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# PUBLIC HEALTH RESEARCH

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## Exploring the Determinant of Pre-Pregnancy Care Services Usage among Reproductive Ages Women in Kedah, Malaysia

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### ABSTRACT

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<b>Receive</b>	16 Feb 2016
<b>Accepted</b>	9 May 2016

**Introduction** In Malaysia although mortality rate among women of reproductive ages has reduced over the years, the reduction has been stagnant for the past ten years. In order to achieve the 5th Millennium Development Goal, several measures need to be taken including a proper implementation of pre-pregnancy services in this country. This study explores the awareness, intention and usage of pre-pregnancy care (PPC) services and its determinant among women of reproductive ages in Kedah, Malaysia.

**Methods** This is a qualitative study, which consisted of a focus group discussion (FGD) among women in the ages of 18 to 45 years old from all ethnic groups who attended four government clinics in the state of Kedah. The mothers were chosen through purposive sampling from twelve districts that were selected through a multistage random sampling. A semi-structured questionnaire was utilized during the FGD. The results from the FGD were recorded verbatim and thematic analysis was finalized once saturation of information from respondents was achieved.

**Results** These are two themes was identified, namely personal reasons and reasons of service and there are several subthemes under two main themes. Under the Personal reason themes, the subthemes including awareness and intention to used the services, knowledge, perception, social support and history of medical illness. While under pre-pregnancy care services themes, the subthemes including the promotion of the services, the communication relationship with the health staff, the waiting time and also the accessibility of the service.

**Conclusions** As a conclusion, there is still part of society who was unaware of pre-pregnancy services and its importance in reducing maternal mortality rate as well as producing good pregnancy outcome. Information and knowledge on pre-pregnancy care services should be disseminated among community members through various means including roadshows and pre wedding workshops.

**Keywords** Pre-pregnancy care - Usage - Determinant.

## INTRODUCTION

The increasing burden of maternal and infant mortality has been a topic of interest worldwide. Statistic has shown that over 350,000 women of reproductive age died each year from complications of pregnancy and delivery, and more than 15 million mothers suffer long-term illness or disability.<sup>1</sup> The risk of unfavorable pregnancy outcome is much higher in developing and less developed countries compared to developed countries.<sup>2</sup> Similarly, the burden of infant mortality has also been a concern in many countries. Globally, among the main causes of neonatal deaths i.e deaths of infants in the first month of life were due to premature births, low birth weight and congenital abnormalities.<sup>3</sup>

In Malaysia, although the mortality rate among women of reproductive ages has reduced over the years, the reduction has been stagnant for the past ten years.<sup>4</sup> In order to achieve the 5th Millennium Development Goal, several measures need to be taken including a proper implementation of pre-pregnancy care (PPC) services in this country.

Centre of Diseases Control and Prevention (CDC) 2006 defines pre-pregnancy care as "a set of interventions that aim to identify and modify biomedical risk, behavioral and social risks to a women's health through prevention and treatment".<sup>5</sup> Others define PPC as "any intervention provided to women and their partners, regardless of their status or desire of pregnancy, before pregnant, to improve the health of women, newborns and children".<sup>6,7,8</sup> In summary pre-pregnancy care is an intervention to women's reproductive prior to pregnancy irrespective of whether the reproductive woman plan to become pregnant, or vice versa.

Pre-Pregnancy Care services in the state of Kedah are one of the strategies to reduce maternal deaths due to chronic diseases as stated in the plan of action for Millennium Development Gold 5 in Kedah.<sup>9</sup> The ratio of maternal deaths in Kedah for every 1,000 live births increased from 0.38 to 0.62 live births in 12 years from 2000 to 2011. In 2010, 70% of maternal deaths were classified as indirect causes, where diseases such as heart disease, diabetes, lupus, thyrotoxicosis, asthma and other medical conditions became more severe due to pregnancy and eventually leading to death.<sup>9</sup> However, PPC were services directed for to all reproductive women regardless the status of health.

Pre-pregnancy care was not a new concept. It has been given priority and emphasis in developed countries such as in the United States, United Kingdom, Canada and others. As early as in the 80s, studies have shown that pre-pregnancy care can reduce the incidence of adverse pregnancy out comes such as major defects in diabetics patients.<sup>10,11,12</sup> Today, there are sufficient scientific evidence to prove that the interventions before

pregnancy can reduce the adverse effects of pregnancy.<sup>13,14</sup> Scientists from the CDC Atlanta has identified at least 14 types of interventions that were available in clinical practice guidelines (CPG) in which if implemented before conception, they were scientifically proven to improve pregnancy outcomes. This include folic acid supplementation, rubella immunization, screening for HIV / AIDS and its treatment, hepatitis B vaccination, diabetes management, hipothyroidism management, obesity control, screening and management of sexually transmitted infections and alcohol cessation, avoidance of teratogenic medications and campaign for stop smoking.<sup>8</sup>

Although pre-pregnancy care services had been proven to be successful, the level of utilization of these services as well as the women of the reproductive age's knowledge about pre-pregnancy care and the services remains unclear. Many people do not use pre-pregnancy care services, which are available and affordable since it's first started in 2011, particularly women with chronic diseases such as diabetes, hypertension and heart disease. Studies have shown that if these diseases were not controlled promptly, it will result in a bad outcome to the mother as well as the baby.<sup>15,16</sup> Although it has not been proven that the uptake of PPC is not favorable in this country, many mothers in the reproductive age group are still not aware of such services in this country. However, study conducted by "Maryland PRAMS" in Maryland, United States, showed that in the year 2009 till 2011 the prevalence of births among mothers who used the pre-pregnancy care services in Maryland was 32% compared to 64% of mothers who did not use the service before pregnancy.<sup>17</sup> In addition, many women who did not use pre-pregnancy care services were those who had at least one chronic medical illness that could increase the risk of pregnancy is problematic or complicated. Meanwhile, the Irish Atlantic seaboard, Ireland, prevalence usage of pre-pregnancy care services was 30%.<sup>18</sup> Even though the usage of pre-pregnancy care services was quite high in this country, there were still many barriers to women's reproductive age in using such services such as from the social and cultural aspects. The objectives of this study is thus to explore the awareness, intention and usage of pre-pregnancy care (PPC) services. This study will also explore the factors that determine the usage of PPC among women of reproductive ages in Kedah, Malaysia.

## METHODS

This is a qualitative study, which consisted of a focus group discussion (FGD) among married women in the ages of 18 to 45 years old from all ethnic groups who attended four government clinics in the state of Kedah. The FGD sessions were conducted in March 2015 and the purpose

was to explore the enabling factors as well as the barriers that prevent women of the reproductive ages from utilizing the pre-pregnancy care services in Kedah. This study is important in view of the fact that pre-pregnancy care is quiet new in Malaysia and it specifically targets all women in the reproductive age group. This service is different from other services among women as it offers services to women before they enter the pregnancy period.

The respondents or mothers from twelve districts were chosen through purposive sampling. Respondent who have almost the same level of knowledge were chosen to avoid the discrimination during the discussion. These districts were selected through a multistage random sampling. A total of four districts were chosen and one government health clinic was then selected from each district. Four group discussions that consist of 4-6

respondents in each group were conducted with a total of 21 participants. We used a semi-structured questionnaire during the FGD as shown in Table 1. The author as a researcher or moderator who was conducting the FGD. The topic of discussion was introduced to the respondents before the session starts. There were occasions when the moderator used probes to keep the discussion alive and request participants to elaborate on certain ideas. All sessions were audiotaped and notes were taken. Each FGD session took about one hour. The analysis was done manually once saturation of the information was achieved. At first, the transcripts of verbatim were read and re-read to be familiar with the data. To improve accuracy, each transcript coded line by line separately and do not depend on each other. The inductive thematic analysis was used to identify the key issues and themes in the data.

**Table 1** Semi-structured questionnaire

Guided questionnaire	
1.	Have you ever heard regarding pre-pregnancy care? What do you understand about pre-pregnancy care? Where do you get the information about pre-pregnancy care?
2.	Are you aware of the existence of pre-pregnancy care services in Malaysia or in Kedah?
3.	Have you ever-used pre-pregnancy care service? If so, where? If you have never used this service, do you have an intention to use the service in future?
4.	If you have been using this service, what are the enabling factors that support your action? (for those who had used the service)
5.	If you have not been using this service, what do you think are the barriers/factors that prevent you from utilizing the pre-pregnancy care services? (for who have never used such services)

**RESULTS**

All respondents were selected to meet the acceptance criteria as criteria established for this qualitative methods. All of the respondents were married. They are aged between 25-45 years. Most

of the respondents are housewives and have education up to secondary school. The majority of respondents have 1-3 children. Features of the socio-demographics of the respondents expressed are shown in the table 2 below.

**Table 2** Demographic Characteristics of participants (n=21)

Respondent	Health clinic	Age	Parity	Occupation	Usage of pre-pregnancy care services
1	BBHC	45	4	Housewife	No
2	BBHC	39	3	Self employee	No
3	BBHC	28	1	Government servant	No
4	BBHC	25	1	Housewife	No
5	BBHC	32	2	Government servant	Yes
6	SPHC	29	0	Private sector	No
7	SPHC	28	1	Housewife	Yes
8	SPHC	34	4	Housewife	No
9	SPHC	39	3	Housewife	Yes
10	SPHC	31	1	Housewife	Yes
11	KKHC	30	2	Housewife	No
12	KKHC	37	5	Housewife	Yes
13	KKHC	34	3	Housewife	Yes
14	KKHC	34	2	Self employee	No
15	KKHC	24	3	Private sector	Yes
16	ASHC	35	1	Private sector	No

**Pre-Pregnancy Care Services Among Reproductive Ages Women**

17	ASHC	24	0	Self employee	No
18	ASHC	36	2	Private sector	No
19	ASHC	37	3	Housewife	No
20	ASHC	34	3	Government servant	Yes
21	ASHC	30	3	Housewife	Yes

BBHC- Bandar Baharu Health Clinic, SPHC- Bandar Sungai Petani Health Clinic, KKHC- Kuala Ketil Health Clinic, ASHC- Bandar Alor Star Health Clinic

Group discussions carried out has identified a number of themes. Although these FGD guided by five key questions, some questions to explore been forwarded to guide the conversation and to get away from further explanations from the mother involved. These themes have been divided into two themes, namely personal reasons and reasons of service and there are several subthemes under two main themes as

indicated in Table 3. Under the Personal reason themes, the subthemes including awareness and intention to used the services, knowledge, perception, social support and history of medical illness. While under pre-pregnancy care services themes, the subthemes including the promotion of the services, the communication relationship with the health staff, the waiting time and also the accessibility of the service.

**Table 3** Summary of the main theme and subtheme for the determinant of pre-pregnancy care usage

Individual factors	Service factors
Awareness and intention	Promotion of the service
Knowledge	Communication relationship with the health staff
Perception	Waiting time
Social support	Accessibility
History of medical illness	The service it self

*Awareness, Intention and Usage of Pre-Pregnancy Care Services*

The majority of respondents were aware or had heard about pre-pregnancy care. However a handful of respondents did not know the existence of pre-pregnancy care services in government clinics or hospitals. Most of the respondents were aware of the existence of these services in any health clinics tend to use the service. However, only 10 of the 21 respondents had used pre-pregnancy care services and 11 respondents never use pre-pregnancy care services.

"...i ever heard of this pre-pregnancy care, my daughter who work as nurse ever told me and I even saw through TV discussions about pre-pregnancy care ... i know this clinics have that service, but i did not used it .. "(Respondent 1, 45, housewife)

"... emmm i had ever heard of pre-pregnancy care, but do not know that there is a pre-pregnancy care services, I thought that this service never exist, never saw any signage in any room ..somore this services not popular, poor promotion I think...." (Respondent 4, 25 years old, housewife)

"... .i heard about pre-pregnancy care since my first pregnancy, since then I used the services ...." (Respondent 10, 31, housewife)

For respondents who never use pre-pregnancy care services, they have the intention to use these services in the future, especially those who are planning to become pregnant. Some also

have intention to use pre-pregnancy care services but do not have time because conceive earlier than expected.

"...I've never heard of pre-pregnancy care and never knew there was a pre-pregnancy care service at this clinic ...but when I heard from you guys about the pre-pregnancy care I felt that I want to go to this clinic...furthermore I plan to get pregnant again....."(Respondent 16 , 35 years old, working in private sector)

"... .i really wanted to use pre-pregnancy care services ... but no opportunity yet ... my friends who had gone to the clinic PPC said that the clinic is good ... they give a lot of information about the pregnancy ... I want to know about pregnancy because i never pregnant... , three years married already ... "(respondent 6, 29, working in private sector)

".... I've heard about the care of pre-pregnancy, nurses have explain to me during my last pregnancy, always wanted to go to the clinic, I conceive too fast this time... my first child only 3 months old... "(Respondent 3, 28, a government servant)

*Knowledge on Pre-Pregnancy Care and Its Services*

Knowledge is very important factor in determining whether someone is using pre-pregnancy care services which is available nowadays. Some of them ever heard of pre-pregnancy care but not sure or do not understand the depth of the service. Most

of the respondents only know that this service is only for women who plan to become pregnant and only for women who have health problems before pregnancy. They do not know the main purpose of this pre-pregnancy care. They do not know what risk they had. Due to the low knowledge about pre-pregnancy care so they do not use the service.

*"I have heard about pre-pregnancy care, my friends told me, she said pre-pregnancy care is for women who have medical problems, but I'm not clear on what she meant by medical problems. What I know is diabetes clinic are for diabetic patients and, antenatal clinics are for pregnant mothers, but pre-pregnancy care clinics???..... is actually meant for who???.what is the importance of this service???...I don't know. How do I to get the services???" (Respondent 14, 34 years old, self employee)*

*"I've heard of pre-pregnancy care, staff nurse told me during my first pregnancy, but I am not so sure what pre-pregnancy care is all about, what they told me is...if I want to get pregnant I must do health check-ups before getting pregnant especially for high risk group of patient, they said I'm obese that why must check early, but why just do check up during the pregnancy.???... "(Responden 19, 34 years old, self employee)*

But for those who have high knowledge about the main purpose of the pre-pregnancy care and the benefit, they will use the service. Who are knowledgeable about pre-pregnancy state that the main objective is to ensure that women have good health before pregnancy to reduce complications during and after childbirth to mother and baby.

*"... I use pre-pregnancy care because I want to make sure that my baby and me are healthy while pregnant and after giving birth, a lot of knowledge I get from pre-pregnancy care services, it's really got a lot of benefit...for me ppc really good for all women..." (Respondent 21 , 30 years old, housewife)*

*"... I do went to the clinic for pre-pregnancy care ... can check the various of women problems ... in that clinic the Doctor give a lot of information about pregnancy, ... Dr told me that I am already 39, need be ensure I'm healthy especially if I planed to get pregnant....if I'm pregnant at the age of 39 but healthy so I can reduce complications during pregnancy, childbirth and postnatal period ... "(respondent 9, 39, housewife)*

#### Perception of Pre-Pregnancy Care

Women's perception about pre-pregnancy care is also one of the factors in determining the use of pre-pregnancy care. Respondents have a positive perception of pre-pregnancy care will tend to use

the service. They believe that every reproductive woman has the chance of getting pregnant and should use pre-pregnancy care services since it can make sure they get a safe pregnancy. By using the services they can ensure their health is guaranteed throughout pregnancy and newborn babies will be safe.

*"... ..ppc is very good, in my view all reproductive women should come to this clinic... we are fertile and can pregnant at any time.....when we check the status of our health, so we can be ready early...and when we get pregnant we feel confident..furthermore the clinic was not too frequent..... "(Respondent 5, 32 years, a government servant)*

Respondents who have never used pre-pregnancy care services provide a negative perception of pre-pregnancy care. They think they are not likely to get pregnant despite not using contraception. In addition to them, pre-pregnancy care consider a waste of time because they only had to spend a lot of time to listen counseling and carry out checks even if they do not plan to get pregnant. There is also perceive of pre-pregnancy care can not guarantee that they will get the baby safe.

*"I never went to pre-pregnancy care clinic because I don't think I can get pregnant again, I'm already 40 years old and I'm also fell lazy to get family planning....i'm old already..."(Respondent 8, 40 years old, housewife)*

*"... For me what for check before you were pregnant because later when we get pregnant we have to again, I feel like wasting come to clinic so many times ... and besides I not planning to get pregnant..somemore I don't think pre-pregnancy care is can not guaranteed that I will get a healthy baby ... "(Respondent 18, 36 years old, work)*

#### Social Support

Social support also is very important in determining the use of pre-pregnancy care services. However, most of the respondents who have never used this service claimed that no one who sent them to the clinic and no one to take care of the kids while they go for treatment, especially the unemployed or housewives. While, For working women, they claimed that the employer did not allow them to go out during working hours to go to the clinic. For the employer the pre-pregnancy care not very important.

*"... although the staffs have always reminded me to come, they said I am at risk if I get pregnant because I suffer from hypertension, but I cannot come because there is nobody to take care of my children at home, some are still schooling and my husband is working, I even came here today with*

## Pre-Pregnancy Care Services Among Reproductive Ages Women

*my neighbour who was bringing her sick child to the clinic, moreover I am not planning to get pregnant again, I already have 5 children currently I'm not taking any family planning, hopefully I'm not going to get pregnant again....* "..."(Respondent 2, 39 years old, self employee)

*"... I'm working.. so its hard to come to the clinic frequently, the boss not allowed me to left the work frequently, only for important thing only, pre-pregnancy care is not important for him....* "(respondent 18, 36 years old, work)

But contrary to the respondents who use these services, they state that their husbands provide support in terms of sending them to the clinic and take care of children while they attend pre-pregnancy care clinics.

*"I used the services because my husband who was a Medical assistant asked me to go to that clinic, he explained to me a lot about this pre-pregnancy care clinic, he himself brought me to the clinic, the staff nurses also encouraged me to use the services...and I found that pre-pregnancy care was really good .. .."*(Respondent 15, 31 years, housewife)

*"... my hubby concern about health... he himself having HPT..., He will send and wait until I finish meet the Dr in the ppc clinic.. ..."* (Respondent 12, 37, housewife)

### History of Medical Illness

Health status or chronic disease very important in determining the use of pre-pregnancy care services. Those with chronic diseases at present or during previous pregnancy will encourage them to use those services. In addition, experience with chronic diseases during the past caused them to feel they need to use the services of pre-pregnancy care.

*"..I have used the pre-pregnancy care services....my first pregnancy was very bad, my blood sugar was not controlled and I was always hospitalized, my first child was born prematurely, it was then that I was referred to a pre-pregnancy care clinic after the postpartum period, since then I had follow-ups at the pre-pregnancy care clinic, they really took care of me, and during my second pregnancy, I had no problems like my first pregnancy, my second baby was well, if someone has not utilize pre-pregnancy care clinic please do so, belief me, there are a lot of benefits....",* (Respondent 13, 34 years old, housewife)

*"I used this service because I have diabetes and hypertension, initially the staff nurses refer me to this clinic, I was puzzled at first, I don't know anything about pre-pregnancy care, when I used this service I obtained a lot of knowledge and I felt*

*safe to get pregnant although I have diabetes and hypertension, they make sure that my blood sugar and blood pressure were stabilized before they allowed me to get pregnant... "*(Respondent 7, 28, housewife)

### Pre-Pregnancy Care Services

The second theme is the factor identified from pre-pregnancy care services itself. Most of the respondent claimed there is less promotion about the service. Most respondents also indicate that they did not know much about pre-pregnancy care services because the clinic is integrating with the mother and child clinic.

*"... I think it is less the promotion for pre-pregnancy care , so many promotion about smoking, dengue and others, but for pre-pregnancy care,.... and besides this clinic integrated with ANC cllinic...so those using the ANC clinic only know about this services...others don't know .. "*(respondent 17 , 24 years, self employee)

In addition, there also were not satisfied with the services provided by health workers in the health clinics cause they do not use pre-pregnancy care services provided. They claimed health workers less friendly in treating patients. The long waiting time also causes them not satisfied with the service. The clinic provided the services far from their home also will be one of the barriers to use the services.

*"..I know there is a pre-pregnancy care clinic, but I do not utilize it, I feel lazy to come because the clinic staffs are not very friendly and do not entertain me, they are all busy writing and refuse to talk to the patients...some more waiting time quite long...wasting my time..."*(Respondent 8, 34 years old, housewife)

*"... I am staying far from health clinic and hospital ... pre-pregnancy care clinic only in health clinic and hospital..nurses in klinik desa ask to go to health clinic...today I come with my neighbors who brought her son for medical check-up..."*(respondent 14, 34 years, self employee)

## DISCUSSION

Pre-pregnancy care and its services are quite new in Malaysia. However, from the focus group discussion, which was conducted among reproductive age women in Kedah, we found that, majority of them were aware regarding the pre-pregnancy care and its services even though some of them never used the services including those who were having medical problems. These findings were similar to the study done by Murphy et al. 2010 among diabetes patients who did not attend

pre-pregnancy care.<sup>19</sup> However most of the women who never used the services had intention to use the services especially among women who really planned to get pregnant and women who had having underlying medical illness.<sup>20,21</sup> Most of the women who had underlying medical illness were generally aware of the increase risk of getting complications if they did not attend the pre-pregnancy care.<sup>22</sup>

Knowledge on pre-pregnancy care was very important to determine whether reproductive age women will utilize the pre-pregnancy care services or vice versa. Finding shows that most of the women confessed that pre-pregnancy care services were only meant for women who planned to get pregnant and who were having underlying medical illness. Some of them do not know the types of services that were offered and where to get such services. This shows that the promotion of these services is still lacking and need to be improved in future.<sup>21</sup>

Besides knowledge, perception on pre-pregnancy care especially the risk of getting pregnant is very important. Our finding shows that most of the respondents have negative perception towards the risk of pregnancy even though they not taking any contraceptive. However, some of respondent also had positive perception where they belief that pre-pregnancy care can prepared them for good pregnancy outcome.

Family support especially from husband or spouse was very important in order to make sure that women can get these services and to ensure that they will have a good pregnancy outcome for mother as well as the baby.<sup>21,23,24</sup> Our finding shows that good family support is one of important determinant for usage of pre-pregnancy care services especially for non-working women.

The pre-pregnancy care services it self such as the lack of promotion about the services although the service was introduce since 2011 also paly an important role to make sure the reproductive women utilized the services. Besides that, the communication relationship with the health staff also important. The negative relationship with the health staff will prevent women from utilizing the pre-pregnancy care. Previous studied also found that women who have had bad relationship with the health professionals refused to use the pre-pregnancy care services.<sup>25</sup>

There were a few limitation in this study. The focus group discussion and small size respondent limit the generalizability of this sample to all reproductive women in this country. However the finding of this study can be used to construct a specific questionnaire on pre-pregnancy care services in Malaysia and thus further improve the delivery of the services.

As a conclusion, there is still part of society who was unaware of pre-pregnancy

services and its importance in reducing maternal mortality rate as well as producing good pregnancy outcome. Promotions to increase information and knowledge on pre-pregnancy services should be disseminated among community members through various means including roadshows and pre-wedding course. The important to introduce the pre-pregnancy care during pre-weeding course is to make sure all the reproductive women aware that they have to have good health status before getting pregnant to make sure they have good pregnancy outcome.

## ACKNOWLEDGEMENT

The researcher would like to thank the department of Community Health, Universiti Kebangsaan Malaysia (UKM) and all the people who had been involved in this study.

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