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# Impact of Personal, Parental and Familial Characteristics on Sibling Relationship of Twins

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### Authors' contributions

This work was carried out in collaboration between both authors. Author MKM conducted the study, collected respondents information and related researches, performed the statistical analysis, and wrote draft of the manuscript. Author SI designed plan for the study and guide the research work and corrected draft manuscript.

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## ABSTRACT

The research on "Impact of personal, parental and familial characteristics on sibling relationship of twins" was conducted during 2016. The study consists 39 pairs of twins. The respondents selected for the study were belonging to 10-24 years age range from Hubli and Dharwad cities. The self structured schedule was used to gather personal information. Socio-economic status of their family was assessed by SES scale developed by Agarwal et al. Zygoty was assessed based on the physical similarities like height, weight, skin color, hair color etc. The sibling relationship was assessed by using Sibling Relationship Checklist (SRC) developed by Lord and Borthwicks. The data was analyzed by using following statistical tools like frequency and percentage, Karl Pearson's product moment correlation coefficient and Chi square. The results revealed that majority of monozygotic and dizygotic twins were had healthy sibling relationship (93.80 % and 76.10 % respectively). Age factor was negatively significantly correlated with sibling relationship of twins indicating that increase in age of the twins increase in the sibling relationship. Ordinal position is not much effecting because they born at same time. There was non-significant association was found, however there was highly significant relationship was observed between family size and sibling

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relationship of twins, indicating that small family helped to possess healthy sibling relationship among twins. Findings showed that there was no significant association and relation between parent's education and occupation with sibling relationship. And there was no association and relation was observed between socio-economic status of the family and sibling relationship of twins. However genetic relatedness, same age individuals and sharing of common environment before and after birth, same home and school environment may add to healthy sibling relationship among twins.

*Keywords: Twins and sibling relationship.*

## 1. INTRODUCTION

Twins are two offspring's produced by the same pregnancy. Twin births are relatively rare event across the human population. The fraternal or dizygotic (DZ) and identical or monozygotic (MZ) are the two types of twins. The difference between the two types of twins depends on the fertilization of egg after conception. When one fertilized ovum splits into two and shares a single placenta they called as monozygotic twins and also known as identical twins. When separate two ova are fertilized and sharing different placenta they called as dizygotic/ non-identical/fraternal twins. This difference in fertilization results in sharing an average of 50 per cent of their genetic material among dizygotic twins (much like non-twin full siblings) and the sharing 100 per cent of their genetic material among monozygotic twins [1].

A close relationship with sibling is something to value. Sibling relationship has a unique contribution to make our understandings of family relationships as a whole. Socio-emotional development includes the child's experience, expression and management of emotions and the ability to establish positive and rewarding relationships with others [2]. For twins however, the expectations are a lot higher due to the beliefs implicit on the twin. Many assume throughout their lives, twins will feel closer to each other than anyone else.

The nature and importance of sibling relationships vary for individuals, depending on their own circumstances and developmental stage. While twinship may be the closest relationship possible between two people. The close twin relationship has been called by names such as co-twin dependence, twinning bond and twinning reaction [3]. Hence the relationship between twins is something differs from non twin sibling relationship.

Twin relationship is a unique phenomenon that has a profound impact on the upbringing and

development of the twin children. Being born together and sharing the same milestones throughout life is not something that most of us singletons will ever truly relate to. Twins are likely to behave like best friends. Twins do indeed share something special. It seems that there is even varying degrees of closeness depending on the type of twin pair. Identical twin girls appear to have the strongest bond than the fraternal boy/girl. This makes sense as twins; tend to forge the strongest relationships with each other. Thus for twin children, the social context of growing up alongside a sibling of the same age may alter normal patterns of interactions with others, within and beyond the family context. Thus, the present study was conducted to explore "Impact of personal, parental and familial characteristics on sibling relationship of twins".

## 2. MATERIALS AND METHODS

The present study was conducted among 39 twin pairs (16 monozygotic pairs and 23 dizygotic pairs) and from Hubli and Dharwad cities. A snow ball sampling method was used for the selection of unmarried twins for the study (Snowball sampling method is non random sampling method in which the individuals selected to be studied recruit new participants from among their circle of acquaintances). The respondent's age ranged from 10 to 24 years. The self structured schedule was used to gather personal information like education, ordinal position, parental education and occupation. Socio-economic status of their family was assessed by SES scale developed by Agarwal et al. [4].

### 2.1 Socio-economic Status Scale (SES)

The SES scale developed by Agarwal et al. [4], consists of 22 which assess caste, education, occupation and monthly income from all sources, type of house and location, family possessions and possessions of earning members in the family, number of children and possessions of

agriculture and non-agriculture land along with animals and social status of the family. The scores were given for the different dimensions and added to obtain total score. The SES has been classified as mentioned.

Status	Total score
Upper high	>76
High	61-75
Upper middle	46-60
Lower middle	31-45
Poor middle	16-30
Very poor	<15

Zygoty was assessed based on the physical similarities like height, weight, skin color, hair color etc. If the twins among a pair has more or almost similar in their height, weight, head, chest circumferences, arm and leg length, palm and foot length, skin color, hair color etc then they are going to be considered as monozygotic twins.

Types	Other names	Gender
Monozygotic twins	Identical twins	Always they are same sex twins
Dinozygotic twins	Non-identical/ fraternal twins	They may be same or opposite sex

Sibling Relationship Checklist (SRC) developed by Lord and Borthwicks [5] was used to assess the sibling relationship among twins and singletons. The checklist can be used for observing and describing in concrete terms how siblings relate to each other. It was recommended that it be used in conjunction with other sibling assessment. Checklists first and second of the SRC contain a series of 13 specific questions numbered A-M. Questions A-I represent positive behaviors (e.g. Defends and protects the sibling) and questions J-M represent negative behaviors (e.g. shows hostility or aggression). It is a three point likert scale (1= always, 2= sometimes true and 3= never). The total score ranges from 13 to 39. A score of 13 to 26 indicates healthy sibling relationship and 27 to 39 indicates unhealthy sibling relationship.

Dimensions	Scores
Healthy relationship	13-26
Unhealthy relationship	27-39

The data was analyzed by using following statistical tools [6] like frequency and percentage, Karl Pearson's product moment correlation coefficient and Chi square. **Frequency and percentage** were calculated to interpret the demographic characteristics of twins and singletons and their socio-emotional behavior problems, sibling relationship and nutritional status. **Karl Pearson's product moment correlation coefficient** was used to assess the relationship between socio-emotional behavior and sibling relationship with dependent variables like age, education, ordinal position, family size, parent's education and occupation, socio-economic status.

$$r = \frac{n S_{xy} - S_x S_y}{\sqrt{\{n S_x^2 - (S_x)^2\} \{n S_y^2 - (S_y)^2\}}}$$

Where,

- r = simple correlation coefficient
- x = Independent variable
- y = Dependent variable
- S<sub>x</sub> = Sum of 'x' values
- S<sub>y</sub> = Sum of 'y' values
- S<sub>x</sub><sup>2</sup> = Sum of squares of 'x' values
- S<sub>y</sub><sup>2</sup> = Sum of squares of 'y' values
- S<sub>xy</sub> = Sum of product of 'xy' values
- n = Number of pairs of observations

- a) **Chi square:** A non-parametric test was applied to determine the association between sibling relationship/ socio-emotional behavior problems and independent variables such as age, education, ordinal position, parent's education/occupation, size of family and socio-economic status. Wherever the frequency was less than five using the formula by Lawal and Upton (1984) test of independence was applied to determine the association between dependent and independent variables using the formula:

$$\text{Modified } \chi^2 = [1-L/N (1-d \frac{1}{2})] \times \chi^2 d, 0.5 \text{ at } 5\% \text{ level}$$

Where,

$\chi^2$  (0.05) = table (2 value at 'd' degrees of freedom for 5 per cent level of significance.

n = sample size.

$$\chi^2 = \sum_{i=1}^r \sum_{j=1}^c \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Where,

$O_i$  = Observed frequency

$E_i$  = Expected frequency

The  $\chi^2$  value was compared with table value for (r-1) (c-1) degree of freedom, r denoting no of rows and c denoting no of columns in contingency table.

The objective of the study is to know the relationship between personal, parental and familial characteristics with socio-emotional behavior of twins.

### 3. RESULTS

The personal characteristics of the twins included gender and age are presented in Table 1. Among monozygotic twins 56.25 per cent are females and remaining (43.75%) males. Among dizygotic twins 56.52 per cent are males and remaining females.

With respect to age, among monozygotic twins, 43.75 per cent of them belonged to adolescents (13-18 years) group and 31.25 per cent were belonged to young adulthood (19-24 years) group and 25 per cent belonged to late childhood (10-12 years) group. Among dizygotic, 52.18 per cent of them belonged to adolescents group followed by 30.43 per cent were in late childhood and 17.39 per cent were in young adulthood group.

With regard to ordinal position, 81.25 per cent are later borns and 18.75 per cent were first borns among monozygotic twins. And 78.27 per cent were later borns and 21.73 per cent are first borns among dizygotic twins.

In case of respondent's education, 56.25 per cent of monozygotic twins were completed their high school level of education, followed by 25 per cent were graduated, 12.5 per cent of them had below graduation education level and 6.25 per cent were possessed professional degree. Among dizygotic twins, 56.52 per cent of them completed high school level of education, followed by 26.09 per cent of them were had below graduation level, 13.04 per cent and 4.35

per cent of them had degree and professional qualification respectively.

Results related to distribution of twins according to parental and familial characteristics are presented in Table 1.2 With respect to father's education, it was found that among monozygotic twins, 56.25 per cent of the their fathers were possessed graduation followed by 25 per cent in below graduation (PUC) level and 18.75 per cent of them were had high school level of education. In dizygotic twins, 52.17 per cent of their fathers were completed their degree followed by 34.79 per cent had high school level of education, 8.69 per cent were in below graduation level and only 4.35 per cent was possessing professional degree. With respect to mother's education, it was found that in monozygotic twins, 43.75 per cent of the mothers were in below graduation (PUC) education level, followed by 25 per cent were graduated and 31.25 per cent of them had high school level of education. In dizygotic twins also, majority (52.17 %) of mothers were possessed below graduation education level followed by 26.08 per cent had high school level of education, 17.39 per cent were degree holders and 4.35 per cent were had professional qualification.

When father's occupation was taken into account, it was found that, majority of the fathers were (68.75 %) self-employed among monozygotic twins followed by 31.25 per cent were having their service in private sector. In case of dizygotic twins, 39.13 per cent were having their service in private sector, 30.43 per cent were self-employed, 13.05 per cent of them had service in government/public sector and 17.39 were engaged in business activity. With regard to mother's occupation, among monozygotic twins, it was found that majority (81.25 %) of their mothers were housewives followed by 12.50 per cent having their service in government/public sector and 6.25 per cent having their service in private sector. In case of dizygotic twins, more than half (60.86 %) of their mothers were housewives followed by 21.75 per cent were working in government/public sector and 17.39 per cent working in private sector/business.

With respect to caste 62.50 per cent of families were belonged to OBC category, 31.25 per cent found having upper caste and only 6.25 per cent were dalits among monozygotic twins. Similarly 69.56 per cent of families were belonged to OBC category, 17.39 per cent were dalits and 6.25 per

cent were in upper caste category among dizygotic twins.

With respect to type of family, among monozygotic twins, it was found that majority of them 87.5 per cent of monozygotic, 73.92 of dizygotic and 84.17 per cent of singletons belonged to nuclear family. While 12.5 per cent of

monozygotic, 16.06 per cent of dizygotic and 12.82 per cent of singletons were belonged joint family structure. Similar trend was observed in overall population of the study. With respect to size of family, majority of monozygotic and dizygotic (62.50 % and 52.17 % respectively) were having large family size followed by small family size (37.50 % and 47.83 % respectively).

**Table 1. Demographic characteristic of twins**

**Table 1.1. Personal characteristics**

Sl. no	Characteristics	Twins (n= 39 pairs)		Total (78)
		Monozygotic (n=32)	Dizygotic (n=46)	
1	<b>Gender</b>			
	Male	14 (43.75)	26 (56.55)	40 (51.28)
	Female	18 (56.25)	20 (43.48)	38 (48.17)
2	<b>Age (years)</b>			
	Late childhood (10-12 yrs)	8 (25.00)	14 (30.43)	22 (28.20)
	Adolescents (13- 18 yrs)	14 (43.75)	24 (52.18)	38 (48.64)
	Young adulthood (19-24 yrs)	10 (31.25)	8 (17.39)	18 (23.04)
3	<b>Ordinal position</b>			
	First born	6 (18.75)	10 (21.73)	16 (20.48)
	Later born	26 (81.25)	36 (78.27)	62 (79.36)
4	<b>Education</b>			
	Professional qualification of with technical degrees or diplomas	2 (6.25)	2 (4.35)	4 (5.12)
	Post graduation (non technical incl. Ph.D.)	-	-	-
	Graduation (B.A, B.com, B.Sc.)	8 (25.00)	6 (13.04)	14 (17.92)
	10 <sup>th</sup> class pass but < graduation	4 (12.50)	12 (26.09)	16 (20.48)
	Primary pass but < 10th	18 (56.25)	26 (56.52)	44 (56.32)
	< primary but attended school for at least one	-	-	-
Just literate but no schooling	-	-	-	
Illiterate	-	-	-	

Figure in parenthesis indicate percentage

**Table 1.2. Parental and familial characteristics**

Sl. no	Characteristics	Twins (n=39 pairs)		Total
		Monozygotic (n=16)	Dizygotic (n=23)	
1	<b>Father's education</b>			
	Professional qualification of with technical degrees or diplomas	-	1 (4.35)	1 (1.28)
	Post graduation (non technical incl. Ph.D)	-	-	-
	Graduation (B.A, B.com, BSc)	9 (56.25)	12 (52.17)	21 (26.88)
	10 <sup>th</sup> class pass but < graduation	4 (25.00)	2 (8.69)	6 (7.68)
	Primary pass but < 10th	3 (18.75)	8 (34.79)	11 (14.08)

Sl. no	Characteristics	Twins (n=39 pairs)		Total
		Monozygotic (n=16)	Dizygotic (n=23)	
	< primary but attended school for at least one year	-	-	-
	Just literate but no schooling	-	-	-
	Illiterate	-	-	-
<b>2</b>	<b>Mother's education</b>			
	Professional qualification of with technical degrees or diplomas	-	1 (4.35)	1 (1.28)
	Post graduation (non technical incl. Ph.D)	-	-	-
	Graduation (B.A, B.com etc.)	4 (25.00)	4 (17.39)	8 (10.24)
	10 <sup>th</sup> class pass but < graduation	7 (43.75)	12 (52.17)	19 (24.32)
	Primary pass but < 10 <sup>th</sup>	5 (31.25)	6 (26.08)	11 (14.08)
	< primary but attended school for at least one year	-	-	-
	Just literate but no schooling	-	-	-
	Illiterate	-	-	-
<b>3</b>	<b>Father's occupation</b>			
	Service in central/state/public undertaking company > 20 persons or self employed professionals	-	3 (13.05)	3 (3.84)
	Service in private sector or independent business	-	4 (17.39)	4 (5.13)

Sl. no.	Characteristics	Twins (n=39 pairs)		Total
		Monozygotic (n=16)	Dizygotic (n=23)	
	Service at shops, home, transport, own cultivation of land	5 (31.25)	9 (39.13)	11 (14.08)
	Self employed eg, shops, or pretty business with income > 5000	11 (68.75)	7 (30.43)	18 (23.04)
	Self employed with income < 5000 (laborer)	-	-	-
	None of the family member is employed	-	-	-
<b>4</b>	<b>Mother's occupation</b>			
	Service in central/state/public undertaking company > 20 persons or self employed professionals	2 (12.50)	5 (21.75)	7 (8.96)
	Service in private sector or independent business	-	-	-
	Service at shops, home, transport, own cultivation of land	1 (6.25)	4 (17.39)	6 (7.68)
	Self employed eg, shops, or pretty business with income > 5000	-	-	-
	Self employed with income < 5000 (laborer, house wife)	13 (81.25)	14 (60.86)	27 (34.56)

	None of the family member is employed	-	-	-
<b>5</b>	<b>Caste</b>			
	Upper caste	5 (31.25)	3 (13.05)	8 (10.24)
	OBC	10 (62.50)	16 (69.56)	26 (33.28)
	Dalits	1 (6.25)	4 (17.39)	5 (6.40)
	Tribals	-	-	-
<b>6</b>	<b>Type of family</b>			
	Nuclear family	14 (87.5)	17 (73.92)	34 (39.68)
	Joint family	2 (12.5)	6 (26.08)	8 (10.24)
<b>7</b>	<b>Size of family</b>			
	Small $\leq$ 4	6 (37.50)	11 (47.83)	16 (20.48)
	Large $\geq$ 5	10 (62.50)	12 (52.17)	24 (28.16)

Table 1.3. Socio-economic status of twins

Categories	Twins (n=39 pairs)		Total
	Monozygotic	Dizygotic	
	(n=16)	(n=23)	
Upper high	-	-	-
High	3 (18.75)	4 (17.39)	7 (8.96)
Upper middle	4 (25.00)	3 (13.05)	7 (8.96)
Lower middle	9 (56.25)	16 (69.56)	25 (32.00)
Poor middle	-	-	-
Very poor	-	-	-

Figure in parenthesis indicates percentage

With respect to socioeconomic status of the family, it was found that, in monozygotic twins, 56.25 per cent were in lower middle class, 25 per cent were in upper middle class and 18.75 per cent were in high socio-economic status. Among dizygotic twins, 69.56 per cent of them were in lower middle class, 17.39 per cent were in high socio-economic status and 13.05 per cent of them were in upper middle class.

Distribution of monozygotic and dizygotic twins by sibling relationship are presented in the Table 2. It was found that majority of monozygotic and dizygotic twins were had healthy sibling relationship (93.80 % and 76.10 % respectively). Whereas, 6.20 per cent of monozygotic and 23.10 per cent of dizygotic twins were had unhealthy relationship. On the whole 83.30 per cent indicating healthy sibling relationship and significant association between monozygotic and dizygotic twins.

### 3.1 Relationship of Personal Characteristics with Sibling Relationship of Twins

The relationship of age with sibling relationship of twins is presented in the Table 3 Among twins with majority of them (18.60 to 88.80 %) were having healthy relationship and very few (11.20 to 18.40 %) of them were having unhealthy relationship in the age group of 10 to 24 years. However there was no significant association but age was negatively significantly correlated with sibling relationship of twins indicating that increase in age of the twins increase in the sibling relationship.

The relationship of education with sibling relationship in both twins is presented in Table 4. Among twins, in all the levels of education majority of them (77.30 to 88.80 %) showed healthy sibling relationship and 11.20 to 22.70

per cent of them had unhealthy sibling relationship. There was no association and relation was observed between education level and sibling relationship of twins.

Table 5 depicts the relationship of ordinal position with sibling relationship of twins. In case of twins

first borns as well as later borns (82.30 to 87.50 %) indicating healthy sibling relationship and remaining were (12.50 to 17.70 %) indicating unhealthy sibling relationship. There was no association and relationship was observed between ordinal position and sibling relationship of twins.

**Table 2. Distribution of monozygotic and dizygotic twins by dimensions of sibling relationship**

Zygosity	Sibling relationship		Total	Modified $\chi^2$
	Healthy	Unhealthy		
Monozygotic	30 (93.80)	2 (6.20)	32 (100.0)	4.24*
Dizygotic	35 (76.10)	11 (23.10)	46 (100.0)	
Total	65 (83.30)	13 (16.70)	78 (100.0)	

**Table 3. Relationship of age with sibling relationship of twins**

Age	Sibling relationship		Total	Modified $\chi^2$	r-value
	Healthy	Unhealthy			
Twins	10- 12 years	18 (81.80)	4 (18.20)	4.01 <sup>NS</sup>	-0.22*
	13-18 years	31 (81.60)	7 (18.40)		
	19-24 years	16 (88.80)	2 (11.20)		

Figure in parenthesis indicates percentages

NS - Non-significant

\* - Significant at .05 level

**Table 4. Relationship of education with sibling relationship of twins**

Education	Sibling relationship		Total	Modified $\chi^2$	r-value
	Healthy	Unhealthy			
Twins	Primary	18 (81.90)	4 (18.10)	4.71 <sup>NS</sup>	0.17 <sup>NS</sup>
	Above primary	17 (77.30)	5 (22.70)		
	Above 10 <sup>th</sup> class and < Graduation	14 (87.50)	2 (12.50)		
	Graduation and above	16 (88.80)	2 (11.20)		

Figure in parenthesis indicate percentage

NS - Non-significant

**Table 5. Relationship of ordinal position with sibling relationship of twins**

Ordinal position	Sibling relationship		Total	Modified $\chi^2$	r-value
	Healthy	Unhealthy			
Twins	First born	14 (87.50)	2 (12.50)	2.34 <sup>NS</sup>	0.03 <sup>NS</sup>
	Later born	51 (82.30)	11 (17.70)		

Figure in parenthesis indicates percentages

NS - Non-significant

\* - Significant at .05 level



### 3.2 Relationship of Parental and Familial Characteristics with Sibling Relationship of Twins

Table 6 indicated the relationship of family size with sibling relationship of twins. Among twins, it was such that majority of respondents from small family had healthy relationship (88.20 %) followed by unhealthy relationship (11.80 %). Majority of twins belonging to large family also had healthy relationship (79.60 %) followed by unhealthy relationship (20.40 %). There was non-significant association was found, however there was highly significant relationship was observed between family size and sibling relationship of twins.

An examination of Table 7 illustrated the relationship between father's education and sibling relationship of twins. Among twins, in all the levels of father's education 75 to 84.10 per cent of them in healthy sibling relationship and 15.90 to 25 per cent in unhealthy sibling relationship. There was no association as well as relation between father's educations and sibling relationship of twins. The values in the Table 8 depicted the relationship mother's education with relationship of twins. In all the levels of mother education 70 to 91.70 per cent of twins had healthy sibling relationship and 8.30 to 30 per cent of them had unhealthy sibling relationship. Hence there was no association and relation between mother's educations and sibling relationship of twins.

**Table 6. Relationship of family size with sibling relationship of twins**

					(N=78)	
	Family size	Sibling relationship		Total	Modified $\chi^2$	r-value
		Healthy	Unhealthy			
Twins	Small	30 (88.20)	4 (11.80)	34 (100.0)	2.04 <sup>NS</sup>	0.31**
	Large	35 (79.60)	9 (20.40)	44 (100.0)		

Figure in parenthesis indicates percentages

NS - Non-significant

\* \*- Significant at .01 level

**Table 7. Relationship of father's education with sibling relationship of twins**

					(N=78)	
	Father's education	Sibling relationship		Total	Modified $\chi^2$	r-value
		Healthy	Unhealthy			
Twins	Primary	3 (75.0)	1 (25.0)	4 (100.0)	0.67 <sup>NS</sup>	0.13 <sup>NS</sup>
	Above primary	15 (83.30)	3 (16.70)	18 (100.0)		
	Above 10 <sup>th</sup> class and < Graduation	10 (83.30)	2 (16.70)	12 (100.0)		
	Graduation and above	37 (84.10)	7 (15.90)	44 (100.0)		

Figure in parenthesis indicates percentages

NS - Non-significant

**Table 8. Relationship of mother's education with sibling relationship of twins**

					(N=78)	
Respondents	Mother's education	Sibling relationship		Total	Modified $\chi^2$	r-value
		Healthy	Unhealthy			
Twins	Primary	7 (70.0)	3 (30.0)	10 (100.0)	2.62 <sup>NS</sup>	0.17 <sup>NS</sup>
	Above primary	11 (91.70)	1 (8.30)	12 (100.0)		
	Above 10 <sup>th</sup> class and < Graduation	33 (86.80)	5 (13.20)	38 (100.0)		
	Graduation and above	14 (77.80)	4 (22.20)	18 (100.0)		

Figure in parenthesis indicates percentages

NS - Non-significant

The relationship of father's occupation with sibling relationship of twins is depicted in Table 9. It was noted that, irrespective of father's occupation 68 to 87.50 per cent of twins had healthy sibling relationship and 13 to 31.20 per cent of them in unhealthy sibling relationship. Hence there was no association and relation between father's occupation and sibling relationship of twins. Table 10 indicated the mother's occupation with sibling relationship of twins. Among the twins, majority of them (70 to 87.10 %) had healthy sibling relationship and 12.90 to 30 per cent of them in unhealthy sibling relationship. Hence there was no association and relation was found.

### 3.3 Relationship of Socio-economic Status with Sibling Relationship of Twins

An examination of Table 11 showed that relationship between socio-economic status of the family with sibling relationship of twins. Irrespective of socio-economic status majority of the twins (80 to 85.70 %) possessed healthy sibling relationship followed by 14.30 to 20 per cent had unhealthy sibling relationship. There was no association and relation was observed between socio-economic status of the family and sibling relationship of twins.

**Table 9. Relationship of father's occupation with sibling relationship of twins**

Respondent	Father's occupation	Sibling relationship		Total	Modified $\chi^2$	r-value
		Healthy	Unhealthy			
Twins	Service in central/ state/public	14 (87.50)	2 (12.50)	16 (100.0)	3.09 <sup>NS</sup>	0.19 <sup>NS</sup>
	Service in private or shop, home, transport, own cultivation	40 (87.0)	6 (13.0)	46 (100.0)		
	Self employed	11 (68.80)	5 (31.20)	16 (100.0)		

Figure in parenthesis indicates percentages  
NS - Non-significant,

**Table 10. Relationship of mother's occupation with sibling relationship of twins**

Respondent	Mother's occupation	Sibling relationship		Total	Modified $\chi^2$	r-value
		Healthy	Unhealthy			
Twins	Service in central/ state/public	11 (78.60)	3 (21.40)	14 (100.0)	0.44 <sup>NS</sup>	0.16 <sup>NS</sup>
	Service in private or shop, home, transport, own cultivation	7 (70.0)	3 (30.0)	10 (100.0)		
	Housewives	47 (87.10)	7 (12.90)	54 (100.0)		

Figure in parenthesis indicates percentages  
NS - Non-significant

**Table 11. Relationship of socioeconomic status (SES) with sibling relationship of twins**

Respondents	SES	Sibling relationship		Total	Modified $\chi^2$	r-value
		Healthy	Unhealthy			
Twins	High	12 (85.70)	2 (14.30)	14 (100.0)	0.27 <sup>NS</sup>	0.05 <sup>NS</sup>
	Upper middle	24 (80.0)	6 (20.0)	30 (100.0)		
	Lower middle	29 (85.30)	5 (14.70)	34 (100.0)		

Figure in parenthesis indicates percentages  
NS - Non-significant

#### 4. DISCUSSION

The results revealed there was no significant association but age was negatively significantly correlated with sibling relationship of twins indicating that increase in age of the twins increase in the sibling relationship (Table 3). Twins are the same age individuals, as they grow older they have more mutual understanding and have a companionship. Trancred and Fraly [7] found that twins were more likely to rely on their siblings for attachment related functions as they grow older where as it was not true for non-twins. Rose [8] reported that twins more often nominated their co-twins as a friend, share more time with their co-twin. Fortuna et al. [9] reported that twins generally choose one another as friend and companions to a greater extent. There was no association and relation was observed between education level and sibling relationship of twins (Table 4). Even though different education levels are noted among twins sibling relationship almost remains stable. And there was dearth of the research studies. And also there was no association and relationship was observed between ordinal position and sibling relationship of twins (Table 5). In case of twins ordinal position is not much effecting because they born at time.

With regard to family size, there was non-significant association was found, however there was highly significant relationship was observed between family size and sibling relationship of twins (Table 6). Indicating that small family helped to possess healthy sibling relationship among twins. It may be due twins will get more space and time to spent together in small sized family than large family. Findings showed that there was no significant association and relation between father's and mother's education with sibling relationship (Tables 7 and 8). It might be due to the fact that in all the levels of father's and mother's education most of the respondents were in healthy sibling relationship.

With regard to father's and mother's occupation, there was non-significant association as well as relation was found (Tables 9 and 10). Since most of the father's in the selected sample are working private sector/ business and most of the mother's are housewives and very few of them are working in government sector. Not much variation was observed in distribution of sample with regard to parent occupation. There was no association and relation was observed between socio-economic status of the family and sibling relationship of

twins (Table 11). Buist et al. [10] observed that SES did not significantly associate with sibling relationship quality.

#### 5. CONCLUSION

Among both twins, adolescents belonged to 13 to 18 years indicated more of socio emotional behavior problems. And also respondents possessed high school level of education was experienced more of socio emotional behavior problems. There was no significant association was noted between ordinal position and socio emotional behavior problems among twins. Family size associated with externalizing behavior problems but high level of parental education increased the normal level of socio emotional behavior problems among twins. Parental occupation and socio-economic was not associated with socio emotional behavior problems.

#### 6. IMPLICATIONS AND RECOMMENDATIONS

Socio emotional behavior problems among twins was observed whose parents had low level of education and unawareness. Hence counseling program may help to create awareness among parents

#### 7. SUGGESTIONS FOR FUTURE RESEARCH

Comparison of sibling relationship within twin pairs and with other siblings of same family/ rural and urban area.

#### CONSENT AND ETHICAL APPROVAL

As per university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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