

# A Comparative Study for Evaluation of Prevalence of Anxiety and Depression in Fathers of First-Born Child & in Fathers of Successively Born Child in Early Neonatal Period, in a Tertiary Care Hospital of Ahmedabad.

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## Abstract:-

**Aims:** To Assess & Compare the Prevalence and Severity of Anxiety & Depression between the Fathers of the First-born children & Fathers of Successively born children in early neonatal period & its correlation with clinical parameters.

**Materials and Methods:** A total of 140 consecutive fathers - 70 fathers of first-born children and 70 fathers of successively born children participated in the study, who were evaluated using scales HAM-A & HAM- D for presence of Anxiety & Depression respectively in the early neonatal period at Obstetrics - gynaecology Department of Tertiary care hospital attached to medical college.

**Results:** Prevalence of anxiety was slightly more (51.42%) in fathers of first-born children than in fathers of successively born children (40.00%) although no statistically significant difference was found but it is more than in the general population. There was no statistically significant difference between Prevalence of Depression in fathers of successively born children (40.00%) & in fathers of first-born children (34.28%), but significantly more than in the general population. In mode of delivery, fathers of first-born children delivered by caesarean section had more anxiety (72%) & more depression (64%) than fathers of children born of normal vaginal delivery (40%, 17.77% respectively). (Statistically Significant, P 0.010265, P < 0.000095 respectively) In NICU admission, fathers of first-born children in NICU had 3 times more anxiety (90.90%) than fathers of children without NICU admission (33.33%) (Significant, P value - <0.00001). Prevalence of Depression was much more (81.81%) in fathers of first-born children in NICU than in fathers of children without NICU admission (12.50%) (Significant, P value - <0.00001). Prevalence of Anxiety was more in fathers of first-born children with presence of personal life stressors (87.50%) than in fathers without personal life stressors. (32.60%) (Significant, P value - 0.000013). Prevalence of Depression was more in fathers of first-born children with presence of personal life stressors (75%) than in fathers without personal life stressors (13.04%) (Significant, P value - <0.00001). In NICU

admission, 77.77% fathers of successively born children with NICU admission had anxiety compared to 26.92% fathers of children without NICU admission.(Significant, P value - 0.000147) Prevalence of Anxiety was more (65.21%) in fathers of successively born children with presence of personal life stressors than in fathers without personal life stressors(27.65%).(Significant, P value - 0.002589) Prevalence of Depression was also more (95.65%) in fathers of successively born children with presence of personal life stressors than in fathers without personal life stressors(12.76%).(Significant, P value - <0.00001)Prevalence of Anxiety was higher (64.86%) in fathers with 1st order female children than in fathers with 1st order male children.(34.48%) (Significant, P value - 0.04951) Prevalence of Depression was significantly high (45.94%) in fathers with 1st order female children than in fathers with 1st order male children(17.24%).(Significant, P value - 0.04055)

## I. INTRODUCTION

There has been a significant shift in the way the family is organized and conceptualized in the 21st century. A father's role within the family was, traditionally, the breadwinner and disciplinarian (1) but as more women have started to enter the labour force, there has been a shift in gender roles and changes in social practices in Western cultures. As couples contribute equally to the financial, social, emotional and physical wellbeing of their family, their roles have become less defined, which has contributed to a shift in expectations of a father's role in caring for his children, sharing domestic chores and acting as primary support system to his partner & whole family unit. (1,2).

Pregnancy and parenting are major life transitions that increase the vulnerability to psychological distress. (3,4) Also it increases the chances of onset or relapse of psychiatric disorders for both parents. Mood disturbances represent a common disorder during the postpartum period. (5) Postpartum depression (PPD) is often defined as an episode of major depressive disorder (MDD) occurring soon after the birth of a child. Much attention has always been paid to women suffering from postpartum depression. It is frequently

reported in mothers but can also occur in fathers. (6) However, to date there is no definitive criteria or definition for paternal postpartum depression. Literature indicates paternal depression may manifest in men during their partners pregnancy or may develop early in the postnatal period. (7)

Paternal Postnatal Depression (PPND), although becoming more prevalent, is still poorly recognised. (8) The emotional life of fathers in this period has been overlooked, leaving birth-related paternal depression a relatively unrecognized phenomenon. Men's mental health and wellbeing during their transition to fatherhood is an important public health issue that continues to be under-researched and poorly understood. As a result, men are under-screened, under-diagnosed and under-treated for the condition and other postnatal mental health problems, causing detrimental effects on their own health and negative effects on the health and wellbeing of mother and child. (9) Anxiety and depression are the two most common mental health problems experienced by fathers in the perinatal period. (10) It has been argued that masculine socialization shapes men to become adept at constructing psychological defences against their experiences and distorting the emotional experiences they induce. Further, taboo might exist in Western culture against men displaying emotions such as fear and sadness (11). Kilmartin argued that such suppression of emotions may lead to feelings of frustration, anger and powerlessness. (12) Because men are socialized to disengage their feelings, they may fail to recognise symptoms of depressive illness or may resort to destructive behaviours. This is potentially hazardous to the family's emotional health and safety and may affect early paternal-infant bonding.

The decision to conduct this study was based on how first-time fathers are affected by the changes to their lifestyle after childbirth as it is a life changing experience, and first time expectant and new parents are vulnerable to distress or depressive symptoms. A father and his family's emotional wellbeing are at risk when depression is unidentified and untreated. However, paternal depression and the potential consequences to the father's long term emotional wellbeing and that of his family has been under-researched and in need of future research investigation. Considering the lack of evidence, the aim of this study was to examine the views and experiences of first-time and subsequent fathers reporting symptoms across the continuum of psychological distress, concerning their mental health.

**“The birth of his first child marks one of the most profound changes a man may undergo, transforming his standing in the community, his most intimate relationships and his identity” (Fletcher, 2005 p. 461)**

## II. MATERIALS AND METHODOLOGY

A Cross sectional - observational study was carried out among a total 140 fathers (70 Consecutive consenting fathers of first-born children & 70 Consecutive consenting fathers of successively born children in the early neonatal period) at Obstetrics - gynaecology Department of Tertiary care hospital attached to medical college From June 2021 to July 2021. Unwillingness to participate in the study or those who didn't give consent were excluded from the study.

### A. Methodology:

After getting approval from Institutional Review board and permission from Head of the Department of Obstetric-gynaecological department of Tertiary care hospital attached to medical college, study was conducted after taking informed consent of 140 fathers. Socio-demographic details (Name, age, education, occupation, income, religion, locality, substance use, medical or psychiatric illness) with mode of delivery, birth order & NICU admission of a new-born & any personal life stressors were obtained from the fathers. To assess anxiety and depression, 2 scales: - HAM-A & HAM-D respectively were administered to all consenting fathers.

### B. Data Analysis:

Data was tabulated and a master chart was prepared using Microsoft Excel Office.

Statistical analysis was done using Excel and an online calculator and test such as chi square was applied as and when necessary to find significance.

### III. RESULTS & DISCUSSION

#### A. COMPARISON OF SOCIODEMOGRAPHIC & CLINICAL PARAMETERS BETWEEN FATHERS OF FIRST-BORN CHILDREN & FATHERS OF SUCCESSIVELY BORN CHILDREN

Table 1(A): Comparison of Socio-demographic Parameters of Fathers of First-born children (Group-A) & Fathers of Successively born children (Group-B)					
Socio-demographic Parameters Total (N=140)		Fathers of First-born children Group-A (N=70)	Fathers of Successively born children Group-B (N=70)	Chi-Square ( $\chi^2$ )	P-value (P)
Age	< 29 yrs. n=67 (47.85%)	54 (80.59%)	13 (19.40%)	$\chi^2 - 48.1169$	P = < 0.00001 Significant
	>= 29 yrs. n=73 (52.14%)	16 (21.91%)	57 (78.08%)		
Education	<= 10 std n=74 (52.85%)	34 (45.94%)	40 (54.05%)	$\chi^2 - 1.0319$	P = 0.309703 Not significant
	> 10 std n=66 (47.14%)	36 (54.54%)	30 (45.45%)		
Occupation (Kuppuswamy scale)	Professionals n=34 (24.28%)	18 (52.94%)	16 (47.05%)	$\chi^2 - 0.1554$	P = 0.693443 Not significant
	Others n=106 (75.71%)	52 (49.05%)	54 (50.94%)		
Monthly Family Income (Kuppuswamy scale)	>= 7323 n=139 (99.28%)	69 (49.64%)	70 (50.35%)	NA	NA
	< 7323 n=01 (00.71%)	01 (100%)	00 (00%)		
Religion	Hindu n=47 (33.57%)	19 (40.42%)	28 (59.57%)	$\chi^2 - 2.5944$	P = 0.107244 Not significant
	Others n=93 (66.42%)	51 (54.83%)	42 (45.16%)		
Family type	Joint/ Extended n=105 (75%)	50 (47.61%)	55 (52.38%)	$\chi^2 - 0.9524$	P = 0.329114 Not significant
	Nuclear n=35	20 (57.14%)	15 (42.85%)		

	(25%)				
<b>Locality</b>	Urban n=131 (93.57%)	68 (51.90%)	63 (48.09%)	$\chi^2 - 2.9686$	P = 0.084894 Not significant
	Rural n=09 (06.42%)	02 (22.22%)	07 (77.77%)		

As shown in Table-1A, among fathers of first-born children (Group-A), the majority (80.59%) of fathers were less than 29 years old while Among fathers of successively born children (Group-B), the Majority (78.08%) of fathers were of  $\geq 29$  years, this difference between the two groups for age was found to be statistically significant. (chi-square is 48.1169 & p value is  $< 0.00001$ )

Chen et al(13) shows that 18.4% of first time fathers were of less than 30 years of age, which is much less than my study (Median for age - 29 years) & almost 81% were from more than 30 years of age out of 317 first time fathers, my findings are in contrast to this study ; but Among 214 experienced fathers only 6.7% of fathers were from less than 30 years of age group with almost 92% were from more than 30 years of age group, findings of my study are in concordance with this.

In a study by Shaheen et al (14) the mean reported paternal age was 34.97 years. (SD -8.56) Out of 290 fathers, 67 (23.04%) were first-time fathers, whereas 184 (63.23%) were experienced fathers. Two hundred and seventy-one (93.12%) fathers had one new-born. Sixty-seven (23.02%) fathers were in their twenties, the majority 147 (50.51%) were in their thirties, 44 (15.12%) were in their forties, and 13 (4.46%) were in their fifties or older. Again, most first-time fathers were in their thirties, my findings are in contrast with this study.

This difference in both the studies could be because of differences in geographical regions, as where education is higher, people might give priority to career rather than marriage and children. Also, Socio-cultural & religious factors might also be responsible for differences found.

Table 1(B): Comparison of Clinical Parameters of Fathers of First-born children (Group-A) & Fathers of Successively born children (Group-B)

<b>Clinical Parameters</b>		<b>Fathers of First-born children Group-A (N=70)</b>	<b>Fathers of Successively born children Group-B (N=70)</b>	<b>Chi-Square (<math>\chi^2</math>)</b>	<b>P value (P)</b>
<b>Total(N=140)</b>					
<b>Addiction</b>	Present n=43 (30.71%)	18 (41.86%)	25 (58.13%)	$\chi^2 - 1.6447$	P - 0.199683 Not significant
	Absent n=97 (69.28%)	52 (53.60%)	45 (46.39%)		
<b>H/O Medical illness</b>	Present n=12 (08.57%)	02 (16.66%)	10 (83.33%)	$\chi^2 - 5.8333$	<b>P - 0.015725</b> <b>Significant</b>
	Absent n=128 (91.42%)	68 (53.12%)	60 (46.87%)		
<b>H/O Psychiatric illness</b>	Present n=00 (00%)	00 (00%)	00 (00%)	NA	NA

	Absent n=140 (100%)	70 (50%)	70 (50%)		
<b>Mode of delivery</b>	Normal Vaginal n=81 (57.85%)	45 (55.55%)	36 (44.44%)	$\chi^2 - 2.3729$	P - 0.123459 Not significant
	C-section n=59 (42.14%)	25 (42.37%)	34 (57.62%)		
<b>NICU Admission</b>	Yes n=40 (28.57%)	22 (55%)	18 (45%)	$\chi^2 - 0.56$	P - 0.45426 Not significant
	No n=100 (71.42%)	48 (48%)	52 (52%)		
<b>Personal Life stressors</b>	Present n=47 (33.57%)	24 (51.06%)	23 (48.93%)	$\chi^2 - 0.032$	P - 0.857963 Not significant
	Absent n=93 (66.42%)	46 (49.46%)	47 (50.53%)		

As per Table 1B, no significant statistical difference between Group A & B was found in any of the clinical parameters like addiction, h/o psychiatric illness, mode of delivery, NICU admission or personal life stressors. Out of 8.5% (n=12) of fathers with h/o medical illness, only 16.66% of fathers of 1st born children had h/o medical illness as compared to 83.33% of fathers of successively born children.

The statistical difference was found to be significant (p value - 0.015725), which may be because more fathers of first-born children were under 29 years of age & a greater number of fathers of successively born children were of 29 or more than 29 years of age. Nishimura et al (15) shows around 10% fathers of children with h/o medical illness, findings of my study (8.5%) are in concordance with this study.

**B. ASSESSMENT & COMPARISON OF PREVALENCE & SEVERITY OF ANXIETY BETWEEN FATHERS OF FIRST-BORN CHILDREN & FATHERS OF SUCCESSIVELY BORN CHILDREN.**

Table 2(A): Assessment & Comparison of Prevalence of Anxiety among Fathers of First-born children (Group-A) and Fathers of Successively born children (Group-B)				
HAM-A Score Total(N=140)	Fathers of First-born children Group-A (N=70)	Fathers of Successively born children Group-B (N=70)	Chi-Square ( $\chi^2$ )	P value (P)
Present (> 7) (n=64)	36 (51.42%)	28 (40.00%)	$\chi^2 - 1.8421$	P - 0.174704 Not significant
Absent (<=7) (n=76)	34 (48.57%)	42 (60.00%)		

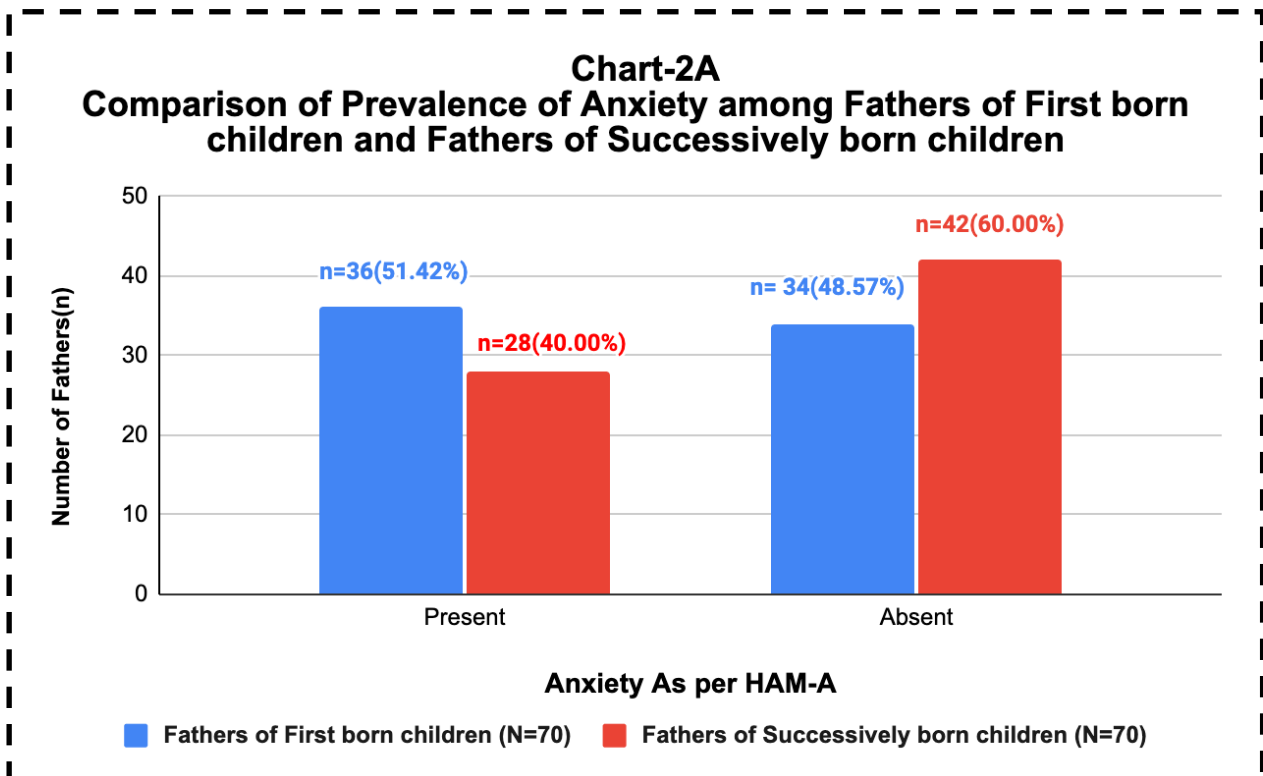


Fig. 1: Comparison of Prevalence of Anxiety among Fathers of First born children and Fathers of Successively born children

As shown in Chart 2A, the prevalence of anxiety among the fathers of 1st born children (Group-A) was 51.42% & Prevalence among the fathers of successively born children(Group-B) was (40%), which is suggestive of two things:- 1) prevalence of anxiety (40-51%) is more in both group of fathers as compared to prevalence in general population (3-18%) & 2) Although not being statistically significant, prevalence of anxiety is slightly higher among fathers of first born children than in fathers of successively born children.

Chen et al (13) shows that A higher risk of anxiety was observed in experienced than in first-time fathers throughout the perinatal period, both during pregnancy (OR = 1.9, 95%CI = 1.1– 3.2) and postpartum period (OR = 1.8, 95% CI = 1.1–2.8). My findings in contrast to this, may be due to the difference in the scale used by them for assessment of anxiety; State-Trait Anxiety Inventory (STAI) scale. Also because of the larger population size of 531 fathers & as they had taken the time duration from pregnancy to 1 year postpartum as compared to my study in which early neonatal period (1st seven days after birth of child) was the time frame.

Severity of Anxiety HAM-A Score Total(N=140)	Fathers of First-born children Group-A (N=70)	Fathers of Successively born children Group-B (N=70)	Chi-Square ( $\chi^2$ )	P value (P)
Absent (<=7) (n=76)	34 (48.57%)	42 (60.00%)	$\chi^2 - 4.1091$	P - 0.249918 Not significant
Mild (8-14) (n=37)	18 (25.71%)	19 (27.14%)		
Moderate (15-23) (n=25)	17 (24.28%)	08 (11.42%)		
Severe (>=24) (n=02)	01 (01.42%)	01 (01.42%)		

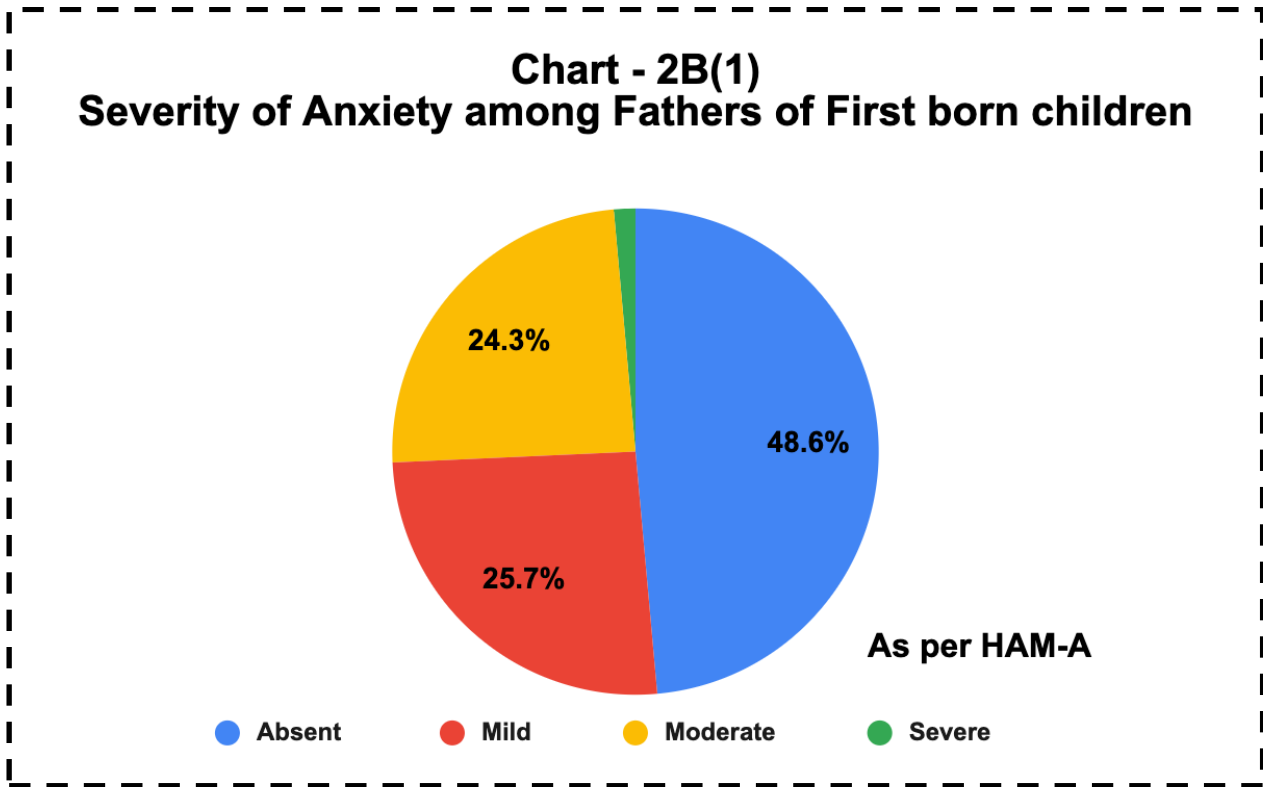


Fig. 2: Severity of Anxiety among Fathers of First-born children

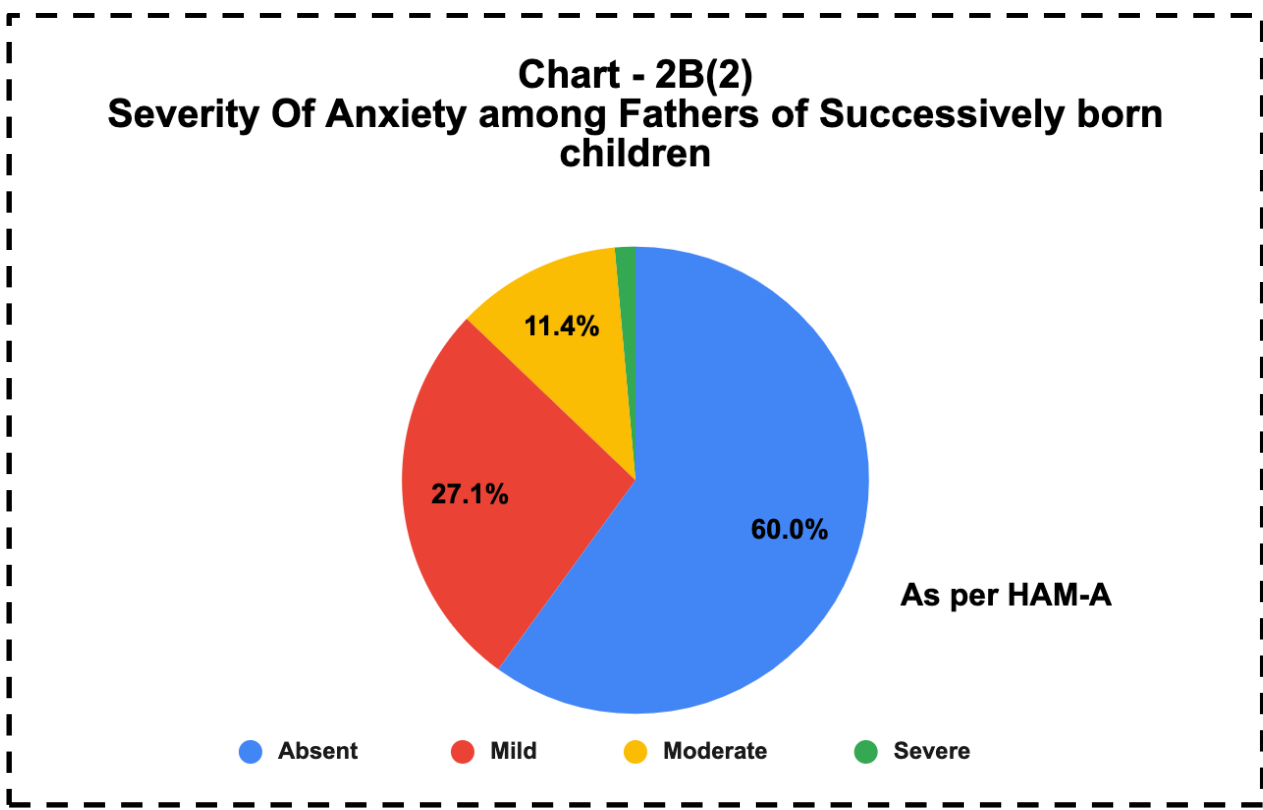


Fig. 3: Severity of Anxiety among Fathers of Successively born children

As per Table 2B and shown in chart-2B (1) & (2), prevalence of mild anxiety was almost similar in fathers of first-born children (Group-A) & fathers of successively born children (Group-B) (25.71% & 27.14% respectively). Similarly, Prevalence of severe anxiety was also equal in both

the groups (1.42%). Although Moderate level of anxiety was more in fathers of first-born children (24.28%) as compared to fathers of successively born children (11.42%). No significant statistical difference was found.

C. ASSESSMENT & COMPARISON OF PREVALENCE & SEVERITY OF DEPRESSION BETWEEN FATHERS OF FIRST-BORN CHILDREN & FATHERS OF SUCCESSIVELY BORN CHILDREN

Table 3(A): Assessment & Comparison of Prevalence of Depression among Fathers of First-born children (Group-A) and Fathers of Successively born children (Group-B)				
HAM-D Score	Fathers of First-born children Group-A (N=70)	Fathers of Successively born children Group-B (N=70)	Chi-Square ( $\chi^2$ )	P value (P)
Total(N=140)				
Present ( $\geq 8$ ) (n=52)	24 (34.28%)	28 (40.00%)	$\chi^2 - 0.4895$	P - 0.484146 Not significant
Absent ( $< 8$ ) (n=88)	46 (65.71%)	42 (60.00%)		

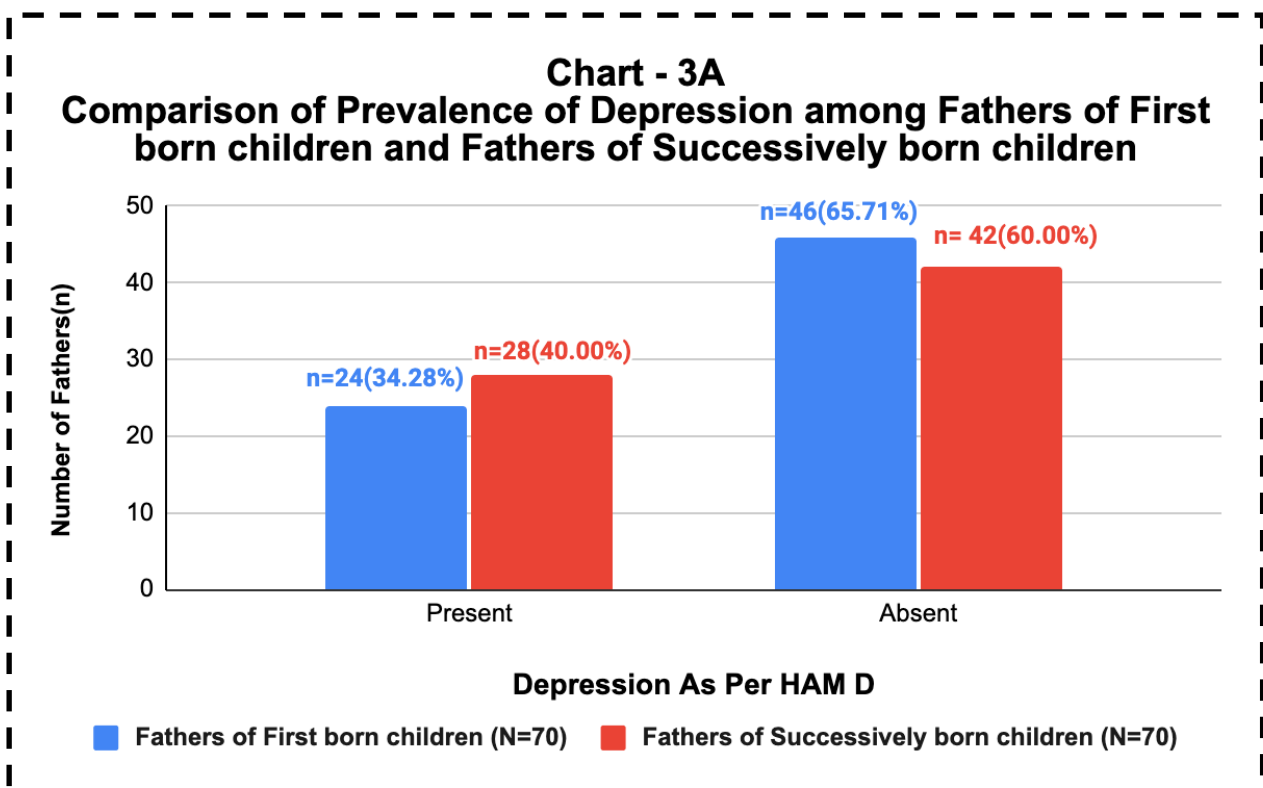


Fig. 4: Comparison of Prevalence of Depression among Fathers of First-born children and Fathers of Successively born children

As per Chart 3A, Prevalence of Depression was higher (40%) among the fathers of successively born children (Group-B) as compared to the fathers of 1st born children (Group-A) (34.28%). Although no statistically significant difference was found between the two groups, but my findings are suggestive of two things: - 1) Prevalence of depression (34-40%) is higher as compared to prevalence in the general population (5-17%) & 2) significant fathers have depressive symptoms (34-40%) after the birth of their children in the early neonatal period, which should be addressed. This might be because fathers now would have additional responsibility for another child and must maintain professional and personal life balances with ongoing day to day life events, which is stressful.

According to a study by Chen et al (13) experienced fathers were associated with an overall 70% higher risk of perinatal depression, especially in the postpartum period, as compared to first time fathers, my findings are in concordance with it.

Severity of depression among fathers in 1st year postpartum, had been highlighted by metaanalysis done by Goodman (17) from 20 different studies in which the incidence of paternal depression ranged from 1.2% to 25.5% in community samples, and from 24% to 50% among men whose partners were experiencing postpartum depression, my findings are in concordance with this study, clearly suggestive of fathers also suffer from postnatal depression.



Table 3(B): Comparison of Severity of Depression among Fathers of First-born children (Group-A) and Fathers of Successively born children (Group-B)

Severity of Depression HAM-D Score Total(N=140)	Fathers of First-born children Group-A (N=70)	Fathers of Successively born children Group-B (N=70)	Chi-Square ( $\chi^2$ )	P value (P)
Absent (<=7) (n=88)	46 (65.71%)	42 (60.00%)	$\chi^2 - 6.7248$	P - 0.081206  Not significant
Mild (8-13) (n=37)	13 (18.57%)	24 (34.28%)		
Moderate (14-18) (n=11)	08 (11.42%)	03 (04.28%)		
Severe (>=19) (n=04)	03 (04.28%)	01 (01.42%)		

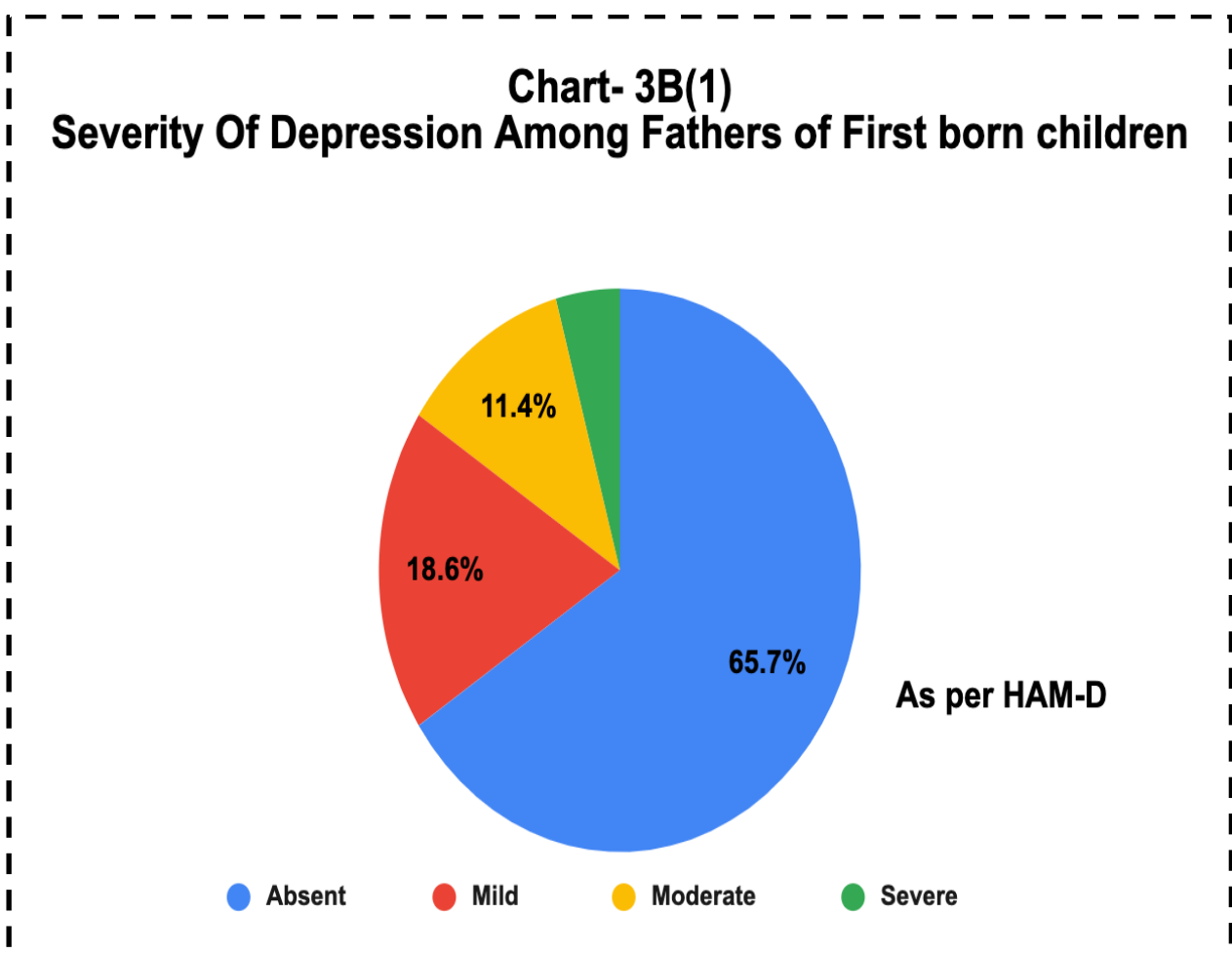


Fig. 5: Severity of Depression among Fathers of First-born children

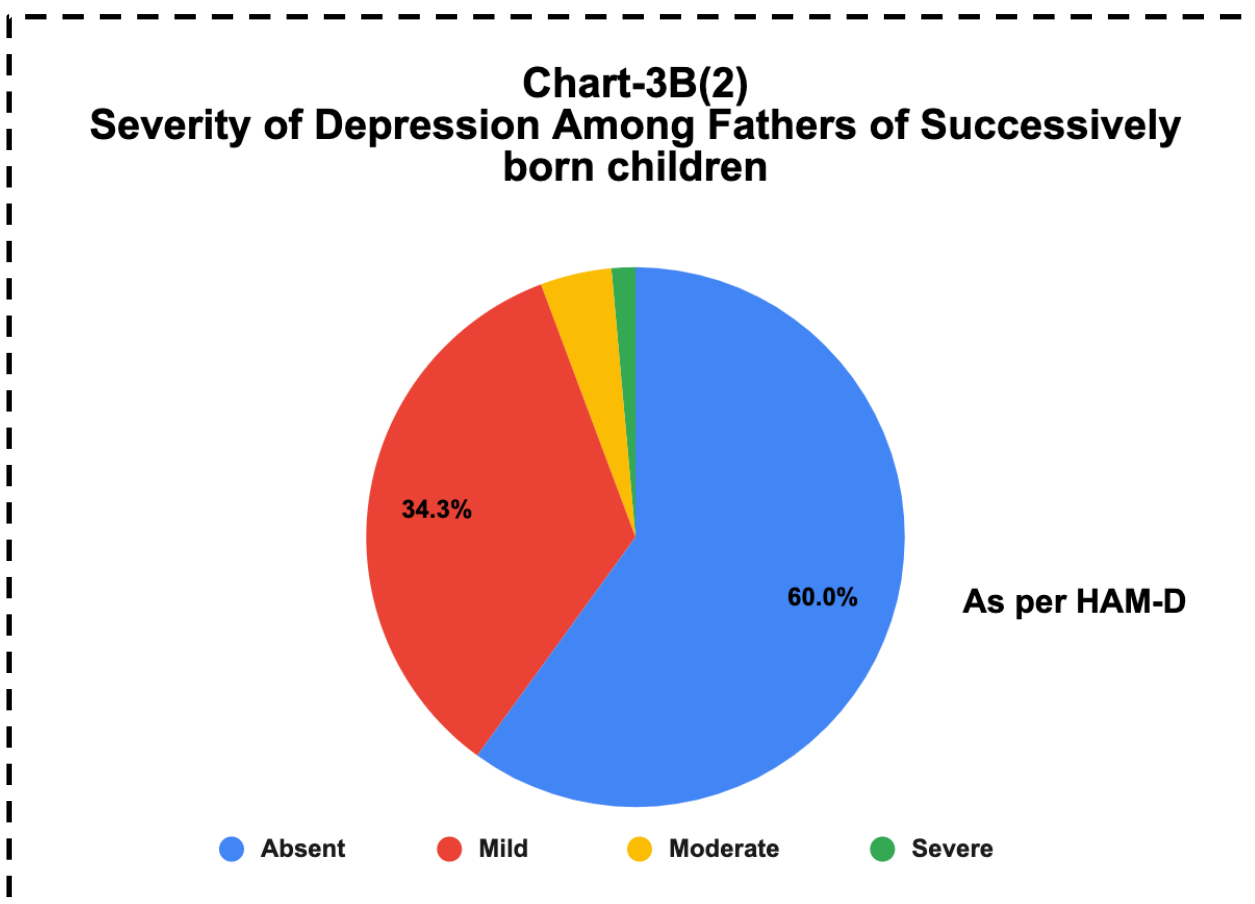


Fig. 6: Severity of Depression among Fathers of Successively born children

As shown in Chart 3B (1) & (2), difference between severity of depression among the fathers of first-born children (Group-A) & fathers of successively born children (Group-B), was not statistically significant; but 34.28% of fathers of successively born children had mild, 4.28% had moderate &

1.42% had severe depression, as compared to 18.57%, 11.42% & 4.28% of mild, moderate & severe depression among the fathers of the 1st born children respectively.

**D. CORRELATION OF ANXIETY & DEPRESSION WITH CLINICAL PARAMETERS IN FATHERS OF FIRST-BORN CHILDREN**

Table 4: Correlation of Anxiety & Depression of Fathers of First-born Children (Group-A) with Clinical Parameters							
Clinical Parameters		Anxiety Present (N=36)	Anxiety Absent (N=34)	Chi-Square ( $\chi^2$ ) & P value (P)	Depression Present (N=24)	Depression Absent (N=46)	Chi-Square ( $\chi^2$ ) & P value (P)
<b>Addiction</b>	Present n=18 (25.71%)	10 (55.56%)	08 (44.44%)	$\chi^2$ - 0.1652 P - 0.684401  Not significant	07 (38.88%)	11 (61.11%)	$\chi^2$ - 0.2279 P - 0.633099  Not significant
	Absent n=52 (74.28%)	26 (50.00%)	26 (50.00%)		17 (32.69%)	35 (67.30%)	
<b>H/O Medical illness</b>	Present n=02 (02.85%)	02 (100.00%)	00 (00.00%)	NA	02 (100.00%)	00 (00.00%)	NA

	Absent n=68 (97.14%)	34 (50.00%)	34 (50.00%)		22 (32.35%)	46 (67.64%)	
<b>H/O Psychiatric illness</b>	Present n=00 (00.00%)	00 (00.00%)	00 (00.00%)	NA	00 (00.00%)	00 (00.00%)	NA
	Absent n=70 (100.00%)	36 (51.42%)	34 (48.57%)		24 (34.28%)	46 (65.71%)	
<b>Mode of delivery</b>	Normal Vaginal n=45 (64.28%)	18 (40.00%)	27 (60.00%)	$\chi^2$ - 6.5882 P - 0.010265 Significant	08 (17.77%)	37 (82.22%)	$\chi^2$ - 15.2399 P - 0.000095 Significant
	C-section n=25 (35.71%)	18 (72.00%)	07 (28.00%)		16 (64.00%)	09 (36.00%)	
<b>NICU Admission</b>	Yes n=22 (31.42%)	20 (90.90%)	02 (09.09%)	$\chi^2$ - 20.0198 P - < 0.00001 Significant	18 (81.81%)	04 (18.18%)	$\chi^2$ - 32.1727 P - < 0.00001 Significant
	No n=48 (68.57%)	16 (33.33%)	32 (66.66%)		06 (12.50%)	42 (87.50%)	
<b>Personal Life stressors</b>	Present n=24 (34.28%)	21 (87.50%)	03 (12.50%)	$\chi^2$ - 19.0236 P - 0.000013 Significant	18 (75.00%)	06 (25.00%)	$\chi^2$ - 26.8703 P - < 0.00001 Significant
	Absent n=46 (65.71%)	15 (32.60%)	31 (67.39%)		06 (13.04%)	40 (86.95%)	

As per Table-4, Mode of delivery had a significant effect on Anxiety & Depression.

Fathers of first born children delivered by caesarean section had more anxiety (72.00%) compared with fathers of children born of Normal vaginal delivery (40.00%). This difference was found to be statistically significant (Chi square - 6.5882 & p value - 0.010265). Also Prevalence of depression among fathers of first born children delivered by caesarean section was more (64.00%) compared with fathers of children born of normal vaginal delivery (17.77%), which was also statistically significant (Chi-square - 15.2399 & P value - 0.000095). Above findings show that Fathers of children delivered by caesarean section had more anxiety & depression especially of first-born children.

H/O NICU admission was also positively associated with Anxiety & Depression. Prevalence of anxiety was 3 times more (90.90%) in fathers of first born children with NICU admission compared with (33.33%) fathers of children without h/o NICU admission, this difference was found to be statistically significant (Chi square - 20.0198 & P value -

<0.00001) Fathers of first born children with NICU admission had a higher prevalence rate of Depression (81.81%) compared with fathers of children without NICU admission (12.50%), which was also statistically significant (Chi square - 32.1727 & P value - <0.00001)

Presence of personal life stressors also had a significant effect on anxiety & Depression. More anxiety (87.50%) was present in fathers of first born children with personal life stressors compared with fathers without personal life stressors (32.60%). This difference was found to be statistically significant (Chi square - 19.0236 & P value - <0.000013). Similarly Prevalence of Depression was more (75%) in fathers of first born children with personal life stressors compared with fathers without stressors (13.04%), which was also statistically significant (Chi square - 26.8703 & P value - <0.00001)

A study done by cajiao-nieto et al(16) shows a higher level of anxiety & depression in fathers with children in NICU (study group) as compared with the fathers of children with No NICU admission(Control group), the risk of presenting symptoms of depression was higher if their new-

born infant had been born by c-section ( $F(1, 79) = 5.79, p = .01$ ) or had been admitted to the NICU ( $F(1, 79) = 4.02, p = .04$ ) & similarly for presence of anxiety( $F(1, 79) = 13.81, p \leq .001$ ).

**E. CORRELATION OF ANXIETY & DEPRESSION WITH CLINICAL PARAMETERS IN FATHERS OF SUCCESSIVELY BORN CHILDREN**

Table 5: Correlation of Anxiety & Depression of Fathers of Successively born Children (Group-B) with Clinical Parameters							
Clinical Parameters Total(N=70)		Anxiety Present (N=28)	Anxiety Absent (N=42)	Chi-Square ( $\chi^2$ ) & P value (P)	Depression Present (N=28)	Depression Absent (N=42)	Chi-Square ( $\chi^2$ ) & P value (P)
<b>Addiction</b>	Present (25) (35.71%)	11 (44.00%)	14 (56.00%)	$\chi^2$ - 0.2593 P - 0.61063 Not significant	10 (40.00%)	15 (60.00%)	$\chi^2$ - 0.0648 P - 0.799042 Not significant
	Absent (45) (64.28%)	17 (37.77%)	28 (62.22%)		18 (40.00%)	27 (60.00%)	
<b>H/O Medical illness</b>	Present (10) (14.28%)	04 (40.00%)	06 (60.00%)	$\chi^2$ - 0.1215 P - 0.727383 Not significant	04 (40.00%)	06 (60.00%)	$\chi^2$ - 0.1215 P - 0.727383 Not significant
	Absent (60) (85.71%)	24 (40.00%)	36 (60.00%)		24 (40.00%)	36 (60.00%)	
<b>H/O Psychiatric illness</b>	Present (00) (00.00%)	00 (00.00%)	00 (00.00%)	NA	00 (00.00%)	00 (00.00%)	NA
	Absent (70) (100.00%)	28 (40.00%)	42 (60.00%)		28 (40.00%)	42 (60.00%)	
<b>Mode of delivery</b>	Normal Vaginal (36) (51.42%)	12 (33.33%)	24 (66.66%)	$\chi^2$ - 1.3725 P - 0.241374 Not significant	12 (33.33%)	24 (66.66%)	$\chi^2$ - 1.3725 P - 0.241374 Not significant
	C-section (34) (48.57%)	16 (47.05%)	18 (52.94%)		16 (47.05%)	18 (52.94%)	
<b>NICU Admission</b>	Yes (18) (25.71%)	14 (77.77%)	04 (22.22%)	$\chi^2$ - 14.4088 P - 0.000147 Significant	18 (100.00%)	00 (00.00%)	NA
	No (52) (74.28%)	14 (26.92%)	38 (73.07%)		10 (19.23%)	42 (80.76%)	
<b>Personal Life stressors</b>	Present (23) (32.85%)	15 (65.21%)	08 (34.78%)	$\chi^2$ - 9.0765 P - 0.002589	22 (95.65%)	01 (04.34%)	$\chi^2$ - 44.206 P - < 0.00001

	Absent (47) (67.14%)	13 (27.65%)	34 (72.34%)	<b>Significant</b>	06 (12.76%)	41 (87.23%)	<b>Significant</b>
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As shown in Table-5, Although not statistically significant, Fathers of successively born children with normal vaginal delivery had only 33.33% of anxiety & Depression, compared with 47.05% of anxiety & Depression in fathers of children, delivered by caesarean section.

As per Table 5, NICU admission was significantly related to Presence of anxiety among fathers of successively born children. Only 26.92% of fathers of successively born children without NICU admission had anxiety compared with 77.77% fathers of children with NICU Admission. Statistically significant difference was found (Chi-square - 14.4088 & p value - 0.000147). Although not being statistically significant, all fathers of children with NICU admission were found to have depressive symptoms.

Also, personal life stressors were significantly related to the presence of anxiety & depression. Personal life stressors

reported by fathers in my study included mainly concerns regarding health of mother and new-born, especially if the child delivered by C-section, is in NICU, & worries about expenses to handle especially in fathers with successively born children. Among Personal life stressors 65.21% of fathers of successively born children were found to have anxiety compared with 27.65% of fathers without personal life stressors, which was statistically significant (Chi-square - 9.0765 & P value - 0.002589). Also, 95.65% of fathers with personal life stressors were found to have depressive symptoms compared with 12.76% of fathers without personal life stressors, which was also statistically significant (Chi-square - 44.206 & p value - <0.00001)

There are no studies available as per my knowledge which have correlated in detail with these parameters among such groups.

**F. ASSESSMENT & COMPARISON OF PREVALENCE OF ANXIETY & DEPRESSION BETWEEN FATHERS WITH 1ST ORDER FEMALE CHILDREN & 1ST ORDER MALE CHILDREN**

	Fathers of 1st Female child (n)	Fathers of 1st Male child (n)	Fathers of 1st twins (n)
Fathers of 1st order child (N=70)	37(52.85%)	29(41.42%)	04(05.71%)

Out of a total 70 fathers of 1st born children, 52.85% of fathers were of 1st female child, 41.42% of 1st male child & 5.71% of fathers have twins, as their 1st order child. We have considered in this study to examine & compare longitudinal patterns of depression & anxiety between fathers of 1st order female & 1st order male children. We want to assess this part as, Girl children may be considered an economic liability in

childcare costs, dowry costs, and marriage support, in certain cultures & in our society at a large which might be the reason for the burden on new inexperienced fathers and the reason for the high level of anxiety & depression. The girl child in India in certain cultures continues to live in perpetual threat, both physiological and psychological.

Total (N=70)	Anxiety Present (As per HAM-A)	Anxiety Absent	Chi-Square (χ <sup>2</sup> )	P value (P)
Fathers of 1st order Female children (n=37)	24(64.86%)	13(35.13%)	χ <sup>2</sup> - 6.0111	P - 0.04951 <b>Significant</b>
Fathers of 1st order Male children (n=29)	10(34.48%)	19(65.51%)		
Fathers of 1st order Twins (n=04)	02(50.00%)	02(50.00%)		

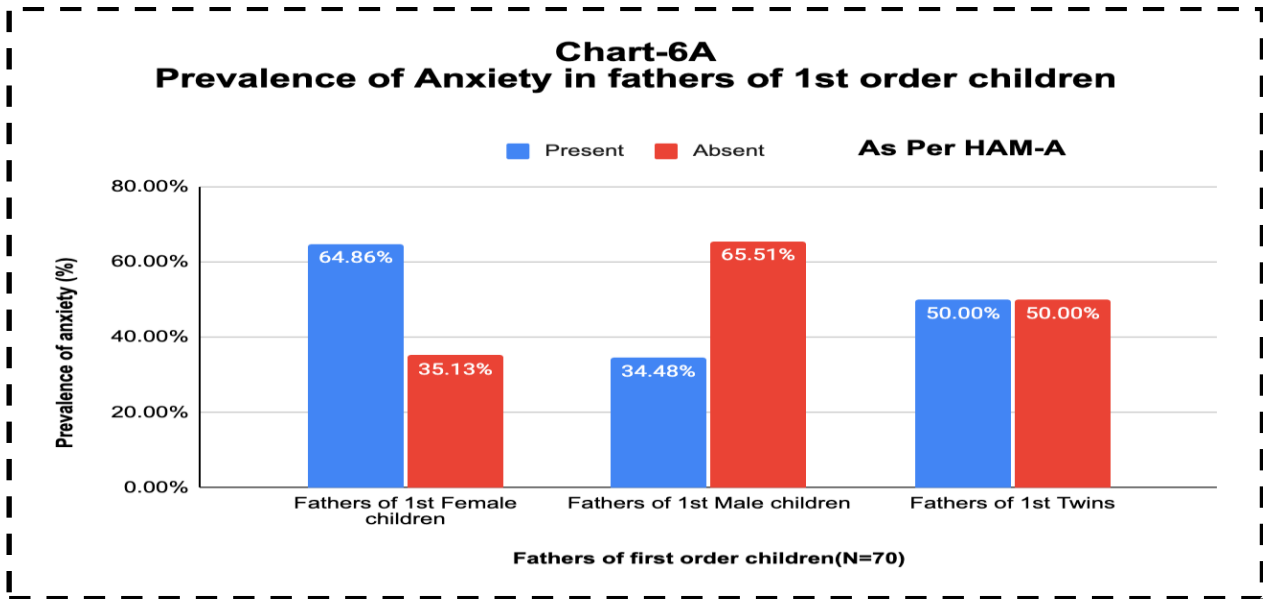


Fig. 7: Prevalence of Anxiety in Fathers of 1st Order Children

As per Chart 6A, the prevalence of anxiety was higher (64.86%), almost double among the fathers with the 1st order female children, as compared to fathers with the 1st order male children (34.48%), The statistical difference was found

to be significant. (Chi-square - 6.0111 & P - 0.04951) Which clearly showing the gender bias and discrimination between male and female child.

Total (N=70)	Depression Present (As Per HAM-D)	Depression Absent	Chi-Square ( $\chi^2$ )	P value (P)
Fathers of 1st order Female children (n=37)	17(45.94%)	20(54.05%)	$\chi^2 - 6.4104$	<b>P - 0.04055</b> <b>Significant</b>
Fathers of 1st order male children (n=29)	05(17.24%)	24(82.75%)		
Fathers of 1st order Twins (n=04)	02(50.00%)	02(50.00%)		

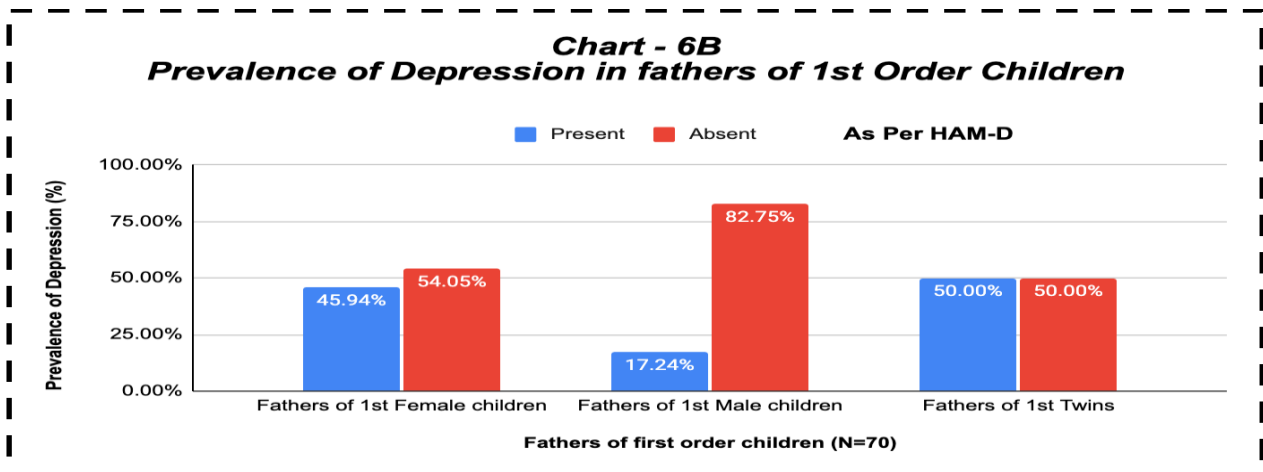


Fig. 8: Prevalence of Depression in Fathers of 1st Order Children

As per Chart 6B, prevalence of depression among the fathers with the 1st born female children was 45.94%, which was higher than the prevalence among the fathers with the 1st born male children (17.24%) The difference was found to be statistically significant. (Chi-square - 6.4104, P - 0.04055).

Overall prevalence of anxiety was higher than that of depression, and mild anxiety was found to be present significantly in 1st time fathers of both the genders, probably due to multiple factors like, new role as parent, new responsibilities towards new-born and family, always having the pressure to maintain balance between personal & professional roles. But depressive symptoms were more prevalent in fathers with female children.

The birth of the 1st female child is itself causing lots of stress in some families due to old customs and traditions, giving preference to sons over daughters and placing a greater value on the male child. This cultural norm breeds gender discrimination in families, schools and communities; something that is reflected in everyday life. Because it is seen that after the birth of a girl child, her safety, education & marriage is the priority of every father, which makes him feel insecure and at the same time over concerned regarding her future, which might be responsible for depressive symptoms more seen with father of 1st order female child as compared to 1st order male child.

#### IV. CONCLUSION

##### A. In the early neonatal period,

- Prevalence of Anxiety among the fathers of first-born children (51.42%) is little more than in fathers of successively born children (40.00%) while Prevalence of Depression among the fathers of successively born children (40.00%) is slightly more than in fathers of first-born children (34.28%).
- Prevalence of Anxiety & Depression in all fathers is high compared with the general population.
- Out of all clinical parameters, Caesarean section, NICU Admission & Personal life stressors were positively associated with Presence of Anxiety & Depression among fathers of first-born children & fathers of successively born children.
- Prevalence of Anxiety & Depression is more in fathers with 1st order female children (64.86%, 45.94% respectively) than in fathers with 1st order male children (34.48%, 17.24% respectively).

##### B. Limitation

- This study had a small sample size of 140 fathers, so this result cannot be generalized to all the fathers.
- This was a cross sectional study; further prospective study is required to validate the findings.
- Fatherhood can be experienced differently among different cultural backgrounds, and in different countries & this study included only self-selected fathers who were mostly from a similar cultural background, living in one geographical location.
- Sample size included in my study was from a single hospital, for more comprehensive results other hospitals should be included in study.

- Also, study included all hospital deliveries, home deliveries were not included.

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