



Original Article

Use, Awareness, Knowledge and Beliefs of Medication During Pregnancy in Malaysia



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ABSTRACT

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Objectives: This study aimed to assess medication use in pregnant women in Malaysia by measuring use, knowledge, awareness, and beliefs about medications.

Methods: This was an observational, cross-sectional study involving a total of 447 pregnant women who attended the Obstetrics and Gynecology Clinic, Hospital Kuala Lumpur (HKL), Malaysia. A validated, self-administered questionnaire was used to collect participant data.

Results: Most of pregnant women had taken medication during pregnancy and more than half of them (52.8%) showed a poor level of knowledge about the medication use during pregnancy. Eighty-three percent had a poor level of awareness and 56.5% had negative beliefs. Age and education level were significantly associated with the level of knowledge regarding medication use during pregnancy. Multiparous pregnant women, and pregnant women from rural areas were observed to have a higher level of awareness compared with those who lived in urban areas. Use of medication during pregnancy was determined to be significantly associated with education level, and race.

Conclusion: Although there was prevalent use of medication among pregnant women, many had negative beliefs, and insufficient knowledge and awareness about the risks of taking medication during pregnancy. Several sociodemographic characteristics were significantly associated with the use (race and education level), level of knowledge (age and education level), awareness (parity and place of residence), and beliefs (race, education level, and occupation status) towards medication use during pregnancy.

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Introduction

The use of medication during pregnancy requires careful consideration based on risk/benefit assessments. Some drugs cross the placenta which may lead to harmful effects on fetal health and development [1]. During pregnancy nausea, vomiting, heartburn, headache, and constipation may be experienced, which requires medical attention [2]. Some

pregnant women take medicines for the treatment of common medical comorbidities such as diabetes, asthma, epilepsy or hypertension which may occur during pregnancy, and be exacerbated with increasing age, leading to continuous or uninterrupted clinical treatment [3]. As a result, complete avoidance of therapeutic medication during pregnancy is not possible [4]. Many studies have demonstrated that the use of medication in pregnant women is prevalent [5,6].

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Several studies have reported that pregnant women in developing countries frequently take medication by themselves due to the lack of knowledge and awareness about medication [7-9]. It is essential to help healthcare professionals identify the gaps to improve pregnant women's understanding of medication use and safety during pregnancy [8]. Patients' beliefs can also play a major role in deciding whether to take medication or not, especially in the pregnant population. This was demonstrated after the thalidomide era where some women tended to believe that all medications were teratogenic if used during pregnancy. As a result, some women who needed medication, chose an elective abortion instead of taking the risk of giving birth to an abnormal infant because of the incorrect perception that their medication was a teratogenic risk [10-12]. Perceptions regarding the use of medication are very important because some medications might cause harm to the fetus regardless whether the medications were obtained by a prescription or over-the-counter (OTC) [13,14]. There is still lack of evidence regarding inappropriate use of medications among pregnant women that might lead to several major complications to the fetus and/or the mother. Therefore, this research aimed to provide an insight into the level of knowledge, awareness, use, and beliefs regarding medication among the pregnant women population in Kuala Lumpur, Malaysia.

Materials and Methods

1. Ethics approval

Ethical approval was obtained from the Human Research Ethics Committee of the Faculty of Pharmacy, Universiti Teknologi MARA (no.: UiTM/REC/296/19), the Medical Research and Ethics Committee of the Ministry of Health Malaysia (no.: NMRR-19-70-46160), and the Clinical Research Center of Hospital Kuala Lumpur. Participants were given consent forms prior to data collection and all data were completely anonymized after obtaining their permission.

2. Study design and population

This was a cross-sectional study which was carried out between May 2019 and August 2019 in the Obstetrics and Gynecology Clinic at Hospital Kuala Lumpur, Malaysia. A self-administered questionnaire was distributed to 447 pregnant women (> 18 years) who agreed to participate in the study. The outcomes of this study were to evaluate the level of knowledge, awareness, use, and beliefs about medications among pregnant women in Malaysia.

3. Survey instrument and data analysis

Data were collected using a semi-structured questionnaire

adapted from previous studies [1] to obtain information on the participants' demographics, awareness, knowledge, and beliefs related to medication use during pregnancy. The data were collected through face-to-face interviews to minimize the risk of any possible misinterpretations by the participant or having incomplete surveys. A total of 447 questionnaires were distributed via the convenience sampling method to the participants who fulfilled the inclusion criteria (pregnant, and > 18 years) and gave informed consent [15].

The scoring system contained options that were divided into correct and incorrect responses i.e. 1 mark for each correct answer and 0 marks for each incorrect answer in each section of the questionnaire. The points for knowledge were stratified into 2 levels (poor 0-3, good > 3), the awareness scoring level was stratified into 2 groups (poor 0-1, good 2-3), and the points for belief were divided into 2 levels (negative 0-7, positive > 7). Data were analyzed using the Statistical Package for Social Sciences, Version 24.0 [16]. Binomial logistic regression was used to determine the association between socio-demographic groups and medication use, knowledge, awareness, and belief. Descriptive statistics were used to describe the data; continuous data were presented as mean \pm SD, and categorical data were expressed as numbers with percentages. The level of 0.05 was the cutoff point for statistical significance with a confidence level of 95%.

Results

1. Characteristics of the study population

The overall mean age of the participants was 30.5 years \pm 5.1 (Table 1). Most were Malay (72.9%) and most were employed (68.2%) at the time of data collection. Of the 447 respondents, 49.9% had received a university education, 46.8% received a secondary education, and 3.3% had a primary level of education. There were 67.3% of women who were multiparous i.e. had more than 1 pregnancy, and there were 93.1% of women living in an urban area.

2. Medications used during pregnancy and source of information

Our findings showed that medication use (including vitamins and supplements) was prevalent among pregnant women in Malaysia, of whom 81.4% had used at least 1 medication during pregnancy (Tables 2 and 3). The most commonly used medications were vitamins and supplements (67.3%), followed by analgesic/antipyretic (25.3%), antiplatelet medications (13%), antibiotics (8.3%) and antidiabetic agents (8.3%). Unsurprisingly, participants primarily obtained information regarding medication use during their pregnancy from their attending

Table 1. Socio-demographic characteristics of respondents (N = 447).

Variables	Pregnant women n (%)
Age range (y)	
18-30	241 (53.9)
31-40	194 (43.4)
41-50	12 (2.7)
Race	
Malay	326 (72.9)
Chinese	58 (13.0)
Indian	52 (11.6)
Others	11 (2.5)
Education	
Illiterate	3 (0.6)
Primary	12 (2.7)
Secondary	209 (46.8)
University	223 (49.9)
Occupation	
Housewife	142 (31.8)
Employee (others)	305 (68.2)
Residence	
Rural	31 (6.9)
Urban	416 (93.1)
Pregnancy No.	
1	146 (32.7)
> 1 < 3	238 (53.2)
> 3	63 (14.1)

Table 2. Medication used by pregnant women in Malaysia (N = 447).

Variable	Pregnant women n (%)
Medication (use during pregnancy)	
Yes	364 (81.4)
No	83 (18.6)

Table 3 List of medication used during pregnancy.

Drugs (used during pregnancy)	Pregnant women n (%)
Aspirin	58 (13.0)
Antidiabetic	37 (8.3)
Antiemetics	7 (1.6)
Antihypertensives	11 (2.5)
Antiretroviral	1 (0.2)
Antibiotics	30 (8.3)
Anthelmintic	4 (0.9)
Antacids	3 (0.7)
Anticancer	1 (0.2)
Antihistamines	1 (0.2)
Cough medicines	2 (0.4)
Analgesic/antipyretic	113 (25.3)
Thyroid hormone replacements	5 (1.1)
Hormones (dydrogestrone, estrogen)	2 (0.4)
Vitamins & supplements	301 (67.3)
Sertraline	1 (0.2)

physician (35.6%), pharmacist (31.3%), or gynaecologist (25.5%; Figure 1).

3. Knowledge, awareness and beliefs regarding medication use

There were 52.8% of participants who had a poor level of knowledge whereas younger respondents (< 25 years) generally had a lower level of knowledge (OR 0.5, 95% CI 0.284-0.976, $p = 0.041$; Tables 4 and 5). However, it is worth noting that although many participants with a lower level of education generally had less knowledge, these groups had been taking medication less frequently during pregnancy in comparison with those who had a university education. About 82.6% of the participants lacked awareness about the risks of taking medication during pregnancy. Women who were pregnant for the first time were less aware than those who had been pregnant more than 3 times.

Surprisingly, participants from rural areas had a higher level of awareness compared with urban citizens (OR 11.06, 95% CI 3.743-32.684, $p \leq 0.0001$). More than half (56.5%) of the participants had negative beliefs towards medication use during pregnancy. Overall, the Malay respondent group

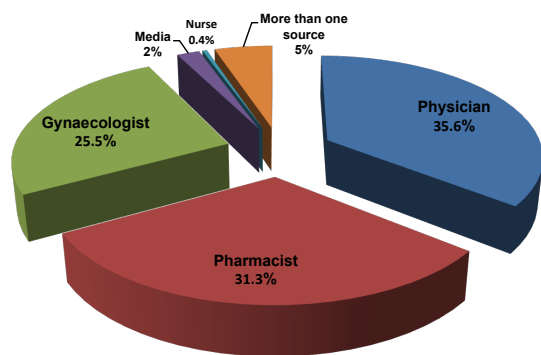


Figure 1. Source of information regarding the medication used by pregnant women.

Table 4. Levels of knowledge, awareness, and beliefs (positive/negative) in the respondents.

	Poor level (n) % of pregnant women	Good level (n) % of pregnant women
Knowledge	(236) 52.8	(211) 47.2
Awareness	(369) 82.6	(78) 17.4
Beliefs	(253) 56.5	(194) 43.5

Table 5. Logistic regression analysis identifying the variables significantly associated with different outcomes.

Independent Variables	Variable coefficient (B)	p	OR (95% CI) adjusted
<i>Use of medication during pregnancy (did not use)</i>			
Race			
Malay	-0.738	0.039*	0.478 (0.237-0.963)
Chinese	0.070	0.924	1.072 (0.254-4.531)
Indian	-0.126	0.787	0.882 (0.353-2.20)
Others	-	-	1.00
Education level			
Illiterate	0.553	0.0681	1.738(0.125-24.238)
Primary school	2.005	0.003*	7.804 (2.043-29.805)
Secondary school	0.571	0.049*	1.771 (1.002-3.128)
University	-	-	1.00
<i>Knowledge level (good knowledge)</i>			
Age (y)			
< 25	-0.64	0.041*	0.526 (0.284-0.976)
≥ 25	-	-	1.00
Education level			
Illiterate	0.612	0.641	1.844 (0.14-24.243)
Primary school	-20.9	0.999	0.000 (0.000-0.000)
Secondary school	-0.586	0.008*	0.557 (0.36-0.856)
University level	-	-	1.00
<i>Awareness level (good awareness)</i>			
Place of Residence			
Rural	2.403	< 0.001*	11.06 (3.743-32.684)
Urban	-	-	1.00

Table 5. (Continued).

Independent Variables	Variable coefficient (B)	p	OR (95% CI) adjusted
Pregnancy No.			
1	-2.497	0.004*	0.082 (0.015-0.445)
> 1 < 3	-1.073	0.033*	0.342 (0.127-0.918)
> 3	-	-	1.00
<i>Beliefs (+ve)</i>			
Race			
Malay	0.586	0.089	1.796 (0.915-3.524)
Chinese	1.545	0.003*	4.687 (1.134-19.367)
Indian	-0.485	0.275	0.616 (0.258-1.470)
Others	-	-	1.00
Education level			
Illiterate	-0.930	0.482	0.395 (0.030-5.277)
Primary school	-20.605	0.999	0.000 (0.000-0.000)
Secondary school	-0.649	0.004*	0.523 (0.337-0.810)
University	-	-	1.00
Occupation			
Housewife	-0.678	0.006*	0.507 (0.314-0.820)
Employed	-	-	1.00

* Statistically significant.

(72.9%) were more likely to take medication during pregnancy compared with other ethnicities (OR 0.478, 95% CI 0.237-0.963, $p = 0.039$), whereas the Chinese respondents were almost 5 times more likely to have a positive belief towards taking medication during pregnancy (OR 4.687, 95% CI 1.134-19.367, $p = 0.003$). A high level of education was associated with positive beliefs towards medication during pregnancy compared with those who did not receive a university education. Similarly, employed women were more likely to express positive beliefs towards medication use during pregnancy (OR 0.507, 95% CI 0.314-0.820, $p = 0.006$).

Discussion

Knowledge, awareness and beliefs of pregnant women regarding the use of medication has been reported globally [1,6,17], to the best of our knowledge, this is the first study in Malaysia.

1. Medication use during pregnancy

In Malaysia, the use of medication by women during pregnancy was prevalent in this current study, despite the substantial risks associated with the use of both over the counter and prescription drugs during pregnancy due to the lack of safety information of using medications during pregnancy [18,19]. The high prevalence of use of medication in this study (81.4%) was comparable to the outcome of other similar studies performed in France (89.9%) [20], Ethiopia (55.2%) [5], Australia (96-97%) [21], and Oman (48-49%) [22].

2. Knowledge, awareness, and beliefs of pregnant women about the use of medication during pregnancy

In this current study, more than half of the pregnant women showed a poor level of knowledge towards taking medication during pregnancy, similar to results reported in a study in Tanzania [4]. This could be a result of the impact of socio-demographic characteristics such as age, education level, occupation, and other factors [6,23]. A low level of

education and unemployment can negatively affect the patient's comprehension of facts delivered by a physician. These factors may be associated with low socioeconomic status and may be at higher risk of poor understanding of a physician's instructions [24]. In this current study participants' age was significantly associated with their level of knowledge. Older pregnant women appeared to be knowledgeable and had a wealth of experience compared with younger pregnant women. Similarly, their knowledge of risks of taking medication during pregnancy was also affected by the education level achieved. In this study half of the participants had not been highly educated and may not be as well informed. On the other hand, the majority of the pregnant women had a poor level of awareness about the risks of using medication during pregnancy, and most women lived in urban areas. The low quality of counselling received by the patients could also lead to their poor knowledge and awareness as a result of less time (due to the heavy workload) spent by physicians with patients attending main hospitals in urban areas [25,26]. The parity status of the pregnant women can also have an effect on their awareness of taking medication during pregnancy, since those who have more than 1 child may have already received sufficient information during their past pregnancies and would have been cautioned against taking certain medications.

More than half of the pregnant women had negative beliefs regarding medication use during pregnancy. This can be explained by the low level of knowledge and awareness among the participants in this study. A disparity in beliefs about medication and risk perception among pregnant women in the UK indicated a potential lack of awareness regarding the medication for common acute conditions [14]. In this study, 3 socio-demographic characteristics were associated with their beliefs; race, education level, and occupation status. Chinese patients had positive beliefs towards taking medication during pregnancy compared with other racial groups. This could be due to the cultural disparities, it has been reported that different cultures can have a different impact on a patient's practice and attitude towards medications [27]. Pregnant women in this current study, with a low level of education (i.e. did not obtain university education) were mainly associated with negative beliefs. This finding is comparable with results reported in a study conducted in Norway where less educated women believed that taking medications during pregnancy can do more harm than good [13]. Moreover, another study in Saudi Arabia indicated a higher level of education was associated with more positive beliefs about taking medication during pregnancy [1]. In addition, Ceulemans et al demonstrated that education level was a main determinant of pregnant women's beliefs in Belgium [23]. Finally, pregnant women who were either housewives or unemployed generally had negative beliefs about medication use during pregnancy.

The current study has provided an insight to the level of knowledge, awareness, use, and beliefs regarding the use of medication among pregnant women in Kuala Lumpur, Malaysia. However, there are several limitations including the close-ended questions in the questionnaire which may have restricted the participants' capacity to explain the underlying reason for a certain outcome, the inability of a cross-sectional study to determine the cause-effect relationships between use, knowledge, awareness, and belief and socio-demographic and clinical characteristics, and the capacity of the study's finding to be generalized to other geographical areas. Therefore, it is recommended that future research involves various regions in Malaysia. In addition, it is recommended that the respondents' trimester is noted in future research.

Conclusion

Prevalent use of medication among pregnant women was observed however, many women had negative beliefs about taking medication, and did not have sufficient knowledge and awareness about the risks. Several sociodemographic characteristics were significantly associated with the level of knowledge, awareness, and beliefs towards medication use during pregnancy. Therefore, health literacy of pregnant women in Kuala Lumpur must be improved to ensure effective treatment of conditions during pregnancy, and minimize unnecessary risks. Extended hands-on guidance and more effort is needed to educate, and encourage pregnant women to seek information about the medications they take from trusted sources such as physicians, pharmacists, and other healthcare professionals.

Supplementary Materials

Supplementary data is available at <http://www.kcdcphrp.org>.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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