Exploring risk factors of pregnancy anxiety: a cross-sectional study from China

Peipei Fu

Shandong University   https://orcid.org/0000-0003-2997-5816

Yawei Guo

Shandong University

Shuai Xu

The Second Hospital of Shandong University

Yuan Zhang

The Second Hospital of Shandong University

Peng Liu

The Second Hospital of Shandong University

Xue Hua

The Second Hospital of Shandong University

Han Liu

The Second Hospital of Shandong University

Fanzhen Hong (✉ hongfz@sdu.edu.cn)

Abstract

Background

In recent years, there is a growing tendency for pregnant women suffered from anxiety, which not only affects the health of pregnant women and the development of children, but also poses a serious burden on families and society. However, few studies have focused on the factors that contribute to anxiety during pregnancy, especially among migrants.

Methods

A total of 400 pregnant women from a tertiary hospital in Jinan, the provincial capital of Shandong Province. Anxiety was used as dependent variable based on Self-Rating Anxiety Scale (SAS). Descriptive statistics were presented and a multi-logistic regression analysis were conducted to explore the factors associated with anxiety during pregnancy. STATA 14.2 software was used for analysis.

Results

The prevalence rate of anxiety in pregnant women is 25.7%. The multi-logistic regression indicates that pregnant women who have longer hospital stay (OR=1.15, p<0.05), who live in rural areas (OR=3.81, p<0.05) and who have pressure during pregnancy (OR=3.98, p<0.05) are more likely to have anxiety. Meanwhile, compared with the lowest income group, group Q2 and Q3 was significantly associated with higher odds of anxiety (OR=1.89, p<0.05; OR=3.37, p<0.05). Those who are local residents (OR=0.59, p<0.59) and who have higher social support points (OR=0.95, p<0.05) are less likely to have anxiety during pregnancy.

Conclusions

Pregnant women have poor anxiety, and the influencing factors are complex and varied. Therefore, Risk factors such as migrants, living in cities, more life stress, lower family income, longer hospital stays, and less social support should be taken into concern and individualized intervention should be adopted.

Introduction

Mental disorders is a serious illness that can occur at any age in a person's life and place serious illness burden on patients due to its high prevalence, long duration, early onset and serious complications[1][2]. In the past 20 years, anxiety was one of the most common serious mental disorders[3 4], and constituted the most prevalent mental health problem around the world, afflicting millions of people[5–7]. In recent years, it has been found that more and more pregnant women are suffering from anxiety, which not only affects the health of pregnant women and the development of children, but also places huge psychological, economic, social burden on the individuals and society [8 9].

The physiology of pregnant women changes dramatically along with the hormonal changes during pregnancy [10 11]. At the same time, her psychology changes greatly as she faces the transition to parenthood. Unfortunately, not all of the pregnant women adapt well to these changes which may greatly increase anxiety rates[12]. Studies have shown that the occurrence of postpartum depression in pregnant women is closely related to anxiety symptoms during pregnancy, and 35% of pregnant women with anxiety symptoms develop postpartum depression[13]. Meanwhile, if pregnant women are in a state of adverse psychological stress for a long time, the release of catecholamine will increase the body's oxygen consumption and increase the heart load, which may cause serious adverse consequences[14 15]. In addition, women who experience anxiety during pregnancy are reported to have higher rates of adverse birth outcomes[16]. Research have demonstrated that anxiety in pregnancy will directly affect the physical and mental health of pregnant women, and also adversely affect the cognitive, emotional and behavioral development of infants[17 18]. A recent study in USA indicated that prenatal anxiety predicted preterm births and low birth weight, outcomes that may have long-term implications for health and even predict hypertension, insulin resistance, glucose tolerance and cardiovascular[19].

However, most of the literature focused on the adverse effects of anxiety during pregnancy. For example, A Swiss study was conducted primarily to assess maternal anxiety during pregnancy and their impact on obstetric, fetal and neonatal outcome.[15]Some American researchers have studied the effect of anxiety during pregnancy on fetal heart rate[20] and neurobehavioral development.[21]Another similar finding had been reported in British, where researchers explored that the serious consequences of pregnancy anxiety on the development of pregnant women and children.[22]Some researchers have studied the link between pregnancy anxiety and Pregnancy complications.[23] In China, Fan et al. explored the effects of pregnancy anxiety on children's heart rate and blood pressure response to stress. [24] Another in China focused on risk factors for depression among Chinese doctors.[6] However, few studies have examined potential factors that contribute to anxiety during pregnancy, especially among migrants.

Therefore, this study aims to explore the risk factors associated with anxiety among pregnant women in China. This study has two objectives. First, we will investigate the incidence of anxiety during pregnancy in China. Second, we will explore the risk factors of pregnancy anxiety. This study is among the first to provide evidences for pregnant women anxiety prevention in China.

Methods

Data collection and study design

This study was conducted in one of the largest tertiary hospitals in Shandong Province, the second largest provinces in China. Data were collected from January 2017 to October 2017 by using self-designed general information questionnaire. The questionnaire was composed of demographic and socio-economic information of each respondent as well as scales, including Pregnancy Pressure Scale (PPS), Social Support Rate Scale (SSRS) and Self-Rating Anxiety Scale (SAS). The eligible participants for this survey were pregnant women who were admitted to the hospital to give birth at the time of the

interview. Following consent, face-to-face interviews were conducted among the pregnant women by trained investigators.

Initially, 416 pregnant women were selected and interviewed. Of these, 16 did not complete the survey. In total, 400 individuals were included in the final sample.

Statistical analysis

The dependent variable we focused on was the anxiety status of each pregnant women which was measured by Self-Rating Anxiety Scale (SAS). This scale was designed by William WK Zung in 1971 to quantify a patient's level of anxiety [25]. The SAS scale is a 20-item self-reported assessment questions. (for example, "I feel more nervous and anxious than usual" and "I feel scared for no reason". etc) When answering each item, the person indicated the degree to which each statement applies. Each question was scored on a Likert-type scale of 1 to 4 (based on the following replies: "a little of the time" "some of the time" "a good part of the time" and "most of the time"). The total score was obtained by summing the assessment of the 20 items. The total score multiplied by 1.25 gives the standard score. A standard cutoff score of 50 was usually used to diagnose anxiety[26]. In China, there are usually two levels according to the standard score ranges, including anxiety (25–49 points) and not anxiety(50–70 points).

Demographic characteristics, socioeconomic status, social support and pressure status were included as controlled variables. Pregnant women are divided into internal migrants and local residents according to their registered residence and whether they have worked in the local area for more than half a year. Personal basic information was also used, including age, home address (urban vs. rural), exercise during pregnancy (yes vs. no), hospitalization days, diet (healthy vs unhealthy) and living habits that are classified as good or bad according to whether they smoke or drink. Socio-economic characteristics used include employment status (employment vs. unemployment), household income (Q1, Q2 and Q3, Quartile 1 (Q1) is the poorest and Quartile 3 (Q3) is the richest).We included a measure of social support, using the Social Spuport Rate Scale (SSRS). The higher the SSRS score, the more support pregnant women received in society. Meanwhile, we also included a measure of Pressure during pregnancy, using Pregnancy Pressure Scale (PPS). According to their final scores, they were classified as either stressed or not stressed.

Statistical analyses were performed using STATA Version 14.2 for continuous variables, the p-value was reported using Student's t test; for categorical variables, the p-value was reported using the chi-square test. A multivariate logistic regression analysis was performed to assess the influencing factors of pregnancy anxiety determine the association of anxiety. The reported CIs were calculated at the 95% level and statistical significance was set at the 5% level.

Results

Characteristics of the participants

Characteristics of the sample, as well as the prevalence of anxiety in pregnant women, are shown in Table 1. The prevalence rate of anxiety in pregnant women is 25.7%. Their average age was 31.42 ± 0.25 years old and the average length of hospital stay was 4.63 ± 0.10 days. Generally speaking, the majority of the pregnant women were migrant (52.3%), having good living habits (93.3%), not exercising during pregnancy (72.5%), living in the city (96.7%), having pressure (88.0%), healthy diet(68.0%) and are in Quartile 1 of the income distribution (53.8%). A total of 400 pregnant women were included in the study, and 103 of them had anxiety symptoms. The average age of anxious pregnant women was 30.90 ± 0.49 years old and social support scores were 45.99 ± 0.53 points. In addition, residence ($p < 0.05$), income ($p < 0.01$) and social support scores ($p < 0.01$) were significantly different between anxiety and not anxiety during pregnancy.

Influencing factors contribute to anxiety during pregnancy

Table 2 presents the results of a multi-logistic regression analysis of factors associated with anxiety during pregnancy. The multi-logistic regression indicates that pregnant women who have longer hospital stay (OR=1.15, $p<0.05$), who live in rural areas (OR=3.81, $p<0.05$) and who have pressure during pregnancy (OR=3.98, $p<0.05$) are more likely to have anxiety. Meanwhile, compared with the lowest income group, group Q2 and Q3 was significantly associated with higher odds of anxiety (OR=1.89, $p<0.05$; OR=3.37, $p<0.05$). Those who are local residents (OR=0.59, $p<0.59$) and who have higher social support points (OR=0.95, $p<0.05$) are less likely to have anxiety during pregnancy.

Table 1 Socio-demographic characteristics of pregnant women					
Characteristics	Total n(%)	Not anxiety n(%)	Anxiety n(%)	x^2 /t	P
Observations	400	297(74.3%)	103(25.7%)		
Age	31.42 ± 0.25	31.60 ± 0.30	30.90 ± 0.49	1.195	0.233
Residence				5.434	0.020
Migrant	209(52.3%)	145(69.4%)	64(30.6%)		
Local residents	191(47.8%)	152(79.6%)	39(20.4%)		
Employment status				0.207	0.649
Employed	171(42.8%)	125(73.1%)	46(26.9%)		
Unemployed	229(57.3%)	172(75.1%)	57(24.9%)		
Living habits				0.228	0.633
Good	373(93.3%)	278(74.5%)	95(25.5%)		
Bad	27(6.7%)	19(70.4%)	8(29.6%)		
Diet				2.911	0.088
Unhealthy	128(32.0%)	102(79.7%)	26(20.3%)		
Healthy	272(68.0%)	195(71.7%)	77(28.3%)		
Exercise				1.860	0.173
Yes	110(27.5%)	87(79.1%)	23(20.9%)		
No	290(72.5%)	210(72.4%)	80(27.6%)		
Living locations				2.926	0.087
Urban	387(96.7%)	290(74.9%)	97(25.1%)		
Rural	13(3.3%)	7(53.8%)	6(46.2%)		
Income				11.257	0.004
Q1	215(53.8%)	172(80.0%)	43(20.0%)		
Q2	167(41.8%)	116(69.5%)	51(30.5%)		
Q3	18(4.5%)	9(50.0%)	9(50.5%)		
Stressed				2.354	0.125

Influencing factors contribute to anxiety during pregnancy

Table 1 Socio-demographic characteristics of pregnant women				
Yes	352(88.0%)	257(73.0%)	95(27.0)		
No	48(12.0%)	40(83.3%)	8(16.7%)		
Length of stay	4.63 ± 0.10	4.52 ± 0.11	4.94 ± 0.23	1.833	0.068
Social support scores	47.74 ± 0.30	48.35 ± 0.36	45.99 ± 0.53	3.458	0.001
Influencing factors contribute to anxiety during pregnancy				

Table 2 Multivariate analysis of factors associated with anxiety during pregnancy				
Variables	SE	OR	95%CI	P
Age	0.026	0.97	0.92−1.02	0.235
Residence				
Migrant		1.00		
Local residents	0.147	0.59	0.36−0.96	0.035
Employment status				
Employed		1.00		
Unemployed	0.246	0.98	0.60−1.60	0.937
Living habits				
Good		1.00		
Bad	0.543	1.14	0.45−2.90	0.782
Diet				
Unhealthy		1.00		
Healthy	0.447	1.61	0.93−2.77	0.089
Exercise				
No		1.00		
Yes	0.203	0.69	0.39−1.23	0.207
Living locations				
Urban		1.00		
Rural	2.366	3.81	1.13−12.87	0.031
Income				
Q1		1.00		
Q2	0.301	0.56	0.20−1.61	0.282
Q3	0.160	0.30	0.10−0.85	0.024
Stressed				
No		1.00		
Yes	2.512	3.98	1.16−13.72	0.029
Length of stay	0.070	1.15	1.02−1.29	0.027

Table 2 Multivariate analysis of factors associated with anxiety during pregnancy			
Social support scores	0.020	0.95	0.91−0.99	0.015

Discussion

The institutional change from China's one-child to two-child family policy in 2015 means more pregnant women are expecting babies than in the past. Based on this policy, this study is the first to explore the status and influencing factors of anxiety during pregnancy. Our study indicates that the prevalence rate of anxiety in pregnant women was 25.7%, which is very similar to the results of a survey conducted by Wang et al. in the Shanghai community (23.89%)[27].

The current study found that the longer that women hospitalized, the greater her risk of anxiety. The possible reason for this phenomenon is the depression of hospitalization environment, which makes pregnant women prone to anxiety, and the longer hospitalization time means the higher hospitalization costs, which is a heavy burden for middle and low-income families. Therefore, the efficiency of doctors should be improved to minimize the hospitalization time of pregnant women. Our study also showed that pregnant women living in rural areas had a 3.81 times higher risk of anxiety than urban residents. The main reason may be that farmers are vulnerable groups, most of them have no social security, their life is unstable and lack of social support, which easily leads to anxiety.

Our study found that migrants are at greater risk of anxiety than local residents during pregnancy. There are several possible reasons: firstly, the migrants are poorly educated and they lack knowledge about pregnancy and childbirth.[28] Secondly, it is important that members of the migrants do not have a local household registration (hukou)[29]. Hence, they are not entitled to certain local government benefits[30]. Various adverse factors lead to migrants in pregnancy and delivery period more prone to anxiety. As more and more rural people move to cities on the east coast, China's migrant people are growing[31]. In 2000, it was already estimated at 121 million, representing 10% of China's total population at that time. In 2011 the number reached 252.78 million[32]. Therefore, health authorities should pay more attention to the mental health status of migrants during pregnancy.

We also found a correlation between anxiety and social support scores. According to our results it may be said that high social support given during pregnancy has the effect of reducing the pregnant woman's anxiety. This finding is supported by a study by Duman et al., which also found that the more social support a pregnant woman receives, the less likely she is to develop anxiety[33]. Meanwhile, a US study suggests that social support can reduce anxiety during pregnancy[34]. This shows that social support can enhance the psychological endurance of pregnant women, while the lack of social support during pregnancy is likely to induce anxiety and depression in pregnant women. Therefore, in perinatal health care, attention should be paid to the role of social support system, such as husband, relatives and friends, in pregnant women's health care during pregnancy. In particular, the husband should spend more time with pregnant women and give them more care and support, so that pregnant women can keep a good

state of mind and effectively alleviate the adverse effects of stress time on pregnant women. In addition, according to the characteristics of pregnant women to develop personalized measures, psychological counseling, help pregnant women get more support, and as soon as possible to adapt to the role of motherhood, so as to improve the mental health of pregnant women.

In this study, we also examined the relationship between household income and anxiety. Our study shows that the higher the family income, the lower the risk of anxiety during pregnancy. This can be explained by the fact that pregnant women with lower household income have less monetary support to confront risk. It is difficult for them to quickly adapt to changes during pregnancy, so they are more prone to anxiety[35].

This study found that stress during pregnancy is directly related to anxiety during pregnancy. According to our analysis, pregnant women who are stressed during pregnancy have a 3.98 times higher risk of anxiety than those who are not stressed. This is the same as previous studies. There are three types of stress during pregnancy, "stress caused by changing parental roles", "stress caused by ensuring the health and safety of the mother and child", and "stress caused by changing physical appearance". We suggest that communication should be strengthened between doctors and pregnant women, as well as between families and pregnant women, getting them to think about pregnancy and childbirth is a natural biological process. The society should strengthen the propaganda and education of pregnant women's health knowledge during pregnancy, inform pregnant women of health care knowledge during pregnancy and knowledge of pregnancy and childbirth, and actively guide pregnant women to learn to control their emotions, so as to help pregnant women understand some aspects of pregnancy and minimize pregnant women's stress during pregnancy.

Our study does have some limitations. First, information about personal information and living habits was self-reported, thus leading to the possibility of subjective bias. Second, although we are able to identify the association between anxiety of pregnant women and other factors, we are unable to identify the exact cause of the observed association. Third, because the results from this study is conducted in a general hospital in Shandong province, it is unclear to what extent the findings can be representative of all other regions. Further studies should expand the sample size and sample area, and carry out in-depth longitudinal studies to further determine the causal relationship between pregnancy anxiety and some risk factors.

Conclusions

The incidence of anxiety among pregnant women was 25.7%. Pregnant women have poor anxiety, and the influencing factors are complex and varied. Therefore, Risk factors such as migrants, living in cities, more life stress, lower family income, longer hospital stays, and less social support should be taken into concern and individualized intervention should be adopted. We should pay more attention to the mental health status of pregnant women, take active measures to cope with it, formulate a sound adaptive intervention plan, carry out mental health maintenance, do a good job in mental health education, correct understanding of the self, self-regulation, to adapt to the new environment. Medical institutions should

pay attention to the psychological intervention, actively communicate with family members, various care for pregnant women especially in migrant population and low-income families, let its correct understanding of pregnancy, to help adjust the changes in the pregnancy, reduce the psychological burden, establish a good state of mind, so as to improve the adaptability of pregnancy, help individual security through gestation, achieve good results.

List Of Abbreviations

SSRS: Social Spuport Rate Scale; PPS: Pregnancy Pressure Scale; SAS: Self-Rating Anxiety Scale

Declarations

Ethics approval and consent to participate

The Ethical Committee of The Second Hospital of Shandong University approved the study protocol. The investigation was conducted after the informed consents of all participants were obtained.

Consent for publication

Not applicable.

Availability of data and materials

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

PF、YG and FH conceived the idea and polished the manuscript. YG coded and analyzed data, PF and YG wrote the manuscript. SX, YZ, PL, XH and HL participated in interpretation of the data. All authors read and approved the final manuscript.

Acknowledgements

References

[1]P Ebmeier K, Donaghey C, Steele JD. Recent developments and current controversies in depression. *Lancet* 2006;367:153-67.

[2]Vashisht A, Ahmed Gadi N, Singh J, et al. Prevalence of depression & assessment of risk factors among school going adolescents. *Indian Journal of Community Health* 2014;26:196-99.

[3]Mitchell A, Chan M, Bhatti H, et al. Prevalence of depression, anxiety, and adjustment disorder in oncological, haematological, and palliative-care setting: A meta-analysis of 94 interview based studies. *The lancet oncology* 2011;12:160-74.

[4]Toneatto T, Pillai S. Mood and Anxiety Disorders Are the Most Prevalent Psychiatric Disorders among Pathological and Recovered Gamblers. *International Journal of Mental Health and Addiction* 2016;14

[5]R Dowbiggin I. High Anxieties: The Social Construction of Anxiety Disorders. *Canadian journal of psychiatry Revue canadienne de psychiatrie* 2009;54:429-36.

[6]Sun W, Fu J, Chang Y, et al. Epidemiological Study on Risk Factors for Anxiety Disorder among Chinese Doctors. *Journal of occupational health* 2011;54:1-8.

[7]Tone A. Reply: Listening to the past: History, psychiatry, and anxiety. *Canadian journal of psychiatry Revue canadienne de psychiatrie* 2005;50:373-80.

[8]Field T, Diego M, Hernandez-Reif M, et al. Pregnancy anxiety and comorbid depression and anger: Effects on the fetus and neonate. *Depression and anxiety* 2003;17:140-51.

[9]Verbeek T, Arjadi R, J Vendrik J, et al. Anxiety and depression during pregnancy in Central America: A cross-sectional study among pregnant women in the developing country Nicaragua. *BMC psychiatry* 2015;15:292.

[10]K Gjerdingen D, A Center B. First-Time Parents' Prenatal to Postpartum Changes in Health, and the Relation of Postpartum Health to Work and Partner Characteristics. *The Journal of the American Board of Family Practice / American Board of Family Practice* 2003;16:304-11.

[11]B Krejci C, Bissada N. Women's Health: Periodontitis and its Relation to Hormonal Changes, Adverse Pregnancy Outcomes and Osteoporosis. *Oral health & preventive dentistry* 2012;10:83-92.

[12]T Condon J, Boyce P, Corkindale C. The First-Time Fathers Study: A prospective study of the mental health and wellbeing of men during the transition to parenthood. *The Australian and New Zealand journal of psychiatry* 2004;38:56-64.

[13]Tachibana Y, Koizumi T, Takehara K, et al. Antenatal Risk Factors of Postpartum Depression at 20 Weeks Gestation in a Japanese Sample: Psychosocial Perspectives from a Cohort Study in Tokyo. *PloS one* 2015;10:e0142410.

[14]Friedmann E, Son H, Thomas S, et al. Poor Social Support Is Associated With Increases in Depression but Not Anxiety Over 2 Years in Heart Failure Outpatients. *The Journal of cardiovascular nursing* 2013;29

[15]Alder J, Fink N, Bitzer J, et al. Depression and anxiety during pregnancy: A risk factor for obstetric, fetal and neonatal outcome? A critical review of the literature. *The journal of maternal-fetal & neonatal medicine* 2007;20:189-209.

[16]Dole N, Savitz DA, Hertz-Picciotto I, et al. Maternal Stress and Preterm Birth. *American journal of epidemiology* 2003;157:14-24.

[17]Hollins K. Consequences of antenatal mental health problems for child health and development. *Current opinion in obstetrics & gynecology* 2008;19:568-72.

[18]Ding X-X, Wu Y-L, Xu S-J, et al. Maternal anxiety during pregnancy and adverse birth outcomes: A systematic review and meta-analysis of prospective cohort studies. *Journal of Affective Disorders* 2014;159:103−10.

[19]M Hosseini S, W Biglan M, Larkby C, et al. Trait anxiety in pregnant women predicts offspring birth outcomes. *Paediatric and perinatal epidemiology* 2009;23:557-66.

[20]Monk C, Fifer W, M. Myers M, et al. Maternal stress responses and anxiety during pregnancy: Effects on fetal heart rate. *Developmental psychobiology* 2000;36:67-77.

[21]Kinsella MT, Monk C. Impact of Maternal Stress, Depression & Anxiety on Fetal Neurobehavioral Development. *Clinical obstetrics and gynecology* 2009;52:425-40.

[22]Glover V. The Effects of Maternal Anxiety or Stress during Pregnancy on the Fetus and the Long-Term Development of the Child. *Nutrition and Health* 2007;19:61-62.

[23]C Johnson R, Slade P. Obstetric complications and anxiety during pregnancy: Is there a relationship? *Journal of psychosomatic obstetrics and gynaecology* 2003;24:1-14.

[24]Fan F, Zou Y, Tian H, et al. Effects of maternal anxiety and depression during pregnancy in Chinese women on children's heart rate and blood pressure response to stress. *Journal of human hypertension* 2015;30

[25]Li H, Jin D, Qiao F, et al. Relationship between the Self-Rating Anxiety Scale score and the success rate of 64-slice computed tomography coronary angiography. *The International Journal of Psychiatry in Medicine* 2016;51:47-55.

[26]W. K. Zung W, Magruder K, Velez R, et al. The comorbidity of anxiety and depression in general medical patients: A longitudinal study. *The Journal of clinical psychiatry* 1990;51 Suppl:77-80; discussion 81.

[27]Junjun W, Ying Z. A study on the correlation between maternal anxiety and TCM constitution in a community in Shanghai. *Shanghai Preventive Medicine* 2019;5-31

[28]Gu BD, Yang JJ, Li JQ, et al. Using Knowledge Management and Mhealth in High-Risk Pregnancy Care: A Case for the Floating Population in China. *Proceedings - IEEE 38th Annual International Computers, Software and Applications Conference Workshops, COMPSACW 2014* 2014:678-83.

[29]China's New Confucianism: Politics and Everyday Life in a Changing Society: 2010.

[30]Wang J-W, Cui Z-T, Ding N, et al. A qualitative study of smoking behavior among the floating population in Shanghai, China. *BMC public health* 2014;14:1138.

[31]Zhu Y. The Floating Population's Household Strategy and the Migration's Role in China's Regional Development and Integration. *International Journal of Population Geography* 2003;9:485-502.

[32]Su X, T F Lau J, Mak W, et al. Prevalence and associated factors of depression among people living with HIV in two cities in China. *Journal of Affective Disorders* 2013;149

[33]Duman N, Kocak C. The Effect of Social Support on State Anxiety Levels During Pregnancy. *Social Behavior and Personality: an international journal* 2013;41

[34]Msw Ft J, Joanne, Stephen, et al. The effects of social support on maternal anxiety and depression after stillbirth. *Health & Social Care in the Community* 2009;17:167-76.

[35]Katz J, F. Crean H, Cerulli C, et al. Material Hardship and Mental Health Symptoms Among a Predominantly Low Income Sample of Pregnant Women Seeking Prenatal Care. *Maternal and Child Health Journal* 2018;22