an emergency condition that can result in maternal death. One cause of the high mother mortality rate is due to lack of knowledge about pregnancy. To reduce it, counseling about pregnancy as a whole has to be given to pregnant mothers and their families. Antenatal education and counseling support programs for pregnant women / postpartum women and their families are available in some developing countries.

A prenatal class program is a form of prenatal education that can improve the knowledge of pregnant women. There is a change of attitude and positive behaviour so they give birth to health workers, thereby increasing the delivery to health personnels [2]. Media is a way for channelling learning information or channelling messages. The association for Education and Communication Technology defines the word media as all forms and channels used for information processing. The National Education Association (NEA) defines the media as anything that can be manipulated, viewed, heard, read or discussed along with the instruments used for the activity [3].

In connection with the use of instructional media in the extension of activities, principle of VISUALS is used which can be described as an abbreviation of the words Visible, Interesting, Simple, Useful, Accurate, Legitimate, and Structured. With the use of learning media, it has the means of delivering messages used to improve the effectiveness of learning [4].

Flash cards are picture cards equipped with words in the form of cards introduced by Glenn Doman. Glenn Doman learning method is done gradually by using a flash card media tool which is a word written on a white cardboard with letter size 10 x 12.5 cm. The letter is written in a red capital letter [5, 6]. It was explained that flash card learning media has many benefits such as sharpening the brain intelligence (cognition) and social intelligence of children or adults [7]. Flash card media is one of the learning media in the form of cards, containing a series of messages in a certain size. Flash card consists of two parts namely the front and the back. Flash cards can consist of shaped picture cards on the front and a description, explanation or command on the back of the card. Flash card is a card game that is done by showing the card quickly to trigger the brain in order to receive information that is in front of them. So the flashcard media is very effective in learning because it creates a fun learning, providing meaningful experiences, develop critical thinking skills in life as well as social skills. In addition, it can be concluded that the flash card is a card containing words or images [8]. Flashcard media can be used for the development of vocabulary aspects of language development [9]. The card is played by showing it to the participants and having it read out quickly. The size of the flashcard can be tailored to the needs of the class, meaning the size of the flash card media for a narrow class will be different from the size of the flash card media in a large class with many participants [10].

WHO estimates that 800 women die every day due to complications of pregnancy and childbirth. About 99% of all maternal deaths occur in developing countries. According to WHO report 2014, maternal mortality rates in the world is as much as 289000 inhabitants. Maternal mortality rate in Southeast Asia includes Indonesia 214 per 100000 live births, Philippines 170 per 100000 live births, Vietnam 160 per 100000 live births, Thailand 44/100000 live births, Brunei 50 per 100000 live births and Malaysia 30 per 100000 live births [11]. Indonesian Demographic and Health Survey (SDKI) 2007 stated that the maternal mortality rate is 228 per 100000 live births. While in 2010, the national maternal mortality rate was 214 per 100000 live births. The government through Indonesia Demographic and Health Survey (SDKI) 2012 mentioned that the number of maternal mortality rate in Indonesia is still 359/100000 births. In East Java the maternal mortality rate in 2015 is 121 death/year and maternal mortality rate Surabaya in 2015 is 38 cases and in 2016 is 28 death cases [12–14].

The high maternal mortality rate in Indonesia that counseling during pregnancy is still less done by health workers. Mother's lack of knowledge also becomes an obstacle in giving counseling. An antenatal program to prepare the mother for pregnancy, parenting and the puerperium period should be given at 20 weeks and 30 weeks. Information provided should be consistent and tailored to the needs of the couple [15,16].

Health education is the addition and ability of a person through techniques of instructional practice or instruction with the aim of changing or affecting human behaviour individually, group or community to be more independent in achieving healthy life goals [17, 18]. Health education is done to facilitate informed choices, counseling consists of health education (e.g. giving information about antenatal congenital anomaly tests and about the conditions that could be detected), decision-making support (including

exploring the client's personal standards and values) and building a good client–counsellor relationship (e.g. showing genuine interest in each individual client) [19]. The use of flashcards in the extension has not been done in developing countries, especially in Indonesia.

Knowledge is the result of knowing, and this happens after a person makes sense of a particular object. Sensation occurs through the five senses, namely the sense of seeing, hearing, smelling and touching. Much of human knowledge is obtained through the eyes and ears. Knowledge or cognition is a very important domain for the occurrence of one's actions (overt behaviour) [20].

Knowledge is also influenced by several factors, one of them is education, the higher the education of a person the more knowledge obtained and facilitates the person to easily reasoning new knowledge. Education is the process of changing the attitude and behaviour of a person or a group and also maturing a person through the effort of teaching and training both inside and outside a school. Knowledge is also influenced by the experience of pregnant women as well as sources of information obtained from both printed and online social media. We assume that a counseling program with flashcards can improve maternal knowledge about pregnancy and can develop positive behaviour in pregnancy and childbirth [16, 18, 21, 22]. This study aimed to analyze the effectiveness of the use of flash cards to improve the knowledge of pregnant women about pregnancy during counseling class.

## **METHODS**

This research used Quasi-Experiment by using pretest-posttest control group design. It was done by comparing prior and after knowledge of using a flash card in the treated group after the first observation (pretest) which allows the researcher to test the changes after the treatment (post-test) [23]. One group used a flash card in the treatment group and one group used a flipchart on the control group. We use a non-parametric test analysis i.e. Wilcoxon test to find out the level of knowledge of pregnant women between the treatment and control group. The result obtained in the control group is having  $p < 0.005$  as well as in the treatment group ( $p < 0.005$ ). In the two groups, there were significant results between the two groups. After analysing the Mann-Whitney test, it was obtained whether flash cards increase knowledge of pregnant women or not. By using Mann-Whitney test, we know the relationship of increasing knowledge of the pregnant mother with the use of flash card.

This research was started in January until September 2016. It was done during a class of pregnant women of the health centre in Mojo district, Surabaya. The population was all pregnant women in Mojo districts (40 people). The samples were 10 respondents selected using a non-random sampling method that is accidental sampling. Respondents who come and willing to take part in the research will be included in this research. This research used structured questionnaires and direct interviews with pregnant women that have been willing to be respondents using flash card methods and data obtained from health cadres and midwives. The dependent variable in this study is the effectiveness of the flash card and the independent variable is the mother's knowledge about pregnancy. Classification of the value of knowledge is less (0-55%), moderate (56-75 %), and good (76-100%). The same questionnaire used in the pre-test and post-test is in the form of multiple choice questions consisting of answers A, B, C, and D. The correct answer is given a value of 1 and the wrong answer is given a value of 0. The number of a question was 20 items.

## RESULTS

Table 1 Frequency Distribution Based on the Level of Knowledge of Pregnant Women

Variables	Group							
	Flip chart				Flash card			
	Pretest		Post test		Pretest		Post test	
Level of knowledge	frequency	%	frequency	%	frequency	%	frequency	%
Good	1	10	3	30	2	20	9	90
Moderate	6	60	7	70	7	70	1	10
Less	3	30	0	0	1	10	0	0
<b>Total</b>	<b>10</b>		<b>10</b>		<b>10</b>		<b>10</b>	

Based on Table 1, it can be explained that there are 3 different levels of knowledge at the time of pretest and posttest. The level of knowledge of the respondents on the flip chart group before being given treatment (pretest) is mostly in the level of enough that is as much as 60%, and only a small part who have good knowledge that is equal to 10%. After being treated (post test), the level of knowledge of pregnant women in the flip chart group mostly has moderate level of knowledge of 70% and no pregnant women have less knowledge.

The level of knowledge of respondents in the treatment group flash card before being treated (pretest) mostly have a moderate knowledge that is equal to 70% and a small part have less knowledge that is equal to 10%. After being treated (post test), the level of knowledge of pregnant women in the flash card group mostly has a good level of knowledge that is 90% and no pregnant women have less knowledge level. From the results, it is shown that the provision of counseling using the flash card is better than with a flip chart.

Table 2 Flip chart and Flash card in the level of knowledge of pregnant Women.

Variables	Group				Mean	Z	p-value
	Pretest		Post test				
	frequency	%	frequency	%			
Flip chart	10	50	10	50	2.50	-1.890	0.059
Flash card	10	50	10	50	4.50	-2.828	0.005

Based on the Wilcoxon test, it was obtained a value of sig 0.059 ( $p < 0.005$ ) and on flash card is sig 0.005 ( $p < 0.05$ ). From the data, it is known that there is a significant result of flip chart in comparison with a flash card.

Table 3 Post-test in Flip chart and Flash card compared with the level of knowledge of pregnant women

Variables	Group				p-value
	Flip chart		Flash card		
	frequency	%	frequency	%	
Posttest	10	50	10	50	0.002

Based on Table 3, the results obtained on a post-test flip chart and flash card is sig 0.002 ( $p < 0.05$ ) which mean there is a significant difference between knowledge level with the flash card. This result shows that the increase in knowledge related to the use of the flash cards.

### DISCUSSION

Statistical analysis showed the level of knowledge of pregnant women using flash card. In pretest, it was obtained 2 (20%) pregnant women having the level of good knowledge, 7 (70%) pregnant women having sufficient level of knowledge and 1(10%) pregnant woman having less knowledge level. In the post-test, almost all of the pregnant women level knowledge are increased. Based on the research results, it was obtained a p-value of  $0.059 > 0.005$  ( $p\text{-value} > 0.005$ ) so it is significant result between flip charts and flash cards. This is in line with the research that reveals that flash cards further improves the knowledge of pregnant women [10].

Measurement of knowledge can be done with the test, interview, or question form that asks about the contents of the material of the subject measured or respondent [23]. Information affecting one's knowledge can be obtained from various ways for example in printed and electronic media [24–26].

From the research, it was found that the use of the flash cards is better than the use of flip charts. Because, the flash cards described pregnancy including pregnancy harassment displayed in the form of cards making it like a game. In this way, pregnant women become more interested in learning and quickly understand. So the knowledge of pregnant women about pregnancy is increasing. Information or socialization of maternal class program by a midwife serves as one of reinforcing factors in the knowledge transformation effort to the user community [2].

This lack of knowledge can be changed by means of giving information from the health worker (midwife, doctor) about the information concerning sexuality during pregnancy. At the time of the examination expectant mother or health promotion learns using media leaflets or reverse sheet so that the mother more interesting to listen to it. The health officers (midwife, doctor) also not reluctant in giving information about the sexuality during pregnancy. In some journals, it was also described that the granting of counseling can be simulated and the use of the module is online. This is done to reduce fears of pregnant women in childbirth [17,18,22].

During these screenings, counseling services may be offered to improve the health of the mother and fetus in accordance with their needs. However, the implementation of these counseling services may be difficult due to the high number of patients for each midwife, nurse and doctor at some family health center [27]. While based on the results of the research after the respondents are given extension using flash card indicates that after the extension the respondents will get good knowledge.

### CONCLUSION

Improving the facilities and infrastructure in providing counseling to pregnant women during pregnancy class will improve the knowledge of pregnant women. It is also proved that using the flash cards is more

effective than using flip charts to improve the knowledge of pregnant women about pregnancy during counseling of pregnancy class.

Counseling in the class of pregnant women using flash card method with simulation play and group discussion by inviting pregnant women to play an active role in counseling was more effective and gaining better knowledge. We recommend that counseling is done vary so that the same information is not revealed. The theoretical usefulness of this research for education and health personnel is as information about the use of flash card in counseling and as a study that can be useful in giving counseling to pregnant women either individually or in the class of pregnant women. For health workers, this research become an input material of service provided to expectant mothers individually or on a class of pregnant women. Moreover, for the health service, it is expected to be used as an input to create programs using other methods that can be used in providing counseling for pregnant women.

## REFERENCE

- [1] Sarwono Prawirohardjo. Ilmu kebidanan. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo, 2009.
- [2] Sumarni S, Wahyuni S. Midwifery Practice: Analisis Of Implementation Of Prenatal Education Classes Program In Semarang City. J Ris.
- [3] Djamarah SB dan AZ. Strategi Belajar Mengajar. Jakarta: Rineka Cipta, 2010.
- [4] Nurseto T. Mmbuat Media Pembelajaran Yang Menarik. Media Pembelajaran J Ekon Pendidik; 8.
- [5] Rohman M. Peran glenn doman sebagai metode pembelajaran membaca pada anak yang mengalami cedera otak.
- [6] Anggraini S. Efektivitas penggunaan metode glenn doman dalam bentuk flashcard terhadap peningkatan kemampuan membaca anak cerebral palsy di SLB D YPAC. digilib.uns.ac.id.
- [7] Nurjannah. Peningkatan Kemampuan Penguasaan Kosakata Melalui Kartu Huruf Bergambar Siswa Kelas II SDN 5 Soni. J Kreat Tadulako Online; 4.
- [8] Nur O., Universitas H, Yogyakarta N. Menstimulus Otak Kiri dan Otak Kanan Anak Dengan Flash Card.
- [9] Azizah N. Peningkatan Kualitas Pembelajaran IPS Melalui Model Pembelajaran Quantum Teaching Berbasis Media Flashcard Pada Siswa Kelas IVA SDN Sampangan 02 Kota Semarang.
- [10] Siagian A, Nasution E. Pengaruh Penyuluhan Makanan Bergizi Beragam Seimbang Dan Aman Dengan Menggunakan Flash Card Dalam Meningkatkan Pengetahuan Dan Sikap Anak Kelas 1 – 3 SD Islam Titi Berdikari Kecamatan Medan Labuhan Tahun 2014. Gizi, Kesehatan Reproduksi dan Kesehatan Masyarakat.
- [11] GBD 2015 Maternal Mortality Collaborators NJ, Barber RM, Bhutta ZA, et al. Global, regional, and national levels of maternal mortality, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet* (London, England) 2016; 388: 1775–1812.
- [12] Badan Kependudukan dan Keluarga Berencana Nasional, Badan Pusat Statistik, Kementerian Kesehatan, et al. Survei Demografi dan Kesehatan Indonesia 2012.
- [13] Dinas Kesehatan Kota Surabaya. Profil Kesehatan 2015.
- [14] Dinas Komunikasi Dan Informatika Provinsi Jawa Timur. Angka Kematian Ibu Hamil Di Surabaya Turun | Dinas Komunikasi Dan Informatika Provinsi Jawa Timur. 2016.
- [15] Notoatmodjo Soekidjo. Pendidikan dan perilaku kesehatan. Jakarta: Rineka Cipta., 2007.
- [16] Coşkun AM, Karakaya E, Yaşer Y. A safe motherhood education and counseling programme in Istanbul. *Eur J Contracept Reprod Health Care* 2009; 14: 424–36.
- [17] Lucas C, Charlton K, Yeatman H. Nutrition advice during pregnancy: do women receive it and can health professionals provide it? *Matern Child Health J*.
- [18] Farichah L, Sartono A, Damayanti F. Efektivitas Penyuluhan Tentang Tanda Bahaya Kehamilan Pada Wanita Usia Subur (WUS) Pranikah Di Desa Tambakharjo Kota Semarang Tahun 2012. *J Kebidanan*.
- [19] Khoiron N. Efektifitas Pendidikan Kesehatan Dengan Menggunakan Media Leaflet Dan Media Slide Power Point Terhadap Perubahan Pengetahuan, Sikap Dan Perilaku Deteksi.
- [20] Toohill J, Fenwick J, Gamble J, et al. A Randomized Controlled Trial of a Psycho Education Intervention by Midwives in Reducing Childbirth Fear in Pregnant Women. *Birth*.
- [21] Lupi C, Ward-Peterson M, Chang W. Advancing non-directive pregnancy options counseling skills: A pilot Study on the use of blended learning with an online module and simulation. *Contraception* 2016; 94: 348–352.
- [22] Duysburgh E, Ye M, Williams A, et al. Counseling on and women’s awareness of pregnancy danger signs in selected rural health facilities in Burkina Faso, Ghana and Tanzania. *Trop Med Int Health* 2013; 18: 1498–509.
- [23] Nursalam. Konsep dan Penerapan metodologi penelitian ilmu keperawatan. Jakarta: Salemba Medika.
- [24] Dotson JAW, Pineda R, Cylkowski H, et al. Development and Evaluation of an iPad Application to Promote Knowledge of Tobacco Use and Cessation by Pregnant Women. *Nurs Womens Health* 2017; 21: 174–185.
- [25] Odalović M, Milanković S, Holst L, et al. Pharmacists counseling of pregnant women: Web-based, comparative study between Serbia and Norway. *Midwifery* 2016; 40: 79–86.



- [26] Peters IA, Posthumus AG, Reijerink-Verheij JCIY, et al. Effect of culturally competent educational films about prenatal screening on informed decision making of pregnant women in the Netherlands. *Patient Educ Couns* 2017; 100: 776–782.
- [27] Gözde Gökçe, Mete S. The effect of counseling on nausea and vomiting in pregnancy in Turkey. *Sex Reprod Healthc* 2016; 7: 38–45.