The Interface Between Reproductive Health and Reported Mental Health Issues: DASS-42

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ABSTRACT

The paper is on the interface between reproductive health and reported mental health issues of women in Delhi, India. Here Reproductive health has been divided into three categories: reproductive, gynaecologic, and contraceptive morbidities. As these illnesses account for a significant component of the disease burden in women. Therefore, they might lead to mental health issue among them. The research objectives of this study are to explore relationship between the two issues exiting in women.
Data on mental health status was collected using the Hindi version of the Depression Anxiety Stress Scale (DASS-42), while demographic household and Parental & spousal characteristics and details related to reproductive health were collected via a questionnaire devised for the study.
Women's age and reporting of a major illness were associated with reproductive and mental health issues. Also, women with 2 or more menstrual complication were more likely to have stress, for 2 or more gynaecological complication women were found to have symptoms of anxiety and women who had 2 or more delivery complications had major symptoms of depression.
From the study we can conclude that the stress of specific life events such as miscarriage, abortion, and menopause affect female mental health from a biological and psychosocial standpoint with the potential for secondary mood and anxiety disorders.

Keywords: Reproductive issues, mental health, menstrual, gynaecological and delivery complications.

INTRODUCTION

Reproductive health is a vital and essential element of women's health, and it is currently one of the world's top public health issues. (Misra and Datta, 1997). In the absence of disease or infirmity, sexual and reproductive health means that people can reproduce, control their fertility, and maintain sexual interactions. It also implies that women can have a healthy pregnancy and childbirth, and that fertility regulation can be performed without causing health problems (Fathalla, 1988). Menstruation, childbirth, and infertility play distinct social functions for women. Hormones have a variety of effects on a woman's emotions and mood during her reproductive period. Women's quality of life might be impacted by such elements during this period.

Reproductive health is a notion that applies to all women of childbearing age, not only mothers. The regularity and duration of a woman's menstrual cycle are linked to a variety of mental problems across her lifetime (Barron et al., 2008). Premenstrual syndrome (PMS) affects the majority of women one week before their periods. Some women with PMS develop depression or anxiety as a result of their treatment (Yonkers et al., 2008). PMDD, on the other hand, is a condition characterised by more severe symptoms such as severe depression, irritability, and tension during menstruation, and is more common in women who suffer from anxiety or depression (Pearlstein and

Steiner, 2012). Menstruation might be hampered by bleeding, cramps, breast discomfort, and bloating. Furthermore, women who suffer from anxiety disorders have shorter menstrual cycles (Barron et al., 2008). Depression and eating disorders are linked to irregular cycles (Bisaga, 2002).

Obstetric And Gynaecological Complications

Women are twice as likely as men to suffer from major depression, especially throughout their reproductive years (Mahmood, 2016). Late pregnancy increases the likelihood of caesarean delivery, epidural analgesia, and assisted vaginal deliveries, making it one of the top causes of depression in women (Chung et al., 2001). Pregnant women who suffer from depression or anxiety have an increased risk of obstetric problems. Depression and anxiety have been linked to nausea and sick leave before pregnancy in certain studies (Andersson et al., 2004). RTIs are quite common and one of the primary causes of physical sickness in women (Wasserheit and Holmes, 1992). The stress of certain occurrences, such as abortion, miscarriage, and menopause, has a biological and emotional impact on a woman's mental health (Lolak et al., 2005). Unwanted pregnancies are frequent all over the world; in 2012, over 30 million births were caused by unwanted pregnancies (Sedgh et al., 2014). Despite, the fact that this pregnancy is frequently linked with single motherhood, it is more common among married or cohabiting women. Unwanted pregnancy is linked to a higher risk of psychological suffering among women who were ambivalent or unhappy at the outset (Bahk et al., 2015). (2017, Barton et al.) Anxiety and despair affect a high proportion of women who have an ectopic pregnancy (Farren et al., 2016). Furthermore, women who have had a postpartum haemorrhage are more likely to develop postnatal depression and post-traumatic stress disorder (Parry-Smith, 2021). Furthermore, infertile women's mental health is negatively impacted by familial pressure (Palomba, 2018).

Institutional focus has not paid much attention to the mental health requirements of Indian women in terms of reproductive health. In India, there is little information on women's reproductive and mental health, and none from north India. As a result, the major goal of this study was to determine the prevalence of mental illness among women of reproductive age in Delhi. Mental, bodily, and social well-being are three crucial aspects of human life that are intricately linked and interrelated. Preventing and treating mental health issues is important not only for overall well-being, but also for preventing difficulties with sexual and reproductive health. Mental and behavioural problems are thought to account for 12% of the global disease burden (GBD). Depression is now ranked fourth in the Global Burden of Disease Index (GBD) and is expected to rise to second by 2020. Depression causes the loss of 5.7 percent of total disability-adjusted life years (DALYs) in women; one DALY is equivalent to one year of full health. Patients with depression account for 15% to 20% of all suicide attempts. Every year, one million people commit suicide. Approximately 450 million people worldwide suffer from mental illness today. On average, 20% of all patients have one or more mental problems, according to primary health care providers. Depression is one of the most common of them, with 20 to 25% of people having it at some point in their life. Depression is 1.5 to 2 times more common in underdeveloped countries than in developed countries. Women suffer from depression twice as often as males over the world, and men are twice as likely to become alcoholics. Mental health issues such as post-traumatic stress disorder (PTSD) and substance misuse are common in patients who visit clinics that provide sexual and reproductive health treatments, in addition to depression. Poverty, gender inequality, and abuses of human rights have all been linked to an increase in mental health disorders, and vice versa.

Mental health issues are also linked to a diminished ability to make reasonable decisions, as well as an increased likelihood of risky sexual behaviour and substance misuse. This can result in more unwanted pregnancies, STIs, and RTIs, among other things. One of the most common and serious effects of pregnancy and childbirth is perinatal depression. Perinatal depression is described as depression that occurs during pregnancy or after childbirth and affects 10-15% of women in developed countries. In undeveloped countries, the figures are significantly greater. Perinatal depression is a serious illness that requires proper treatment and care. It is not the same as the 'postpartum blues,' which normally go away on their own after a few days. Perinatal depression has been linked to physical morbidity, substance addiction, suicide, and early birth in mothers. Low birthweight and delayed emotional, cognitive, and behavioural development are common in children born to depressed moms.

Many areas of sexual and reproductive health are influenced by mental health. Premenstrual tension syndrome (PMS); mood changes associated with menopause; feelings of loss and guilt after miscarriage, stillbirth, or abortion; anxiety over unintended pregnancy; postpartum psychosis; social segregation and low self-esteem due to obstetric fistula, infertility, sexual dysfunction, and being a member of the asexual minority are among these. Depression and trauma as a result of humanitarian crises are two other mental health issues. Persons with mental disorders' sexual and reproductive health is also an important aspect of their overall mental health. Mental health is crucial in these areas and should be addressed as part of sexual and reproductive health treatments on a regular basis. Addressing mental health is crucial to achieving the Millennium Development Goals (MDGs), as it leads to improved sexual and reproductive health as well as a higher quality of life.

Women's morbidities can be divided into three categories: reproductive, gynaecologic, and contraceptive morbidities. Gynaecologic morbidity is described as a structural and functional genital tract abnormality that is not caused by pregnancy, delivery, or puerperium. These illnesses account for a significant component of the disease burden in women, outnumbering reproductive and contraceptive-related morbidities. They cause significant impairment, lost productivity, absenteeism, physical, mental, and social stress, as well as significant financial hardship for families and individuals. Many healthy lives are lost among adult women due to gynaecologic morbidities, obstetric problems, and menstruation complications, according to studies.

Objectives And Hypotheses of The Study
METHODS
Data

This cross-sectional study was conducted during the period of October 2019- March 2020 in Delhi, the capital city of India, with a total population of 16,753,235. Currently, the National Capital Territory of Delhi is made up of one division, 11 districts, 33 subdivisions, 59 census towns, and 300 villages, according to the 2011 census of India (Economic Survey of Delhi, 2018). In the current study, a multi-stage sampling design was adopted for selecting the respondents. Among every district, one ward was identified as the study area. One census enumeration block (CEB) from each ward was selected at the second stage using the probability proportional to size (PPS) method. Finally, from each selected CEBs, a total of at least 26 households were chosen; women in the age group 18-49 were interviewed. The respondent selected agreed to cooperate and to participate. But, as the majority of women had Hindi as their first language, therefore, data was collected using the Hindi version of the Depression Anxiety Stress Scale (DASS-42), while demographic household and Parental & spousal characteristics data were collected via a questionnaire devised for the study.

The DASS-42, a self-report inventory, is used for data collection to assess the negative emotional symptoms among women (Lovibond, 2018). It has 42-item designed to measure the presence and severity of symptoms of depression, anxiety and stress among women of any age group (Al-Gelban et al., 2009; Tran et al., 2013). For this study, the target population was ever-married women 18-49 years of age. Responses through the screening test reflect the experience of the person over the last one week. Gamma coefficients that represent the loading of each scale on the overall factor (total score) are 0.76 for depression, 0.82 for anxiety, and 0.86 for stress. One would expect anxiety and stress to load higher than depression on the common factors as they are more highly correlated and, therefore, dominate the definition of this common factor. The reliability of the test is considered adequate, and test-retest reliability is likewise considered adequate, with 0.71 for depression, 0.82 for anxiety and 0.86 for stress. Exploratory and confirmatory factor analyses have sustained the proposition of its factors ($p < 0.05$). The purpose of the study was briefly explained, and they were assured of the complete confidentiality of their data. After receiving their consent, data were collected from 293 women.

Variable Description
Outcome variable
In the present study, for all participants, Depression, Anxiety and Stress were measured through DASS-42. As already mentioned, DASS has 42 items, which is grouped into 14 subscales for depression, anxiety and stress. Based on the four-point scale, ranging from 0-3 Likert scale, where 0 does not apply to me at all/ almost always, and 3 is when the question applied to the respondent very much/almost every time. The scoring and grading are done based on the total scores according to Table 1. The purpose of the questions was not aimed to diagnose depression, anxiety and stress but

to assess the severity of symptoms of disorders relating to them.

Table 1 Scoring and grading of the depression, anxiety and stress scale (DASS)

Category	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	28+	20+	34+

Predictor Variables
The data were collected to assess the sexual and reproductive health of women aged 18-49, with the purpose to identify reproductive problems common among women and prioritize reproductive health needs by dissemination of results of the study. Four aspects of the reproductive health problems were assessed by asking questions regarding the menstrual, gynaecological and obstetric health.
The data were collected on socio-demographic and economic characteristics of the respondents which included: Age categorized as Under 24 years, 25-29 years, 30-34 years, 35-39 years, and Above 35 years. Education was categorized as no education, primary, secondary and higher. Marital status was categorized as currently married, widowed and others (Divorced/ Separated/ Deserted/ Others). The occupation was categorized as not working, Professional/ technical/managerial, Clerical, Sales, Agricultural, Services/household and domestic and Skilled and unskilled manual, Caste was categorized as General, Scheduled caste, Scheduled tribe, Other backward caste, wealth was estimated using annual income based on which it was further categorized in 5 categories (Poorest, Poorer, Middle, Richer, Richest). Finally, regional variation in Delhi was observed at district level New Delhi, Central Delhi, East Delhi, North Delhi, Northeast Delhi, Northwest Delhi, Shahdara, South Delhi, Southeast Delhi, Southwest Delhi, West Delhi. Substance use was categorized into yes and no.
The survey collected data on household characteristics of the respondent which

included questions related to house ownership categorized in to own and rented, no. of rooms into 2 or less/ more than 2, total members living in household (3 or less/ more than 3), sex of head of the household (male/female) finally- type of family categorized into nuclear or joint.

STATISTICAL ANALYSIS

Data analysis was carried out using STATA (statistical software version 14.0). Data cleaning was done to detect any missing values, illogical data values etc. The correlation matrix was used to evaluate significance between the outcome variable depression, stress and anxiety total scores. Descriptive statistics along with cross-tabulation were presented in the present study. Chi-square tests were run to find an association between the dependent (depression, anxiety and stress symptoms divided into two categories based on severity) and dependent variables. The significant level was set at $p<0.05$.

RESULTS

Table 2 presents the sexual and reproductive health status of women aged 18-49 in Delhi. Data shows the exposure of women in the age group 18-49 to sexual and reproductive health problems. We looked at 3 broad categories representing reproductive health, firstly information was asked of women on any menstrual health complications mentioned in table 3. Majority of the participants reported abdominal discomfort/ pain/ severe cramps/ backache (33 percent), 28.18 percent reported irregular menstruation, nearly 9 percent experienced nausea during the period while only 4 percent had excessive bleeding and mood changes. Secondly, questions on gynaecological complications were asked, white/ any form of discharge is the most common out of all among the participants (30.03 percent), pain/itching in genital was found in about 11.26 percent of the population whereas 8.51 percent of women had sore/ulcers. Out of all women blood-tinged discharge and lower abdominal pain was least commonly observed. Thirdly, pregnancy/ obstetric complication history and outcome information was gathered from the participants. The participants who reported pregnancy complications were the highest (54.42 percent), nearly 41 percent of population also suffered from RTIs and STI, alongside, contraceptive side-effects and unwanted pregnancy was also common among 36.8 and 25.58 percent of the women respectively in this age group. Complications faced by women during delivery in particular were also found high as 20.11 percent of women has prolonged labour while nearly 9 percent had haemorrhage: ante/intra/postpartum. The least commonly observed complications in this category were ectopic pregnancy, Postpartum sepsis, Pre-eclampsia/ eclampsia and ruptured uterus.

Table 2 Percentage distribution of women having exposure to sexual and reproductive health of women aged 18-49 in Delhi.

Sexual and Reproductive health	Number of Cases	Percentage
Menstrual complications		
Irregular menstruation	82	28.18
Abdominal discomfort/pain/ cramps/ Backache	96	32.99
Nausea/vomiting	25	8.65
Mood changes (irritable, depressed, gloomy)	12	4.2
Excessive bleeding	12	4.12
Gynaecological complication		
Sore warts/ulcers	24	8.51
Any form of discharge (white/etc.)	88	30.03
Pain/ itching in genital	33	11.26
Burning urination	15	5.12
Lower abdominal pain	0	0
Blood-tinged vaginal discharge	5	1.71
Obstetric complications		
RTIs/STIs	119	40.75
Contraceptive side effects	46	36.8
Unwanted Pregnancy	55	25.58
Pregnancy complication	117	54.42

Table 2 To Be Continued…		
Difficulty in initiating	18	6.14
Haemorrhage: ante/intra/postpartum	16	8.7
Prolonged labour	37	20.11
Postpartum sepsis	1	0.54
Pre-eclampsia/ eclampsia	3	1.63
Ectopic pregnancy	9	4.89
Ruptured uterus	3	1.63
Other	1	0.54

Table 3 Logistics regression analysis of the determinants of 2 or more children ever born (CEB) among women in Delhi shows that women whose age at marriage was between the age group of 20-24 yrs. with odds of [OR: 1.82; CI: 1.34-1.97] were more likely to had 2 or more CEB, compared to women who married in 25-29 and 30 or above yrs. of age group. Women with primary and secondary level education were found at significantly higher risk of having 2 or more children [OR: 1.68; CI: 1.21-1.81, OR: 1.62; CI: 1.32-1.86], compared to women with higher level education. Women who had Husband with higher education level were less likely to have 2 or more children [OR: 0.29; CI: 0.08-0.70], compared to women with husbands having secondary level education. Women with age of first birth between 20-24 yrs. were more likely to have 2 or more children ever born [OR: 1.12; CI: 1.03-1.57], compared to women with age of first birth 25-29 yrs. [OR: 1.08; CI: 1.01-1.38] who are less likely to have 2 or more CEB. Women who have used any form of contraceptive were significantly less likely to have 2 or more children [OR: 0.38; CI: 0.04-0.74]. However, women who used injections and IUDs were significantly more likely to have 2 or more children [OR: 9.73; CI: 6.62-52.98] compared to women using other form of contraceptive, the association between CEB and contraceptives methods other than injections was weak.

Table 3 Logistics regression analysis depicting association between children ever born and its correlates in Delhi.

CEB	Odds Ratio	[95% Conf. Interval]
Age at marriage		
19 or less→		
20-24	1.82*	1.34-1.97
25-29	0.75	0.28-1.99
30 or above	0.73	0.16-3.36
Education		
No education→		
Primary	1.68*	1.21-1.81
Secondary	1.62*	1.32-1.86
Higher	0.98	0.71-1.36
Husband education		
Primary→		
Secondary	0.56	0.16-2.04
Higher	0.29*	0.08-0.70
Age at first birth		
19 or less→		
20-24 yrs.	1.12*	1.03-1.57
25-29 yrs.	1.08*	1.01-1.38
30 and above	0.32	0.06-1.69
Contraception use		
Not used→		
Used	0.38*	0.04-0.74
Type of contraception		
Not used→		
Condoms	3.80	0.34-42.57
Pills	3.10	0.30-32.27
IUD/injections	9.73	6.62-52.98
Female sterilization	4.34	0.29-64.23

Table 4 presents logistics regression analysis depicting association between depression, anxiety and stress and its correlates in Delhi. The data shows that women over the age of 30 yrs. had significant association with depression, whereas women in the age group of 25-29 yrs. were more likely to have anxiety and stress. Also, women in the 35 and above age group were also found to be more likely to have depression. Women having more than 2 children were more likely to have stress symptoms compared to women having less than 2 children. Women belonging to other caste were found to be more likely to have symptoms of anxiety. Also, women with 2 or more menstrual complication were more likely to have stress, for 2 or more gynaecological complication women were found to have symptoms of anxiety and women who had 2 or more delivery complications had major symptoms of depression. Level of education was also seen to have some association with mental health status as women with higher level of education were more likely to have depression compared to women with lower level of education. According to the income status of respondents, women belonging to Middle and poorer category are more likely to have depressive symptoms whereas women belonging to richest category are more likely to experience anxiety symptoms.

Table 4 Logistics regression analysis depicting association between depression, anxiety and stress and its correlates in Delhi.

	Depression		Anxiety		Stress	
	Odds Ratio	[95% Conf. Interval]	Odds Ratio	[95% Conf. Interval]	Odds Ratio	[95% Conf. Interval]
Age group						
under 24 yrs. →						
25-29 yrs.	0.09*	0.02-0.50	1.74*	1.23-2.42	1.09*	1.03-3.22
30-34 yrs.	0.09	0.01-1.53	0.62	0.18-2.15	0.72	0.22 -2.37
35-39 yrs.	0.21	0.04-1.06	0.48	0.13- 1.80	0.91	0.27-3.08
Above 39 yrs.	1.15*	1.10-12.20	0.62	0.14-2.80	0.91	0.22-3.86
Children Ever Born						
2 or less→						
More Than 2	0.78	0.25-2.48	0.78	0.41-1.51	1.90*	1.50-1.61
Caste						
General→						
Scheduled Caste	1.45	0.35-5.99	0.80	0.36-1.76	0.69	0.34-1.38
Scheduled Tribe	1.38	0.97-1.94	0.48	0.06-4.13	1.03	0.26-4.04
Other	2.29	0.56-9.41	2.19*	1.05-4.56	0.73	0.35-1.51
Respondent education						
No education →						
Primary	9.95*	2.03-48.78	1.15*	1.01-2.62	1.54	0.78-3.05
Secondary	5.53	1.21-25.30	1.70	0.93-3.14	0.89	0.51-1.54
Higher	0.02*	0.01-0.08	0.24*	0.38-0.49	0.49*	0.33-0.74
Husband Education						
Primary→						
Secondary	1.22	0.16-9.32	0.58	0.18-1.88	0.65	0.23-1.87
Higher	0.91	0.11-7.73	0.72	0.23-2.28	0.72	0.26-2.01
Menstrual complication						
No complication →						
less than 2	0.68	0.19-2.51	1.51	0.78-2.94	1.69	0.93-3.08
2 or more	1.46	0.36-5.93	1.31	0.54-3.18	2.24*	1.03-4.90
Gynaecological complication						
No complication →						
less than 2	1.70	0.54-5.40	1.60	0.83-3.07	1.41	0.78-2.53
2 or more	1.04	0.54-1.97	1.73*	1.22-2.39	0.79	0.30-2.06
Delivery complication						
No complication →						
less than 2	6.92	0.95-84.18	1.15	0.26-5.16	4.24*	1.29-13.99
2 or more	9.25*	2.75-14.10	1.32	0.69-2.52	1.41	0.80-2.51
Income						
Poorest →						
Poorer	1.88*	1.35-10.24	2.03	0.70-5.91	1.03	0.42-2.52
Middle	2.07*	1.34-12.80	2.20	0.72-6.66	1.06	0.41-2.69
Richer	1.02	0.09-11.67	2.09	0.61-7.12	1.72*	1.61-4.89
Richest	0.13	0.00-3.80	0.53*	0.12-0.72	0.89	0.30-2.61

DISCUSSION

The interface of women's reproductive and mental health is an evolving area of psychiatric practice, necessitating familiarity with psychobiological factors unique to women. The role of estrogen has profound implications for the etiology and treatment of women's psychiatric illness and has been reviewed along with the role of other hormones. Additionally, the stress of specific life events such as miscarriage, abortion, and menopause affect female mental health from a biological and psychosocial standpoint with the potential for secondary mood and anxiety disorders. Psychiatric issues during pregnancy and the postpartum period present special diagnostic and treatment challenges to the clinician. Biological and psychosocial treatments of these conditions have been reviewed. Management of psychiatric conditions during pregnancy and the postpartum period should include the obstetrician, paediatrician, and involved family members. Treatment decisions should involve careful assessment of the risks and benefits of any intervention including the risk of no treatment. The negative perception of psychiatric disorders, as well as misogynistic attitudes, often foster underdiagnosis and undertreatment. Excessive moodiness may be mistaken for depression, whereas postpartum anhedonia and nihilistic thinking may be seen as just "normal" baby blues. Clinicians treating women should be aware of the various disorders that can challenge women during their evolving reproductive life cycles. Interventions using the most effective somatic and psychosocial treatments can only follow from accurate diagnosis

Declaration by Authors
Ethical Approval: Approved
Acknowledgement: None
Source of Funding: None
Conflict of Interest: The authors declare no conflict of interest.

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