CHAPTER - VI

DISCUSSION

The present research was conducted to explore the effect of family size (small, medium, and large) and birth order (only, first, second, and third) on twenty psychological variables viz. Intelligence, mental health conditions (depression, self-esteem, trait anxiety, and state anxiety), parent child relationship (protecting, rejecting, and loving), and career choice patterns (administrative, enterprising, defence, sports, creative, performing, medical, technical, expressive, computational, humanitarian, and educational). To fulfill the objectives, two-way ANOVA (unequal sample sizes) was computed. The main effect of family size (small, medium and large size family), and the main effect of birth order (only, first, second and third born) on various psychological factors was seen. Also, through this, the interaction effect of family size and birth order on twenty psychological variables was seen.

Based on the results of ANOVA for the psychological factors showing significant differences on family size (small, medium, and large) and birth order (only, first, second, and third), Scheffe’s post-hoc test was used to determine which of the three family sizes (small, medium and large) differed significantly on the psychological variables viz. intelligence, mental health conditions (depression, self-esteem, trait anxiety, and state anxiety), parent child relationship (protecting, rejecting, and loving), career choice patterns (administrative, enterprising, defence, sports, creative, performing, medical, technical, expressive, computational, humanitarian, and educational). The same test was applied to determine which of the birth orders (only, first, second and third) differed significantly on the aforementioned psychological variables. Each section commences with a brief summary of the results of the statistical analyses, following which the results are considered in the context of existing research findings and theoretical perspectives.
6.1 DESCRIPTIVE ANALYSES

6.1.1 Distribution of Family Size and Birth Order on different levels

FAMILY SIZE

The distribution (table 2, figure 6) clearly indicated that presently in the tricity; there is a predominance of the medium size families with 49% of the sample consisting of them. Also, we see the emergence of the small size family as a result of westernization and urbanization, with 17% of the sample contributing to them. It is also interesting to note that the large size family system is still prevalent but seems to be fading away as people now prefer smaller families with fewer children. The large size families constitute 34% of the sample here.

A recent newspaper survey, Times of India (March 25, 2012) quoted, “Hum do, hamare do” finally seems to be becoming true. An analysis of recently released census date (2011) reveals that the median household size in urban India is now less than four for the first time in history. Data on houses and households released by the census office shows that 56% of households in urban India now have four or less members. This is a marked change from 10 years ago, when the median household urban in urban India was between four and five members. With 49.7% of all Indian households having four or less members, the median Indian household has just a fraction over four members. In rural India, the median household size is between four and five members, but closer to four than it has ever been. As many as 47.1% of rural households now have four or less members, compared to less than 40% of rural households ten years ago.

The new batch of Census 2011 data showed that India now has 24.7 crore households. The data also lists households by size, and tells us what proportion of Indian households has one, two or three members and so on. The census office has not released the average household size because the provisional population total and the number of households were counted at different points in time, Registrar General C Chandramouli said. What we can do is determine the median household size, meaning the household size of 50% of the population.
Nine states and union territories have a median household size of four or less members, including Himachal Pradesh, Chandigarh, Maharashtra, Kerala, and Tamil Nadu. UP is the only Indian state with a median household size above five. While ‘household size’ is the number of people living together in one house and so is not the same as ‘family size’, demographers say that in India the declining household size is being driven by falling family size.

**BIRTH ORDER**

The distribution of birth order in context to this study throws light on the psychological impact that each of the birth orders has on their personality, i.e. mental health conditions (depression, self-esteem, state-anxiety, and trait-anxiety), intelligence, parent-child relationship, and career-choice patterns.

As per the sample of the study, the trend in distribution of birth order is depicted in a tabular form and represented diagrammatically (Table 3; Figure 7). It is apparent here that the first borns (33%) and the second borns (33%) are in abundance, and the only children (17%) and third borns (17%) constitute the lesser portion of the sample. This trend clearly depicts the current scenario in and around the city. As is evident, the only children and the third borns are fewer in number as compared to the first and second borns. This is because the trend of one-child families is still settling-in, in our country; and because parents today prefer to have smaller families, the trend of 3-child families is fading away. That also explains why there is an abundance of first borns and second borns as there is a majority of 2-child families prevalent. Although, this prevalence also throws light on the psychological impact that birth order has on college students.

Thus, the present research aimed at taking an overview of the current trends of family size in the tri city of Chandigarh, Panchkula, and Mohali, for the purpose of which a larger sample size (960 college students were screened. Later, the sample (480 college students), was selected out of the screened population and analyses was carried out on them. It is worthy to note here that although the prevalence of different family sizes and birth orders in the population was unequal, for the purpose of analyses a uniform amount of family sizes and birth orders i.e. 17% was taken.
6.2 DIFFERENTIAL ANALYSES

6.2.1 INTELLIGENCE:

FAMILY SIZE

Main effect

The two-way ANOVA’s “main effect of family size” on intelligence was not significant (F= 2.20, p >0.14) (Table 5). This implies that the means of the three family sizes - small, medium, and large do not differ significantly from each other on intelligence of college students.

However, a probe into the mean trend (Table 6; Figure 8) of intelligence shows that the mean score of small size families (M=115.97) was the highest, followed by the mean of large size families (M=113.63), and the medium size families (M=112.15) being the lowest.

The results reject both the proposed hypothesis that “intelligence of college students in small size families would be higher than the other two family sizes, and that the intelligence of college students in large size families would be lower than the other two family sizes."

SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT ON INTELLIGENCE:

The relationship between intelligence and family size has ever since, been a topic of scholarly interest and speculated hugely upon. From Darwinian perspective on human behavior, it should come as no surprise that behavioral dispositions first acquired within the family are expressed only conditionally in adulthood. In fact, at the outset it appears that the environment present in the family is highly deterministic of the level of intelligence that the children possess.

Resource dilution theory contends that as the size of the family increases, the resources dilute and divide. This theory proposed in the west in 1989 talks about a family size of 5 or more but nowadays, the size of the family is decided by the parents.
and each child is equally important to them. The shape of resource dilution is not the same anymore, neither the resources are finite and nor is the family size that large. Today, by the time the last borns enter the family, the resources might, double instead of reducing, thereby refuting the resource dilution theory. Families are able to afford helpers, thus giving emotional support, time, and finances to each of their children and indulge in their academic achievements. It is thus worth mentioning that these theories need to be re-worked in the Indian scenario.

Confluence-model proposed in 1975 states that a child’s intelligence is a function of the intellectual milieu in which he or she develops. The intellectual milieu is the unweighted average of the intellectual levels of all members of the child’s family, with more and unplanned children depressing the family’s intellectual environment. The confluence model also holds no typical relevance in the current Indian scenario where the family size is controlled by the parents, and the family environment in which he grows up is also made richer, thus not hampering the children’s intellectual capacities.

Empirical evidences of the effects of family size have been equivocal. Rodgers and colleagues (2000) analyzed the relationships of birth order and family size to the intelligence quotient (IQ) within families using data from the National Longitudinal Survey of Youth. Their results suggest that neither birth order nor family size directly affects IQ; rather, it is the parents’ IQ that is more likely to influence both family size and children’s IQ levels.

Rodgers et al. (2000) conducted a longitudinal within-family (preferably intact) study on nearly 3000 families participating in the National Longitudinal Survey of Youth and evaluated it. The results were compared with those from other studies using within-family data. The authors concluded that although low-IQ parents have been making large families, large families do not make low-IQ children in modern U.S. society.

Further, Shuey (1951) carried out a study on The American Council Psychological Examination for College Freshmen, and the scores of 2261 students.
Authors concluded that there is no evidence of a significant relationship between intelligence and family size among American college students of good or superior intelligence and socio-economic standing.

**Bahr and Leigh (1978)** studied the relationships between family size, intelligence, and expected education. The zero-order correlations were negative as expected. However, after other relevant variables were controlled, family size had a negligible association with intelligence and expected education.

Moreover, similar researches have contended that family size does not impact intelligence of college students (*Oberlander, Jenkin, Houlihan, & Jackson, 2007; Haan, 2010*).

*The present results hold that family size is not a significant factor of differences in Intelligence among college students.*

**BIRTH ORDER**

*Main effect*

The two-way ANOVA’s “main effect of birth order” on intelligence was not significant (F=0.79, p>.0.45) (Table 5). This implies that the means of the four birth orders - only, first, second, and third borns do not differ significantly from each other on intelligence of college students.

However, a probe into the mean trend (table 7; figure 9) of intelligence shows that the mean score of only children (M=115.98) was the highest, followed by the mean of the second borns (M=113.73), the third borns (M= 112.78), and the first borns (M=112.48) being the lowest.

The results reject both the proposed hypothesis that “intelligence of the only and first borns would be higher than the later borns, and that intelligence of the last borns would be lower than the early borns.”
ONLY, FIRST, SECOND, AND THIRD BORNS ARE NOT SIGNIFICANTLY DIFFERENT ON INTELLIGENCE:

The admixture hypothesis (Page & Grandon, 1979) suggests that the apparent birth-order effect on intelligence is a methodological artifact of using between-family (cross-sectional) data to infer within-family dynamics. It explains the correlation between birth order and intelligence across individuals by the fact that less intelligent parents are more likely to have a larger number of children and higher birth-order children necessarily come from larger families, whereas children from smaller families have greater representation among lower birth-order children.

The resource dilution model suggests that the average intelligence of children should decline with increasing birth order, such that firstborns are on average more intelligent than second borns, and second borns are on average more intelligent than third borns. But the present study’s findings tend to refute these claims and assert that birth order does not affect the college students’ intelligence.

Further, a recent review notes that “research on birth order and intellectual performance is replete with contradictory findings and long-standing conceptual disagreements” (Sulloway, 2007). According to the confluence model, firstborns are born into a family that consists entirely of cognitively mature adults; second borns are born into a family that consists of 67% cognitively mature adults; third borns are born into a family that consists only of 50% cognitively mature adults. Hence, the higher their birth order, the less cognitively stimulating the children’s family environment. As a result, larger families and later birth orders exist in a depressed intellectual development. But the findings of the present study refute the claims of these theories, stating thus that birth order does not have any effect on the intelligence of college students.

Further, most of that previous research has been limited to the problems of evaluating within-family models using only across-family measures. For example, family size is an "across-family" measure, while birth order is a "within-family" measure; according to which family size differs between children from different
families, while birth order differs between children within a family. According to the authors, earlier research on the issue of a link between birth order and intelligence lead to spurious conclusions, one of them being an apparent link between both birth order and offspring’s intelligence; and family size and offspring’s intelligence. These "links", according to the authors, were caused by mistaking across-family effects for within-family effects. (American Psychological Association, 2000), which is one reason why birth order has no impact on the college students’ intelligence.

Empirical evidences of the effects of birth order have voiced out similar findings.

Longitudinal studies, which track individual families over time, usually demonstrate that there is no relationship between birth order and IQ (Berbaum & Moreland, 1980; Retherford & Sewell, 1991; Rodgers, et al., 2000; Schooler, 1972).

The literature in the area of birth order, family size and intelligence reveals inconsistent results that have stemmed largely from confounding variables present in many birth order studies, including socioeconomic status, race and ethnicity, and age of participants (Rodgers et al., 2000; Steelman, 1985; Sulloway, 1996).

Similar findings were quoted by Wichman (2006) who used a data involving nearly 3,000 families who participated in the National Longitudinal Survey of Youth, which is funded primarily by the U.S. Bureau of Labor Statistics. The families in the study were followed over a long period of time. All the children in the study took intelligence tests that measured skill in mathematics, reading recognition and reading comprehension. He concluded that there is no relationship between birth order and intelligence.

Abdel-Khalek and Lynn (2008) studied the relation between intelligence and family size and birth-order was examined in a sample of 4643, 8–15 years old in Kuwait. There was a correlation of −.05 between intelligence tested with the Standard Progressive Matrices and family size. It is considered that the results are incompatible with the theories of Zajonc and Blake that family size and birth-order have significant
effects on IQ, and support the conclusion of Rodgers that family size and birth-order have no significant effects on IQ.

Kanazawa (2012) reassured that while the confluence/resource dilution models contend that earlier borns are on average more intelligent than later borns within the same families, the admixture hypothesis contends that children of any birth order from smaller families are on average more intelligent than children of any birth order from larger families. This reflects a genuine within-family dynamic, or a spurious artifact and methodological confound of inferring a within family process from between-family data, (of comparing later borns from larger families with earlier borns from smaller families). Thus the findings of the present study are in consonance with the current propositions and theories.

The present results hold that birth order is not a significant factor of differences in Intelligence among college students.

INTERACTION EFFECT

The interaction effect of birth order and family size on intelligence fails to reach the significance level (F=1.22; p>0.27) (Table 5). This means that birth order and family size when seen in unison do not impact the young adults’ intelligence in any way. Thus, the differences on the psychological variable of intelligence between only, first, second, and third borns were not significantly different in one, two, and three child families.

Pictorial presentation of significant differences of Family Size and Birth Order on Intelligence

<table>
<thead>
<tr>
<th>FAMILY SIZE</th>
<th>PSYCHOLOGICAL VARIABLE</th>
<th>BIRTH ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small, Medium, and Large size families are not significantly different on Intelligence.</td>
<td>INTELLIGENCE</td>
<td>Only, First, Second, and third borns are not significantly different on Intelligence.</td>
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</table>
6.2.2 MENTAL HEALTH CONDITIONS

Looking at the summary chart (Table 8) of ANOVA and Post hoc analysis, the results indicate that out of the four conditions of mental health (depression, self-esteem, trait anxiety, and state anxiety), two of them (depression and state anxiety) significantly vary amongst different family sizes and birth orders; whereas one of them (self-esteem) varies significantly only in terms of birth order. The interaction effect of family size and birth order has significantly emerged in only one sub variable of mental health conditions i.e. depression.

6.2.2 (i) DEPRESSION

FAMILY SIZE

Main effect

The two way ANOVA indicates that the main effect of family size shows significant differences on the depression of college students (F= 16.517; Sig<0.01) (Table 8). This implies that the mean of depression is significantly different among the college students of different family sizes (small, medium, and large) (Table 9; Figure 10).

The multiple comparisons (Scheffe’s) post- hoc tests further reveal that depression is highest amongst the college students of small and large sized family; and lowest amongst the medium sized family. The results imply that moderate/medium size family provides the children with a conducive family environment for positive growth whereas the small and large size family induces depression amongst college students by giving them a family environment which is full of negative mental health tendencies. As per the results, the college students from small and large families exhibit sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration.
BIRTH ORDER

Main effect

The two-way ANOVA indicates that the main effect of birth order shows significant differences on the depression of college students (F= 39.318; Sig=.000) (Table 8). The results imply that the mean of depression is significantly different among the college students of different birth orders (only, first, second and third borns) (Table 11; Figure 11).

Looking post hoc results (table 12) it is revealed that the third borns differed significantly from the second borns on depression. Further, the third borns scored the highest mean scores while the second borns ranked the least. Therefore, hierarchically, as per the mean scores, the 3rd borns are the highest, followed by the only children and the 1st borns whereas the 2nd borns are the least on depression. Thus the results imply that that the 3rd borns are high whereas the 2nd borns are low on depression. Further, the only and first borns are moderate on tendencies like sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration. Fascinatingly, there is a consonance between the pattern of family size and birth order which makes it all the more viable for discussion.

In the interpretation of Analysis of Variance, it is generally witnessed that if the interaction effects are significant, the main effects are not discussed. The main effects have come out to be significant here, thus we focus on interaction effects here and hereafter.

INTERACTION EFFECT

The two-way ANOVA (Table 8) indicates that the interaction effect of family size and birth order came out to be significant (F=7.298; Sig=.007) for depression, respective of and taking into account both the concerned variables, thereby explaining that the differences in birth orders (only born, first born, second born, and third born) are significantly different across all family sizes (one, two, and
three child family). Thus, because the interaction effect came out to be significant, Scheffe’s post-hoc test for multiple comparisons was applied.

The multiple comparisons (Scheffe’s post-hoc test) showed the following differences:

a) Mean of the depression of only children (M=35.09) and 1\textsuperscript{st} borns of 2 Child Family (M=32.08) and 1\textsuperscript{st} borns of 3 Child Family (M=37.41) was significantly higher than all the other birth orders and family sizes.

b) Mean of the depression of 2\textsuperscript{nd} borns of 2 Child Family (M=27.59) and 2\textsuperscript{nd} borns of 3 Child Family (M= 28.66) was significantly lower than the 1\textsuperscript{st} and 3\textsuperscript{rd} borns of 1 and 3 child family.

c) Mean of the depression of 3\textsuperscript{rd} borns was higher (M=35.81) than the other birth orders but equal to the 1\textsuperscript{st} borns of the 3CF; but lesser than the 2\textsuperscript{nd} borns of both 2CF and 3CF.

The results imply that the depression is highest in the 1\textsuperscript{st} borns and last borns of three child family followed by the only and 1\textsuperscript{st} borns of 2 child family. The least level of depression emerged for the 2\textsuperscript{nd} borns across 2and 3 child family.

Thus, the aforementioned results can be compiled as follows: Firstly, 1\textsuperscript{st} borns of all family sizes have emerged to be high on depression; Secondly, 3\textsuperscript{rd} borns of the 3 child family are also more prone to depression; and thirdly, 2\textsuperscript{nd} borns, irrespective of their family size have come out to be low on depression. Consequently, family size and birth order have emerged as significant contributors to the development of mental health tendencies.

Interestingly, various theoretical orientations and empirical researches are in consonance with the findings of the present study. They are thus discussed ahead.

**ONLY, FIRST AND THIRD BORNS OF SMALL AND LARGE SIZE FAMILY HIGH; AND 2\textsuperscript{ND} BORNS OF ALL FAMILY SIZES LOW ON DEPRESSION:**

Looking at the pattern of means of family size and birth order on depression, it is visible on the forefront that the only, first and third borns from small families would be high and the second borns, regardless of their family size would be low on the
scale of depression. It is reasonable to assume that there are certain factors of parenting, parental cognitive style, family emotional climate, resources, sibship, and attachment that account for varying levels of depression in college students coming from different birth orders and family size. The present study indicates that all the aforementioned factors are somewhat operational in the only, first and third born college students coming from small and large family sizes and emitting negative effects on college students such as sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness and poor concentration. Contrastingly, in the second borns, all the aforementioned factors (parenting, resources, sibship, and family climate/environment and attachment) are congenial and provide an environment which buffers them from depression, thus inculcating happiness, pleasantness, high self-esteem and worth, adequate sleep and appetite, and proper concentration.

Interestingly, the earlier researches and theoretical orientations have also been in sync with the findings of the present study; thus the supporting models and theories (Adler, Blake and Downey, Bowlby, Zajonc, Sulloway, etc) have been discussed as ahead.

To start with, according to Adler (1964) the parenting practices would play a major role here because the only borns would be under the pressure of both the parents to perform and excel and when they are not able to reach up the parental expectations, they tend to become repulsive and react, thereby being tagged as spoilt, maladjusted, and lonely. Additionally, the only borns have the absence of sibship in terms of their family composition which makes them emotionally deprived and consequently because they tend to accompany their parents everywhere, they also become socially deprived. Moreover, small sized families aren’t able to provide children with a cohesive, secure and enriching environment. The children from such families are low on social stimulation and automatically share less when in groups. Whereas in large sized families, there are elder siblings apart from the parents, to tutor the youngest borns, which at times suffocates them with leading to depression. Similarly, the first borns would be bowed down by the expectations of the family to
achieve what the parents could not as they gradually tend to live their dreams through their kids. Further, the third borns grow up knowing that they have the least amount of power in the whole family; this could leave them with a sense that they cannot take on the world alone and will always be inferior to others, which may gradually make them fall prey to depressive tendencies (Adler 1910; Dinkmeyer et al., 1978). Alongside all these, there are the second borns who have the benefit of being able to perform, achieve and succeed at their own pace as they are the balanced and protected ones, thus possessing the lowest levels of depression. Thus it is evident that there is something along with these aforementioned factors that is buffering the second borns from depression but are absent in the only, first and third borns. At times they even may feel squeezed out of the sibship order, but they are very relational, tend to be a people-pleaser and usually hate confrontation. They are skilled at seeing both sides of a problem and eager to make everybody happy. That makes them good mediators and negotiators. The second/middle borns in essence have excellent people-oriented social skills and understand compromise and negotiation thus being the least at risk individuals for developing depressive tendencies.

**Bowlby (1980)** emphasized the role of attachment which would comfort in times of stress, and a lack of felt security would lead to increased distress (Bowlby, 1980). This sort of attachment is felt by the kids of a medium sized family and is missing in a small and large sized family. Where in a small sized family there is an urge to provide the child with everything in terms of resources whereby missing out on the psychological attachment, in a large sized family, with more than average no. of siblings, parents are not able to develop and sustain the required amount of attachment with the college students.

In terms of resources (resource dilution theory, Blake, 1981) because the only child gets everything that he requires, he tends to adopt depressive tendencies as he has no one to share those resources with; whereas, by the time the third born is born, the parents have well experienced parenting and a lot of material resources of the elder siblings are present in the house which get transferred to the youngest sibling. Thus the later borns crave for this parental attention developing a high risk of
falling prey to depression. While in the case of a second born, since its birth it accepts
the fact that there is another sibling present in the family before him, and thus he
starts adjusting to the fact that he will always be treated as the second born and adapts
to the mechanisms of a second born. This preparedness in his mind makes him the
least prone to falling prey to depressive tendencies. This stands true with the resource
dilution theory in one way and refutes it in another. When the first child is born, the
parents have just entered their professions and financially aren’t that strong and
stable, thus only the later borns are benefitting, thus financially, this theory is going
against the current societal trend; whereas emotionally, the theory stands true because
by the time they stabilize in their jobs, they are not able to devote much time to the
later borns, but the early borns, so this way it goes in sync with the propositions.

The confluence model proposed by Zajonc and colleagues (Zajonc, 1976, 1983; Zajonc and Markus, 1975) asserts the core idea the later borns do not receive the
similar quality of resources from the parents, and thus feel at loss with setting
academic goals as per their aspirations, thus they become more prone to depression
while the middleborns set up realistic academic expectations as they have the parents’
as well as the elder sibling’s guidance, and thus they set achievable goals, which
satisfy them once they achieve their goals. Thus the middle borns are least prone to
the frustration and tensions which ultimately lead to depression.

Sulloway in his book Born to Rebel (1996) contended about the rationale of
niche- picking positing that laterborns manifest aspects of neuroticism in the sense of
being self-conscious—an attribute that probably stems from their tendency to compare
themselves with older and more accomplished sibling models, whereas he found the
second borns to be the least neurotic thereby least prone to depression. In terms of
parental investment (Sulloway, 2007) focused on the ‘equity- heuristic’ or the U-
shaped distributions in resources focused on the fact that the plethora of everything
makes the later borns feel that they can never have any scarcity which gradually
makes them materialistic and consequently they lose out on the emotional bonding,
love, care, and affection further giving way to developing depressive tendencies.
Thus, the only way for parents to be truly equitable to offspring on a cumulative basis
is for them to systematically favor middleborns—something that other offspring would not readily tolerate.

Issacson (2008) in his book ‘The Birth Order Challenge’ (1991), asserted that depression in the third/last borns is alleged to be rooted in the fear experienced as anxiety; while in the second borns depression is believed to emerge as an external source of depression.

Empirical researches in the area of youth depression supported Bowlby’s original tenets. Shirk, Gudmundsen, and Burwell (2005) assessed 168 young adolescents, and their perceptions of maternal availability and youth support-seeking. It was found that in times of higher stress, mothers’ attachment was important as a buffer for depression in youth.

Ndetei and Vadher (1982) studied Kenyan patients for clinical and psychiatric depression. Results revealed that of the 30 depressed patients, 12 were first-born and 18 were later-born. Contrast this with the 40 non-depressed controls of which only three were first-born and 34 were later-born.

Further, Naomar de Almeida-Filho and Burnett (1983) carried out a study to explore the relationship between family size and child mental disorders. Results revealed that children from smaller families exhibited higher prevalence of mental disorders than those from larger families.

Price (2006) in his study found that parents give equal time to each child and often even more time to the younger child. This extra time and attention makes the youngest child suffocated of the over-attention and over protectiveness that he receives thus making him depressive. Also, the second borns since childhood are prepared for that lack of time and attention by the parents which in a way prepares them to grow independently thus preparing them for all the circumstances.

Khan, Ahmad, and Arshad (2006) carried out a hospital based, descriptive, non-interventional and cross sectional study conducted at Lahore from August 2003 to April 2004 to find out the association of family size and birth order in patients.
suffering from conversion disorder, and to observe its correlation with pattern of conversion symptoms and co morbid anxiety and depressive symptoms. Results showed that 28% of the patients with conversion disorder were having 1 to 3 siblings, 50% were having 4 to 6 and 22% were having 7 and above siblings. This indicates that conversion disorder is more common in patients with 4 to 6 siblings.

**Vanderwerp (2011)** conducted a study on 1098 children ranging in age from 4 to 14 years old using data from the National Longitudinal Survey of Youth-Mother and Child samples, and investigated the relationships among child and adolescent depressive symptoms, having a chronically ill sibling, and other child and familial demographic variables. It was found that children who are later in the birth order showed more depressive symptoms.

**Zaidi (2011)** carried out a study to explore the relationship between birth order and depression. Results revealed that the subjects who were depressed were not first- born, yet middle and last-born.

*The present results hold that the interacting effect of family size and birth order affects college students’ mental health conditions in the form of depression.*

6.2.2 (ii) SELF ESTEEM:

**FAMILY SIZE**

*Main effect*

The two- way ANOVA’s ‘main effect of family size’ on self-esteem was not significant (F= 1.63, p >0.20) (table 8). The results thus imply that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other (Table 14; figure 13).

However, a probe into the **mean trend** of self-esteem shows that the mean score of small size families (M=24.10) was the highest, followed by the mean of medium size families (M=23.23), and the large size families (M=22.08) being the lowest.
Thus, the results rejected the proposed hypothesis that “Self-esteem of college students in small size families would be higher than the other two family sizes, and that Self-esteem of college students in large size families would be lower than the other two family sizes”.

**SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT ON SELF-ESTEEM:**

Resource dilution theory contends that with an increase in the family size, the share of resources that each child gets reduces. This theory proposed in the west in 1989 talks about a family of 5 or more children but as per the current trend in India, the size of the family is decided by the parents and each child is equally important to them. The nature of resource dilution is not the same anymore, neither the resources are finite and nor is the family size that large. Today, by the time the last borns enter the family, the parents might be financially more strong and secure, thereby refuting the resource dilution theory. Families tend to attend to all the kids equally thereby providing them with the necessary support, emotional strength and resilience; which in turn boost their self-esteem. It is thus worth mentioning that these theories need to be re-worked in the Indian scenario.

Bowlby in 1980 emphasized the role of attachment which would comfort in times of stress, and a lack of felt security would lead to increased distress (attachment theory). In today’s day and age, parents, regardless of the family size, aspire and strive to provide the children with an environment that is full of warmth, love, care, and concern; so that the children get an environment to grow, prosper and develop - both emotionally and psychologically. Thus it is worthy to note that this theory needs to be re-worked upon in today’s context.

Empirical studies have voiced similar findings. Coopersmith's (1967) research encompassed the effects of family size on self-esteem (though in no great detail). The results of his study indicated that, "Children in smaller families are no higher in self-esteem than are those in larger families."
Watkins, David, Astilla, and Estela (1980) investigated the relationship between birth order and self-esteem among 209 11- to 13-year-old girls attending a private high school in the central Philippines. The Self-Esteem Inventory was used to measure self-esteem. No evidence of any influence of birth order, family size, or their interaction with self-esteem was found.

Osarenren, Ubangha, and Oke (2008) investigated the family characteristics as the correlates of self-esteem among college students. The results of the analysis showed that college students’ self-esteem has no linkage with size of the family and there is a significant gender difference in college student’s self-esteem.

The present results hold that family size is not a significant factor of differences in self-esteem among college students.

BIRTH ORDER

Main effect

The two way ANOVA indicates that the ‘main effect of birth order’ shows significant differences on the self-esteem of college students (F=7.63; p<0.01) (table 8). This implies that the means of the four birth order (only, first, second and third borns) differ significantly from each other. (Table 15; figure 14).

The multiple comparison (Scheffe’s post hoc test) (Table 16) further revealed that differences in means of self-esteem is significant across the four birth orders i.e. only (M=24.10), first (M=22.93), second (M=23.04), and third borns (M= 20.81).

The multiple comparisons (Scheffe’s post- hoc test) showed the following differences:

a) Mean of the only borns (M=24.10) is significantly higher than the first (M=22.93), second (M= 23.04) and the third borns (M=20.81).

b) Mean of the third borns (M= 20.81) is significantly the lowest amongst all the other birth orders.

c) Mean of the first (M= 22.93) and the second (M=23.04) is almost equal to each other.
The results imply that only borns are significantly the highest on self-esteem. Further, the third borns significantly differed from the only, first and second borns; but the first, second and third borns emerged on similar ranges in terms of their belief in certain values and principles, being ready to defend themselves even when finding opposition, feeling secure enough to modify them in light of experience, are able to act according to what they think to be the best choice, trusting their own judgment, and not feeling guilty when others don’t like their choice, do not lose time worrying excessively about what happened in the past, nor about what could happen in the future.

Thus, the results accepted the proposed hypothesis that “Self-esteem of the only and first borns would be higher than the later borns”, and that “Self-esteem of the last borns would be lower than the early borns.”

Various theoretical orientations, models, and research framework also lend support to the findings of the present study which are discussed in the ensuing sections.

ONLY, FIRST AND SECOND BORNS HIGH; AND THIRD BORNS LOW ON SELF ESTEEM:

Adler (1911) states that only child grows up without the fear of ‘dethronement’ as it never takes place in his case. He does not have the fear of subsequent siblings coming along which as a result leads to their positive self-evaluation. Also, there is excessive parental involvement in the case of an only child or first born as it’s the parent’s first experience of bringing up an infant, which is why they give in their heart and soul in his upbringing. The senses of confidence and responsibility that the parents grow up these early borns with, makes them feel valued and cared for. Their accomplishments are acknowledged and lauded, making him feel worthy and high on self-esteem. Even in the case of second borns, as a parent interacts with the child in supportive ways the child feels as if he/she is a worthwhile individual with the capability of acting upon and reacting to his/her immediate family and environment. Also, the first borns along with the parents are there to guide and tutor them thus making them feel and treasured, prized and esteemed. Contrastingly, in the case of third borns, the early borns tend to act as pseudo parents which
somehow does not have the similar impact like that of direct parenting from the parents, thus making them low on self-esteem.

**Parental favoritism** is the preference or perception of preference of a parent for one child over another. Adler stated: It is of utmost importance that neither the father nor the mother should show any favoritism among their children. This is where an only child is at benefit as there is no sibling and is the sole gainer of the parent’s attention and care; and the third born loses out here. When a single child develops especially well it is obvious that he has received most attention and favor. An only being the single child in the family, the first born being a favorite amongst the family members, and the second born getting a similar amount of attention tend to develop a sense of affiliation, self-respect, and confidence which thus gives a boost to the self-esteem of the child. Contrastingly, by the time the third borns enter the family, the parents are busy managing their late adulthood and settling down the early borns in their careers, thus there is no time with the parents to exhibit favoritism towards them, in fact they tend to feel left out and thus develop lower levels of self-esteem.

The **attachment theory** (Bowlby, 1969/1982) based on parent-infant relations, views ‘security’ as a central dimension in influencing children’s healthy development (Cox & Harter, 2003). Parents of only children (as well as the first born) are reportedly more responsive and attentive at their first experience of parenthood (Schacter, 1959) which is in complete contrast to what happens with the last borns. The higher levels of parental responsiveness, attention, and concern for their early borns are expected to lead a greater sense of security, which facilitates children’s development of a higher self-esteem, intellectual competence, psychological confidence, and mature behavioral patterns. Thus, this theory is in consonance with the findings of the present study.

Moreover, The **symbolic interaction theory** also stands true and gives a similar explanation by positing that supportive parental behavior, which has been defined as nurturance, warmth, approval, and other positive sentiments from the parent helps enhance a child’s worth and respect in his eyes (Gecas, 1972).
Further, the study also seeks support from the resource dilution theory proposed by Blake (1981) which theory asserts that an exclusive treatment is what an only and early borns get when they are born- undivided attention, abundance of parental resources, and the best the parents can afford. Thus, financially, the only and first borns get all the resources and enjoy the undivided flow of parents’ resources and finances forever making them score higher on self-esteem; whereas, by the time the third borns enter the family, the resources and their quality start dividing and gradually decreasing which is why the last borns tend to possess lower levels of self-esteem. Moreover, emotionally, the only and first borns gain in terms of the parent’s undivided attention, love, care and affection thus boosting their self-esteem. The current scenario of age spacing between the siblings lets the second borns gain from the support of both the parents and the elder borns. Whereas, by the time the third borns enter the family, the parents are concentrating on the early borns’ higher education, career decisions and job placements due to which the third borns tend to lack the cohesive parenting environment and the consequent love and affection.

Sulloway’s book Born to Rebel (1996) generated renewed interest in birth order and personality research by contending that early borns children are more responsible, competitive, and conventional leading thereby in the development of a healthy and stronger sense of belief in certain values and principles, feeling secure enough to modify in light of experience, trusting one’s own judgment, and not feeling guilty when others don't like their choice, not losing time worrying excessively about what happened in the past, nor about what could happen in the future.

Empirical researches have mouthed similar findings. Extensive research conducted by Coopersmith (1967) which dealt with sibling status and self-esteem, disclosed that of the youngest, middle and oldest children whose level of self-esteem was assessed as being low, medium or high, over 70% of those contained within the low or medium groups were youngest or middle children, whilst the high self-esteem group had only 42% of children from the same sib positions. These findings caused Coopersmith to remark as follows: - “Individuals with high self-esteem tend to be either first born or only children. The ordinal position of the individual among his siblings would appear to be an important influence in his early social experiences.”
Sears (1970) grouped together and compared only and oldest children with middle and youngest children found that the former group had a higher self-esteem than the latter. Thus the trend here, highlighted in these studies, shows that oldest children are higher than their brothers and sisters in terms of self-esteem.

Gates, Lineberger, Crockett, and Hubbard (1988) also conducted a study on birth order in relation to depression, anxiety, and self-esteem. They found that the self-esteem scores were higher for firstborn children than second-born and youngest-born children.

Rivera and Carrasquillo (1997) in his research found that only children appear to have an advantage over children with siblings. In an interview conducted with parents and teachers of 10, 4-year-old only-children in a Bronx Head Start program, found that stereotypes against only children are still influencing popular opinion. Research on their self-esteem has revealed positive aspects, besides which, teachers also viewed only-children as more attention-seeking, more mature and tending to have undeveloped social skills.

Moreover, Wilson (2002) found that later born children do not receive as extensive attention as first-borns and often feel less appreciated. Therefore, later-born children often have lower self-esteem than first and only-children.

Thus, the present results hold that birth order is a significant factor of differences in self-esteem among college students.

INTERACTION EFFECT

The interaction between birth order and family size on self-esteem fails to reach the significance level (F=3.62; p>0.058) (Table 8). This means that birth order and family size when seen in unison do not impact a college student’s self-esteem. Thus, the differences between the self-esteem of only, first, second, and third borns were significantly not different in small, medium, and large size families and vice-versa.
6.2.2 ANXIETY:

Broadly anxiety has many types, but in this study, we are catering to ‘trait anxiety’ and ‘state anxiety’ which are in consonance with the state–trait model, proposed and elaborated by Spielberger (1966, 1972, 1979, 1985`). Although no significant differences emerged in trait anxiety, state anxiety did show up significant differences in terms of family size and birth order which have been elaborated upon in the ensuing sections.

6.2.2 (iii) TRAIT ANXIETY:

FAMILY SIZE

Main effect

The two- way ANOVA’s main effect of family size on trait anxiety was not significant (F=2.48, p > 0.11) (table 8). It means that the differences in the mean scores of the three family sizes (small, medium, and large) do not differ significantly on trait anxiety (table 17, figure 15).

However, a probe into the mean trend of trait anxiety shows that the mean score of small size families (M=19.21) was the highest, followed by the mean of medium size families (M=19); and the large size families (M=18) being the lowest.

The results rejects both the proposed hypothesis that “Trait anxiety of college students in large size families would be higher than the other two family sizes, and that Trait anxiety of college students in small size families would be lower than the other two family size”.

**SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT ON TRAIT ANXIETY:**

The attachment theory (Bowlby, 1980) drew attention to the role of attachment which would comfort in times of stress, and a lack of felt security would lead to increased distress. Going by today’s scenario, parents make a conscious effort to bond with their children and act as their friends and refrain from the traditional
authoritarian parenting practices. The number of children does not make much of a difference to the parents as they strive to provide the best to each child. Thus, the care and attachment that the children get from their parents make them resilient, strong, hardy, and prepared to face various situations. Thus it is noteworthy to mention that this theory needs to be reworded as per the current scenario.

Resource dilution theory (Blake, 1981) posits that as the family size increases, the familial resources, in terms of emotional, financial, and support tend to divide and dilute. But it seems as if the size of the family is no encumbrance for the parents to provide the children with all the security and comforts. Regardless of the number of offsprings, parents today attempt to provide their children with a free and open environment where they can express themselves and voice out their fears and concerns, if any. This makes the children more confident, prepared to face unexpected challenges, and thus least prone to trait anxiety. Thus this theory needs to be revised/reworked as per the current Indian scenario.

Empirical researches have shown similar findings. Brown (1986) carried out a study on anxiety level of children living in intact, single parent and blended families to determine whether elementary, middle and high school students differ in the levels of trait anxiety dependent on the family structure in which they live (intact, single parent and joint families). The state trait anxiety inventory for children was administered to 909 children in grades 2 through 12 and their anxiety levels were examined. Analysis of variance technique with appropriate follow-up procedures was used to assess differences in state and trait anxiety levels in children living in the 3 different family structures. No significant differences were found dependent on family type and size.

Even, Khodayarifard (1996) conducted a research to investigate the relationships between trait anxiety, attributional style and academic performance of students enrolled in 18 primary public schools in the Illawarra region of New South Wales, Australia. The results also showed that the academic performance of students with low trait anxiety was noticeably higher than the academic performance of students with high trait anxiety (p<.01). No significant correlation were found
between academic performance and grade, academic performance and birth order, academic performance and family size, or between anxiety and grade, anxiety and birth order and between anxiety and family size (p>.05). Furthermore, there were no significant correlations between attributional style, birth order and family size (p > .05).

Similarly, Mokashi and Gaonkar (2007) conducted a research to study the correlates of anxiety and scholastic achievement of residential school students on a sample of all the students studying in eighth, ninth and tenth standards from two schools. A sample of 330 students consisting of 165 boys and 165 girls was the final size of the sample. Results revealed that there was no significant relationship between age, ordinal position, type of the family, family size, income of the family, arts and music, sports, intelligence and anxiety of the girls. There was no significant relationship between age, ordinal position, type of family, family size, arts and music, sports, intelligence and anxiety of the boys.

**Thus, the present results hold that family size is not a significant factor of differences in trait anxiety among college students.**

**BIRTH ORDER**

**Main effect**

The two-way ANOVA’s **main effect of birth order** on trait anxiety was not significant (F= 2.55; p>.07) (table 8). This means that the differences in the mean scores of the four birth orders (only, first, second, and third) do not differ significantly on trait anxiety (Table 18; Figure 16).

However, a probe into the **mean trend** of trait anxiety shows that the mean score of first borns (M=19.36) was the highest, followed by the mean of only borns (M=19.21), the third borns (M=18.56), and the second borns (M=18.18) being the lowest.

The results reject both the proposed hypothesis that “Trait anxiety of the early borns would be lower than the other birth orders”, and that “Trait anxiety of the later borns would be higher than the other birth orders.”
ONLY, FIRST, SECOND, AND THIRD BORNS ARE NOT SIGNIFICANTLY DIFFERENT ON TRAITEMT ANXIETY:

Adler (1908) believed that of all the birth orders, the firstborn child would be in a favorable position, enjoying the full attention of the eager new parents until the arrival of a second child. This second child would cause the first born to suffer feelings of dethronement, no longer being the center of attention. In a three-child family, the oldest child would be the most likely to suffer from neuroticism and substance addiction which he reasoned was a compensation for the feelings of excessive responsibility "the weight of the world on one's shoulders" (e.g. having to look after the younger ones) and the melancholic loss of that once supremely pampered position. As a result, he predicted that this child was the most likely to end up in jail or an asylum. Youngest children would tend to be overindulged, leading to poor social empathy. Consequently, the middle child, who would experience neither dethronement nor overindulgence, was most likely to develop into a successful individual yet also most likely to be a rebel and to feel squeezed-out. But the present study seems to refute these propositions and reveal that birth order does not affect the extent of trait anxiety among college students.

Further, the resource dilution theory (Blake, 1981) posits that as the family expands, the resources get diluted and divided amongst the children thereby making the later borns receive lesser of the parents’ time, love, care, and attention and thus becoming more prone to developing particular reactions and responses to threatening stimuli. But according to the present study, no specific birth order is more prone to developing trait anxiety than the others but they are all similar in the levels of falling prey to trait anxiety, thus refuting the resource dilution theory.

Sulloway’s (2007) psychological mechanism of sibling dominance hierarchy asserts the fact that siblings create dominance hierarchies based on age, size, and power, whereby the later (second and third) borns get away with falling prey to tendencies like responding or reacting to threatening stimuli in a particular way. Going by the findings of the present study, no particular birth order is dominant over the others and more prone to falling prey to trait anxiety. Thus, the present study refutes these propositions.
Empirical evidences have been equivocal. Kushnir (1978) in a review examined two commonly held views: first, that firstborns become more anxious than laterborns in stressful situations; secondly, that firstborns, more than laterborn individuals, seek the company of others in stressful situations. Contrary to some suggestions, there is no evidence for birth order differences in trait-anxiety.

Weller (1962) replicated Schachter`s original study and found conflicting results. In his study, 234 freshman and sophomore female students who were first borns and later borns were divided into groups of six. Weller`s study found that there was no significant difference in the anxiety levels between first-borns and later-borns. Weller did find that first-borns arrived to the experiment with more anxiety than later borns.

Khodayarifard (1996) conducted a research to investigate the relationships between trait anxiety, attributional style and academic performance of students enrolled in 18 primary public schools in the Illawarra region of New South Wales, Australia. No significant correlation were found between academic performance and grade, academic performance and birth order, academic performance and family size, or between anxiety and grade, anxiety and birth order and between anxiety and family size (p > .05).

Mokashi and Gaonkar (2007) conducted a research to study the correlates of anxiety and scholastic achievement of residential school students on a sample of all the students studying in eighth, ninth and tenth standards from two schools. A sample of 330 students consisting of 165 boys and 165 girls was the final size of the sample. Results revealed that there was no significant relationship between age, ordinal position, type of the family, family size, income of the family, arts and music, sports, intelligence and anxiety of the girls.

Thus, the present results hold that birth order is not a significant factor of differences in trait anxiety among college students.
6.2.2 (iv) STATE ANXIETY:

FAMILY SIZE

Main effect

The two-way Analysis of Variance (ANOVA) indicates that the main effect of family size shows significant differences on the state anxiety of college students (F=11.71; p<0.01) (table 8). This implies that the means of the three family sizes (small, medium, and large) differ significantly from each other (Table 19; figure 17).

The multiple comparisons (Scheffe’s post-hoc test) (table 22) showed the following differences:

a) Mean of the state anxiety of the medium size family (M=20.93) was significantly higher than the large size family (M=19.28).

b) Mean of the state anxiety of small size family (M=19.72) was almost equal to that of the medium (M=20.93) and large size family (M= 19.28).

The results imply, the college students of small and medium size family are high on fear, nervousness, discomfort and arousal of the autonomic nervous system induced by different situations that are perceived as dangerous. The factors responsible for the behavior characteristics such as excessive pressure, demanding parenting, parental negativity, sibling relationship, marital conflict etc. are more in medium and small sized family than in large sized families. Thus it implies that the college students coming from a small and medium size family are more prone to state anxiety whereas those from a large size family are less prone to it.

Based on the research investigation, the proposed hypotheses that “State anxiety of college students in small size families would be higher than the other two family sizes” and “State anxiety of college students in large size families would be lower than the other two family sizes” were accepted. Interestingly, various theoretical orientations and empirical researches are also in consonance with the findings of the present study. They are thus discussed in the ensuing section.
SMALL AND MEDIUM SIZED FAMILIES HIGH; AND LARGE SIZED FAMILIES LOW ON STATE ANXIETY:

Adler (1911) pointed out that parenting styles and parental expectations play a major role in the development of a child’s personality and inculcation of various important traits. In small and medium sized families, parents are all the more concerned and wary of the children’s overall development and well-being, and in the process they at times go overboard not realizing the negative effects it might be causing. Whereas in a large size family where the parents are a bit more relaxed and easy going as they have experienced the parenting of the early borns. Also they don’t hesitate experimenting with different parenting styles for different kids, which thus give the children a sense of freedom to develop in a comparatively free environment, thereby reducing their chances to fall prey to fear, nervousness, discomfort and arousal of the autonomic nervous system induced by different situations that are perceived as dangerous.

Further, Bowen (1950s) through his family systems theory proposed that in a family, whenever two people have problems with each other, one or both may "triangle in" a third member. Bowen emphasized the idea that people respond to anxiety between each other by shifting the focus to a third person, triangulation. In a triangle, two are on the inside and one is on the outside. Going in the sync with the theory is what happens in a small size family where if triangulation occurs between the two partners, it’s the child who suffers, thereby becoming high on state anxiety. Further, in medium size families, there might be a higher chance for a chaotic and conflictual family life emerging from a negative competitive spirit and jealousy in which negative sibling domination might not be corrected by the parents. This in turn would lead to the development of fear, nervousness, and a sense of insecurity amongst the siblings of a two child family, which is the opposite of a large size family where the elder siblings act maturely providing them with a cohesive sibling and family environment, thus lowering down state anxiety in a large size family.

Thomas and Chess (1977) were the first to introduce the concept of “goodness of-fit” in arguing that the link between temperament and later adjustment
cannot be understood without accounting for the family structure and dynamic characteristics of the child’s environment, both in isolation and in direct response to the child’s temperamental traits.

**Empirical researches** have also argued that parenting styles, such as overprotective and controlling behavior and criticism and lack of warmth, are linked to the emergence of anxiety in children (Goldin 1969; Parker 1990). A lack of strong self-regulatory skills would leave the child more vulnerable to underlying reactive tendencies. This is exactly what the college students from a small and medium size families go through because of the over indulgent parenting that they receive. Contrastingly, sensitive parenting encourages mutual regulation between parent and child and contributes to the child mastering his or her own behavior (1994); and that is why the college students from a large size family grow into adults possessing lesser fear, nervousness, discomfort and arousal of the autonomic nervous system induced by different situations that are perceived as dangerous. In addition, in small and medium sized families, lack of family adaptability is associated with fear of strangers, which increases situational fears thereby increasing state anxiety in such families.

Further, in smaller families, parental negativity which is typically conceptualized as the absence of warmth and acceptance within the family and operationalized as parental criticism or rejection, is high (Hock, Krohne & Hock, 1991; Masia & Morris, 1998; Rapee, 1997; Wood et al., 2003). Thus, a negative rearing environment is also assumed to affect child anxiety by influencing the beliefs and attributions children hold. For example, the frequency and intensity of negative feedback may contribute to perceptions of the environment as hostile and threatening, the self as less than competent and to negative outcome expectancies (Krohne, 1990, 1992; Krohne & Hock, 1991). Also, theoretically, parental over-control is assumed to limit the development of children’s autonomy, leading to perceptions of the environment as uncontrollable and a limited sense of personal competence or mastery which in turn gives rise to the development of situational fears and nervousness.

Peleg-Popko (2002) and Dar (2001) demonstrated that in smaller families (two child), higher family cohesion was associated with child social anxiety in the
form of state anxiety and fear of negative evaluation. The siblings fear from being evaluated negatively in whatever they do. Consequently, poor family communication and lack of family encouragement of autonomy also becomes a reason of the development of higher state anxiety in two child families. Lack of family sociability predicted child social anxiety in a mixed clinical and normal sample. (Bogels et al., 2001).

Also, intrusive parenting may disrupt mutual regulation and interfere with the development of self-regulation (Calkins, Hungerford, & Dedmon, 2004).

**Thus, the present results hold that family size is a significant factor of differences in state anxiety among college students.**

**BIRTH ORDER**

**Main effect**

The two-way Analysis of variance (ANOVA) indicates that the main effect of birth order shows significant differences on the psychological variable of state anxiety (F= 4.43, p<0.01) (table 8). This implies that the means of state anxiety are significantly different among the four birth orders (only, first, second, and third borns) (Table 21; figure 18).

The multiple comparisons (Scheffe’s post hoc test) further revealed that differences in means of state anxiety is significant across the four birth orders i.e. only (M=19.72), first (M=20.80), second (M=19.30), and third borns (M= 19.50).

The post hoc (Scheffé’s) test shows the following significant differences:

a) Mean of state anxiety of the first borns (M=20.80) is significantly higher than the second borns (M= 19.30).

b) Mean of the state anxiety of second borns (M=19.30) is almost equal to that of the third borns (M=19.50) and only borns (M= 19.72).

The results imply that the first borns are higher on fear, nervousness, discomfort and arousal of the autonomic nervous system induced by different
situations that are perceived as more dangerous than the only, second, and third borns.

Based on the research investigation, the results accepted the proposed hypothesis that “State anxiety of the only and first borns would be higher than the later borns”; and “State anxiety of the last borns would be lower than the early borns”.

The findings of the present study seek support from various theoretical orientations, models and empirical researches which are discussed as ahead.

**FIRST BORNS HIGH; AND ONLY, SECOND AND THIRD BORNS LOW ON STATE ANXIETY**

**Adler** suggested that the first-born child never recovers trauma of being dethroned and losing the attention of his or her parents when the second child is born. This leads to higher needs for recognition and achievement as well as dependency needs (Crockett, Gates, Hubbard, & Lineberger, 1988). Often the oldest child is given tutoring responsibilities, teaching their younger siblings. One study suggests that this tutoring responsibility raises his or her intelligence level (Romeo, 1994). They usually possess positive self-esteem, confidence, and a strong self-image (Morales, 1994). But with the birth of a second child in the family, the insecurities of leaving the throne and sharing the undivided attention that they were used to, start cropping up and gradually develop into nervousness, fears, discomfort and arousal of the autonomic nervous system on the perception of dangerous events and situations. The only born does not have the fear and insecurity of dethronement, thus is saved from such effects, and so is the case with the later (second and third) borns. In terms of birth order characteristics,

**Sulloway’s (2007)** psychological mechanism of sibling dominance hierarchy supports the fact that siblings create dominance hierarchies based on age, size, and power, whereby the later (second and third) borns get away with falling prey to tendencies like fear, nervousness, discomfort and arousal of the autonomic nervous system induced by different situations that are perceived as more dangerous. Both
physically and verbally, firstborns can easily intimidate their younger brothers and sisters. Because of their greater age, for example, first-borns tend to occupy the niche of a *surrogate parent*, leading them to develop a sense of parent-like responsibility and to emulate other adult behaviors, which as a result also makes them more prone to develop state anxiety.

Further, the findings of the present study refute the findings of the *resource dilution theory* (Blake, 1981) according to which as the family expands, the resources get diluted and divided amongst the children which make the later borns receive lesser of the parents’ time, love, care, and attention and thus become more prone to develop situational fears. But according to the present study, it seems that although the resources are there, but they are not contributing to a healthy development. It’s the parental anxiety which gets transferred onto the first borns thus making them more prone to fall prey to the situational fears, worries and anxieties. Also, theoretically, the later borns should be high on state anxiety with the resources left in scarcity for them but a contrast is evident here and the later borns are low on state anxiety, thus refuting the resource dilution theory.

Moreover, the *parenting style* affects the development of anxiety in children. With the nuclear family trend setting in, the family environment becomes more negative than positive. Another reason could be that the couple’s marriage is settling in and with the entry of the first child in the family; there is a change in the communication pattern and style, which gradually leads to *marital discord*. As a result, this anxiety gets transferred onto the first born leading to the development of state anxiety in them; whereas with the birth of the second and third borns, the parents are well accustomed to parenting and are at ease with their upbringing.

*Empirical researches* have voiced similar findings. *Rosenburg and Sutton-Smith, 1970* revealed in their study that first-borns and only children were similar in their desire to affiliate, but only children were found to be less anxious. First-borns are more likely to act in an anxious way when they are in a stressful situation.

*Zimbardo (1977)* found first-born and single children had a greater tendency to be shy than children who were born after siblings. Two explanations were put
forward for this finding. Firstly, it was postulated that parents may set higher expectations for their first-born and only children, and as a result, these children may become more sensitive for social failure. Secondly, because they have a power disadvantage, later-born children may need to acquire social skills more quickly to negotiate personal needs in sibling relationships. In contrast, a bio-behavioral theory of the role of birth order in anxiety (Maccoby, Doering, Jacklin, & Kraemer, 1979) states that certain hormonal patterns favoring the expression of dominance behavior are found more in first-borns and spaced (that is, born at least 4 years later) laterborns, irrespective of gender.

Isaacson (1988) revealed that first-borns may experiment with different ways of getting attention. They often seek approval from superiors. First-borns hope to receive what he or she wants by pleasing others and if they do not get what they want they may give up asking. They may also spend a lot of time trying to achieve perfection and in the process start falling prey to increased state anxiety, whereas the later borns have the elder siblings also acting as pseudo parents so they never really have to indulge into such attention seeking behaviours and thus become anxious.

Further, Eisenman (1992) in his study concluded that first-borns are more fearful and that some first-borns show more anxiety and creativity. These findings may be due to parents being more restrictive and anxious with first-borns as well as to first-borns having more time alone with their parents.

Morales, 1994 found that when the second child is born, the first born may feel that his or her status is threatened and may react with anxiety and fear.

Santrock (2002) found that due to higher expectations that are placed on the oldest child in a family, first-borns experience more guilt, anxiety, and difficulty in coping with stressful situations. Research has stated that it is also important to keep in mind that other factors such as age spacing between children, sex of the children, hereditary, temperament, parenting styles, peer influences, socio-cultural factors, etc. can also impact personality.

Lindhout et al. (2003) illustrated that actual or perceived parental favoritism of the first-born may be a mediator between birth order and anxiety. In a clinical sample, anxiety disordered children perceived their parents as favoring their sibling(s)
more often compared to normal control children. Since first-born children show more dominant behaviour as a result of hormonal differences as well as age. Thus, out of other mechanisms that are thought to increase anxiety in first and only children, higher parental expectations of first-borns and single children also play a role, whereas such parental expectations subside to a certain extent with the birth of consequent siblings and thus they are saved from the impact of characteristics like fear, nervousness, discomfort and arousal of the autonomic nervous system induced by different situations that are perceived as more dangerous.

Thus, the present results hold that birth order is a significant factor of differences in state anxiety among college students.

INTERACTION EFFECT

The interaction between birth order and family size on state anxiety fails to reach the significance level ($F=2.08; p>0.15$) (Table 8). This means that birth order and family size when seen in unison do not impact a college student’s state anxiety. Thus, the differences between the state anxiety of only, first, second, and third borns were significantly not different in one, two, and three child families and vice-versa.

Pictorial presentation of significant differences of Family Size and Birth Order on Mental Health Conditions

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6.2.3 PARENT CHILD RELATIONSHIP

The parent child relationship was studied on the sub variables of protecting, rejecting, and loving as done in the earlier researches (Kanagala, 2006; Shaban and Mattoo, 2012).

Interestingly, the results for all the three sub variables of parent child relationship i.e. protecting, loving, and rejecting have come out to be unidirectional—both on the main effect of family size and birth order. Therefore, all the three sub-variables are being clubbed together for both- family size and birth order for the discussion of results. On the forefront, the findings of the present study seem very conflicting because ideally, the parents perceived as high on protective and loving behaviors/attitude by the college students, will be perceived as low on the rejecting attitude but a deeper analysis with the help of various theoretical orientations, models and the explanations in the manual (definitions of different attitudes) justify the unusual (different) results of the present study.

FAMILY SIZE

Main Effect

The two-way Analysis of variance (ANOVA) indicates that the main effect of family size shows significant differences on the protecting (F= 104.97; Sig<.01) (table 23), loving parental behavior (F= 12.03; Sig< .001) (table 23), and rejecting (F=54.39; Sig<.01) (table 23) as perceived by college students. This implies that the mean of protecting, rejecting, and loving parental behaviors of parents is significantly different among the three different family sizes (small, medium, and large) (table 24, figure 19; table 28; figure 21; table 32; figure 23).

The multiple comparison (Scheffe’s post hoc test) (table 25; table 29; table 33) further revealed that differences in means of the protecting parental behavior are significantly different across the three family sizes i.e. small (M=48.59), medium (M= 30.97), and large size family (M=25.19). The means of loving parental behaviors are also significantly different across all family sizes i.e. small (M=38.98), medium
(M=29.48), and large size family (M=26.87). Further, the means of rejecting parental behavior are also significantly different across all family sizes i.e. small (M=35.83), medium (M=30.50), and large size family (M=25.89).

The post hoc (Scheffe’s) test shows the following significant differences:

a) Mean of the protecting (M=48.59), loving (M=38.98), and rejecting (M=35.83) parental behavior of small size family is significantly higher than the medium and large size family.

b) Mean of the protecting (M=30.97), loving, and rejecting (M=30.50) parental behavior (M=29.48) of the medium size family is significantly higher than that of the large size family.

c) Mean of the protective (M=25.19), loving (M= 26.87), and rejecting (M=25.89) parental behavior of the large size family (M=25.19) is significantly lower than the small and medium size family.

Thus it implies that in terms of family size, the small size family is high, medium size family moderate, and large size family low on the perceived protective parental behaviors. Interestingly, the same hierarchy has sprouted up in the case of perceived rejecting and loving parental behaviors.

Based on the research investigation, the results partially supported the proposed hypothesis that “the perception of relationship with parents of college students in small size families would be high on protecting and loving; and low on rejecting than the other two family sizes, and that the perception of relationship with parents of college students in large size families would low on protecting and loving; and high on rejecting than the medium size family.”

**SMALL SIZE HIGH, MEDIUM MODERATE AND LARGE SIZE FAMILIES LOW ON PERCEIVED PROTECTING, LOVING, AND REJECTING PARENTAL BEHAVIORS:**

Adler in his book, ‘The general system of individual psychology’ (2006) promulgated that family dynamics including parenting styles and position in the
family constellation leaves indelible marks on the children’s growth. Parenting styles that cause trouble for children are divided into two main categories: pampering; and neglect and abuse. In the case of a small size family, parents tend to be over indulgent and over concerned in the defending attitude overtly expressed in the acts of guarding, sheltering and shielding the child from situations or experiences perceived to be hostile, oppressing and harmful (protective); and at the same time express fondness, devoted attachment and show amiableness to the child (loving). This gradually tends to spoil the child as he becomes habitual to grow up in an over cohesive family atmosphere. Later in life, when he finds the actual realistic world to be different, he is faced with dissonance and setbacks. However, with each successive child, parents bring differing skills, experiences, marital relationships, and life-stage concerns to their child-rearing efforts, and that is why in medium size families, the college students perceive the protection received from the parents as moderate, which is just sufficient for their healthy development. Furthermore, in large size families, parents tend to let loose and provide a balanced family emotional climate to the offsprings. The college students are able to develop and grow freely in an unrestricted environment.

Also, the attachment theory (Bowlby, 1969/1982) lends support to the findings of the present study. Parents of small size families have reportedly been more anxious and tense in childcare at their first experience of parenthood (Schachter, 1959). With the birth of subsequent later borns, parenting becomes smoother and parents become calmer while dealing with their children. This parental anxiousness in small size families leads to their greater extent of concern and responsiveness to their children’s needs (Falbo, 1987), thereby giving rise to protective and loving behavior patterns from the parents where they tend to protect and guard the offsprings from incidents and experiences that they perceive as dangerous or harmful. Further, in medium and large size families, parents tend to act calmer in terms of their parenting practices, as a result of which the protective behaviors mellow down.

Downey (1981), through the resource dilution theory, also suggested that parental resources- both financial and interpersonal (time, attention) that a child
receives decrease as the sibship size grows bigger. Therefore, every child experiences different levels of parental resources and investment and thus a different level of parent child relationship as a result of their birth order (Ha and Tam, 2013). While in a small size family, parents tend to put in all of their financial resources and also invest their time love and care for the upbringing of the single child, alongside trying to compensate for the absence of siblings; this also makes them overdo their shielding and guarding behaviors as well which at times suffocates the single college students. The medium size family tends to receive the resources in moderation as they tend to get divided amongst the two siblings; and so does the sheltering, shielding, and the expression of fondness, devoted attachment and amiableness shown to the child by the parents; which is just adequate for their healthy development. Contrastingly, in a large size family, the resources tend to dilute amongst the three siblings, and so does the defending attitude overtly expressed through their acts of guarding, sheltering and shielding the children from situations or experiences perceived to be hostile, oppressing and harmful.

Furthermore, Sulloway (1996) in his book born to rebel emphasized on the intra familial niche differentiation whereby Sulloway's findings offer conclusive evidence that the family, with its powerful interpersonal dynamics, demonstrates that the primary engine of history is located within families, not between them, as Marx believed. The parents in a small size family, in their efforts to provide the best environment to their children, tend to become all the more protective and loving when it comes to their development, security and upbringing. They tend to overdo it in terms of the expression of fondness, devoted attachment and amiableness shown to the child. Whereas, in a medium sized family, the parents are a bit more well versed with parenting practices and thus adopt a certain amount of leniency, while in a large sized family, the sheltering and shielding attitude of the parents towards their college students tends to mellow down and they react in a more realistic and practical way because the kinship and sibship allows them the comfort of a cohesive family environment.

Additionally, if we focus on the fact that perceived rejection has come at par with the perceived protective and loving parental behaviors, numerous interesting
findings unravel themselves. It has been much discussed that the teenagers’ and parents’ relationships are always in conflict because of various age related and lifestyle reasons like the teens seem to hate the parents because of their constant nagging, the protective restrictions, the huge gang of friends, arguing, talking back etc. Parents feel insecure and wish to protect the children in every possible way which might at times be in terms of the evident parental behavior of renouncing the child in aversion, which is indicated by the parents by being disdainful and in outright refusal of the child.

Moreover, the Indian society is till date dominated by the traditional parental practices where the children are expected to take permissions and suggestions in any task they undertake. These parents still follow the rigid, strict, and punitive parental measures for the children’s upbringing, and are not yet ready to adapt to the changing healthy parenting culture where they ought to befriend their children and not dictate. As a result, the college students tend to get into conflicts with their parents and thus feel suffocated, dejected and rejected. This is most common scenario in small size families and thus they feel the most rejected. In medium and large size families, with successive children, the parents tend to experiment with various parenting practices (authoritative, permissive, and accepting parenting) thus they perceive moderate rejection. In large size families, the parents to let loose to a certain extent which makes the children feel comfortable and at ease with sharing their experiences with the parents.

Empirical findings have opined similar results. Fahey, Keilthy, and Polek, (2012) carried out a study based on the first wave of data on the child cohort (nine year-olds) in the Growing Up in Ireland (GUI) survey. It examined family relationships and their associations with parent and child well-being in the families of the nine year-olds and explores social inequalities in these aspects of family circumstances. International research has pointed to family size and birth order as important influences on child development. These are significant issues in Ireland since, despite the fall in average family size in recent decades; moderately large families are still common. Family instability thus has an inhibiting effect on family size and does so particularly among mothers at lower levels of socio-economic status.
(SES). This development has muted but not entirely eliminated the strong association between lower SES and larger family size found in Ireland in the past.

Sharma (2012) carried out a study to determine the effect of gender and academic achievement on Mother Child Relationship of secondary school students of Shimla District. Parent Child Relationship Scale (PCRS) by Rao (2011) was administered on a sample of 160 secondary school teachers selected through random cluster sampling technique from 10 government schools of Shimla districts of Himachal Pradesh. Statistical technique of t-test was used to analyze the Mother Child Relationship (MCR) scores of secondary school students. The results indicated boys and girls differ significantly in mother child relationship on symbolic punishment and object punishment areas of mother child relationship. Further it was found that students with low and high level of academic achievement differ significantly in mother child relationship on loving, symbolic reward, indifferent, symbolic punishment, object punishment, demanding and neglecting areas of mother child relationship.

Thus, the present results hold that family size is a significant factor of differences in parental child relationship among college students.

BIRTH ORDER

Main effect

The two-way Analysis of variance (ANOVA) (table 23) indicates that the main effect of birth order shows significant differences on the protecting (F= 32.21; p<0.01), loving (F=2.64; p<0.01), and rejecting (F=13.95; p<0.01) parental behaviors as perceived by college students. This implies that the mean of protecting, loving, and rejecting parental behaviors of parents is significantly different among the four birth orders i.e. only, first, second, and the third borns. (Table 26; figure 20; table 30; figure 22; table 34; figure 24).

The multiple comparison (Scheffe’s post hoc test) (Table 27; Table 31; Table 35) further revealed that differences in means of the protecting parental behavior are
significantly different across the four birth orders i.e. only (M=48.59), first (M=29.13), second (M=25.20), and third borns (M= 28.86). The means of loving parental behaviors are also significantly different across all birth orders i.e. only (M= 38.97), first (M=28.86), second (M=27.11), and the third borns (M= 27.64). Further, the means of rejecting parental behavior are also significantly different across all birth orders i.e. only (M=35.83), first (M= 29.21), second (M=26.10), and third borns (M= 28.04).

The post hoc (Scheffe’s) test shows the following significant differences:

a) Mean of the protecting (M=48.59), rejecting (M=35.83), and loving (M=38.97) parental behavior of the only child is significantly higher than all the other birth orders.

b) Mean of the protecting (M=29.13), rejecting (M=26.10), and loving parental behavior (M=28.86) of the first borns is significantly higher than that of the third borns.

c) Mean of the protecting (M=25.20), rejecting (M=26.10), and loving (M= 27.11) parental behavior of the second borns is significantly lower than the small and medium size family.

The results imply that in terms of birth order, the hierarchy that came up for all the three sub variables constituted of the only borns being the highest, followed by the first borns; the third borns, and the second borns being the lowest.

Based on the research investigation, the results partially supported the proposed hypothesis that “only, first, and last borns would perceive their relationship with their parents as high on protecting, and loving; and low on rejecting than the middle borns” and that “Later borns would perceive their relationship with their parents as low on protecting, and loving; and high on rejecting than the only and first borns”.

Looking at the results, a novel and intriguing finding has emerged according to which the perceived rejecting parental behaviors have come up in similar strengths as perceived protecting, and loving parental behaviors. Thus, various theoretical orientations, models, explanatory mechanisms and empirical researches which lend
support to the findings of the present study are first discussed in terms of protective and loving parental behaviors followed by the rejecting parental behaviors.

**ONLY HIGH, FIRST AND THIRD MODERATE, AND SECOND BORNS LOW ON PERCEIVED PROTECTING, LOVING, AND REJECTING PARENTAL BEHAVIORS:**

Adler (1911) promulgated the effects children have due to their birth orders. Entering into young adulthood brings with itself numerous changes that affect the college students physically (pubertal changes), emotionally (emotional turmoil and outbursts, expanded logical reasoning, idealistic thoughts), behaviorally (aggression, hostility) and psychologically (anxiety, depression, mood imbalances) in a significant manner. This happens explicitly in small size families with singletons because of absence of sibship, where they see the overprotective parenting practices and restrictions happening only to themselves whereas, in medium and large size families, the first and third borns perceive the parental rejection in moderation because while the first borns are throughout observing the other children being treated in a similar manner which acts as a breather for them, in the case of the third borns, they are the pampered lot and thus perceive moderate rejection from the parents. In contrast to all the other birth orders, there are the second borns who are the most balanced of all the birth orders. They have, as it is never been too loved or pampered, in fact to a total contrast, tagged as loners, sandwiched and left out; are not affected much by the perceived parental rejection and thus rank the last.

Also, the attachment theory (Bowlby, 1969/1982) lends support to the findings of the present study. Parents of early borns have reportedly been more anxious and tense in childcare at their first experience of parenthood (Schachter, 1959). With the birth of subsequent later borns, parenting becomes smoother and parents become calmer while dealing with their children. The higher level of parental anxiousness of only children leads to their greater extent of concern and responsiveness to their children’s needs (Falbo, 1987), thereby giving rise to protective and loving behavior patterns from the parents where they tend to shelter and shield the child from situations or experiences that they perceive as dangerous or
harmful. Further, the first borns also, being the first child in the family enjoy such strong bonding, and the third borns being the youngest kid in the family, tend to establish a friendly protective relationship with the parents; whereas the second borns tend to grow up under the guidance of the first born and pseudo parenting of the last borns thereby losing out on their own cohesive attachment and secure familial relationship with their parents.

Fascinatingly, a recently released parent reported data from the 2003 National Survey of Children’s Health (NSCH) has revealed that there has been a decline in parent child closeness, parental involvement, positive parent child interactions, the degree to which parents share ideas and talk about things that really matter, and their acquaintance with their children’s friends.

Additionally, if we focus on the fact that perceived rejection has come at par with the perceived protective and loving parental behaviors, numerous interesting findings unravel themselves. It has been much discussed that the teenagers’ and parents’ relationships are always in conflict because of various age related and lifestyle reasons like the teens seem to hate the parents because of their constant nagging, the communication devices rule their lives, the teens’ behaviors of staying out too late, their hanging out with peers that the parents don’t approve of, lying, engaging in risk taking behaviors, arguing, talking back etc. parents tend to be very wary of this vulnerable teenage and young adulthood, as a result of which they tend to protect the children by imposing certain restrictions on them. This behavior of the parents is perceived as rejection by the teens which (according to the manual) are the evident parental behavior of renouncing the child in aversion, which is indicated by the parents by being disdainful and in outright refusal of the child. (Hiremath, 2007; Shaban & Mattoo, 2012; Ha and Tam, 2013).

Moreover, looking at the current scenario where our society is grappling with heinous issues like rape, incest, child abuse, teenage pregnancy, etc.; the parents tend to enforce strict discipline and stringent rules so that they can have complete control over their college students. But the college students perceive the parental concerns of safety and security as bounding, refusals, and rejections and thus they move away
from their parents finding solace in the company of their friends. Additionally, this is the time when the adolescents are just entering the phase of young adulthood which brings with itself the changes in schooling i.e. entering colleges, enlarged peer group, new friendships, intimate relationships, dating and movement towards independence. All these factors hint at these college students wanting to break free from what they call as the shackles of parental restrictions. To top it all, the Indian society is till date dominated by the traditional parental practices where the children are expected to take permissions and suggestions in any task they undertake. These parents still follow the rigid, strict, and punitive parental measures for the children’s upbringing, and are not yet ready to adapt to the changing healthy parenting culture where they ought to befriend their children and not dictate. As a result, the college students tend to get into conflicts with their parents and thus feel suffocated, dejected and rejected. This is most common scenario with the only children and thus they feel the most rejected. With successive children i.e. the first borns, the parents tend to experiment with various parenting practices (authoritative, permissive, and accepting parenting) thus they perceive moderate rejection. With the birth of the third borns, the parents to lax to a certain extent thereby making them comfortable with them. In a total contrast, the second borns tend to get away with everything easily as they are never the center of attention and focus with the parents.

Empirical researches have revealed similar results. Hardman, Villiers, and Roby (2007); Salmon and Daly (1998) found that middleborn children in a sample of adults indicated themselves to be less closely affiliated to their family than were firstborns and lastborns. They argued, along with Sulloway (1996) that this effect results from middleborn children losing out in the competition with firstborns and lastborns for parental investment. The study reported here was an attempt to replicate this finding using three samples of children and a sample of adults. They followed the methodology of Salmon and Daly and, additionally, reported data on inter-sibling affiliation that had not been reported in their study. None of the results showed any evidence of a middle born effect. Some possible reasons are presented as to why birth order effects in familial sentiment might be hard to find.

Matheen (2011) conducted a study discussing on the dynamics of parent child relationship and emotional maturity of the young girls in Chennai. The data was
collected on the two main measures – a) Parent-Child Relationship and b) Emotional Maturity. Results revealed that the differences in the mean of the parent-child relationship appear minor, but mother-child show a better score when compared to father-child in all the nine dimensions except the object reward. Further, father neglecting, father symbolic reward, father object reward, mother protecting, mother neglecting, symbolic punishment, mother rejecting, mother object punishment, mother demanding, and mother symbolic reward significantly correlated with emotional instability at p<0.01, and of them, father symbolic reward, father object reward, mother protecting, and mother symbolic reward showed negative correlations. Father protecting, father symbolic punishment, father rejecting, father object punishment, father loving, and mother object reward correlated with emotional instability at p<0.05, and of them father protecting, father loving, and mother object reward showed negative correlations.

Thus, the present results hold that birth order is a significant factor of differences in parent child relationship among college students.

INTERACTION EFFECT

In accordance with the ANOVA results (Table 23), it is revealed that the interaction effect of family size and birth order came out to be non-significant on protecting (F=3.06; p<0.08), rejecting (F=.026; p<0.87), and loving parental behaviors (F=4.36; p<0.06), thereby explaining that the differences between only, first born, second born, and third born were not significantly different in one child, two child, and three child families and vice versa on any of three sub variables i.e. protecting, rejecting, and loving parental behaviors.

Pictorial presentation of significant differences of Family Size and Birth Order on Parent-Child Relationship

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<td>Small size high, Medium moderate and Large size families low on perceived protecting, loving, and rejecting parental behaviours.</td>
<td>Protecting, Rejecting, Loving</td>
<td>Only high, First and Third moderate, and second borns low on perceived protecting, loving, and Rejecting parental behaviours.</td>
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</table>
6.2.4 CAREER CHOICE PATTERNS:

The present endeavor aimed at analyzing the career choice patterns of the college students studying in the arts stream in order to discover whether family size (small, medium, and large) and birth order (only, first, second, and third) affects their preference for future occupational choices. For this purpose, the Comprehensive Interest Schedule (CIS) was administered; the results of which are based on the sten scores of 8 broad areas of occupations (out of which Nature and Clerical were not counted and analyzed as they did not suit the educational courses offered by the present sample. Thus, with two occupational fields in each of the 6 areas, it amounted to 12 occupational fields (as explained in chapter 4-methodology). The mean results of family size and birth order revealed the following occupational choice patterns on the basis of which, further the two-way Analysis of Variance (ANOVA) and post-hoc (Scheffe’s) were carried out to find out the significant differences amongst occupational choices in context to birth order and family size:

- The present sample (irrespective of family size and birth order) has shown high interest in the administrative (Sten=8) occupational field, and they are likely to enjoy their future work in this occupational field.

- Out of the 6 occupational interest areas with two sub fields in each amounting to 12 comprehensive vocational interests, the majority of the present sample has expressed moderate (Sten=4-7) interest in 7 occupational fields i.e. defense, sports, creative, performing, expressive, humanitarian and educational implying that they have interest in these particular occupational fields but are not very sure about it.

- Finally, the present sample expressed little or no interest (Sten= 1-3) in 4 occupational fields i.e. enterprising, medical, technical, and computational, implying that they have least interest in these occupational fields and are not planning to take up/ adopt these occupations as their future careers.

So, looking at the mean scores, the two-way Analysis of Variance (ANOVA) and further post hoc (Scheffe’s) was computed on total 8 (high-sten=8-10; and moderate- sten=4-7) expressed occupational preferences i.e. Administrative, Defense,
Sports, Creative, Performing, Expressive, Humanitarian and Educational. The 4 occupational fields that were least preferred/ expressed (St 1-3) i.e. enterprising, medical, technical, and computational were left and not analyzed further as per the manual which describes that such low sten scores do not indicate any strong occupational preference (Vohra, 1993).

6.2.4 (i) ADMINISTRATIVE OCCUPATIONAL FIELD:

FAMILY SIZE

Main effect

The two- way ANOVA’s “main effect of family size” on administrative occupational field was not significant (F= 3.02, p>0.20) (Table 38). This implies that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 39, figure 27).

However, a probe into the mean trend of administrative careers shows that the mean score of small size families (M=17.76, St=8) was the highest, followed by the mean of large size families (M=15.03, St=6), and the medium size families (M=14.14, St=5) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of college students in small size families would be higher for administrative careers than the other two family sizes.”

The results clearly indicate that the chances of taking up influential jobs (as per the manual) like an I.A.S. officer, executive manager, hotel manager, judge, district magistrate, governor, general manager, board director, election officer, vice-chancellor, chairman of board, probation officer, factory manager, diplomat, etc. are similar for small, medium, and large sized families.

SMALL, MEDIUM, AND LARGE SIZED FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT ON THE PREFERENCE FOR ADMINISTRATIVE OCCUPATIONS:

The attachment theory (Bowlby, 1980) emphasized upon the role of attachment which would comfort in times of stress, and a lack of felt security would
lead to increased distress. The present research compels one to reconsider the varying degrees of attachment as per the varying family sizes. It appears that the families are bonded well these days with a lot of sharing of thoughts, ideas, and issues happening amongst them. This gives the children a space conducive enough for them to open up their hearts and put their desires forth in terms of the careers they wish to embark upon.

The resource dilution theory (Blake, 1981) posits that as the family size increases, the resources divide and dilute amongst the children, meaning thereby that larger the family, lesser the resources each child gets and as a result affects their career choice decisions. But going by the present study's findings, these claims are refuted as regardless of the family size; children are equally opting for administrative careers. This could be because families are not as large as used to be in earlier times (the conception of the theory being in 1981). It also occurs that parents, regardless of the size of family, are encouraging the children to take up jobs of high repute. Thus it is noteworthy to mention that these theories need to be reworked upon as per the current scenario.

Various empirical researches also showed a somewhat different trend. Wagner and Schubert (1977) investigated sibling variables, including family size, ordinal position, and gender among the first 38 presidents of the United States. They found that firstborns were over-represented i.e. became presidents while last, middle, and only children were under-represented i.e. less likely that they became presidents. Additionally, the presidents were from predominantly large families (family size) and there was an overrepresentation of male siblings in these families.

González-Pinto, Yllá, Ortiz, and Zupiria (2003) carried out a study on the family order of the children and family size as well as other psychosocial variables. The sample comprising of 6,013 students were compared in order to relate these data with the choice of type of university studies. The data verifying the relationship between being the youngest or intermediate child of a family of three or more children and studying Journalism and Fine Arts and that the first born of families of two or more children was more represented in Engineering. It was interesting that there were
fewer only children in Medicine where children of families of three or more, both first-born as well as intermediate, go. Thus, the choice of university studies was associated to gender, birth order, family size and personality patterns.

Herrera, Zajonc, Weiczorkowska, and Cichomski (2003) carried out a study on a sample of respondents representative of the Polish population, at least 18 years of age. Results revealed the average occupational prestige attained by respondents of the various birth ranks and family sizes. Occupational prestige (low occupational prestige comprising of careers like firefighter, musician, photographer, farmer, and stuntman; while high occupational prestige comprising of careers like high school teacher, lawyer, surgeon, police officer, and astronaut) was found to vary significantly with birth order and with family size, $F(4, 2899) = 4.01, p = .003$, and $F(4, 2441) = 12.83, p = .001$, respectively. The trend is not entirely monotone for birth order, probably because of the instability of data for the lowest birth rank (i.e., there are few families with five or more members). The family size data, however, show a consistent decline in occupational prestige. The standard errors for birth rank and family size were 0.28 and 0.30, respectively. All differences except between Ranks 2 and 3 and Ranks 4 and 5 were significant. Variations with family size were reliable without exception.

The present results hold that family size is not a significant factor of differences in choice of administrative occupational field among college students.

BIRTH ORDER

Main effect

The two-way Analysis of variance (ANOVA) indicates that the main effect of birth order shows significant difference on the choice of administrative careers of college students ($F=6.22; p<.01$) (table 38). This implies that the means of the four birth orders (only, first, second, and third borns) differ significantly from each other. (Table 40; figure 28).

The multiple comparison (Scheffé’s post hoc test) (table 41) further revealed that differences in means of administrative careers are significant across the four birth
orders i.e. only (M=17.76), first (M=15.91), second (M=13.59), and third borns (M=14.39).

The multiple comparisons (Scheffe’s post-hoc test) showed the following differences:

a) Mean of the only borns (M= 17.76, St= 8) is significantly higher than the second borns (M=13.59, St= 4).

b) Mean of the first borns (M=15.91, St= 6) are significantly higher than the second borns (M=13.59, St= 4).

c) Mean of the third borns (M=14.39, St= 5) did not differ significantly from only, first, and second borns; and fell in the moderate range of preference for the administrative careers

*Based on the research investigation, the results supported the hypothesis that “preference of only and first-borns would be higher for administrative careers than the middle and last-borns.”*

*Thus, this implies that only child, first borns, second born, and third born are significantly different from each other on the choice of careers like I.A.S. officer, executive manager, hotel manager, judge, district magistrate, governor, general manager, board director, election officer, vice-chancellor, chairman of board, probation officer, factory manager, diplomat, etc.*

Various theoretical orientations, models, and research framework also lend support to the findings of the present study in terms of *birth order*, which are discussed in the ensuing sections.

**ONLY AND FIRST BORNS HIGH, THIRD BORNS MODERATE AND SECOND BORNS LOW ON THE PREFERENCE FOR ADMINISTRATIVE OCCUPATIONS:**

On the forefront, it is evident that these influential jobs require high intellectual, cognitive, and pedagogic abilities; which according to various thinkers and researchers are possessed by the early borns. To start with, the pioneer in birth order literature, *Adler* contended that the early borns have *authoritative skills and*
leadership qualities. Only children develop high IQ's, conversational abilities, and many "character traits" which are valued by adults-all this being the result of their monopoly upon the time and interest of their parents (Guilford & Worcester, 1930). Consequently, only children develop a mature sense of thinking and adopt the working ways of their parents, thus taking up either family businesses, or starting a work of their own which gives feeds their ego and gives them a sense of authority and power. Further, Adler (1870-1937) proposed a theoretical paradigm regarding the personality make-up of children in regard to the birth order they are born in. The only born is overwhelmingly more interested in intellectual and cognitive aspects of society, than the later born children. Due to the fact that the only borns interact with parents more frequently in comparison with other children, they are more likely to show interest in academic pursuits. Only children often pursue interests in typically prestigious and professional careers such as law or medicine. While, the later-born children are more likely to invest themselves in a more creatively-oriented field in which they can utilize their imaginations (USA Today, 2002, p.11); the second borns generally make good team players, facilitators and researchers. Middle children lean toward public service and caretaking roles, including law enforcement, fire-fighting, construction, education and personal care.

Additionally, Zajonc’s (1976) ‘confluence model’ aptly explains why firstborns frequently score higher on intelligence and achievement tests than other children, and thus go in for influential occupations that can be entered through clearing competitive examinations. This model states that because firstborns mainly have adult influences around them in their early years, they will spend their initial years of life interacting in a highly intellectual family environment. Firstborns, only children, and children with one sibling score higher on tests of verbal ability than later borns and children with multiple siblings (Polit & Falbo, 1988). Also, the third borns are moderately inclined towards opting administrative careers because they are relatively free to choose the area of their interest than the early borns, whereas the second borns tend to take up pacifying and peacemaking jobs. This clearly indicates the fact that only and first borns tend to be higher on intellectual abilities and thus prefer influential occupations like an IAS officer, judge, district magistrate, governor, probation officer, diplomat, etc.
Also, the **resource dilution model**, proposed by **Blake (1981)** and elaborated by **Downey (2001)** asserts the fact that since only and the first child do not compete with siblings for scarce economic and interpersonal resources, their status as the only recipient of family assets is conducive to their education opportunities, physical health, as well as their general well-being. As a result, they are motivated to take up careers involving higher stature and reverence. They also develop a sense of autonomy and a need for power which leads them to take up careers in administration like that of the *general managers of corporate bodies, factory managers, board directors, chairmans of boards, hotel managers, governors* etc.

Moreover, **Sulloway’s** book *Born to Rebel* (**1996**) generated renewed interest in birth order and personality research by contending that *early born* children (only and first borns) are more **responsible, competitive, and conventional**. Although Sulloway’s rationale of **niche-picking** within the family is compelling, the hypothesized relationships have received only marginal support using the big-five model of personality, which comprises the traits of neuroticism, extraversion, openness, agreeableness, and conscientiousness (**Jefferson et al. 1998**). Further, typically, differences in **parental investment** cause quadratic or U-shaped distributions in resources, with *middleborns* receiving fewer resources than firstborns or lastborns. Such U-shaped distributions result in part from what has been termed the “equity heuristic” and its counterintuitive consequences (**Hertwig, Davis, & Sulloway 2002**). Thus, parental investment is the maximum in terms of a one child family and all the resources are given to the only child who thus has the freedom to choose his college major and thus choose his career. The undivided parental investment also gives a sense of confidence to the *only and first born children* to take up the career of their choice without any financial and time constraints. The *third borns* tend to get a fairly average amount of the parental investment whereas the *second borns* get it the least and thus rank the lowest on these administrative careers.

Besides, the **vocational development theories** lend support to the findings of the current study which are explained as further.
Ann Roe's (1956) 'The psychology of occupations' (New York: Wiley) emphasized the importance of family relationships and emphasized the role of early childhood experiences and parenting styles as the precursors to adult personality. She divided all occupations into person-oriented (e.g., teaching) and non-person-oriented careers (e.g., science). As per the present study’s findings, the early childhood experiences and parenting styles towards the only children and the first borns make them mature since they always tend to interact with elderly in the family and grow up into confident, assertive, decisive, and mature adults. While the third borns being the youngest and pampered, tend to discuss with their parents averagely; the second borns get sidelined and discuss the least. Going in consonance with Roe’s theory, the only and first borns thus prefer going into jobs that require them to interact with people and are more person-oriented and not machine-oriented. As a result, they tend to opt more for jobs like that of an executive manager, judge, magistrate, vice-chancellor, governor, general manager etc.

Further, as per the manual, people with an inclination towards administrative fields are convincing, directing or persuading others towards attainment of their organizational goals and/or economic gains. Their primary personality orientation is that they are very active, socially bold, outgoing, participative, and competitive. They tend to have conceptual thinking rather than abstract thinking, and are very realistic and alert to their practical needs. They take on responsibilities very confidently. They are composed and self-assured about themselves. Mostly, this group of people is generally assertive, independent minded and headstrong about their views. Also, they are frank, expressive, and clearly reflect the group to which they belong to. These personality orientations have been borrowed from Holland’s theory of career choices (1973) according to which the occupational world is represented by complex personality orientations. Only children have been found to possess and significantly display these traits frequently. Being a single child, the undivided attention makes them confident, mature and responsible enough to initiate and undertake tasks on their own which is lacking in the children with siblings wherein they tend to depend on their sibships for support, suggestions, and advice. This is one major reason why only children automatically develop a penchant for these authority and leadership-
possessing professions and other birth orders don’t. These occupational characteristics are also in consonance with Adler’s description of the personality make up of various birth orders.

Also, Super (1990) postulated that vocational development is the process of developing and implementing a self-concept. People choose occupations that permit them to express their self-concepts. Only children’s and first borns’ self-concept is maturely developed and at a much rapid pace than the other birth orders as their interactions is majorly with the elders of the family. Also, career maturity sets in quite early them making them focused and decisive about their occupational choice. While the self-concept of the third borns is developed with the help of both-the parents and the elder siblings, it does not tend to become very unyielding and firm, the second born children tend to get ignored by the parents in the upbringing of the early born and the care of the later born.

In addition, Gottfredson (1981, 1996, 2002, 2005) in his theory of circumscription and compromise assumed that career choice is a process requiring a high level of cognitive proficiency. Cognitive growth and development is instrumental to the development of a cognitive map of occupation and conceptions of self that are used to evaluate the appropriateness of various occupational alternatives. An only child with no siblings tends to have a mature development of cognitions and abilities with a continuous push and undivided support for growth.

Empirical studies have posited similar findings. Farley (1974) investigated birth order, rank, and branch of service in a random sample of 3,000 service men and women. It was found that firstborns garnered higher service ranks at a significantly greater frequency than latter borns, leading them to conclude that this finding was in concert with the Adlerian perspective that firstborns possess more needs for power and approval, as well as a fear of failure.

Gandy (1974) reviewed studies on the relationship of birth order to vocational interests in an attempt to support the hypotheses that firstborns are more directing, controlling, and organizing than laterborns, and that laterborns are more sociable,
empathic, and sympathetic than firstborns. The research was inconsistent, contradictory, and speculative. Recommendations for further studies were presented, including (a) investigation of birth-order personality differences within rather than between vocations; (b) additional study of the influence of sibling associations on the development of interests and personality and the effect of personality on occupational preferences; (c) research using Adlerian concepts; and (d) continued emphasis on methodological and theoretical considerations.

The present results hold that birth order is a significant factor of differences in choice of administrative occupational field among college students.

INTERACTION EFFECT

The interaction between birth order and family size on administrative careers fails to reach the significance level (F=1.613; p>.205) (Table 38). This means that birth order and family size when seen in unison do not impact a college student’s choice of administrative careers in any way. Thus, the differences on the choice of this career between only, first, second, and third borns were not significantly different in one, two, and three child families and vice-versa.

6.2.4 (ii) DEFENCE OCCUPATIONAL FIELD:

Although the sample of the present study has given their preference to defence as an occupational choice (sten scores ranging from 4-5 i.e. moderate preference), but further the two-way Analysis of Variance (ANOVA) indicates that this choice is not influenced by Birth order, Family size, and/or their interaction.

FAMILY SIZE

Main effect

The two-way ANOVA’s “main effect of family size” on defence occupational field was not significant (F= 1.75; p >0.18) (Table 38). This implies that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 42; figure 29).
However, a probe into the mean trend of careers in defence shows that the mean score of small size families (M=12.05) was the highest, followed by the mean of medium size families (M=11.86), and the large size families (M=11.05) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of college students in large size families would be higher for defence, careers than the other two family sizes.”

The results clearly indicate that the chances of taking up jobs in the area of defence (as per the manual) like, coast guard officer, air force pilot, navigator, secret service agent, naval officer, home guard officer, police commissioner, B.S.F. officer, commando, air force officer, security officer, scouts guide officer, N.C.C. officer, are similar for small, medium, and large sized families.

**SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT ON THE PREFERENCE FOR OCCUPATIONS IN DEFENCE:**

Looking at the current scenario it appears that the youth has a trend to move towards more lucrative and safer career options like that of the bureaucrats, IT/private sectors, government jobs, and all those occupations that help them make easy and big money with no risk of life involved. Moreover, frequent transfers, isolation from family, high levels of stress, low pay in comparison to the risk involved, slow promotions, tough lifestyle, and post-marriage life in the defence forces are not comfortable. Moreover, family accommodation is inadequate, level of corruption too high but it remains difficult to expose. Only very few would opt for life time career in armed forces as frustration crops up due to lack of transparency in promotions. Also, today’s youth seeks a corporate culture which values people.

Focusing on the armed forces, even though their salaries have substantially increased after the 6th Pay Commission, the youngsters still find them less compared to the private sector. Poor service conditions and the other compensatory packages too make career in defence forces an unattractive one. The service conditions, promotion prospects, job satisfaction and post-retirement provisions for Indian military officers
have deteriorated in relation to other forms of available and comparable employment. Moreover, a sudden increase in the dropout rate seems to come from the youth currently deployed in the army who are themselves facing the problem of stress because of relentless counter-insurgency operations, posting in far flung areas of J&K, North East etc. Many of its officers and soldiers are committing suicide or they attack their colleagues and seniors. In such incidents army lost twice the number of soldiers compared to deaths in action /battle field. A study by the Defence Institute of Psychological Research (DIPR) reveals that denial of leave; humiliation and harassment by seniors, absence of leaders are a few reasons to name.

Also, it is seen that adolescents who take up a career or enter the field of defence do so after their senior secondary i.e. 12th standard. That’s when a lot of opportunities and courses let you enter the field by clearing various entrance examinations. The sample of the present study comprises of college students doing their graduation from various colleges. This could possibly be one reason why significant differences didn’t show up.

Various empirical researches also showed a somewhat different trend. Herrera, Zajone, Weiczorkowska and Cichomski (2003) carried out a study on a sample of respondents representative of the Polish population, at least 18 years of age. Results revealed the average occupational prestige attained by respondents of the various birth ranks and family sizes. Occupational prestige (low occupational prestige comprising of careers like firefighter and stuntman; while high occupational prestige comprising of careers like high school teacher and police officer) was found to vary significantly with birth order and with family size, $F(4, 2899) = 4.01, p = .003$, and $F(4, 2441) = 12.83, p = .001$, respectively. The family size data, however, show a consistent decline in occupational prestige. Variations with family size were reliable without exception.

The present results hold that family size is not a significant factor of differences in the choice of defence careers among college students.
BIRTH ORDER

Main effect

The two-way ANOVA’s “main effect of birth order” on defence occupational field was not significant (F=0.76; p>0.46) (table 38). This implies that the means of the four birth order (only, first, second and third borns) do not differ significantly from each other (Table 43; figure 30).

However, a probe into the mean trend of careers in defence shows that the mean score of only children (M=12.05) was the highest, followed by the mean of the first borns (M=11.83), the third borns (M= 11.11), and the second borns (M=11.05) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of last borns would be higher for careers in defence than the only, first, and middle borns.”

This implies that college students coming from different birth orders (i.e. one, two, three, and four) are not significantly different in expressing their choice in the occupational field of defence which comprise of occupations like army/defence officer, investigating officer, C.B.I./police officer, firefighting officer, ship captain/crew member, coast guard officer, air force pilot, navigator, secret service agent, naval officer, home guard officer, police commissioner, B.S.F. officer, commando, air force officer, security officer, scouts guide officer, N.C.C. officer, etc.

ONLY, FIRST, SECOND, AND THIRD BORNS ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR OCCUPATIONS IN DEFENCE:

The researcher delved upon an additional finding about the personality characteristics related to and revealed through the choice of career of the college students (Comprehensive interest schedule, Vohra, 1993). The personality theorists have revealed that college students preferring occupations in defence are generally adventurous, friendly, and impulsive. They are competitive, stern and tend to be hostile at times. The sense of responsibility and a consistent duty bound behavior is
the core of their personality orientation. The occupations in this field generally demand high self-reliance, tough mindedness, and an extremely high persistence towards their job. They are generally unidirectional towards achieving their goals and are therefore very self-confident, placid, secure, and complacent.

Reflecting on the reasons of their skepticism and indecisiveness about moving ahead in the careers of defence, various plausible explanations emerge.

The findings of the present study refute the theoretical explanations by Adler (1956) according to whom the personality characteristics of an individual in sync with his birth order, reflect in the preference of one’s career options. The personality characteristics of those taking up a career in defence divulge that second or later borns who are risk-takers and experimental by nature tend to go into these careers, but our study opposes this theoretical orientation.

Although, the results of the present study refute the propositions by Super (1990) who postulated that vocational development is the process of developing and implementing a self-concept; and that only children’s self-concept is maturely developed and at a much rapid pace than the other birth orders as their interactions is majorly with the elders of the family; the present study did not identify any significant birth order differences on this career choice thereby disproving the aforementioned theory. Moreover, the present study’s findings also oppose Holland’s theory of career choices (1973) according to which the occupational world is represented by complex personality orientations. Also, categorically, only children have been found to possess and significantly display certain traits like being realistic and alert to their practical needs, taking on responsibilities very confidently, being composed, assertive, independent minded, headstrong about their views and self-assured about themselves. Also, they are frank and express frequently. The non-significant birth order differences falsify the theoretical orientation by this career development theorist.

Various empirical researches have also portrayed a somewhat different trend. Herrera, Zajonc, Weiczorkowska and Cichomski (2003) carried out another study
on two hundred thirty-one students and 10 teachers from Eleva–Strum Central High School and asked them whether a firstborn or a last-born is more likely to work in each of several occupations. Results revealed that participants believed that a firstborn is more likely to work as an accountant (55), *airline pilot* (66), architect (72), astronaut (80), college professor (78), computer programmer (51), dentist (70), high school teacher (64), lawyer (73), physician (78), politician (63), and veterinarian (61). They believed also that a last-born is more likely to work as an actor (52), artist (57), clergy (60), firefighter (35), journalist (55), musician (45), photographer (45), social worker (56), and stunt man (49). The average prestige rank of occupations attributed to firstborns was 67.6, and that attributed to last borns was 50.4. The correlation between attributed prestige of occupation and birth rank was .76.

*The present results hold that birth order is not a significant factor of differences in the choice of defence careers among college students.*

**INTERACTION EFFECT**

The interaction between birth order and family size on occupations in defence fails to reach the significance level (F=3.156, p>0.07) (Table 36). This means that birth order and family size when seen in unison do not impact a college student’s choice of these jobs in any way. Thus, the differences on the choice of this career between only, first, second, and third borns were not significantly different in one, two, and three child families.

**6.2.4 (iii) SPORTS OCCUPATIONAL FIELD:**

Although the sample of the present study has given their preference to sports as an occupational choice, sten scores being 4 i.e. moderate preference, it is not a strong choice because of lack of lucrative job opportunities; and the fact that only polished, skilled, and distinguished players make it big. Also, further the Analysis of Variance (ANOVA) indicates that this choice is not influenced by Birth order, Family size, and/or their interaction.
FAMILY SIZE

Main effect

The two-way ANOVA’s “main effect of family size” on sports occupational field was not significant (F= 1.29; p <0.25) (Table 38). This implies that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 44; figure 31).

However, a probe into the mean trend of sports occupational field shows that the mean score of small size families (M=11.55) was the highest, followed by the mean of medium size families (M=11.41), and the large size families (M=10.40) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of college students in large size families would be higher for sports careers than the other two family sizes.”

This implies that college students coming from different family sizes (i.e. one, two and three) are similar in expressing their choice in the occupational field of sports which comprise of occupations like cricketer, volleyball player, wrestler, boxer, hockey player, athlete, football player, archer, gymnast, tennis player, weightlifter, golfer, badminton player, basketball player, swimmer, trekker, mountaineer, judo-karate expert, etc.

SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT ON THE PREFERENCE FOR OCCUPATIONS IN SPORTS:

To adopt a career in sports and rely upon it to earn a living through it for a lifetime puts in a lot at stake and involves a lot of risk. Looking at the current scenario, the youth today has varied mindsets. If at one hand we have those who seek to make easy and quick money and at the same time prefer a job which comes with a backing of financial security; on the other hand we also have those who have the risk taking abilities and want to explore their capacities and strengths. Though the ratio of the second category is less but they tend to take up a profession in sports and rely on it solely.
The attachment theory (Bowlby, 1980) emphasized the fact that attachment acts as a de-stressor for children. It would comfort in times of stress, and a lack of felt security would lead to increased distress. Small size families tend to be cohesive and warm and as the family size increases, the warmth also decreases. The present research compels one to reconsider the varying degrees of attachment as per the varying family sizes. It seems that in today’s day and age, the degree of attachment is not dependent upon family size anymore as parents realize the importance of individual attention and a strong familial bonding thereby comforting each child with continual support. This encourages the children to know their areas of interest and explore their capacities and activities outside school i.e. sports, and gives them an opportunity to take up sports as a career.

The resource dilution theory (Blake, 1981) posits that with an increase in the size of the family, the resources divide and dilute amongst the siblings, thereby making the larger families receive lesser of the parental support, finances, and time. But the present study highlights the fact that today parents tend to provide an atmosphere which is conducive and warm enough for them to have a freedom of decision making in terms of choice of their careers- be it opting for a risky field like sports. Most importantly, this is happening regardless of the family sizes the parents have, and all the children are treated equally. Thus the present study refutes the theory, and considering the present Indian trend, it needs to be reworked upon.

Empirical researches have also portrayed a somewhat different trend. Argys, Rees, Averett and Witoonchart (2006) carried out a study to examine the relationship between birth order, family size and participation in school sports and other extracurricular activities. The results suggested that having an older sibling was associated with an increased probability that males played baseball and football, were members of the school swim team, and participated in cheerleading. Female 10th graders with older siblings were less likely to engage in a variety of extracurricular activities including school band, community service, and yearbook. These results provide additional evidence that birth order is related to adolescents entering sports.

The present results hold that family size is not a significant factor of differences in choice of sports as an occupational field among college students.
BIRTH ORDER

Main effect

The two-way ANOVA’s “main effect of birth order” on sports occupational field was not significant (F=0.91; p>0.403) (table 38). The results thus imply that the means of the four birth orders (only, first, second, and third borns) do not differ significantly from each other. (Table 45; figure 32).

However, a probe into the mean trend of the sports occupational field shows that the mean score of only children (M=11.55) was the highest, followed by the mean of the first borns (M=11.11), the second borns (M=11.03), and the third borns (M=9.73) being the lowest.

Thus, the results rejected the proposed hypothesis that “Preference of last-borns would be higher for sports careers than the only, first and middle-borns.”

This implies that college students coming from different birth orders (i.e. one, two, three, and four) are similar in expressing their choice in the occupational field of sports which comprise of occupations like cricketer, volleyball player, wrestler, boxer, hockey player, athlete, football player, archer, gymnast, tennis player, weightlifter, golfer, badminton player, basketball player, swimmer, trekker, mountaineer, judo-karate expert, etc.

ONLY, FIRST, SECOND, AND THIRD BORNS ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR OCCUPATIONS IN SPORTS:

To start with, the researcher delved upon an additional finding about the personality characteristics related to and revealed through the choice of career of the college students (Comprehensive interest schedule, Vohra, 1993). The personality theorists have revealed that college students preferring occupations in sports are generally adventurous, friendly, and impulsive. They are competitive, stern and tend to be hostile at times. The sense of responsibility and a consistent duty bound behavior is the core of their personality orientation. The occupations in this field generally demand high self-reliance, tough mindedness, and an extremely high
persistence towards their job. They are generally unidirectional towards achieving their goals and are therefore very self-confident, placid, secure, and complacent. They are generally insensitive to people’s approval or disapproval comments about their actions. In other words, they have a ‘does not care’ and rudely vigorous attitude towards the accomplishment of their goal.

Moreover, reflecting on the reasons of their skepticism and indecisiveness about moving ahead in the careers of sports, various plausible explanations emerge.

The findings of the present study refute the theoretical explanations by Adler (1870–1937) who suggested that the position a child had by the order of birth significantly affected the child’s growth and personality and has even greater influence, contributing to intelligence, career choice, and, to a certain degree, success in adulthood. The personality characteristics of middle borns taking up a career in sports divulge that they are very competitive with their firstborn sibling. Consequently, they choose to focus their energies in areas different from those in which their older sibling is already established. This competition with firstborns drives second borns and middle borns to innovation, doing or being different from their older siblings in order to make themselves stand out in the family dynamic. As a result, middle children have been found to succeed in team sports. But the present study refutes this theoretical orientation as the college students from different birth orders do not differ significantly in their choice of career in this occupational field.

Various empirical researches also pose a somewhat different trend. Sulloway and Zweigenhaft (2010) in their paper in *Personality and Social Psychology Review*, looked at birth order and sports, and reviewed a number of studies looking at the kinds of sports that people end up engaging in. They found that older siblings are generally less likely to participate in risky contact sports than younger siblings.

Argys, Rees, Averett and Witoonchart (2006) carried out a study to examine the relationship between birth order and participation in school sports and other extracurricular activities. The results suggested that having an older sibling was
associated with an increased probability that males played baseball and football, were members of the school swim team, and participated in cheerleading. Female 10th graders with older siblings were less likely to engage in a variety of extracurricular activities including school band, community service, and yearbook. These results provide additional evidence that birth order is related to adolescents entering sports.

**The present results hold that birth order is not a significant factor of differences in choice of sports as an occupational field among college students.**

**INTERACTION EFFECT**

The interaction between birth order and family size on occupations in sports fails to reach the significance level (F=1.61; p>0.21) (Table 38). This means that birth order and family size when seen in unison do not impact a college student’s choice of these jobs in any way. Thus, the differences on the choice of this career between only, first, second, and third borns were not significantly different in one, two, and three child families.

**6.2.4 (iv) CREATIVE OCCUPATIONAL FIELD:**

Although the sample of the present study has given their preference to creative occupational field, the sten scores being in the range of 4–5, it is a moderate preference. This implies that it is not a strong preference because there are family constraints and financial instability/insecurity involved. Even though, nowadays, with the media giving a lot of opportunities and exposure; and numerous training schools available for honing the talents, the college students have started venturing into these fields. But somehow, this has not been reflected in the present study, which could be because the college students are taking up these occupations as a hobby but not as a career choice. Also, the two-way Analysis of Variance (ANOVA) indicates that this choice is not influenced by Birth order, Family size, and/or their interaction.

**FAMILY SIZE**

**Main effect**

The two-way ANOVA’s “main effect of family size” on creative occupational field was not significant (F= 3.247; p <0.072) (Table 38). This implies that the means
of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 46; figure 33).

However, a probe into the mean trend of creative occupational field shows that the mean score of large size families (M=12.75) was the highest, followed by the mean of small size families (M=11.73), and the medium size families (M=11.26) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of college students in large size families would be higher creative careers than the other two family sizes.”

This implies that college students coming from different family sizes (i.e. one, two and three) are more or less similar in expressing their choice in the occupational field of creative areas which comprise of professions like beautician, costume designer, song writer, dress designer, layout artist, advertising manager, cartoonist, make-up artist, photographer, sculptor, painter, commercial artist, interior decorator, landscape artist, graphic designer, etc.

SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR CREATIVE OCCUPATIONS:

The attachment theory (Bowlby, 1980) emphasized upon the role of attachment which would comfort in times of stress, and a lack of felt security would lead to increased distress. The findings of the present study reveal that the attachment level of families are not dependent on the sizes, meaning thereby that regardless of the size (small, medium, or large), parents are providing the best possible to their children. This attachment gives them the comfort and confidence to express their interests and choices in previously less adopted fields like the creative occupations. Children from different family sizes are equally opting for a career in occupations like that of costume designer, song writer, dress designer, layout artist, advertising manager, cartoonist, make-up artist, etc. Thus the present study refutes the aforesaid theoretical orientation.
The resource dilution theory (Blake, 1981) posits that as the family size increases, the resources divide and dilute amongst the children, meaning thereby that larger the family, lesser the resources each child gets and as a result affects their career paths considering the familial finances. But the present study divulges a novel finding which suggests that parents these days are trying to provide equal amounts of resources to each child. In fact, in larger families, as the number of children increase, the financial resources even tend to multiply thereby opening more avenues for each child. Parents also encourage their children to pursue their hobbies as full-fledged careers, like a cartoonist, make-up artist, photographer, sculptor, painter, commercial artist, interior decorator, landscape artist, graphic designer, etc. The present study thus refutes the claims posited by the resource dilution theory, and these theories need to be reworked upon as per the current scenario.

Various empirical researches have also depicted a somewhat different trend. Herrera, Zajonc, Weiczorkowska and Cichomski (2003) carried out their third study on a sample of respondents representative of the Polish population. Results revealed the average occupational prestige attained by respondents of the various birth ranks and family sizes. Occupational prestige (low occupational prestige comprising of careers like firefighter, musician, photographer, farmer, and stuntman; while high occupational prestige comprising of careers like high school teacher, lawyer, surgeon, police officer, and astronaut) was found to vary significantly with birth order and with family size, $F(4, 2899) = 4.01, p = .003,$ and $F(4, 2441) = 12.83, p = .001,$ respectively. The trend is not entirely monotone for birth order, probably because of the instability of data for the lowest birth rank (i.e., there are few families with five or more members). The family size data, however, show a consistent decline in occupational prestige.

The present results hold that family size is not a significant factor of differences in choice of creative occupational field among college students.
BIRTH ORDER

Main effect

The two-way ANOVA’s “main effect of birth order” on creative occupational field was not significant (F=1.744; p>0.176) (table 38). This implies that the means of the four birth orders (only, first, second, and third borns) do not differ significantly from each other. (Table 47; figure 34).

However, a probe into the mean trend of creative occupational field shows that the mean score of third born children (M=13.55) was the highest, followed by the mean of the first borns (M=12.07), the only borns (M= 11.73), and the second borns (M=11.53) being the lowest.

Thus, the results rejected the proposed hypothesis that “Preference of last-borns would be higher for creative careers than the only, first and middle-borns.”

This implies that college students coming from different birth orders (i.e. one, two, and three) are not significantly different in expressing their choice in the occupational field of creative areas which comprise of occupations like beautician, costume designer, song writer, dress designer, layout artist, advertising manager, cartoonist, make-up artist, photographer, sculptor, painter, commercial artist, interior decorator, landscape artist, graphic designer, etc.

ONLY, FIRST, SECOND, AND THIRD BORNS ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR CREATIVE OCCUPATIONS:

The researcher delved upon an additional finding about the personality characteristics related to and revealed through the choice of career of the college students (Comprehensive interest schedule, Vohra, 1993). The personality theorists have divulged that college students preferring the artistic (creative and performing) area usually seek opportunities for self-expression so as to create art forms, or artistic products. College students opting for these occupational groups generally tend to be sensitive, and expect attention. They are imaginative in inner life and have a high
need for independence and self-sufficiency. People with an inclination towards this area are forthright in their approach, unpretentious, and critical.

Moreover, reflecting on the reasons for such a trend of results, various plausible explanations emerge; the strongest of all being the reasoning that college students with an arts background, like in the present study’s sample, don’t generally take up these creative activities as their occupations. Ideally so, they are not even eligible to, because there are specialized courses for these occupations (mentioned above) which are offered in specific separate colleges. If research is conducted there, chances are high that significant differences will show up. Thus, it is evident from the present study’s findings that the college students have mature career choices as they don’t take up those courses where they are not sure of getting jobs.

Additionally, vocational maturity is the ability to make appropriate occupational choices that fit the subjects’ abilities, occupational interests and preferences. Because of this maturity long term vocational adjustment is considered to be more likely. Career Development is a “continuous lifelong process of developmental experiences that focuses on seeking, obtaining and processing information about self, occupational and educational alternatives, life styles and role options” (Hansen, 1976). In other words, career development is the process through which people come to understand them as they relate to the world of work and their role in it.

Also, according to Super (1990), vocational development is the process of developing and implementing a self-concept. As the self-concept becomes more realistic and stable, so does vocational choice and behavior. People choose occupations that permit them to express their self-concepts. Work satisfaction is related to the degree that they’ve been able to implement their self-concepts. Career Maturity is the similarity between one’s actual vocational behavior and what is expected for that stage of development. Career maturity includes readiness to cope with developmental tasks at a given stage. It is both affective and cognitive.

Various empirical researches have also depicted a somewhat different trend. Herrera, Zajonc, Weiczorkowska, Cichomski (2003) conducted their first study on
two hundred thirty-one students and 10 teachers from Eleva–Strum Central High School. Participants were simply asked whether a firstborn or a last-born was more likely to work in each of the occupations. Results revealed that participants believed that a firstborn is more likely to work as an accountant (55), airline pilot (66), architect (72), astronaut (80), college professor (78), computer programmer (51), dentist (70), high school teacher (64), lawyer (73), physician (78), politician (63), and veterinarian (61). They believed also that a last-born is more likely to work as an actor (52), artist (57), clergy (60), firefighter (35), journalist (55), musician (45), photographer (45), social worker (56), and stunt man (49). The average prestige rank of occupations attributed to firstborns was 67.6, and that attributed to last borns was 50.4. The correlation between attributed prestige of occupation and birth rank was .76.

Herrera, Zajonc, Weiczorkowska, Cichomski (2003) conducted their second study where participants (203 Stanford University undergraduates) completed an 11-item questionnaire that asked them whether a firstborn or a last-born is more likely to work in each of several occupations. Results revealed that participants believed a firstborn was more likely to work as an accountant (55), astronaut (80), farmer (47), lawyer (73), police officer (60), and surgeon (78). They believed a last-born was more likely to work as a firefighter (35), high school teacher (64), musician (45), photographer (45), and stunt man (49). The average occupational prestige ranking assigned to firstborns was 65.5, and that assigned to last-borns was 47.6. Thus, participants believed that (a) a firstborn is more likely to work as a farmer, (b) a last-born is more likely to work as a high school teacher, and (c) a firstborn is more likely to work as a police officer. In this study, the correlation between the average birth rank and the occupational prestige scores was .73.

The present results hold that family size is not a significant factor of differences in choice of creative occupational field among college students.

INTERACTION EFFECT

The interaction between birth order and family size on occupations in creative fields fail to reach the significance level (F=3.15; p<0.08) (Table 38). This means that
birth order and family size when seen in unison do not impact a college student’s choice of these jobs in any way. Thus, the differences on the choice of this career between only, first, second, and third borns were not significantly different in one, two, and three child families.

### 6.2.4 (v) PERFORMING OCCUPATIONAL FIELD:

Although the sample of the present study has given their preference to performing occupational field, the sten scores being in the range of 4-5, it is a moderate preference. This implies that it is not a strong preference because there are family constraints and financial instability/insecurity involved. Even though, nowadays, with the media giving a lot of opportunities and exposure; and numerous training schools available for honing the talents, the college students have started venturing into these fields. But somehow, this has not been reflected in the present study, probably because the college students are not taking up these fields as career paths. Also, the two-way Analysis of Variance (ANOVA) indicates that this choice is not influenced by Birth order, Family size, and/or their interaction.

### FAMILY SIZE

**Main effect**

The two-way ANOVA’s “main effect of family size” on performing occupational field was not significant (F= 1.022; p > .312) (Table 38). This implies that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 48; figure 35).

However, a probe into the mean trend of performing occupational field shows that the mean score of large size families (M=11.52) was the highest, followed by the mean of small size families (M=11.28), and the medium size families (M=10.58) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of college students in large size families would be higher on performing careers than the other two family sizes.”
This implies that college students coming from different family sizes (i.e. one, two and three) and birth orders (i.e. one, two, and three) are not significantly different in expressing their choice in the occupational field of performing arts which comprise of occupations like musician, classical dancer, playback singer, actor/actress, dramatist, pianist, band leader, violinist, orchestra conductor, table master, sitarist, folk song singer, classical singer, folk dancer, etc.

**SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR PERFORMING OCCUPATIONS:**

The **attachment theory** (Bowlby, 1980) lays stress on the attachment that would comfort in times of stress, and a lack of felt security would lead to increased distress. The present study seems to be refuting these propositions as regardless of the family size, parents are providing an attachment that lets the children opt for performing arts like that of a playback singer, actor/actress, dramatist, pianist, band leader, violinist, orchestra conductor, table master, etc. opposing the general premonition that smaller families are more cohesive than medium and larger ones, the present study disregards the role of varying family sizes as per the current scenario. Thus this theory needs to be revamped in consonance with the present trend.

The **resource dilution theory** (Blake, 1981) emphasized the fact that with an increase in family size, the resources divide and dilute amongst the siblings. This also hints that children in a large family will receive lesser resources as compared to children in smaller families. Going by the findings of the present study, the aforementioned theory stands untrue as the children of all family sizes today seem to be getting similar amounts of resources and therefore family size is getting ignored here. They are thus equally opting for occupational fields like sitarist, folk song singer, classical singer, folk dancer, etc.

Various **empirical researches** have also depicted a somewhat different trend. **Herrera, Zajonc, Weiczorkowska, and Cichomski (2003)** carried out their third study on a sample of respondents, representative of the Polish population. Results revealed the average occupational prestige attained by respondents of the various birth
ranks and family sizes. Occupational prestige (low occupational prestige comprising of careers like firefighter, musician, photographer, farmer, and stuntman; while high occupational prestige comprising of careers like high school teacher, lawyer, surgeon, police officer, and astronaut) was found to vary significantly with birth order and with family size, \( F(4, 2899) = 4.01, p < .003 \), and \( F(4, 2441) = 12.83, p < .001 \), respectively. The trend is not entirely monotone for birth order, probably because of the instability of data for the lowest birth rank (i.e., there are few families with five or more members). The family size data, however, show a consistent decline in occupational prestige.

*The present results hold that family size is not a significant factor of differences in choice of performing occupational field among college students.*

**BIRTH ORDER**

*Main effect*

The two-way ANOVA’s “main effect of birth order” on performing occupational field was not significant \( (F=2.047; p>0.130) \) (table 38). This implies that the means of the four birth orders (only, first, second, and third borns) do not differ significantly from each other. (Table 49; figure 36).

However, a probe into the **mean trend** of the performing occupational field shows that the mean score of third born children \( (M=12.11) \) was the highest, followed by the mean of the first borns \( (M=11.44) \), the only borns \( (M= 11.28) \), and the second borns \( (M=10.37) \) being the lowest.

Thus, the results rejected the proposed hypothesis that “Preference of last-borns would be higher for performing careers than the only, first and middle-borns.”

*This implies that college students coming from different birth orders (i.e. one, two, and three) are not significantly different in expressing their choice in the occupational field of performing arts which comprise of occupations like musician, classical dancer, playback singer, actor/actress, dramatist, pianist, band leader,*
violinist, orchestra conductor, table master, sitarist, folk song singer, classical singer, folk dancer, etc.

**ONLY, FIRST, SECOND, AND THIRD BORNs ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR PERFORMING OCCUPATIONS:**

The **personality theorists** have divulged that college students preferring the artistic (creative and performing) area usually seek *opportunities for self-expression* so as to create art forms, or artistic products. College students opting for these occupational groups are generally absorbed in ideas. They are people interested in art, theory, basic beliefs, and they are imaginatively enthralled by inner creations. College students preferring the performing arts are generally affected by feelings and have a good insight about their subject and tend to be intellectually adaptable.

Furthermore, reflecting on the reasons of their cynicism and uncertainty about pursuing the occupations in the creative field, various plausible explanations emerge.

The findings of the present study *refute* the theoretical explanations by **Adler** (1956) according to whom the personality characteristics of an individual in sync with his birth order reflect in the preference of one’s career options. The personality characteristics of those taking up a career in the areas of performing arts divulge that later borns who are risk-takers and experimental by nature tend to go into adopting these careers as their professions, but our study opposes this theoretical orientation.

It seems that the parents still have an insecure mindset when it comes to their children adopting performing careers. They have not yet emerged as prestigious careers in the society and are still considered as risky careers. The mindset does not allow people to think highly of these professions in terms of financial stability and security. This is one reason why the sten scores of the college students in this occupational field is just 4, which is average on the lower side. The parents still believe that a career in the performing arts field involves far more struggle than in a government or private sector secure job. They fear letting their children risk their lives for a career that is uncertain and unpromising. It is the old mindset to be blamed for the college students not being able to pursue their passions as professions.
Although, the results of the present study refute the propositions by Super (1990) who postulated that vocational development is the process of developing and implementing a self-concept; and that only children’s self-concept is maturely developed and at a much rapid pace than the other birth orders as their interactions is majorly with the elders of the family. The present study did not identify any significant birth order differences on this career choice thereby disproving the aforementioned theory. Moreover, the present study’s findings also oppose Holland’s theory of career choices (1973) according to which the occupational world is represented by complex personality orientations. Also, categorically, only children have been found to possess and significantly display certain traits like being realistic and alert to their practical needs, taking on responsibilities very confidently, being composed, assertive, independent minded, headstrong about their views and self-assured about themselves. Also, they are frank and express frequently. The non-significant birth order differences falsify the theoretical orientation by this career development theorist.

Thus, it is evident that a better understanding of career choice development is possible through a relational perspective approach. The nature of the relationships and interactions established between parents and children constitute the foundation of the career exploration process. The quality of parent-child relationships, open communication, support offered and trust can influence exploring activities, career aspirations, future plans, and the perception of barriers which may occur in choosing a career. Also, supportive, firm and affectionate parents ensure a family climate which favors the socializing process, and their children are characterized by a higher degree of emotional stability, extroversion, sociability, and empathy (Aluja, Barrio & Garcia, 2005).

Various empirical researches have also depicted a somewhat different trend. Herrera, Zajonc, Weiczorkowska, Cichomski (2003) conducted their first study on two hundred thirty-one students and 10 teachers from Eleva–Strum Central High School. Participants were simply asked whether a firstborn or a last-born was more likely to work in each of the occupations. Results revealed that participants believed
that a firstborn is more likely to work as an architect (72), astronaut (80), college professor (78), computer programmer (51), dentist (70), physician (78), politician (63), and veterinarian (61). They believed also that a last-born is more likely to work as an actor (52), artist (57), clergy (60), firefighter (35), journalist (55), musician (45), photographer (45), social worker (56), and stunt man (49). The average prestige rank of occupations attributed to firstborns was 67.6, and that attributed to last borns was 50.4. The correlation between attributed prestige of occupation and birth rank was \( .76 \).

Herrera, Zajonc, Weiczorkowska, and Cichomski (2003) conducted their second study where participants (203 Stanford University undergraduates) completed an 11-item questionnaire that asked them whether a firstborn or a last-born is more likely to work in each of several occupations. Results revealed that participants believed a firstborn was more likely to work as a lawyer (73), police officer (60), and surgeon (78). They believed a last-born was more likely to work as a firefighter (35), high school teacher (64), musician (45), photographer (45), and stunt man (49). The average occupational prestige ranking assigned to firstborns was 65.5, and that assigned to last-borns was 47.6. Thus, participants believed that (a) a firstborn is more likely to work as a farmer, (b) a last-born is more likely to work as a high school teacher, and (c) a firstborn is more likely to work as a police officer. In this study, the correlation between the average birth rank and the occupational prestige scores was \( .73 \).

The present results hold that family size is not a significant factor of differences in choice of performing occupational field among college students.

**INTERACTION EFFECT**

The interaction between birth order and family size on occupations in performing fields fail to reach the significance level (F=1.49; p>0.22) (Table 38). This means that birth order and family size when seen in unison do not impact a college student’s choice of these jobs in any way. Thus, the differences on the choice of this career between only, first, second, and third borns were not significantly different in one, two, and three child families.
6.2.4 (vi) EXPRESSIVE OCCUPATIONAL FIELD:

Although the sample of the present study has given their preference to expressive occupational choice, the sten scores being in the range of 3-7, it is a moderate preference. Therefore, it is evident that the college students have a clearer perspective of their choices and have crystallized down their options to a career that they would want to pursue. Further, the two-way Analysis of Variance (ANOVA) revealed that this choice is influenced by Birth order, but not by Family size, and their interaction.

FAMILY SIZE

Main effect

The two-way ANOVA’s “main effect of family size” on expressive occupational field was not significant (F=0.41; p>0.52) (table 38). This implies that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 50; figure 37).

However, a probe into the mean trend of expressive careers shows that the mean score of small size families (M=10.31) was the highest, followed by the mean of large size families (M=11.36), and the medium size families (M=12.91) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of college students in medium size families would be higher for expressive careers than the other two family sizes.”

The results clearly indicate that the chances of taking up expressive careers (as per manual) like news editor, journalist, foreign correspondent, historian, author of books, news reporter, T.V. Show organizer, T.V. reporter, radio announcer, story writer, novel writer, magazine columnist, art critic, news reader, etc. are similar for small, medium, and large sized families.

SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR EXPRESSIVE OCCUPATIONS:

The attachment theory (Bowlby, 1980) emphasized the role of attachment that it would comfort in times of stress, and a lack of felt security would lead to increased
distress. This would mean that smaller families would be high on attachment and larger families would be less cohesive. The present research opposes these claims as families today, regardless of the sizes display high degrees of attachments, care and belongingness. The present study reveals that children from different family sizes are getting similar amounts of attachment from their families and thus are opting for careers like that of a news editor, journalist, foreign correspondent, historian, author of books, news reporter, T.V. Show organizer, T.V. reporter in a similar fashion. Thus the aforementioned theory needs to be reworked upon in consonance with the current scenario.

The resource dilution theory (Blake, 1981) explains that as the family size increases, the parental and familial resources (financial, care, support, time, etc.) divide amongst the siblings. Going by this, it implies that the larger families will receive lesser resources which would also limit their options in terms of choosing a career path. But the present study’s findings refute these claims as nowadays, regardless of the family size; children are equally opting for analytical careers like that of radio announcer, story writer, novel writer, magazine columnist, art critic, news reader, etc. This could be because families are not as large as used to be in earlier times (the conception of the theory being in 1981), and also because parents today consciously strive to give the best to each child. Thus it is noteworthy to mention here that this theory needs to be reworked upon as per the current scenario.

Empirical researches have also showed a somewhat different trend. González-Pinto, Yllá, Ortiz, and Zupiria, (2003) carried out a study on the birth order of the children and family size as well as other psychosocial variables. The sample comprising of 6,013 students studying in different careers and courses of the University of the Basque Country (UBC) were compared in order to relate these data with the choice of type of university studies. The data verifying the relationship between being the youngest or intermediate child of a family of three or more children and studying Journalism and Fine Arts and that the first born of families of two or more children was more represented in Engineering. It was interesting that there were fewer only children in Medicine where children of families of three or more, both first-born as well as intermediate, go. Thus, besides family size and birth order,
personality patterns were also studied Medicine and Odontology, followed by Mathematics and Journalism, obtained the highest scores in neuroticism. The most extroverted students were those from Journalism, Chemistry, Economics and Odontology. Thus, the choice of university studies was associated to gender, birth order, family size and personality patterns.

**Herrera, Zajonc, Weiczorkowska and Cichomski (2003)** carried out a study on a sample of respondents, representative of the Polish population. Results revealed the average occupational prestige attained by respondents of the various birth ranks and family sizes. Occupational prestige (low occupational prestige comprising of careers like firefighter, musician, photographer, farmer, and stuntman; while high occupational prestige comprising of careers like high school teacher, lawyer, surgeon, police officer, and astronaut) was found to vary significantly with birth order and with family size, \( F (4, 2899) = 4.01, p < .003 \), and \( F(4, 2441) = 12.83, p < .001 \), respectively. The trend is not entirely monotone for birth order, probably because of the instability of data for the lowest birth rank (i.e., there are few families with five or more members). The family size data, however, show a consistent decline in occupational prestige.

*The present results hold that family size is not a significant factor of differences in choice of expressive occupational field among college students.*

**BIRTH ORDER**

**Main effect**

The two-way Analysis of variance (ANOVA) indicates that the main effect of birth order shows significant difference on the choice of expressive careers of college students (\( F=12.15; p<0.00 \)) (table 38). This implies that the means of the four birth orders (only, first, second, and third borns) differ significantly from each other. (Table 51; figure 38).

The multiple comparison (Scheffe’s post hoc test) (table 52) further revealed that differences in means of expressive careers are significant across the four birth
orders i.e. only (M=10.31), first (M=12.67), second (M=10.50), and third borns (M=15.11).

The multiple comparisons (Scheffe’s post-hoc test) showed the following differences:

a) Mean of the only borns (M= 10.31, St=4) is significantly lower than the third borns (M=15.11, St= 7).

b) Mean of the first borns (M=12.67, St= 4) is significantly higher than the second borns (M=10.50, St= 3).

c) Mean of the second borns (M=10.50, St= 3) is significantly lower than the third borns (M=15.11, St= 7).

Based on the research investigation, the results rejected the hypothesis that “preference of middle-borns would be higher for expressive careers than the only, first, and last-borns.”

Thus, this implies that only child, first borns, second born, and third born are significantly different from each other on the choice of expressive careers like news editor, journalist, foreign correspondent, historian, author of books, news reporter, T.V. Show organizer, T.V. reporter, radio announcer, story writer, novel writer, magazine columnist, art critic, news reader, etc.

Various theoretical orientations, models, and research framework also lend support to the findings of the present study which are discussed in the ensuing sections.

**FIRST AND THIRD BORNS HIGH, AND ONLY AND SECOND BORNS LOW ON PREFERING EXPRESSIVE OCCUPATIONS:**

The researcher delved upon a new finding about the personality characteristics related to and revealed through the choice of career of the college students. People with an inclination towards expressive fields tend to be sharp at diagnosis, flexible in viewpoint, inclined to ‘study the angles’. The expressive group consists of people who are alert to manners, to social obligations, and to the social reactions to others. The
pattern represents some form of intellectual-educational development in terms of shrewd tactical skills. Both the categories represent diplomatic, accommodating, and conforming attitude towards their occupation. Jobs in these categories require a relaxed, tranquil, torpid, and composed personality orientation. The chief career-oriented activities involved in these categories are investigating, observing, and solving problems with the use of ideas, words, and symbols. These personality orientations have been borrowed from Holland’s theory of career choices (1973) according to which the occupational world is represented by complex personality orientations.

Furthermore, reflecting on the theoretical orientations and models supporting the findings of the present study are discussed as ahead.

The findings of the present study are supported by the theoretical explanations by Adler (1956) according to whom the personality characteristics of an individual in sync with his birth order reflect in the preference of one’s career options. He contends that the babies/ last borns are often charming, friendly manipulators who have a large desire to make their mark on the world. They crave attention and are often the family clown or entertainer. People-oriented vocations are their forte. This group makes great salespeople; whereas only borns and second borns tend to grow up in an overprotected environment which is why the parents tend to restrict them from taking up professions like news reporter, journalist, foreign correspondent, T.V. reporter etc. Last-borns can be cocky, however, and they don’t worry about the after-effects of their actions or decisions, and as a result tend to take up such expressive professions. This birth order could benefit by learning to be neat, accepting more responsibility, be less self-centered, and admit their faults without blaming others. They are the risk takers who do not fear change in life and adapt to it easily. They also gets pampered and protected more than any other child did. This could leave him with a sense that he cannot take on the world alone and will always be inferior to others (Dinkmeyer, McKay & Dinkmeyer, 1978; Adler, 1910).

Roe’s (1956) ‘The psychology of occupations’ (New York: Wiley) emphasized the importance of family relationships and emphasized the role of early
childhood experiences and parenting styles as the precursors to adult personality. She divided all occupations into person-oriented (e.g., teaching) and non-person-oriented careers (e.g., science). As per the present study’s findings, the early childhood experiences and parenting styles towards the later borns make them confident enough to take the world head on. Also because they are tutored by the parents as well as the elder siblings, this brings a lot of maturity to them at quite an early age. As a result they grow up into confident, assertive, decisive, and mature adults. Going in sync with Roe’s theory, the only children thus prefer going into jobs that require them to interact with people and are more person-oriented and not machine-oriented. As a result, they tend to opt for jobs like that of a journalist, foreign correspondent, historian, news reporter, T.V. Show organizer, etc.

Empirical researches have also revealed similar findings. Herrera, Zajonc, Weiczorkowska and Cichomski (2003) in their first study on two hundred thirty-one students and 10 teachers from Eleva–Strum Central High School asked their sample whether a firstborn or a last-born is more likely to work in each of several occupations. Participants were simply asked whether a firstborn or a last-born was more likely to work in each of the occupations. Results revealed that participants believed that a firstborn is more likely to work as an architect (72), college professor (78), computer programmer (51), lawyer (73), politician (63), and veterinarian (61). They believed also that a last-born is more likely to work as an actor (52), artist (57), clergy (60), firefighter (35), journalist (55), musician (45), photographer (45), social worker (56), and stunt man (49). The average prestige rank of occupations attributed to firstborns was 67.6, and that attributed to last borns was 50.4. The correlation between attributed prestige of occupation and birth rank was .76.

Herrera, Zajonc, Weiczorkowska, and Cichomski (2003) conducted their second study where participants (203 Stanford University undergraduates) completed an 11-item questionnaire that asked them whether a firstborn or a last-born is more likely to work in each of several occupations. Results revealed that participants believed a firstborn was more likely to work as a farmer (47), lawyer (73), police officer (60), and surgeon (78). They believed a last-born was more likely to work as a
firefighter (35), high school teacher (64), musician (45), photographer (45), and stunt man (49). The average occupational prestige ranking assigned to firstborns was 65.5, and that assigned to last-borns was 47.6. Thus, participants believed that (a) a firstborn is more likely to work as a farmer, (b) a last-born is more likely to work as a high school teacher, and (c) a firstborn is more likely to work as a police officer. In this study, the correlation between the average birth rank and the occupational prestige scores was 0.73.

*The present results hold that birth order is not a significant factor of differences in choice of expressive occupational field among college students.*

**INTERACTION EFFECT**

The interaction between birth order and family size on expressive careers fails to reach the significance level (F=0.89; p>0.34) (Table 38). This means that birth order and family size when seen in unison do not impact a college student’s choice of expressive careers. Thus, the differences on the choice of this career between only, first, second, and third borns were significantly not different in one, two, and three child families and vice-versa.

6.2.4 (vii) **HUMANITARIAN OCCUPATIONAL FIELD:**

Although the sample of the present study has given their preference towards the humanitarian occupational field, the sten scores being in the range of 4-5 indicate it to be a moderate preference. This implies that they like it as a career choice but at the same time keep their options open as they are not sure if they’ll pursue it further or not. Also, the further two-way Analysis of Variance (ANOVA) indicates that this choice is not influenced by Birth order, Family size, and/or their interaction.

**FAMILY SIZE**

*Main effect*

The two-way ANOVA’s “main effect of family size” on humanitarian occupational field was not significant (F= 0.048; p <0.827) (table 38). This implies
that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 53; figure 39).

However, a probe into the mean trend of humanitarian careers shows that the mean score of small size families (M=11.72) was the highest, followed by the mean of large size families (M=10.29), and the medium size families (M=10.04) being the lowest.

Thus, the results rejected the proposed hypothesis that “the preference of college students in medium size families would be higher for humanitarian careers than the other two family sizes.”

The results clearly indicate that the chances of taking up humanitarian careers (as per manual) like guidance counselor, social worker, Y.M.C.A. secretary, red cross worker, church worker, missionary, marriage counselor, welfare officer, psychologist, school counselor, nurse/medical attendant, vocational counselor, priest, community worker, etc. are similar for small, medium, and large sized families.

**SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR HUMANITARIAN OCCUPATIONS:**

The attachment theory (Bowlby, 1980) posited that attachment would comfort in times of stress, and a lack of felt security would lead to increased distress. The present study coerces one to reconsider the varying degrees of attachment as per the varying family sizes. Nowadays, families are much more cohesive and attached regardless of the size i.e. small, medium, or large family sizes. Today, the families are bonded well with a lot of sharing of thoughts, ideas, and issues happening amongst them. This gives the children an atmosphere relaxed enough to express their desire of choosing a career like that guidance counselor, social worker, Y.M.C.A. secretary, red cross worker, church worker, missionary, marriage counselor, welfare officer, etc.

The resource dilution theory (Blake, 1981) highlights the fact that with an increase in family size, the resources divide and dilute amongst the children, meaning thereby that larger the family, lesser the resources each child gets and as a result
affects their career choice decisions. The present study refutes these claims as the families these days are planned by the parents in such a way that each child (in a small, medium, or large size families) gets the best. Thus children from all the family sizes are equally opting for humanitarian careers like psychologist, school counselor, nurse/medical attendant, vocational counselor, priest, community worker, etc. Thus it is noteworthy to mention that these theories need to be reworked upon as per the current scenario.

Empirical researches have also showed a somewhat different trend. Herrera, Zajonc, Weiczorkowska, Cichomski (2003) carried out a study on a sample of respondents, representative of the Polish population, at least 18 years of age. Results revealed the average occupational prestige attained by respondents of the various birth ranks and family sizes. Occupational prestige (low occupational prestige comprising of careers like firefighter, musician, photographer, farmer, and stuntman; while high occupational prestige comprising of careers like high school teacher, lawyer, surgeon, police officer, and astronaut) was found to vary significantly with birth order and with family size, $F(4, 2899) = 4.01, p < .003$, and $F(4, 2441) = 12.83, p < .001$, respectively. The trend is not entirely monotone for birth order, probably because of the instability of data for the lowest birth rank (i.e., there are few families with five or more members). The family size data, however, show a consistent decline in occupational prestige.

The present results hold that family size is not a significant factor of differences in choice of humanitarian occupational field among college students.

BIRTH ORDER

Main effect

The two-way ANOVA’s “main effect of birth order” on humanitarian occupational field was not significant ($F=0.11; p>.89$) (table 38). The results thus imply that the means of the four birth orders (only, first, second, and third borns) do not differ significantly from each other. (Table 54; figure 40).
However, a probe into the mean trend of the humanitarian occupational field shows that the mean score of only borns (M=11.72) was the highest, followed by the mean of the third borns (M=10.52), the second borns (M= 10.15), and the first borns (M=10.07) being the lowest.

Thus, the results rejected the proposed hypothesis that “preference of middle-borns would be higher for humanitarian careers than the only, first, and last-borns.”

This implies that college students coming from different birth orders (i.e. one, two, three, and four) are not significantly different in expressing their choice in the occupational field of humanitarian which comprise of occupations like guidance counselor, social worker, Y.M.C.A. secretary, red cross worker, church worker, missionary, marriage counselor, welfare officer, psychologist, school counselor, nurse/ medical attendant, vocational counselor, priest, community worker, etc.

**ONLY, FIRST, SECOND, AND THIRD BORNS ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR HUMANITARIAN OCCUPATIONS:**

The researcher delved upon an additional finding about the personality characteristics related to and revealed through the choice of career of the college students (Comprehensive interest schedule, Vohra, 1993). The personality theorists have revealed that college students preferring occupations in the humanitarian area are generally busy in activities which involve being near to or at the centre of group endeavors, or solving problems through discussions with others, or by arranging relationships between people so as to enlighten, serve, or train them. They are highly cooperative, participative, and conscientiously persistent in their job. They are gentle, kind, and sensitive to other persons’ needs. They are also gregarious; emotionally involved with the group they choose to interact. They are generally spontaneous, natural, and content with what they can have or could have. Their need for extension, i.e. to be participative and altruistic is extremely high. These personality orientations have been borrowed from Holland’s theory of career choices (1973) according to which the occupational world is represented by complex personality orientations.

Further, reflecting on the reasons of their skepticism and indecisiveness about moving ahead in the careers of sports, various plausible explanations emerge.
Firstly, in India, these occupations are not as popular and upbeat as the others. Only the people in the metropolitan cities are aware, open and receptive towards seeking help from people in these humanitarian professions like that of a psychologist, counselor, marriage counselor, vocational counselor, etc. although, in foreign countries, the trend is completely different. People are well aware of the need to seek help from such people, but the trend is yet to catch up in India.

Also, not all the colleges/universities offer courses in these fields/areas; thus the bleak availability of these also makes it a lesser chosen and opted for career.

Moreover, there is till date a lot of unawareness amongst people about the increasing psychological problems and a lot still needs to be explored by them. They still don’t consider it important to consult a psychologist/marriage counselor, school or guidance counselor for various such problems that cannot be dealt with by a medical practitioner. Focusing on the ones who are aware of the availability of such services, are still fearful of the social stigma attached alongwith the societal comments and reactions.

Further, the jobs under the humanitarian field like that of a priest, missionary, red cross worker, community worker, welfare officer, nurse/medical attendant etc do not promise financial security, and thus do not lure people. As a result, the choice of these occupations as a career is bleak amongst the youth.

Empirical researches have also posed a somewhat different trend. Collins (2006) surveyed a sample of 100 Providence College students, a private liberal arts New England College and asked them to report their birth order, perceived traits, career choice, and college major. Only children often behave as first born children and will therefore they choose majors similar to first-borns in college. In sharp contrast with their older siblings, middle children tend to excel in interpersonal relations and are likely to opt for careers in human relations to seek jobs in which there are a great deal of group collaboration. Middle children choose majors such as psychology, sociology, and social work. However, the youngest children in a family are thought to be the most creative and innovative thinkers. These children often find
careers in which abstract thought and creativity is valued such as teaching, studio art, and the performance arts. Unfortunately there were very few statistically significant findings. There was no relationship between birth order and college major; however there was a statistically significant relationship between Factor 2, which is a factor analyzed grouping of personality traits and education majors. The Factor 2 group of traits is creative and imaginative. These traits are typically last child personality traits which support the hypothesis that last born children tend to choose education as a college major and career choice. Results revealed that psychological birth-order may play a significant role/responsibility in shaping a child’s career choice.

The present results hold that birth order is not a significant factor of differences in choice of humanitarian occupational field among college students.

INTERACTION EFFECT

The interaction between birth order and family size on occupations in humanitarian fails to reach the significance level (F=3.06; p>0.08) (Table 38). This means that birth order and family size when seen in unison do not impact a college student’s choice of these jobs in any way. Thus, the differences on the choice of this career between only, first, second, and third borns were not significantly different in one, two, and three child families.

6.2.4 (viii) EDUCATION OCCUPATIONAL FIELD:

Looking at the sample of the present study, college students have given their preference towards the educational occupational field; the sten scores being in the range of 4-6 indicate it to be a moderate preference. This implies that they like it as a career choice but at the same time keep their options open as they are not sure if they’ll pursue it further or not; the prestige, position, and respect being a few luring factors. Also, the two-way Analysis of Variance (ANOVA) indicates that this choice is influenced by Birth order, but not by Family size, and their interaction.
FAMILY SIZE

Main effect

The two-way ANOVA’s “main effect of family size” on education occupational field was not significant (F=0.79; p > .37) (table 38). This implies that the means of the three family sizes (small, medium, and large size families) do not differ significantly from each other. (Table 55; figure 41).

Thus, the results rejected the proposed hypothesis that “the preference of college students in medium size families would be higher for educational careers than the other two family sizes.”

However, a probe into the mean trend of ‘education’ related careers shows that the mean score of large size families (M=12.37) was the highest, followed by the mean of small size families (M=12.33), and the lowest being the medium size families (M=11.63) being the lowest.

The results clearly indicate that the chances of taking up occupations like professor, lecturer, nursery teacher, college principal, kindergarten teacher, high school teacher, art/music teacher, history teacher, primary teacher, school principal, mathematics/physics teacher, science teacher, economics teacher, English teacher etc. are similar for small, medium, and large size families.

SMALL, MEDIUM, AND LARGE SIZE FAMILIES ARE NOT SIGNIFICANTLY DIFFERENT IN THE PREFERENCE FOR EDUCATIONAL OCCUPATIONS:

The attachment theory (Bowlby, 1980) posited that the role of attachment would comfort in times of stress, and a lack of felt security would lead to increased distress. The present research refutes this notion and compels one to reconsider the varying degrees of attachment as per the varying family sizes. It appears that nowadays, regardless of the sizes, families are bonded well these days with a lot of sharing of thoughts and ideas happening amongst them. This gives the children an environment to grow and develop freely and opt equally for education related careers.
like that of professor, lecturer, nursery teacher, college principal, kindergarten teacher, high school teacher, art/music teacher, history teacher, primary teacher, etc.

The **resource dilution theory** (Blake, 1981) focuses on the fact that as the family size increases, the resources divide and dilute amongst the children, meaning thereby that larger the family, lesser the resources each child gets and as a result affects their career choice decisions. But going by the present study’s findings, these claims are refuted as regardless of the family size; children are equally opting for education related careers. This could be because families are not as large as used to be in earlier times (the conception of the theory being in 1981). It also occurs that parents, regardless of the size of family, are encouraging the children to pursue noble professions like that of a school principal, mathematics/physics teacher, science teacher, economics teacher, English teacher etc. Thus it is noteworthy to mention that these theories need to be reworked upon as per the current scenario.

**Empirical researches** have also posed a somewhat different trend. Palmer (1981) conducted a study to explore the relationship between birth order and occupational choice. In particular, if an occupation such as teaching is chosen on the basis of birth order and personality traits, it would be expected that first borns, because they are compliant and person oriented, would choose a teaching career. The two main hypotheses proposed were: 1) that there is no significant difference in the relationship between birth order and occupational choice, and 2) that first borns are engaged in compliant person oriented occupations as frequently as later borns. The sample consisted of 209 families. Analysis of data was accomplished by chi square to determine differences between small families and large families. When the relevant variables were appropriately considered, there was no meaningful relationship between birth order and vocational interest. The study suggests that tighter controls be used in further investigations and that ordinal position differences within the family rather than independent characteristics be used to determine vocational choice.

*The present results hold that family size is not a significant factor of differences in choice of educational occupational field among college students.*
BIRTH ORDER

Main effect

The two-way Analysis of variance (ANOVA) indicates that the main effect of birth order shows significant differences on the choice of education related careers of college students (F=9.28; p<.01) (table 38). The results imply that the means of the four birth order (only, first, second and third borns) differ significantly from each other. (Table 56; figure 42).

The multiple comparison (Scheffe’s post hoc test) further revealed that differences in means of education related careers are significant across the four birth orders i.e. only (M=12.33, first (M=13.33), second (M=10.52), and third borns (M=12.68).

The multiple comparisons (Scheffe’s post-hoc test) showed the following differences:

a) Mean of the first borns (M= 13.33, St= 6) is significantly higher than the second borns (M=10.52, St= 4).

b) Mean of the first borns (M=15.91, St= 6) is significantly higher than all the other birth orders.

c) Mean of the second borns (M=10.52, St= 4) did not differ significantly and fell in the lowest range of preference for on the education related occupation careers.

Thus, this implies that only child, first borns, second born, and third born are significantly different from each other on the choice of careers like professor, lecturer, nursery teacher, college principal, kindergarten teacher, high school teacher, art/ music teacher, history teacher, primary teacher, school principal, mathematics/ physics teacher, science teacher, economics teacher, English teacher etc.

Based on the research investigation, the results rejected the hypothesis that “preference of middle-borns would be higher for educational careers than the only, first, and last-borns.”
Various theoretical orientations, models, and research framework also lend support to the findings of the present study which are discussed in the ensuing sections.

**ONLY, FIRST, AND THIRD BORNS HIGH AND SECOND BORNS LOW ON PREFERING EDUCATION RELATED OCCUPATIONS:**

Adler (1870-1937) proposed a theoretical paradigm regarding the personality make-up of children in regard to the birth order they are born in. In reference to career choices, there is a significant difference in the paths of the early born and the later-born children. The first born is overwhelmingly more interested in intellectual and cognitive aspects of society, than the later born children. Due to the fact that the first borns interact with parents more frequently in comparison with other children, they are more likely to show interest in academic pursuits. First born children often pursue interests in typically prestigious and professional careers such as law or medicine. However, later-born children are more likely to invest themselves in a more creatively-oriented field in which they can utilize their imaginations (USA Today, 2002, p.11).

The **resource dilution model**, proposed by Blake (1981) and elaborated by Downey (2001) asserts that the parental resources are divided by the number of children in a family and the quality of their life drops as the family expands. Therefore, the early borns tend to get the maximum of their parents’ time, money, affection, love and care; and thus enter the world of secure and lucrative professions of today’s times like that of a lecturer, primary teacher, professor, high school teacher. Also teaching, which has ever since been dominated by the females in terms of gender, does tend to play a role. Thus, gender differences might also be found to play a role if further delved into.

Sulloway in his book Born to Rebel (1996) contended that firstborn children are more responsible, competitive, and conventional, while laterborns are more playful, cooperative, and rebellious. Also, Sulloway’s rationale of niche-picking within the family is compelling which explains that because of their greater age, the
first-borns tend to occupy the niche of a surrogate parent, leading them to develop a sense of parent-like responsibility and to emulate other adult behaviors. Thus, it makes the first borns all the more appropriate and fit to opt for professions demanding a lot responsibility, at the same time commanding respect and value which they get from the services of a college principal, professor, lecturer, nursery teacher, etc.

Moreover, the researcher delved upon an additional finding about the personality orientations related to and revealed through the choice of career of the college students. The personality theorists have divulged that college students preferring the education related occupations are generally busy in activities which involve being near or at the center of group endeavors, and solving problems through discussions with others, or by arranging relationships between people so as to enlighten, serve, or train them. They are gentle, kind, and sensitive to other persons’ needs. They are emotionally involved with the group they choose to interact. They are generally spontaneous, natural, and content with what they can have or could have. Their need for extension, i.e. to be participative and altruistic is extremely high. These personality orientations have been borrowed from Holland’s theory of career choices (1973) according to which the occupational world is represented by complex personality orientations.

Furthermore, Roe's (1956) ‘The psychology of occupations’ (New York: Wiley) emphasized the importance of family relationships and emphasized the role of early childhood experiences and parenting styles as the precursors to adult personality. She divided all occupations into person-oriented (e.g., teaching) and non-person-oriented careers (e.g., science). As per the present study’s findings, the early childhood experiences and parenting styles towards the first born children make them mature since they always tend to interact with elderly in the family and grow up into confident, assertive, decisive, and mature adults. Going in sync with Roe’s theory, the first borns, also as per their personality orientations, prefer going into jobs that require them to interact with people and are more person-oriented and not machine-oriented. As a result, they tend to opt more for jobs like that of a lecturer, nursery teacher, college principal, kindergarten teacher, high school teacher, art/music teacher, history teacher, primary teacher, etc.
Empirical researches have also revealed similar findings. Bryant (1987) examined the relationship between vocational interest and birth order in a sample of firstborn and lastborn female high school students, ages 16-17 years. The results revealed significant differences in various aspects of vocational preference between firstborns and lastborns, including: higher levels of optimism and self-esteem among firstborns, higher levels of interest in academic careers, working with others, and management opportunities among firstborns.

Collins (2006) surveyed a sample of 100 Providence College students, a private liberal arts New England College and asked them to report their birth order, perceived traits, career choice, and college major. The sample included 38 males and 63 females. Participants were categorized by birth order as well: 6% were only children, 51% were first children, 12% were middle born children, and 31% were last born children. It was hypothesized that in the absence of the gender variable, first born children were expected to favor career choices that involve business or mathematics. Only children often behave as first born children and will therefore they choose majors similar to first-borns in college. Middle children choose majors such as psychology, sociology, and social work. However, the youngest children in a family are thought to be the most creative and innovative thinkers. These children often find careers in which abstract thought and creativity is valued such as teaching, studio art, and the performance arts. Unfortunately there were very few statistically significant findings. There was no relationship between birth order and college major; however there was a statistically significant relationship between Factor 2, which is a factor analyzed grouping of personality traits and education majors. The Factor 2 group of traits is creative and imaginative. These traits are typically last child personality traits which support the hypothesis that last born children tend to choose education as a college major and career choice. Results revealed that psychological birth-order may play a significant role/responsibility in shaping a child’s career choice.

The present results hold that birth order is not a significant factor of differences in choice of educational occupational field among college students.
INTERACTION EFFECT

The interaction between birth order and family size on occupations in education fields fail to reach the significance level (F=0.28; p>0.59) (Table 38). This means that birth order and family size when seen in unison do not impact a college student’s choice of these jobs in any way. Thus, the differences on the choice of this career between only, first, second, and third borns were not significantly different in one, two, and three child families.

_Pictorial presentation of significant differences of Family Size and Birth Order on Career Choice Patterns_

<table>
<thead>
<tr>
<th>FAMILY SIZE</th>
<th>PSYCHOLOGICAL VARIABLES</th>
<th>BIRTH ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small, Medium, and Large sized families are not significantly different on the preference for Administrative occupations.</td>
<td><strong>Administrative</strong></td>
<td>Only and First borns high, Third borns moderate and Second borns low on the preference for administrative occupations.</td>
</tr>
<tr>
<td>Small, Medium, and Large size families are not significantly different on the preference for occupations in Defence.</td>
<td><strong>Defence</strong></td>
<td>Only, First, Second, and Third borns are not significantly different in the preference for occupations in Defence.</td>
</tr>
<tr>
<td>Small, Medium, and Large size families are not significantly different on the preference for occupations in Sports.</td>
<td><strong>Sports</strong></td>
<td>Only, First, Second, and Third borns are not significantly different in the preference for occupations in Sports.</td>
</tr>
<tr>
<td>Small, Medium, and Large size families are not significantly different in the preference for Creative occupations.</td>
<td><strong>Creative</strong></td>
<td>Only, First, Second, and Third borns are not significantly different in the preference for Creative occupations.</td>
</tr>
<tr>
<td>Small, Medium, and Large size families are not significantly different in the preference for Performing occupations.</td>
<td><strong>Performing</strong></td>
<td>Only, First, Second, and Third borns are not significantly different in the preference for Performing occupations.</td>
</tr>
</tbody>
</table>
Small, Medium, and Large size families are not significantly different in the preference for Expressive occupations. **Expressive** First and Third borns high, and Only and Second borns low on preferring Expressive occupations.

Small, Medium, and Large size families are not significantly different in the preference for Humanitarian occupations. **Humanitarian** Only, First, Second, and Third borns are not significantly different in the preference for Humanitarian occupations.

Small, Medium, and Large size families are not significantly different in the preference for Educational occupations. **Educational** Only, First, and Third borns high and second borns low on preferring Education related occupations.

**FINAL CONSIDERATIONS**

In the present research, mixed patterns have emerged. While some of the results are directional, some fail to meet the researchers’ expected mindsets; whereas some leave room open for further exploration. The following section tries to explain the concrete observations which can be derived about the college students in context to family size and birth order.

**INTELLIGENCE**

**Family size**

No significant differences on intelligence were found in terms of family sizes (i.e. small, medium, and large) implying thereby that family size does not have an impact the college students’ intelligence.

**Birth order**

There were no birth order differences on the intelligence of the college students. Thus, the results indicate that the only, first, second, and third borns do not differ on their intellectual capacities.
MENTAL HEALTH CONDITIONS

Significant differences have emerged on different components of mental health conditions and revealed the following trends in terms of family size and birth order:

Family Size

The results indicate that relatively small size families are pro mental health conditions i.e. high self-esteem and low state anxiety among the college students.

Birth order

Significant differences have emerged on various components of mental health conditions in terms of birth order.

* Only borns: indicate mixed trends on mental health conditions viz. high negative mental health conditions (depression and state- anxiety) and high positive mental health conditions (self- esteem).

* First borns: are relatively low on mental health conditions viz. high depression, high anxiety, and low self- esteem than other borns.

* Second borns: are relatively good on mental health conditions i.e low depression, low anxiety, and high self- esteem than other borns.

* Third borns: have relatively high depression, low anxiety, and low self- esteem than other borns.

The results thus indicate that the second borns are relatively good on mental health and first borns are relatively low on mental health, whereas the other birth orders have revealed mixed trends.

PARENT- CHILD RELATIONSHIP

Significant differences have emerged on different sub variables of parent child relationship.
Family size

The results indicate that small size families provide a relatively favorable familial environment promoting protecting, rejecting, and loving parent child relationships than the other two family sizes.

Birth order:

Significant differences have emerged on different sub variables of parent-child relationship in terms of birth order.

- Only borns: are relatively high on protective, loving, and rejecting parent-child relationships than the other borns.
- First borns: are relatively moderate on protecting, loving, and rejecting parent-child relationships than the other borns.
- Second borns: are relatively low on protecting, loving, and rejecting parent-child relationships than the other borns.
- Third borns: are relatively moderate on protecting, loving, and rejecting parent-child relationships than the other borns.

The results thus indicate that the only borns share a relatively good parent-child relationship and second borns are relatively low on it, whereas other birth orders have revealed mixed trends.

Career Choice Patterns

Family size:

No significant differences emerged in terms of family size. Thus, it can be concluded that family sizes do not differ in their choice of preferring different occupational fields.

Birth order:

Significant differences have emerged on various dimensions of career choice patterns in terms of birth order.
• Only borns: have a relatively high preference for administrative and educational occupational fields than other borns.

• First borns: have a relatively high preference for administrative, expressive, and educational fields than other borns.

• Second borns: have a relatively low preference for administrative, expressive, and educational fields than other borns.

• Third borns: have a relatively moderate preference for administrative occupations, and high preference for expressive, and educational occupational fields than other borns.

Thus, it can be concluded that the only and first borns have a relatively high preference for administrative, expressive and educational fields, while the second borns have a weak preference for these careers.

To conclude, it can be said that of all the study variables, the highest supportive factors/psychological variables in terms of family size are: mental health conditions and parent-child relationship.

In terms of birth order: the mental health conditions, parent-child relationship and the career choice patterns.