Why psychological distress and partner support matter for antenatal care among young women: A baseline evaluation from a maternal mental health intervention in rural India

Background:

Globally, 42% of pregnant women are anemic and approximately half of this burden is attributed to iron deficiency [1]. In India, 50% of pregnant women are anemic (National Family Health Survey [2]. Several studies have reported associations of anemia during pregnancy with the risk of maternal mortality and poor pregnancy outcomes in terms of low birth weight and prematurity [3,4,5]. Since 1970, the Government of India has run an iron and folic acid (IFA) supplementation programme, which expanded to provide universal iron supplementation for pregnant women in 1992. Despite this, rates of recommended IFA supplement uptake (for at least 100 days) are persistently low (26%) among pregnant women in rural India [2]

Non-compliance comes across as one of the most challenging factors in the consumption of IFA. Evaluations conducted on determinants of IFA uptake have focused mainly on socio-economic, educational barriers, number of IFA received, use of antenatal care (ANC) services and supply side barriers [6]. There is a growing body of research that suggests a relationship between poor mental health and a woman's engagement in favorable ante health practices (7). In the few studies conducted to date, associations have been noted between antenatal psychosocial stress with poor weight gain and substance use, and also with maternal distress and adverse pregnancy outcomes [7,8,9,10,11].

Psychological distress, which includes depressive, anxiety, panic and somatic disorders, is a major cause of disability among pregnant women. Rates are highest in low and lower middle-income countries, where distress affects women during pregnancy and in the postnatal period [12,13]. Psychological distress is associated with women's health practices during pregnancy. Despite the prevalence of antenatal psychosocial stress, its influence on maternal health is severely underestimated. Little research exists on how psychological distress impacts antenatal care practices in rural India.

Further, there is some evidence that partner support improves maternal health in developing countries. These studies have reported positive benefits of male involvement in maternal health in low and middle-income countries, that include reduced odds of maternal depression, discouragement of unhealthy, maternal practices such as smoking and improved utilization of maternal health services [14].

Psychological distress along with partner support influence antenatal care practices among young pregnant women, but are not currently recognized in existing initiatives to promote maternal health in

India. These constructs of psychological distress and partner support have not been systematically investigated yet. In light of this, we examined the role of psychological well-being and partner support on IFA consumption during pregnancy among young pregnant women in low income settings of rural India.

The specific objectives of the paper are: (a) To assess psychological distress among young pregnant women in rural India, (b) to examine antenatal care practices focusing on IFA consumption (c) To assess the effect of psychological distress and partner support on IFA consumption among young pregnant women.

Methods

Study Design

This study involved analysis of cross-sectional baseline data from young pregnant women in maternal mental health intervention in rural India. The survey was conducted in two states of India – Bihar and Maharashtra (one district each) with low access to ante-natal care services and lower uptake of IFA (24% and 37%) than the national average (District Level Health Survey-3, 2011-2012). A multi-stage cluster sampling design was implemented in selecting 2 blocks across study districts and further from each block, 20 villages were selected using Probability Proportion to Size. Systematic random sampling was used to select the respondents from the completed household list of selected villages.

Sample size

The study used true values for the two proportions formula for two timelines - 95% desired level of confidence and 80% desired power for the detection of a significant difference of 10 percent points over time and equal sample sizes between the two groups assuming two tailed tests. A total of 400 young married eligible pregnant women in the age group of 15-24 years in their second and third trimester were selected for the study to assess the determinants of recommended IFA uptake.

Data

The quantitative data was collected using a structured questionnaire to gather information on socio-demographic profile, ante-natal care knowledge (IFA consumption, tetanus injection, danger signs, nutrition) practices, partner support and IFA consumption. Besides, the General Health Questionnaire (GHQ-12), a brief screening instrument (12-item measure) was used for psychological distress. The Indian version of the questionnaire was validated for use in Maharashtra and Bihar. The instrument was verbally

translated and field-tested to ensure language and cultural contexts. Trained female investigators were deployed to conduct the interviews.

Qualitative methods

A total of 10 in-depth interviews (IDIs) with young married pregnant women and six IDIs with key informant (KIIs) health care providers were conducted in the study. Under the National Rural Health Mission, the Government of India has employed health workers to promote various aspects of maternal health in India. ANMs and ASHAs were purposively selected for key informant interviews. For IDIs, it took approximately 60 minutes and around 40 minutes for KIIs. Separate interview discussion guidelines were developed and used to interview young couples and KIIs. Purposive sampling was followed to select participants for IDIs and KIIs. We selected young married women from 15-24 years of age who were in their second and third trimester. Community health workers who had more than two years of working experience at the PHC level were selected as KIIs. Senior researchers in collaboration with the field team with extensive experience conducted the interviews.

Ethics, consent and permissions

Ethical permission was obtained from the Institutional Review Board (IRB) for conducting the research. Since the young, aged 15-17 years are the most vulnerable populations in research, hence the study minimised all possible risks to the participants during the survey. Every effort was made to ensure protection and confidentiality and to reduce any potential adverse consequence to the participants. Written informed consent of parents, health care providers, young men and women was sought prior to the survey. Assent was taken in case of minor young girls along with the informed consent of their parents. Moreover, names or other identifying information about the participants were not recorded to ensure anonymity of data for research purposes. Participants did not receive any material compensation for their participation in the survey.

Measurements

Outcome variable:

The response variable was chosen as consumption of recommended IFA supplement among young married pregnant women. This was categorized into three levels: zero consumption of IFA (coded as 0), less than 100 consumption of IFA (coded as 1) and 100 and above consumption of IFA (coded as 2).

Explanatory variables:

Psychological well-being was measured through the validated GHQ 12- item questionnaire. GHQ is one of the most widely used and validated screening questionnaires for the measurement of psychological distress in primary care and community settings. The 12-item versions of the GHQ have both been field tested and validated as a screening measure for current common mental disorders in India [15,16]. The Cronbach's alpha showed a very good internal consistency of the scale ($\alpha = 0.75$). Each item was scored '1' or '0', thus a possible total score of 12 for each woman. In this study, we have used the cut-off point as '5' to discriminate between presence or absence of a probable current psychological distress. Respondents with GHQ score of less than or equal to 5 were considered as 'not being psychologically stressed' (indicate low GHQ) and respondents with GHQ score more than 5 were considered as being psychologically distressed' (indicate high GHQ).

Other Covariates:

Selected socio-demographic factors that may affect IFA consumption by young pregnant women were controlled in an adjusted model. These variables were: age at marriage, age at gauna, caste, education and economic status, parity, awareness about IFA uptake and partner support. Gauna is a traditional custom in rural India (performed in marriage that occurs at very young age), where a married couple consummates their marriage and cohabit together. Education level was grouped up to primary level (0-5 years), secondary (6-10 years); and senior secondary and higher (11 years and above). Economic status was measured by household having Below Poverty Line (BPL) card or Antyodhaya card (extreme poor) provided by the Government of India. Awareness of IFA consumption was computed hence awareness about IFA was coded as 1 and 0 otherwise.

Statistical analysis

Bivariate analysis (Pearson's chi-square test) on the uptake of IFA supplementation with psychological distress, and partner support, gender and socio-demographic characteristics was conducted. Further, we constructed multinomial logistic regression models (1 and 2) to identify predictors of IFA consumption. Model 1 compares estimates for women who consumed less than 100 IFA, more than 100 IFA with women who did not consume any IFA at all. Zero consumption of IFA was taken as a reference category. For each category, the odds ratio (OR) was determined after controlling the effect of explanatory variables (Psychological distress-PD and Partner support-PS) and other covariates.

Let P1 = probability of having no IFA (Y = 0), P2 = probability of consuming less than 100 IFA (Y = 1), P3 = probability of consuming 100 and more IFA (Y = 2). The modality of multinomial regression model relates to the log odds (or logit) of Y to the explanatory variables (Xi) in linear form as:

$$\frac{\ln(\Pr(Yi = 1)}{\ln(\Pr(Yi = 0)} = \beta_i * X_i$$

$\frac{\ln(\Pr(Yi=2)}{\ln(\Pr(Yi=0)} = \beta_i * X_i$, Where $\sum Pi = 1.$

Further, in Model-2, interaction effects were tested by including the cross-product in the regression model that included the two corresponding main-effects (psychological distress-GHQ scale and partner support). The interaction model was coded as best (low stress and partner support), medium (combination of either 'low stress but no partner support' or 'high stress but have partner support') and low (both bad: high stress and no partner support).

Qualitative analysis

For the qualitative data analysis, all the interviews were recorded, transcribed and subsequently translated into English. The translated text was coded inductively, and ambiguities in meaning were resolved by consulting project staff. Professional translators well versed with English and Hindi translated the Hindi transcript into English. We (Indians speaking English and Hindi) cross-checked all English translated transcripts with Hindi transcripts (also checked with the audio files whenever necessary) to ensure quality of translation. Hindi transcripts were read several times to get acquainted with raw data and checked at random. Themes emerging during review of the transcripts were sorted and grouped according to key categories.

Results

Socio-economic characteristics, IFA consumption:

Participants' mean age was 21.4 years (SD = 2.3), their mean age at marriage was 17.5 years (SD = 2.5), and at gauna was 18 years (SD = 2.2), respectively. More than 40% of mothers had their gauna before they were 18. Regarding economic status, 51% belonged to families that lived below the poverty line. One third belonged to the other backward classes (OBCs), 22% to scheduled castes and 10% to scheduled tribes. Almost all participants were Hindu (97%). Over one third of young women were educated up till primary school only. In terms of pregnancy and childbirth, around 41.5 % were primigravida, and 21.9 % had more than one child. Around 40% of young pregnant women were not aware of antenatal IFA supplements as a part of the essential ante-natal care package. More than one third of participants (37.2%) had no IFA consumption, while 21.3% consumed recommended IFA (for 100 days and more). Further, psychological distress was experienced by 40% of study participants. The cut off for GHQ-12 score (5) was considered for identification of the level of psychological distress.

Uptake of IFA Supplements: Bivariate Analysis

Table 1 presents results of a bivariate analysis of the consumption of IFA supplementation (zero consumption, less than 100, and 100 and above) by young pregnant women across socio-demographic, gender and mental health characteristics. In bivariate analysis, a significant association ($p<0.001$) was found between IFA consumption and psychological distress and partner support. A significant percentage of women who consumed no IFA supplement had no partner support (77.9%) and had psychological distress (67.6%) during their pregnancy ($p<0.001$). In the same light, those women who consumed recommended IFA (100 and more) were low on psychological distress (75.9%) and had partner support (75.6%) ($p<0.001$). Importantly, women who had gauna before 18 years, contributed significantly very less (13.3%) to the proportion of recommended IFA consumption than women had gauna in older ages (86.7%)($p<0.001$). Interestingly, significantly less proportion of women with only son (15.8%) were found to consume 100 and above IFA ($p<0.001$) than women with only daughter child (21.6%). In addition to these factors, uptake of 100 and more IFA supplements was significantly associated with knowledge about IFA, better economic status and higher education ($p<0.001$).

Table 1: Psychological, gender and demographic characteristics of women who had consumed zero, less than 100 and 100 and more IFA supplementation during pregnancy.			
Characteristics	Zero IFA	< 100 IFA	100 and > IFA
Age at gauna**			
Below 18 years	52.8	42.6	13.3
Above 18 years	47.2	57.4	86.7
Economic Status*			
Below Poverty Line and extreme poor	60.7	46.9	41
Above poverty line	39.3	53.1	59
Education**			
Primary	53.8	33.3	8.4
Up to Secondary	9.0	13.6	15.7
Higher secondary & above (10^{th})	37.2	53.1	75.9
Parity (+gender)**			
Prime gravida	31.7	42.8	57.8
One child (only son)	20	19.8	15.6
One child (only daughter)	14	18.6	21.6
More than one child	33.7	18.6	4.8
Awareness about IFA uptake**			
Yes	38.9	70.4	86.6
No	61.1	29.6	13.4
Partner support **			
Yes	22.1	60.5	75.6
No	77.9	39.5	24.4
Psychological distress**			
Low	32.4	62.3	75.9
High	67.6	37.7	24.1
Note: Chi test *p<0.01, **p<0.001			

Model 1 - Multinomial Logistic Regression (adjusted model)

Table 2 show results of the multinomial regression which compares women who consumed less than 100 IFA, 100 IFA and above with those who did not consume any IFA during their pregnancy. The results are presented as odds ratios (OR).

The multinomial logistic regression showed that psychological distress and partner support were significant predictors for uptake of recommended IFA supplements, while adjusting for other confounders (Table 2). These predictors (IFA supplement uptake) were common among women who consumed 100 and more IFA and less than 100 IFA in comparison to those who had no uptake of IFA supplement. However, it is interesting to see that estimates of these predictors (partner support and psychological distress) were significantly higher in women who consumed recommended IFA (100 and more) than among women who did not consume the recommended IFA (less than 100), respectively. For instance, odds of recommended IFA consumption were almost three times higher among those women who were low on psychological distress score (OR=2.91, $p<0.01$) than those who had high psychological distress and those who did not consume any IFA at all. Whereas odds of IFA consumption (less than 100) were 2.5 times higher among women (OR = 2.54, $p<0.001$) with low psychological distress than those who had high psychological distress and those who did not consume at all. Similarly, odds of IFA consumption (recommended) were four times among those women who had partner support than those who had no partner support and with those who did not take IFA supplementation (OR = 3.7, $p<0.001$). Similarly, odds of IFA consumption (less than 100) were three times higher among women (OR = 3.17, $p<0.001$) with partner support than those who had no partner support and those who did not consume at all. Also, the probability of consuming 100 and above IFA were almost seven times higher among those women who had knowledge of IFA (OR=6.8, $p<0.001$) than who had no knowledge.

Interestingly, the odds of consuming recommended IFA was lower among women with more than one child and those who had one son (OR = 0.15, $p<0.001$, OR = 0.39, $p<0.01$), compared to those who had no child, one daughter and those who did not consume IFA at all. Further, the odds of IFA consumption was significantly 60% lower for those who had gauna before 18 years of age (OR = 0.42, $p<0.01$) than those who had gauna after age 18.

Table 2: Multinomial Logistic Regression for IFA Uptake for selected determinants

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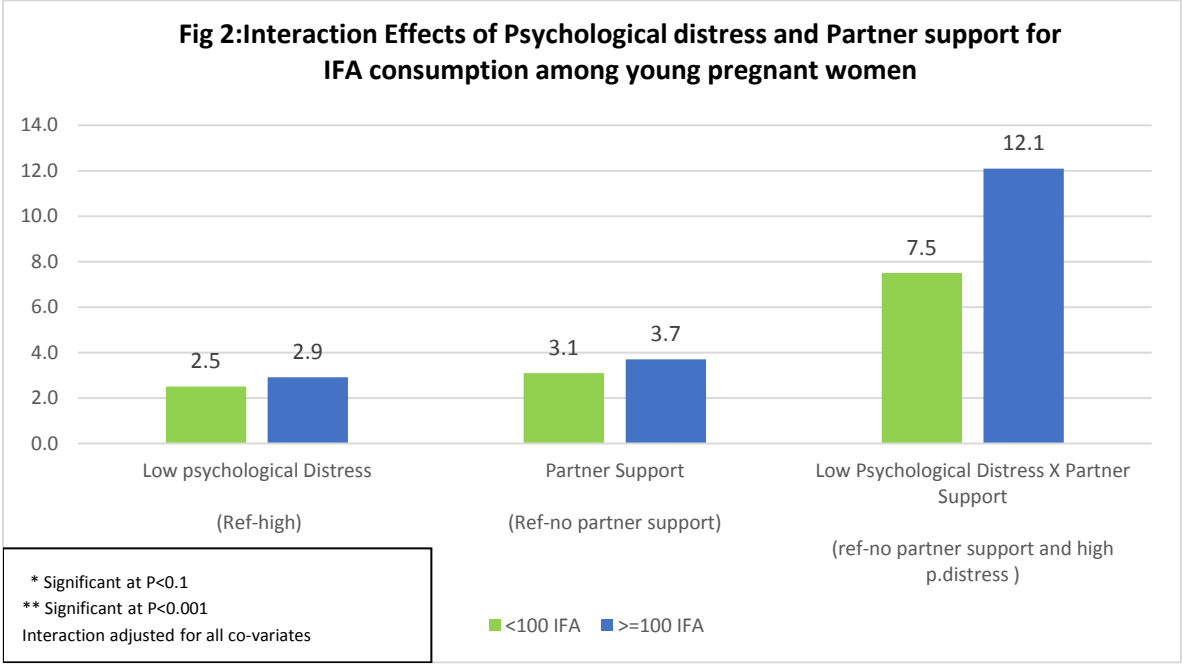
Determinants	**Model 1**		**Model 2**	
	IFA uptake: Less than 100	**IFA uptake: 100 and more**	**IFA uptake: Less than 100**	**IFA uptake: 100 and more**
	OR	**OR**	**OR**	**OR**
APL@				
BPL	0.81 (CI=0.4 -1.3)	0.85 (CI=0.4 -1.7)	0.81 (CI=0.4 -1.3)	0.85 (CI=0.4 -1.7)
Age				
22-24 years @				
Below 18	0.55 (CI=0.1 -1.5)	0.46 (CI=0.1 -2.0)	0.60 (CI=0.2 -1.6)	0.47 (CI=0.1 -2.0)
18-21	0.88 (CI=0.4 -1.7)	0.99 (CI=0.4 -2.2)	0.96 (CI=0.4 -1.8)	1.07 (CI=0.4 -2.4)
Gauna above 18 years @				
Below 18	1.36 (CI=0.7 -2.5)	0.42* (CI=0.1 -1.0)	1.36 (CI=0.7 -2.5)	0.43* (CI=0.1 -1.1)
Education level				
Higher@				
Up to primary	1.25 (CI=0.6 -2.5)	0.5 (CI=0.1-1.5)	1.15 (CI=0.5 -2.2)	0.48 (CI=0.1 -1.4)
Senior secondary & higher	1.58 (CI=0.6 -3.9)	2.2 (CI=0.7-6.7)	1.36 (CI=0.5 -3.4)	2.14 (CI=0.71 -6.4)
Parity (+gender)				
Prime gravida@				
Only child (son)	0.59	0.39***	0.61	0.37***

	(CI=0.2 -1.3)	(CI=0.1 -1.0)	(CI=0.2 -1.3)	(CI=0.1 -1.0)
Only child (daughter)	0.57 (CI=0.2 -1.3)	0.5 (CI=0.1 -1.3)	0.64 (CI=0.2 -1.4)	0.54 (CI=0.2 -1.4)
More than one child	0.32*** (CI=0.1 -0.7)	0.15**** (CI=0.03 -0.6)	0.40*** (CI=0.1 -0.9)	0.19*** (CI=0.04 -0.8)
Awareness about IFA uptake				
No@				
Yes	3.18**** (CI=1.8 -5.5)	6.8**** (CI=3.0 -15.5)	3.26**** (CI=1.8 -5.6)	6.4**** (CI=2.8 -14.7)
Psychological Distress (PD)				
High@				
Low	2.54**** (CI=1.4 -4.5)	2.91*** (CI=1.1 -6.2)		
Partner Support (PS)				
No@				
Yes	3.17**** (CI=1.7-5.7)	3.7**** (CI=1.7 -8.0)		
PD X PS				
Negative@				
Positive			7.5**** (CI=3.2 -17.8)	12.1**** (CI=4.0 -35.8)
Medium			2.3**** (CI=1.2 -4.5)	4.39**** (CI=1.7 -11.3)
Constant	0.373072**	0.161182***	0.4414717*	0.1592624***

	(CI=0.1 -0.9)	(CI=0.04 -0.5)	(CI=0.1 -1.0)	(CI=0.04 -0.5)
Note: Response outcome for IFA consumption 0(ref)=zero consumption, 1= less than 100 IFA consumption, 2=100 and more than 100 IFA consumption. Results are controlled for other predictors such as caste, first ANC, education of spouse, exposure to internet, mobile. @reference category. Confidence interval@95% *p<0.1, **p<0.05, *** p<0.01, ****p<0.001				

Model 2 - Interaction Effects: Partner support and Psychological Distress for uptake of IFA supplements.

In the improved model (2), the interaction analysis revealed that combined association between psychological distress and partner support was significantly greater and stronger for women who consumed the recommended IFA, compared to women who consumed less than recommended IFA or none at all. The odds of recommended IFA consumption was significantly higher (12 times) among women with low psychological distress and with partner support (OR = 12.1, p<0.001) in comparison to women who had either partner support or low psychological distress (OR = 4.39, p<0.001) or none (high psychological distress and no partner support) and compared to women who did not take IFA at all. The interaction model is shown in the figure below.



Qualitative Findings

The qualitative investigation found that the health practices of pregnant women were influenced by psychological well-being, gender factors including partner support. Women provided information on the context in which distress arose.

We found that distress was mostly termed as tension, anxiety, sadness and loss of interest in activities by the participants. Young pregnant women revealed experiencing varying amounts of tension and stressful events. Many women seemed to recognise that a girl child, especially the first born was a major cause of stress for them and their families. The family pressure for reproducing sons to prove their worth was an issue shared by a few young pregnant women. Some women recalled how they felt tensed and upset because they were neglected for not having any sons. One of the respondents said,

"They didn't pay attention to me, didn't take care of me at times, when I delivered my first daughter. They tortured me a lot! I fear that if I bear a daughter again, they will torture me more."

Pregnant women who anticipated failing to deliver a son feared being discarded by their partners and experienced tension and severe anxiety. One of the respondents, a young pregnant woman even suggested counselling her partner on gender equality and said;

"It would be better if you talk to my husband and explain to him that there is no difference between a girl and a boy. Please talk to him because this tension affects me."

Mothers felt that girls brought along with them a lot of extra responsibilities as family members are reluctant to share the burden. Moreover, they reported that the discrimination started from birth with families providing little care for the mother of a girl child, at times even ridiculing her for bearing a girl.

Women also stressed the importance of partner support and their gender equitable attitudes for the healthy experience of pregnancy and to minimise the pressures created by their in laws. These young women were more confident in dealing with their pregnancy. One of them explained,

"We started staying separate; it was my husband's decision since he knew that I was pregnant. Now, he supports me; he doesn't have any problem if it is a girl or a boy. He asks me to ignore what my mother-in-law says. I won't take any tension even if I deliver a girl this time, as I have to take care of her and myself."

These narratives of young pregnant women elucidated how tension and distress affected their own health as they neglected self-care. A pregnant woman with two daughters who did not want to continue with her pregnancy spoke about eating less or poorly, not consuming IFA due to tension and loss of interest. She said,

"Initially, I did not want this pregnancy but my husband wanted it. I was tensed about whether it would be a boy or girl for almost 3-4 months. I weigh 87 kg now but I had come down to 81 kg back then. I couldn't eat in those days and kept vomiting due to pregnancy and the tension and worry. Subsequently, the tension caused sleep disturbance because I kept worrying about whether it would be a boy or a girl. I didn't feel like eating, consuming iron tablets, etc.

This is a problem faced some women. They want to have only one or two children, but their husbands force them to have more. Their families want boys and hence they expect the women to have more children. Another woman said:

"Yes I got IFA from the hospital but couldn't digest it as I have been vomiting. They wanted a son! Due to this, I got tense and continuously had these thoughts. I didn't feel like eating and lost interest. I even

couldn't even digest water, even though this is the fourth month of my pregnancy. Sometimes I faint; feel depressed and not at all energetic.

These narratives of women were also echoed by community health workers. They shared that women suffered constant fear and insecurity about delivering a son and wondered whether their partner and family would support them if they didn't. Cesarean deliveries were a major cause of stress and anxiety. They said that women didn't talk much, looked sad, didn't take care of themselves and neglected their health. One of the health worker shared:

"She is quiet and less interactive, doesn't eat and is fearful. She doesn't take care of herself and neglects her health. She didn't come for ANC because she didn't feel it was necessary. She looks depressed and occupied with her thoughts."

The community health workers emphasised that mental health is the most neglected part in maternal health care. Mental health education and counselling can lead to a positive pregnancy experience for a woman. The workers seemed to have a common understanding that the mood and thoughts of the mother would affect the developing baby. They emphasised that women should be mentally prepared to cope with stressful situations and supported for better self-care. They also stressed the need for counselling women on gender equality, that girls and boys are equal, and not to feel low or tense or take the blame for delivering a daughter. One of the community health worker said,

"If she is mentally prepared, then she will not take tension; she will be mentally strong and healthy. She will take care of herself, her food, medication, health check-ups and IFA. Even if she has a girl, she will not be depressed."

Discussion:

This paper presents the findings of a study examining the association between psychological distress, partner support with IFA uptake among young pregnant women in the rural settings of India. The study found that a high percentage of women (40%) did not consume IFA supplement at all during their pregnancy, while more than one-fifth of women consumed recommended IFA. The prevalence of psychological distress among women in our study sample was 40%. The prevalence of psychological distress varies widely between populations, as has been shown in other studies, however it is consistent

with those found in other low and middle income countries studies of common perinatal mental disorders [12,13].

We found low psychological distress and presence of partner support were significant predictors of recommended IFA uptake in rural, married women in the age group of 15–24 years. Both psychological distress and partner support were common predictors of IFA uptake among women who consumed less than 100 IFA and more than 100 IFA. However, the association was stronger and higher among women who consumed more than 100 IFA, thus reaffirming the significance of these predictors for the recommended IFA. These findings are in line with a few studies from low- and middle-income countries that have described the associations between poor antenatal mental health with antenatal care practices and adverse maternal, neonatal health outcomes in rural women. These studies found that pregnant women with increased depressive symptoms were less likely to engage in favourable health practices including balance of rest and exercise, safety measures, nutrition, substance use, healthcare access, access to pregnancy-related information [7,8,9,10,11]. This study adds significantly to a small body of literature regarding the association between psychological distress and IFA consumption among young pregnant women in rural India.

Our study has also confirmed the role of partner support and male involvement for IFA consumption on a firmer footing. The study findings indicate that higher odds of consuming recommended IFA were also attributable to the support women received from their partners during pregnancy. This finding corroborates with a recent systematic review and meta-analysis on the association of male involvement with improved maternal health outcomes in developing countries. It demonstrated positive benefits of male involvement in maternal health outcomes which include increased maternal access to antenatal services, discouragement of unhealthy maternal practices such as smoking and improved maternal mental health [14]

Further, it is also one of the studies that has looked at the combined effect of psychological distress and partner support to understand its impact on IFA consumption among young pregnant women in rural India. The analysis of interaction patterns showed that when low psychological distress and partner support were combined the largest effect was seen on recommended IFA consumption among women. Presence of either factor - psychological distress or partner support also improved the odds of IFA consumption (7.5% vs 12.1%), however to a lesser degree (7.5 times) as the impact on IFA consumption

was strongest with a combined association of partner support and psychological distress (12 times). Notably, this reinforces the idea both-psychological distress and partner support have to be worked out in tandem for a combined intervention to catalyse uptake of recommended IFA consumption among young pregnant women.

Further, the finding also confirms the role of gender factors for recommended IFA consumption among young pregnant women. Those women who already had a son had lower odds of consuming the recommended IFA in their second pregnancy. Qualitative findings congruently found that young married pregnant women were more affected by gender norms around son preference and suffered psychological distress. Studies in India and South Asia [17,18] show that the preference for male children is deeply rooted; such gender bias and the limited control a woman has over her reproductive health may make pregnancy a stressful experience. Qualitative accounts further demonstrated that the health practices of pregnant women were influenced by psychological distress, gender factors (including partner support and son preference) and lack of knowledge of IFA consumption during pregnancy. Such linkages have been explored in a few studies on different maternal health outcomes in previous studies in India and Nepal [17,18]. Further, qualitative analysis also revealed how distress and lack of partner support affected women's health and antenatal care practices as they engaged in poor self-care and neglected favourable pregnancy health practices including accessing healthcare facilities less, not consuming IFA, not taking proper nutrition. This finding also corroborates with a study conducted among pregnant women in India [7]. Our study also confirms the importance of incorporating integrated approach of gender and mental health into ante natal health interventions. Lastly, the findings reflect that the odds of consuming the recommended IFA supplement was six times higher if women were aware of IFA uptake during pregnancy. This further confirms that the knowledge on IFA still remains a big gap that warrants attention and action.

Limitations of the study:

The sample taken for the analysis was small (n=400) and from the larger data on young pregnant women thus, the findings may not hold true across other geographic and socioeconomic contexts and hence there can be limited generalisations. The use of selective cross-sectional data also precludes our ability to make causal inferences at macro level. Nonetheless, this study provides compelling evidence of the

important interactions among psychological distress, gender factors and engagement in favourable health practices during pregnancy in a sample of low-income young pregnant women from rural India. Further research will be required to extend and validate this analysis by including larger representative sample across different contexts to develop greater understanding of the role of psychological distress in influencing antenatal practices including IFA consumption among pregnant women in rural settings of India.

Conclusion:

In the current scenario there is limited focus on women's psychological well-being in the ante natal care practices. This research makes a strong case to focus on women's psychological well-being, incorporating integrated approach of gender and mental health into ante natal public health interventions. Identification of pregnant women experiencing psychological distress early in pregnancy through community health care providers presents an opportunity to assess the nature of stress and work towards its management for decreasing psychological distress for maternal well-being. Further, counselling to husband and family to promote gender equity and partner support must be an incorporated as part of routine antenatal care.

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