Difference in Perception of Pregnancy Risk in Two Maternal Age Groups

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ABSTRACT

Introduction: Various health risks and complications may happen during pregnancy for both the mother and her child. Women should be informed of the risk associated with their pregnancy.

Aim: To compare the differences of perception of pregnancy risk of two maternal age groups of healthy nulliparous women.

Materials and Methods: In an analytical, descriptive cross-sectional study, 240 nulliparous pregnant women (160 women aged 18 to 35 years as a normal age group and 80 women < 18 years as a high risk age group) were randomly selected. Women were asked to complete questionnaire included sociodemographic characteristics, pregnancy history, perception of pregnancy risk and pregnancy related anxiety.

Results: Overall, women of < 18 years (high-risk group) perceived the risks of pregnancy higher than those of 18-35 years age women (reference group). Women in high-risk group rated their risks for herself, having haemorrhaging, having a cesarean birth and dying during pregnancy to be significantly higher than reference group. There was a statistically significant relationship between maternal age and perception of pregnancy risk (p<0.003). There was also a statistically relationship between pregnancy related anxiety and perception of pregnancy risk (p<0.002).

Conclusion: Women's perception of pregnancy risk is different in various maternal age groups. Maternal age can be considered as one of the important factors affecting perception of pregnancy risk. By routine screening of perception of pregnancy risk during prenatal care more effective risk consulting model could be designed.

Keywords: Adolescent pregnancy, High-risk pregnancy, Maternal age, Risk Perception

INTRODUCTION

Maternal age is one of the important risk factors in pregnancy. Evidence suggests that adolescent pregnancies are at greater risk for complications, including preeclampsia, low birth weight, preterm premature rupture of membranes, preterm birth, infant death, anaemia, low Apgar scores, perinatal complications and maternal mortality and morbidity than the other pregnant women [1-6]. Weng YH stated that infants who are born from teenagers women possess greater risks for stillbirth, neonatal death, congenital malformation, and low birth weight [7]. Risk perception is defined as the people's judgments and evaluations of risks they might be exposed to [8]. Risk perception plays a central role in many health behavior theories including, Health Belief Model, Protection Motivation Theory and Prospect Theory [9]. It seems that a greater perception of health risk increases the protected motivation, it is important to understand how people perceive health risks, how accurate these perceptions are, and how risk information is received [10]. Perception of risk is a factor which strongly influences the care that high risk women receive during their pregnancy and their decisions about prenatal care. It is important for professionals involved in the prenatal care to understand the knowledge of women about the perception of risk, without such an understanding even well intended policies may not be effective [11,12]. Women's self-rating of the risk of pregnancy may vary from the practitioner's assessment [13].

According to our knowledge, limited research on the perception of pregnancy risk has been conducted to compare maternal age related risk in pregnancy in various aged groups of healthy women. The aim of this study was to compare the differences of perception of pregnancy risk of two maternal age groups of healthy nulliparous women.

MATERIALS AND METHODS

The data were collected through a population-based sample in a cross-sectional analytical descriptive study at Health and Medical centers of Hamadan city in the west of Iran from September 2015 to May 2016. The sample was drawn through a cluster sampling method. This survey compared differences of perception of pregnancy risk of nulliparous pregnant women in two age groups. We selected 240 nulliparous pregnant women aged 15 to 35 years by a cross-sectional sampling method within third trimester of pregnancy and were divided them into two age groups, 18 to 35 years aged (160 women) and under 18 year (80 women). The inclusion criteria were singleton pregnancy, speaking, reading, and writing in Persian and presented and a lack of apparent medical or obstetric risk. Women were recruited via prenatal classes and prenatal care departments. Usually, very young (<18-year-old) women have been classified as high-risk group for child bearing [14,15] and women aged 18–35 years of age represented the reference group.

Ethical Consideration

The study was approved by the Ethical Committee of the Research Council of Tehran University of Medical Sciences (Number: 9121151004), Tehran, Iran. The aims and importance of the study were adequately explained to the participants. Study participants signed informed consent forms and were assured of their right to refuse to participate.

Instrument

The questionnaire gathered background information, including socio demographic characteristics, pregnancy history, pregnancy risk perception and pregnancy related anxiety. The study participants were given a self administered questionnaire.

The nine, visual scale of the Pregnancy Risk Perception Questionnaire (PRPQ) used to measure the perception of pregnancy risk. This questionnaire consists of two sub scales that involves, five questions about risk for baby and four questions about risk for self (mother), yielding a score ranging from 0 to 100. This questionnaire consists of two sub scales, mean scores for each subscale and total scale was calculated, higher scores demonstrate higher levels of perceived risk. Reliability processes indicated that the PRPQ with Cronbach's alpha 0.87 for the total scale is reliable [16].

After gaining permission to translate Pregnancy Risk Perception Questionnaire into Persian language, forward–backward translation method was used to translation by two experts, after combining two independent translations, the final Persian version was translated back into English by two experts. Finally, the English version was compared with the original.

Women's fears about their health, their baby's health and childbirth were assessed by the pregnancy related anxiety scale, this scale consists of 10 items in 4 scales, from 1 (never or not at all) to 4 (a lot of the time or very much). A higher score indicates a higher level of pregnancy-related anxiety [17].

STATISTICAL ANALYSIS

All statistical analysis were performed with SPSS version 20.0, at the 5% significance level. The independent t-test was performed to examine the differences between means of perception of pregnancy risk and pregnancy-related anxiety level in the two groups. The Chi-square test or the Fisher's-Exact test were used to examine the differences in categorical variables.

RESULTS

A total of 240 nulliparous women (160 women aged 18 to 35 years as a normal age group and 80 women < 18 years as a high risk age group) were selected during pregnancy according to the inclusion criteria. The mean (SD) age range of high-risk group and reference group were 16.61 (1.06) and 26.25 (4.54), respectively. The mean (SD) of gestational age of high risk and reference groups were 31.31 (3.29) and 31.25 (4.35), respectively. Family history and current pregnancy situation were compared between the two groups [Table/Fig-1].

Mean score of perception of pregnancy risk was different in various age groups of pregnant women [Table/Fig-2]. Differences in pregnancy risk perception in high-risk and reference groups were tested with the independent t-test. Women aged < 18 years had a statistically significant higher level of total perception of pregnancy risk and risk perception of herself (risk for the mother) scores than those of women aged 18 to 35 years [Table/Fig-3]. The perception of having a risk for herself during pregnancy, the risk of unborn baby, the risk of haemorrhaging, the risk of having a cesarean section, the risk of dying and the risk of the baby being born prematurely in adolescent women was significantly higher than in high-risk group compared to reference group. Pregnancy related anxiety was measured in two groups [Table/Fig-4].

There was a statistically significant relationship between maternal age and perception of pregnancy risk (p<0.003). There was also a statistically significant relationship between pregnancy related anxiety score and perception of pregnancy risk (p<0.002).

DISCUSSION

In this study, we surveyed the maternal age related risk perception of pregnancy, because the main purpose of this study was to compare the differences of perception of pregnancy risk of the two age groups of healthy nulliparous women. According to our results, there were large individual variations in the perception of pregnancy risks, different age groups had different perceptions of pregnancy risk mean scores, the highest mean score of perception of pregnancy risk observed in both ends of the age spectrum (15

Variables	18-35 yrs, (n=160)		<18 yrs, (n=80)		p-value
	N	%	N	%	
Education level					0.011 a
Under High school	25	15.6	61	76.3	
High school	41	25.6	19	23.7	
University	94	58.8	0	0.0	
Employment status					0.025 b
Employed	16	10.0	2	2.4	
Not employed	144	90.0	78	97.6	
Marital status					0.577 b
Married	160	100	80	100	
Divorced	0	0.0	0	0.0	
Financial situation					0.038 a
Good	17	10.6	8	10.0	
Average	128	80.0	53	66.3	
Poor	15	9.4	19	23.7	
Ethnicity					0.008 a
Fars	102	63.8	35	43.7	
Turkey	44	27.4	33	41.2	
Cordish	11	6.9	9	11.3	
Lurish	3	1.9	3	3.8	
Smoking					0.367 b
Yes	2	1.2	0	0.0	
No	158	98.8	80	100	
History of infertility					0.655 b
Yes	2	1.30	0	0.00	
No	158	98.70	80	100	
Family history of birth defects					0.482 b
Yes	11	6.9	0	0.0	
No	149	93.1	80	100	
Pregnancy planning					0.015 b
Wanted	149	93.1	63	78.7	
Unwanted	11	6.9	17	21.3	
Having prenatal screening					0.519 b
Yes	90	56.3	43	53.7	
No	70	43.7	37	46.3	

[Table/Fig-1]: Sociodemographic characteristics, family history and current pregnancy history of nulliparous pregnant women.
aChi-square test
bFisher's-Exact test (2-sided)

Maternal age (year)	Pregnancy Risk Perception Score	
	Mean	SD
15	49.33	24.45
16	22.85	16.53
17	31.44	18.41
18	31.23	10.78
19	10.22	7.87
20	21.90	16.06
21	22.65	21.90
22	25.95	14.51
23	27.73	22.23
24	16.29	14.22
25	17.54	13.20
26	21.79	12.97
27	23.48	13.16
28	19.91	15.58
29	16.05	6.63
30	17.27	14.06
31	22.64	12.61
32	22.21	14.69
33	31.31	19.37
34	40.58	23.17

[Table/Fig-2]: Mean score of maternal perception of pregnancy risk in age groups.

Variables	18-35 yrs, (n=160)	<18 yrs, (n=80)	p-value
	Mean (SD)	Mean (SD)	
Risk for myself during pregnancy	24.01 (22.55)	34.81 (27.82)	0.001[a]
Risk for my unborn baby	25.69 (22.12)	34.33 (27.99)	0.014
Risk of haemorrhaging	37.43 (27.19)	33.20 (26.33)	0.252
Risk of cesarean section	22.65 (20.23)	45.69 (30.51)	0.001
The risk of dying of mother	22.01 (21.16)	38.66 (29.44)	0.004
Risk of baby being born prematurely	24.69 (20.52)	32.24 (29.46)	0.043
The risk of the baby having a birth defect	13.73 (20.63)	19.70 (26.40)	0.079
Risk of baby needing to go to the NICU	16.41 (21.44)	21.63 (27.51)	0.142
Risk of baby dying	17.03 (22.08)	19.91 (17.58)	0.416
Total risk for self	26.77 (17.18)	37.26 (21.21)	0.007
Total risk for baby	17.79 (18.34)	23.35 (22.92)	0.033
Total score	22.80 (16.12)	30.30 (19.12)	0.001

[Table/Fig-3]: Comparison of pregnancy risk perception of nulliparous pregnant women.
[a]Independent t-test.

Variables	Pregnancy Related Anxiety		p-value
Maternal age	Mean	SD	
18-35 (reference group)	2.09	0.45	0.250
<18	2.18	0.66	

[Table/Fig-4]: Comparison of pregnancy related anxiety of nulliparous pregnant women.

and 34 aged group women), it seems that the main concern related to the effect of maternal age on pregnancy begins around 35 years of age. Normal aged group of women had different perception of pregnancy risk, these findings confirm that risk perception in pregnancy is individualized [18].

Overall, women aged <18 years (high-risk group) perceived the risks of pregnancy higher than those aged 18 to 35 years (reference group). Women in high-risk group rated their risks for herself, having haemorrhaging, having a cesarean birth and dying during pregnancy to be significantly higher than those in reference group. Therefore, we recognized that risks in pregnancy were connected with age. This finding was confirmed with previous studies [9,19].

Results of previous qualitative studies showed that most high-risk women were concerned about risks associated with their pregnancies [9,20,21]. There is little quantitative and qualitative research on comparing differences in pregnancy risk perception of adolescent mothers and other pregnant women. However, findings of qualitative research showed that adolescents and pregnant: expressed negative perceptions of their bodies and self in pregnancy [22,23].

Our results showed that, high-risk group mothers perceived the pregnancy risk for herself more than their babies. The highest mean score of pregnancy risk perception of adolescent mother subscale was related to having a cesarean birth. Based on our results, the women aged <18 years perceived their risk of having a cesarean birth to be significantly higher than women aged 18 to 35 years. Due to the fact that the cesarean deliveries are not increased in adolescent pregnancies [24,25] may raise the question of whether fear of natural vaginal delivery, is a normal reaction to an unknown situation or other factors influences this perception [26-29]. The lowest mean score of perception of pregnancy risk subscale of women aged < 18 years was related to having the baby with birth defect, we thought, having prenatal screening for fetal health could be one possible explanation, because based on studies screening test reduces fetal health-related worries [30-32].

It has been shown that being labeled as high-risk and having risk information may increase anxiety [20]. In our study, all participants had relatively high mean level of anxiety, there was no statistically significant differences between them. Pregnancy related anxiety had statistically significant correlation with perception of pregnancy risk in all age groups, this is consistent with a similar research [33].

Perceptions of risk has a significant impact on the decision-making process, also for informing better decision-making, various risk communication methods are needed to accurately represent risk [34,35]. Knowledge of women about risk is important for professionals involved in the prenatal care. Health care providers need to develop effective counseling strategies for high risk pregnant women in this regard and more studies are required to ascertain the behavior of women, regarding the perceived risk of pregnancy for designing effective counselling strategies and developing more effective risk communication methods.

LIMITATION

Firstly, the number of adolescent pregnant subjects was small, Secondly, this study can not be generalised to another population because risk perception is influenced by culture.

CONCLUSION

This study revealed that women's perception of pregnancy risk is different in various maternal age groups. Maternal age can be considered as an important factor affecting perception of pregnancy risk. Perception of pregnancy risk of age related high-risk group was different from the reference group. Prenatal counselling, should include assessment of perception of pregnancy risk for health promotion and better pregnancy outcomes. Health care providers need to develop effective counseling strategies for high-risk pregnant women in this regard and more studies are required to ascertain the behavior of women, particularly those labelling as high-risk groups, regarding the perceived risk of pregnancy for developing more effective risk communication methods.

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REFERENCES

[1] Chen CW, Tsai CY, Sung FC, Lee YY, Lu TH, Li CY, et al. Adverse birth outcomes among pregnancies of teen mothers: age specific analysis of national data in Taiwan. Child: Care, Health And Development. 2010;36(2):232-40.

[2] Edirne T, Can M, Kolusari A, Yildizhan R, Adali E, Akdag B. Trends, characteristics, and outcomes of adolescent pregnancy in eastern Turkey. International Journal of Gynecology & Obstetrics. 2010;110(2):105-08.

[3] Fleming N, Ng N, Osborne C, Biederman S, Yasseen A, Dy J, et al. Adolescent pregnancy outcomes in the province of Ontario: a cohort study. Journal of Obstetrics and Gynaecology Canada: JOGC. 2013;35(3):234-45.

[4] Mukhopadhyay P, Chaudhuri R, Paul B. Hospital-based perinatal outcomes and complications in teenage pregnancy in India. Journal of Health, Population, and Nutrition. 2010;28(5):494.

[5] Omar K, Hasim S, Muhammad NA, Jaffar A, Hashim SM, Siraj HH. Adolescent pregnancy outcomes and risk factors in Malaysia. International Journal of Gynecology & Obstetrics. 2010;111(3):220-23.

[6] Sagili H, Pramya N, Prabhu K, Mascarenhas M, Rani PR. Are teenage pregnancies at high risk? A comparison study in a developing country. Archives of Gynecology and Obstetrics. 2012;285(3):573-77.

[7] Weng Y-H, Yang C-Y, Chiu Y-W. Risk assessment of adverse birth outcomes in relation to maternal age. PloS One. 2014;9(12):e114843.

[8] Finucane ML, Holup JL. Risk as value: Combining affect and analysis in risk judgments. Journal of Risk Research. 2006;9(2):141-64.

[9] Bayrampour H, Heaman M, Duncan KA, Tough S. Advanced maternal age and risk perception: A qualitative study. BMC Pregnancy and Childbirth. 2012;12(1):100.

[10] Jackson J, Allum N, Gaskell G, editors. Bridging levels of analysis in risk perception research: The case of the fear of crime. Forum Qualitative Sozialforschung/ Forum: Qualitative Social Research; 2006; 7(1): Art. 20.

[11] Lee S, Ayers S, Holden D. Risk perception of women during high risk pregnancy: a systematic review. Health, Risk & Society. 2012;14(6):511-31.

[12] Slovic P, Finucane ML, Peters E, MacGregor DG. Risk as analysis and risk as feelings: some thoughts about affect, reason, risk, and rationality. Risk Anal. 2004;24:311-22.

[13] Heaman M, Beaton J, Gupton A, Sloan J. A comparison of childbirth expectations in high-risk and low-risk pregnant women. Clinical Nursing Research. 1992;1(3):252-65.

[14] Hanif HM. Association between maternal age and pregnancy outcome: implications for the Pakistani society. JPMA The Journal of the Pakistan Medical Association. 2011;61(3):313-19.

[15] Kenny LC, Lavender T, McNamee R, O'Neill SM, Mills T, Khashan AS. Advanced maternal age and adverse pregnancy outcome: evidence from a large contemporary cohort. PloS One. 2013;8(2):e56583.

[16] Heaman M, Gupton AL. Psychometric testing of the perception of pregnancy risk questionnaire. Research In Nursing & Health. 2009;32(5):493-503.

[17] Rini CK, Dunkel-Schetter C, Wadhwa PD, Sandman CA. Psychological adaptation and birth outcomes: the role of personal resources, stress, and sociocultural context in pregnancy. Health Psychology. 1999;18(4):333.

[18] Lee S, Ayers S, Holden D. Risk perception and choice of place of birth in women with high risk pregnancies: A qualitative study. Midwifery. 2016;38:42-48.

[19] Maheshwari A, Porter M, Shetty A, Bhattacharya S. Women's awareness and perceptions of delay in childbearing. Fertility and Sterility. 2008;90(4):1036-42.

[20] Carolan M, Nelson S. First mothering over 35 years: questioning the association of maternal age and pregnancy risk. Health care for Women International. 2007;28(6):534-55.

[21] Saxell L. Nulliparous women's perception of the risk of pregnancy after age 35. Health and Canadian society (Winnipeg, Man). 1995;4(2):367-87.

[22] Stenberg L, Blinn L. Feelings about self and body during adolescent pregnancy. The Journal of Conteporary Human Services. 1993;74(5):282–90.

[23] Mackey MC, Tiller CM. Adolescents' description and management of pregnancy and preterm labor. Journal of Obstetric, Gynecologic, & Neonatal Nursing. 1998;27(4):410-19.

[24] Kara F, Uygur D, Yesildaglar N. Adolescent pregnancy and cesarean delivery. International Journal of Gynecology and Obstetrics. 2003;81(2):231-32.

[25] Zeteroglu S, Sahin I, Gol K. Cesarean delivery rates in adolescent pregnancy. The European Journal of Contraception & Reproductive Health Care. 2005;10(2):119-22.

[26] Adams S, Eberhard Gran M, Eskild A. Fear of childbirth and duration of labour: a study of 2206 women with intended vaginal delivery. BJOG: An International Journal of Obstetrics & Gynaecology. 2012;119(10):1238-46.

[27] Azami-Aghdash S, Ghojazadeh M, Dehdilani N, Mohammadi M, Abad RAA. Prevalence and Causes of cesarean section in Iran: systematic review and meta-analysis. Iranian Journal of Public Health. 2014;43(5):545-55.

[28] Melender HL. Experiences of fears associated with pregnancy and childbirth: a study of 329 pregnant women. Birth. 2002;29(2):101-11.

[29] Nilsson C, Lundgren I, Karlström A, Hildingsson I. Self reported fear of childbirth and its association with women's birth experience and mode of delivery: A longitudinal population-based study. Women and Birth. 2012;25(3):114-21.

[30] Harpel TS. Fear of the unknown: ultrasound and anxiety about fetal health. Health. 2008;12(3):295-312.

[31] Sturm EL, Ormond KE. Adjunct prenatal testing: patient decisions regarding ethnic carrier screening and fluorescence in situ hybridization. Journal of Genetic Counseling. 2004;13(1):45-63.

[32] Waldenström U, Nilsson S, Fall O, Axelsson O, Eklund G, Lindeberg S, et al. Effects of routine one-stage ultrasound screening in pregnancy: a randomised controlled trial. The lancet. 1988;332(8611):585-88.

[33] Bayrampour H, Heaman M, Duncan KA, Tough S. Comparison of perception of pregnancy risk of nulliparous women of advanced maternal age and younger age. Journal of Midwifery & Women's Health. 2012;57(5):445-53.

[34] Frazier T, Thompson C, editors. Impact of Risk Perception on Risk Communication and Community Resilience Enhancement. AGU Fall Meeting Abstracts; 2014;01:3900.

[35] Williams DJ, Noyes JM. How does our perception of risk influence decision-making? Implications for the design of risk information. Theoretical Issues In Ergonomics Science. 2007;8(1):01-35.

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