Antenatal Psychological distress and Birth outcomes

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Background

- Maternal psychological, social and emotional state during pregnancy, in particular, is of critical public health significance.

- Poor maternal antenatal psychological health and negative emotional state have been found effecting fetal growth and neonatal outcomes including prematurity, fetal growth restriction and low birth weight (Field Diego *et al.* 2004; Moncuso *et al.* 2004; Jesse Seaver & Wallace 2003; Rondo *et al.* 2003; Dayan *et al.* 2002).

- Psychological and emotional characteristics of significant importance include depression, anxiety and stress.

- In different countries, psychosocial problems during pregnancy in a range of 21-52% have been reported previously (Mirsanjari *et al.* 2012; Senturk *et al.* 2011; Golbasi *et al.* 2010; Lee *et al.* 2007).

- Various studies have been conducted on assessment of psychosocial status during pregnancy in Pakistan and reported its prevalence in the range of 25% to 70% (Ali *et al.* 2012; Zahidie *et al.* 2011; Shah *et al.* 2011; Rahman *et al.* 2007; Rahman *et al.* 1998).

- Most of the previous studies in Pakistan focused on the extent to which psychological problems prevailed in pregnancy.

- However, no detailed studies have been yet conducted in Pakistan focusing on antenatal psychological health in relation to pregnancy outcomes.

Methodology

- This community based longitudinal study was conducted at maternity clinic and Gynecology units of a major hospital located in Peshawar city, North West Pakistan.
- Sample size was calculated based on average prevalence of depression/anxiety in pregnant women in rural/semi-urban areas of Pakistan, which is 18%. **N=230**
- Pregnant women (got registered in early stage of current pregnancy, **Sep 2011 – Dec 2012**) and free from any chronic diseases (diabetes, hypertension, any cardiovascular diseases etc) were identified and randomly selected for the study with the help of hospital nursing staff.
- **<u>Baseline data</u>** was collected on maternal psychosocial and emotional state, height & health status, socioeconomic status, social support, dietary intake, hemoglobin and blood pressure.
- **Urdu translated DASS-42 questionnaire was used to assess the negative emotional symptoms among pregnant women**
- It is a set of 42-item self-report inventory designed to measure the presence and severity of symptoms of depression, anxiety and stress among people as young as 12 years of age (Lovibond and Lovibond 1995)
- Maternal weight and mid upper arm circumference (MUAC) measurements were taken close to expected dates of deliveries.
- Usual daily dietary intake and practices of the respondents were assessed by using 24hr dietary recall and food frequency questionnaires. **FVS**

Methodology

- Post-delivery data included gestational age, infants' birth weight, crown-heel length, labor complications and delivery mode.

- All data were entered into SPSS

- Appropriate Statistical tests were used to investigate differences in birth outcome among groups

RESULTS

- **Anthropometric, haemoglobin and blood pressure measurements of pregnant women**

Measurements		Mean±SD
Age (years)		23.8±3.8
Anthropometrics	Initial Weight (kg) *	55.7±5.8
	Current weight (kg)	64.5±4.2
	Height (cm)	157.7±6.7
	MUAC (cm)	26.2±2.5
	BMI**	21.9±3.5
	Weight gain during current pregnancy*	11.5±2.9
Haemoglobin (g/dl)		11.5±1.3
Blood Pressure (mmHg)	Systolic Blood pressure	119.2±10.8
	Diastolic Blood pressure	78.3±9.4

*n=195 **BMI is based on initial weight

RESULTS

- **Prevalence and intensity of Depression, Anxiety and Stress in the study cohort**

Psychological Traits		No. of women (%)
Depression	Mild	28 (12%)
	Moderate	21 (10%)
	Severe	15 (6%)
	Extremely severe	03 (1%)
	Total Depressed women	67 (29%)
	Normal (no symptoms for depression*)	163 (71%)
Anxiety	Mild	41 (18%)
	Moderate	28 (12%)
	Severe	17 (8%)
	Extremely severe	10 (4%)
	Total Anxious women	96 (42%)
	Normal (no symptoms for anxiety*)	134 (58%)
Stress	Mild	32 (14%)
	Moderate	26 (11%)
	Severe	17 (7%)
	Extremely severe	8 (4%)
	Total Stressed women	83 (36%)
	Normal (no symptoms for stress*)	147 (64%)
Overall prevalence	Depressed, anxious and stress**	104 (45%)
	Free of all symptoms***	126 (55%)

*Women with DASS-depression score <9, DASS-anxiety score <7 and DASS-stress score <14
=women who had DASS-depression, anxiety and stress scores more than 9,7an 14 respectively*= No depression, anxiety or stress

RESULTS

- **General pregnancy outcomes in the study cohort**

Pregnancy outcomes		Mean±SD
Gestational age (week)		38.4±2.0
Birth weight (kg)		2.8±0.4
Birth length (cm)		49.8±2.0
		No. of infants (%)
Birth Status	Live birth	226 (98%)
	Still birth	4 (2%)
Infant's status	Term	177 (77%)
	Pre-term	49 (23%)
Birth weight status	Normal	174 (76%)
	Low birth weight	52 (24%)
Delivery types	Normal (clinic)	74 (32%)
	Normal (home*)	5 (2%)
	Minor surgery	147 (64%)

*infants were delivered at home, a midwife/nurse was present at the time of delivery

RESULTS

- **Comparison of pregnancy outcomes of normal and DAS groups**

| Pregnancy outcomes	DAS Categories		p-value
	Normal (n=126)	**Distress (n=104)**	
	Means (95% CI)		
Gestational age (week)	38.3 (36.9;40.2)	38 (36.4; 39.7)	NS
Birth weight (kg)	2.9 (2.9;3.0)	2.6 (2.3; 2.8)	**p<0.0001**
Birth length (cm)	50.1 (49.7; 50.8)	49.4 (48.5; 50.2)	NS
	N (%)		
Birth Status, Still birth	3 (2%)	1 (0.9%)	NS
BW Status, LBW	19 (15%)	33 (32%)	**p<0.05**
Infant, Pre-term	20 (16%)	29 (28%)	**p=0.051**

RESULTS

- **Mean differences in birth weight of infants by DAS groups before and after adjustment for potential confounders**

ANCOVA		Mean differences in birth weight	p-value
Unadjusted analysis	--	289 g	**P<0.0001**
Adjusted analysis			
	Model-I	114	**p=0.065**
	Model-II	78	NS
	Model-III	59	NS
Model-I	Maternal DAS Score		
Model-II	Model-I PLUS age, Pre-pregnancy weight , Hg, MUAC & FVS		
Model-III	Model-II PLUS Social support, parity, monthly income		

RESULTS

- **Mean differences in birth weight of infants by DAS groups before and after adjustment for potential confounders**
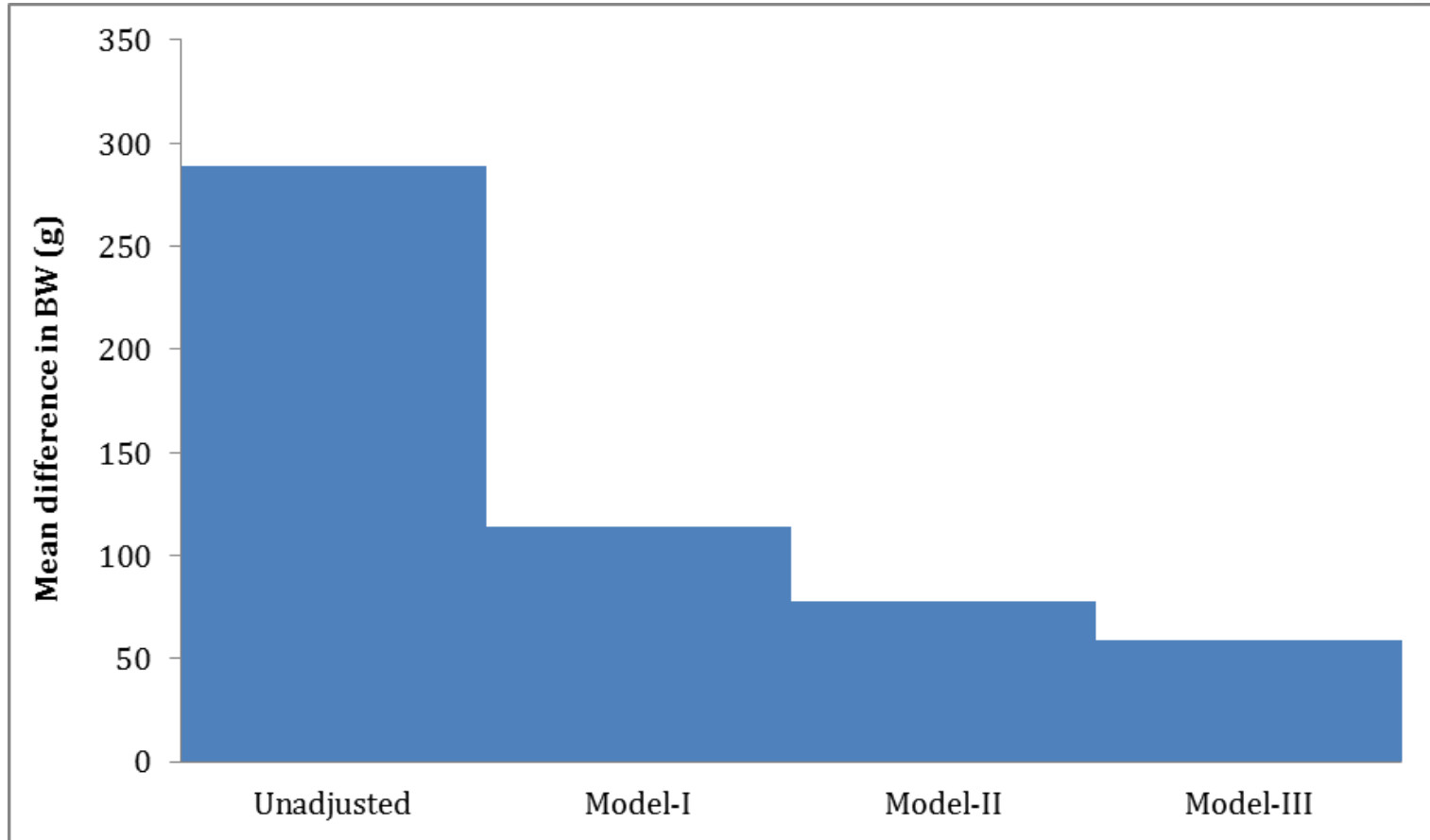
Conclusion

- Antenatal psychosocial and negative emotional status were found influential for pregnancy outcome, particularly, birth weight.
- Infants born to mother with DAS had significantly adjusted lower birth weight than the rest.

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Research Articles published

- Inadequate Dietary Intake in Women with Antenatal Psychological Distress: A Population Based Study in Pakistan. *Journal of Food and Nutrition Research,. Vol. 2, No. 12, 1021-1028*-**2014**

Abstract This study examined the relationship of psychological distress with dietary intake of food groups, energy, macronutrients and micronutrients among pregnant women from Peshawar, Pakistan. A total of 230 pregnant women who attended antenatal care between September 2011 and December 2012, were enrolled. Psychological symptoms were assessed using Depression, Anxiety and Stress scales (DASS-42). Respondents were dichotomized into psychologically distressed (with DAS symptoms) and non-distressed groups (without DAS symptoms) based on the cut-off values for each set of symptoms of depression, anxiety and stress. Data on dietary intake, emotional support and demographic-socioeconomic characteristics were collected using pre-tested questionnaires. A total of 45% (n=104) of the respondents reported mild to severe symptoms of psychological distress. Overall, compared to women without DAS symptoms, distressed women had a tendency to consume less variety of foods, and had lower intakes of some key food groups (milk, meat and fruit). Mean dietary intake of fibre was higher in the distressed group than those without DAS symptoms (adjusted $p<0.001$); this was probably due to the higher intake of vegetables in this group. Mean dietary intake of calcium, iron, vitamin B3 and food variety score (FVS) were lower in distressed women ($p<0.05$) even after adjustment. The presence of antenatal DAS symptoms was significantly associated with low dietary diversity (below the median of FVS) (Adjusted OR = 1.98; 95% CI 1.12; 3.47). Family income and partner's emotional support during pregnancy were also associated with low dietary diversity. There is evidence that, in comparison to women without DAS symptoms, distressed women had lower dietary intakes of animal foods and some essential micronutrients with less dietary diversity. There is a need to develop policies focusing on maternal antenatal psychological health across the globe, particularly in developing countries where the burden of maternal and infant morbidity and mortality is ever increasing.

Research Articles published

- Determinants of Antenatal Psychological Distress Among Pakistani Women. Archive of Neuropsychiatry. 52 (2): **2015**

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Abstract

Introduction: There is growing body of evidence that antenatal poor psychological health can lead to adverse pregnancy outcomes. Studies conducted in various countries demonstrated a wide range of factors associated with psychological distress during pregnancy.

Methods: A cross sectional study was conducted between September 2011 and December 2012 in Peshawar, North West Pakistan. Total of 230 women in their third trimester of pregnancy fulfilled the inclusion criteria. Women's antenatal psychological health status was measured using the Depression Anxiety Stress Scale (DASS-42). Relevant data on health and demographic socioeconomic status were collected through personal interviews using standardized questionnaires.

Results: Overall, 45% (n=104) women showed symptoms for composite depression, anxiety and stress (composite DAS). In the univariate analysis, maternal age, husband support, monthly income, family size, stressful life events, lack of confidence, domestic violence and pregnancy related concern were strongly associated with antenatal composite DAS (p<0.01). The association of maternal composite –DAS symptoms with age, monthly income, family size and lack of confidence remained significant in the multivariate analysis (p<0.01).

Conclusion: A major proportion of women showed symptoms of antenatal composite DAS) and various factors were found related to their psychological distress. Maternal young age, low husband support, low income, large family size, adverse life events, lack of confidence, pregnancy related worries and domestic violence were stronger determinants of poor antenatal psychological status. The study findings concluded that policymakers at the government level should act to launch special intervention programs to improve maternal perinatal mental and psychological health at community level.

- **THANK YOU**

- **Special thanks to:**
  - **Mothers & their families**
  - **University of Agriculture, Peshawar-PAKISTAN for financial & logistic support**
  - **Research Team**