

Antenatal Education: An Assessment of Pregnant Women Knowledge and Preferences in Saudi Arabia

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Abstract

Introduction: Antenatal educational programs are delivered during the childbearing years to expecting mothers. These interventions are considered preparatory strategies for physiological and psychological changes during pregnancy.

Aim: To assess the antenatal knowledge and describe the learning needs and preferred information seeking behavior of expecting and/or new Saudi mothers.

Methods: A cross-sectional study was conducted at multiple primary health care centers in Riyadh city, Saudi Arabia. A questionnaire was used to assess levels of antenatal knowledge, educational preferences, and information

Results: The mean antenatal knowledge score was low (34.8/100). Educational material in written format was preferred by 39.8% of the sample, followed by a preference for one to one education (18.8%). Physicians were the preferred source of information by 2/3 of the participants. Preferred educational strategies were motivation and support, guidance, problem solving, and dos and don'ts. Selected content ranged from identifying pregnancy symptoms, to post-partum care.

Conclusion: Antenatal knowledge scores were low with no variation with age or educational level among this population. Reform in antenatal educational content, channels, and formats should be adapted according to the preferences of the target population. Further research is recommended on the evaluation of the content of antenatal education and its cultural relevance.

Keywords: Antenatal education; Patient education; Women's health; Saudi Arabia

Introduction

Antenatal education interventions have an impact on the health of the pregnant woman as well as on the health and wellbeing of next generations in any country. They provide expecting mothers with information that enable them to identify potential warning signs of malfunction or abnormalities during pregnancy as well as strategies to adhere to prescribed treatments and referrals [1-6]. It has been shown that approximately 80% of maternal mortality could be prevented if the affected mother had a timely access to the essential maternity and basic health-care services [7,8]. Saudi Arabia has a maternal mortality rate of 24 maternal deaths per 100,000 live births with a lifetime risk of one in 1300 [8]. At present, there is no established plan for antenatal education interventions in terms of content and delivery methods in Saudi Arabia. Antenatal education, if applicable, is provided to primi or multi gravida pregnant women. These interventions are usually delivered as group educational sessions using adult learning strategies and one-to-one strategies; usually between a health professional and a patient. There is a clear need for such interventions targeting the Saudi women. To date, no published study has described the preferred strategies for receiving health education or the educational needs among the target population. This study reports on the learning needs and preferred information seeking behavior as perceived by pregnant women and new mothers in Riyadh, Saudi Arabia. Levels of antenatal knowledge among the sample are also explored.

Materials and Methods

A random sample of 468 eligible new and expecting mothers was recruited from the waiting areas of five primary health care clinics in Riyadh City, Saudi Arabia. Subjects were approached individually with a request to participate and received a detailed explanation of the study before providing consent. Eligibility criteria, was Pregnant women

eligible to NGHA, aged from 15 to 45 years old and mentally and emotionally stable pregnant women.

Study Instrument

The questionnaire used for this study was partially adopted from the published literature [9]. The borrowed valid and reliable questions requested information regarding educational needs during the different stages of pregnancy (pregnancy signs and symptoms, fetal development stages, diet, complications, do's and don'ts, labor signs, exercise regimen, breastfeeding, and postpartum care), preferred educational strategies and preferred format (written material, group education, lectures, role playing, activities, audio-visuals, and demonstrations), preferred channels/sources of information (physician, health educator, nurse, family and friends, mass media, journals, scientific material, and the internet), recommended timing for delivery of education (first, second or third trimester), and worries during pregnancy (fear of weight gain and delivery). The antenatal knowledge assessment questions were developed using published international antenatal education guidelines [10,11]. Symptoms and their management, contraindications, smoking,

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Received November 14, 2013; Accepted December 22, 2013; Published December 28, 2013

Citation: Otaiby TAI, Jradi H, Bawazir A (2013) Antenatal Education: An Assessment of Pregnant Women Knowledge and Preferences in Saudi Arabia. J Women's Health Care 2: 139. doi:10.4172/2167-0420.1000139

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supplements and folic acid intake, diet and nutrition, weight gain, anemia, water intake, hereditary diseases, placenta and placental problems, danger signs, physical activity, and dental care during pregnancy were assessed with the knowledge questions. The instrument also included questions related to demographic variables (age, level of education, and state of employment), stage of pregnancy, and type of visit (new, follow-up, and/or emergency visit).

Data Analysis

Descriptive statistics were conducted for all study measures using the statistical package for the social sciences (SPSS version 20.0). Frequencies were calculated and reported for all variables. Significant differences across categorical variables were determined using Chi-square test. A cumulative knowledge score was computed for all study participants based on their responses. The knowledge scale was converted to percentages to conform to academic convention of interpretation of scores and 60% (acceptable score), and the study participants were categorized as having a good level (70% or above), a moderate level (60-69%), or a low level (below 60%) of knowledge.

	N	%
Age Group	37	7.9
15 to 20 Years	145	31
21 to 25 Years	150	32.1
26 to 30 Years	136	29.1
30 to 45 Years		
Educational Level		
Illiterate	15	3.2
Primary School	21	4.5
Elementary School	53	11.3
Secondary School	147	31.4
College or more	232	49.5
State of employment	289	61.8
House wife	118	25.2
Employed	61	13
Student		
Gravida	176	37.6
Primigravida	292	62.4
Multigravida		
Number of live birth	176	37.6
First Pregnancy	69	14.7
1 Live birth	86	18.4
2 Live births	63	13.5
3 Live births	29	6.2
4 Live births	21	9.5
5 or more Live births		
Number of miscarriages	355	75.9
No miscarriages	78	16.7
1 miscarriage	24	7.4
2 or more miscarriages		
Trimester	95	20.3
First (from 5 to 15 weeks)	173	37
Second (from 16 to 28 weeks)	200	42.7
Third (from 29 to 42 weeks)		
Type of visit		
New	107	22.9
Follow-up	329	70.3
Emergency	32	6.8
Total	468	100

Table 1: Demographic Characteristics of Study Participants (N=468).

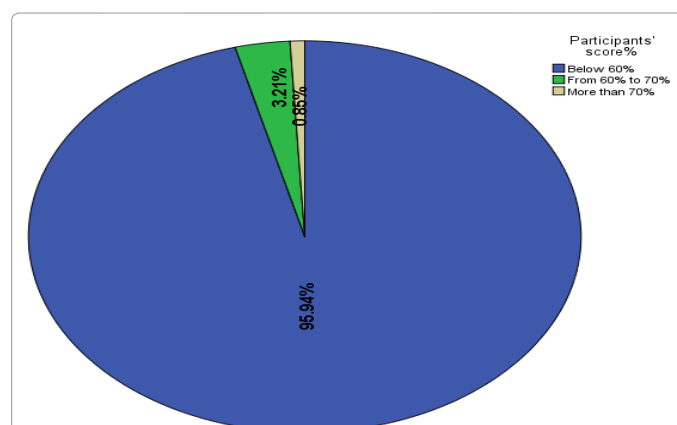


Figure 1: Distribution of Antenatal Knowledge Scores among Saudi Women presenting for Primary Antenatal Care (N=468).

Results

Of the 480 eligible women who were approached, 468 agreed to participate (97.5%). The mean age for the sample was 28.5 ± 6.7 years. Educational level varied among the sample; approximately 7.7% of this population had no more than a primary school education and 49.5% had a college degree or more. Housewives constituted 61.8% of the sample, while others were either employed (25.2%) or students (13%) (Table 1). Most of the sample (62.4%) have given birth to more than one child. About 14.7% of the participants had one previous pregnancy, and almost one fourth (24.1%) had one or more previous miscarriages. Approximately 20.3% of women were in their first trimester, and 42.7% were in their third trimester. More than 70.0% of them were present for a follow-up visit.

Knowledge assessment

The overall mean of the knowledge score for the study participants was low (34.8%; SD=7.7). Less than 1% of the study participants scored above 70% (good knowledge), while 95.9% of them scored below 60% (poor knowledge). Figure 1 is a display of the distribution of the knowledge scores across this sample.

Antenatal education preferred content

Table 2 presents participants' responses to a provided list of educational topics reported as "preferred topics" to be included in antenatal education during the first, second, and third trimester. Almost 60.0% of the participants preferred receiving information during the first trimester about all suggested topics (i.e. pregnancy symptoms, fetal developmental stages, dietary regimens, danger signs and symptoms during pregnancy, dealing with complications such as nausea and vomiting, and the do's and don'ts during pregnancy). Surveyed women reported an initial preference (44.7%) for learning about post-partum exercises during their second trimester followed by a preference for learning about fetal developmental stages (18.4%), and signs of danger regarding a miscarriage during gestation (12.8%). Similar to the response associated with the first trimester, many women (47.0%) in their third trimester were interested in learning about a variety of topics including signs of complications in pregnancy and proper identification of labor symptoms.

Preferred educational strategies, format, source/channel and timing

Results for this section are presented in (Table 3). The majority of

Topic	Stages of Pregnancy					
	First Trimester		Second Trimester		Third Trimester	
	N	%	N	%	N	%
Pregnancy symptoms	30	6.4	-	-	-	-
Fetal development stages	13	2.8	86	18.4	31	6.6
Dietary regimens	70	15	-	-	-	-
Danger signs and symptoms	8	1.7	60	12.8	87	18.6
Dealing with complications	24	5.1	-	-	-	-
Dos and don'ts	44	9.4	-	-	-	-
True and false of labor signs	-	-	30	6.4	71	15.2
Exercise regimen during pregnancy	-	-	42	9	1	0.2
Breastfeeding	-	-	2	0.4	20	4.3
Postpartum care	-	-	21	4.5	25	5.3
Postpartum exercises	-	-	209	44.7	13	2.8
All of the above	270	57.7	18	3.8	220	47
Other	90	19.2	0	0	0	0

Table 2: Preferred Learning Topics During First, Second and Third trimester of Pregnancy (N=468).

	N	%
Preferred Format		
Written material	177	37.8
Group education	37	7.9
One to one	88	18.8
Lectures	21	4.5
Role play	4	0.9
Practical activities	14	3
Audio-visuales	67	14.3
Demonstrations	54	11.5
Others	6	1.3
Preferred Strategy		
Motivation and support	9	1.9
Guidance (what is normal)	61	13
Problem solving	50	10.7
Models of dos and don'ts	104	22.2
All of the above	240	51.3
Others	4	0.8
Preferred Source/Channel		
Physician	317	67.7
Health educator	80	17.1
Nurse	23	4.9
Family and friends	2	0.4
Mass media	2	0.4
Scientific material	21	4.5
Internet	20	4.3
Others	3	0.6
Preferred Timing		
Before pregnancy	117	25
First trimester	128	27.4
Second trimester	24	5.1
Third trimester	21	4.5
All of the above	168	35.9
Others	10	2.1

Table 3: Participants' Preferred format, strategies, Source/Channel, and Timing for Antenatal Education (N=468).

this population (51.3%) reported a preference for receiving antenatal education that uses a combination of strategies such as motivation and support, guidance, problem solving, and models of dos and don'ts during their antenatal education visits. Only 13.0% preferred guidance only or a presentation of what is considered "normal" during pregnancy. No more than 10.7% demonstrated a preference for hands on experience

in the form of problem solving strategies. Selected educational format for antenatal education ranged from a preference for written materials (38.0%) to group educational sessions (7.9%). There was a significant age difference with respect to preferred antenatal educational format among study participants ($\chi^2=68.3$; $P<0.01$).

Study participants reported that the most useful source/channel

to obtain information and knowledge about their pregnancy is their physician. Only 17.1% stated that they prefer a "Health Educator" as a source of information, while only 4.3% chose the Internet as their preferred source of information. Similar to the Internet preference, mass media had a low share in preferences. There was a significant age difference with preferred antenatal education sources/channels ($\chi^2=30.8$; $P<0.01$); however, there was no significant difference by level of education ($\chi^2=4.9$; $P=0.42$).

As many as 35.9% of the study population thought that pregnancy education should be delivered before and during all pregnancy trimesters, while 25% reported a preference to receiving antenatal education before pregnancy. Almost all the participants expressed a need to know about pregnancy stages at an earlier time (i.e. they would prefer to know what to expect before entering a stage of pregnancy).

When asked if they preferred to attend antenatal educational sessions with a while companion, about 43.0% of the women elected their spouse for the task. Some (26.3%) preferred to be alone for this activity

Worries during pregnancy

About 34.4% of the population expressed worries about giving birth while only 6.0% of them were concerned about weight gain. There was a significant age difference in reported worries and participating women ages ($\chi^2=19.5$; $P<0.001$). Participants aged 21 to 25 years were twice more likely than others to choose "weight gain" as a concern. There was no significant difference between participants' worries during pregnancy and gravid a ($\chi^2=4.9$; $P=0.43$) or number of births ($\chi^2=8.9$; $P=0.11$) in this sample of pregnant women.

Discussion

Identifying a well-structured antenatal education program may have a great impact on the effectiveness of antenatal education, the health outcomes of new and expectant mothers, and eventually on the overall health of the next generations in any nation. Identifying the most preferred educational format, channel/source, timing, and content for antenatal education among this population may impact the quality and outcome of antenatal education programs in Saudi Arabia. Logical and rational means of information provision are no longer seen to be effective in producing the desired behavioral changes in individuals (i.e. brochures and mass media). The focus has been shifted to provide opportunities for people to learn skills in order to practice desired behaviors in their favored way of learning [12,13]. The group of expecting mothers assessed in this study is mostly misinformed regarding to antenatal and parenting. Low knowledge scores were uniform across all age groups and across all educational levels. Surveyed mothers preferred to be educated through written material. If they were to receive verbal instructions, they had a preference for one to one instructions by a physician over all others, while given a wide range of choices (i.e. physician, health educator, mass media, scientific articles ... etc.) and these choices was given to assure validity and avoid guiding the study participants to chose physicians. It is common knowledge that individuals prefer hearing about their health concerns from their physician, feeling that a physician is a trusted source of information. Less than 20% of the study participants stated that they prefer to be educated by a health educator. Patients in general has to be aware of the important role of each and every specialist involved in their care and what he/she can contribute to the overall quality of care. Involving health educators in the entire spectrum of care early in the stages of pregnancy and professional training in cultural competency and culturally relevant

health communication may boost the credibility of health educators in this community. Antenatal educators should be competent, non-judgmental, up to date, unbiased, flexible, and approachable [9]. The primary health care centers serving our target population has employed antenatal educators with a variety of backgrounds ranging from certified midwives to independent educators, and even nurses. Whether they conform to the qualities mentioned above is to be explored.

Surprisingly, less than one fifth of the sample preferred group education sessions. Group education is considered an adult educational strategy in the modern era and professional literature reports that parenting education in groups produces the most useful and cost effective outcome for both parents [13]. A study of group antenatal education concluded that support and feedback from other parents is a primary method that makes parenting education programs successful [14]. Other studies have shown that antenatal group programs are more successful in terms of long term change in parental behaviors and the behaviors of their children in the future, compared to one-to-one programs [15]. Given the advantages of having other parents as a resource for problem solving in addition to expert advice, strengthening and creating social networks, and cost-effectiveness, group learning for parents is a missed opportunity for this population [13,16]. The findings of this study pertaining to preferences of format in information seeking behavior is unique to this population and may have a cultural background that is to be included on the public health research agenda.

Contrary to the preference of a contemporary society for transmission of information via the Internet, radio, television newspapers, this fairly young age group of women was not keen on disseminating antenatal information via these channels. These channels are considered to be highly cost-effective, since they can cover a huge number of receivers and disseminate the information in a sophisticated and clear manner. The reasons for these findings may be embedded in literacy issues, lack of Internet access, lack of access to public printed material, and possible mistrust in public information. These are all factors to be explored in future research.

It is worth mentioning that when asked about their preferred companion to attend antenatal educational sessions, about 43.0% of the women selected their spouse. Women in Saudi Arabia may be seeking the involvement of a partner in the birthing process. In the available literature, fathers expressed feelings of confusion regarding a changed relationship with their partners, stating that antenatal education sessions concentrated only on their partner giving birth and failed to address their changed identity and lifestyle after the child is born [17-19]. Others showed an interest in being involved in their wives pregnancy care, learning more about pregnancy, and learning about childbirth and caring for the new baby [19]. This is a clear indication that a father's involvement in antenatal education is an important factor to consider. Whether it is possible to tailor antenatal education to accommodate father's participation in Saudi Arabia is to be explored; keeping in mind that the Saudi social norms may oppose male involvement in what is perceived as a female only domain. The Saudi Arabian Society encourages segregation of females and males in all sectors. Conducting an educational session for both parents is destined to be a challenge, especially if the group teaching strategy (Which is a recommended adult learning strategy) is to be applied. Male companionship is still contradictory to the current antenatal care applied policy in the targeted primary health care centers.

The aim of antenatal education as suggested in this study, and from a public health perspective, is to reach optimal health for both mother and child through well-structured and identified means.

A limitation in this study is the unavailability of experts' opinion on the recommended content and delivery methods for antenatal education from the providers of this service. Knowing the providers' point of view and combining it with the responses of the target population will add to the validity of this study and will help in the development of effective antenatal education programs.

Conclusion

This study revealed a different understanding regarding antenatal education content, preferred format, sources/channels, as well as the timing of education as perceived by expectant and new mothers. The need for antenatal education in this population is well established by the received low knowledge scores. The findings of this study are a proposal for the structuring of antenatal education programs suitable for this population, and according to the preferred behavior of seeking information by new and expecting mothers. This study is an opportunity to develop an intervention to improve the level of knowledge and impact pregnancy outcomes. Further studies on availability of antenatal written materials, suitability of the available material in content and language, and the cultural competency of the health educators are recommended to enhance antenatal education in Saudi Arabia. Incorporation of experts' opinions, health care providers' point of view, and the available public health policies regarding antenatal education in the planning and development processes are highly recommended.

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