Role of Parental bonding in development of Personality traits: A cross-sectional study among medical undergraduates of Jammu

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ABSTRACT

Background: Disproportionate involvement from parents can be detrimental for their child's personality. A child with a secure parental bonding learns to tackle problems and regulate emotions. **Aims & Objectives**: This study aimed to assess the personality traits among medical undergraduates, to study the association of various socio-demographic and family related variables with the personality traits, and to assess the correlation between parental bonding and personality. **Methodology:** A cross-sectional study was carried out among the undergraduate medical students of GMC Jammu. The personality traits were measured by the Big five inventory and parental bonding was measured by Parental bonding instrument. The student t-test, ANOVA, and Pearson's correlation test were employed as tests of significance; a p value < 0.05 was considered statistically significant. **Results**: 260 participants constituted the study population. Mean age was 19.51±1.46 years. Mean (± SD) scores for openness, conscientiousness, extraversion, agreeableness and neuroticism were (37.97±5.44), (31.85±4.49), (27.58± 4.21), (31.41±3.60) & (26.49±3.36) respectively. **Conclusions**: Emphasis must be paid to improve the parental bonding with their children so as to promote their development.

INTRODUCTION

Big Five personality traits-Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, provide a robust framework for understanding individual differences in behavior, shaping how people perceive and interact with the world around them.(1)Openness reflects curiosity and a willingness to engage with novel experiences and ideas; Conscientiousness encompasses self-discipline, and goal-oriented behavior; Extraversion describes sociability and assertiveness; Agreeableness captures empathy and a cooperative nature; and Neuroticism represents emotional stability and reactivity.(2)A child's personality is a dynamic and intricate process, influenced greatly by family environment and socio-demographic factors, which forms the foundation to shape the character.(3) From the warmth and support of parental relationships to navigate life, the family environment plays a vital role in shaping personality of a child. Socio-demographic variables, including socio-economic status and cultural background, also contribute significantly to the development of personality traits.(4)

Personality is formed through a complex interplay of innate predispositions and environmental influences, and the bonds formed in early childhood, particularly with parents.(5)

Aim & Objectives:

1. **T**o study different personality traits among medical undergraduates. **2.**To study the association of various socio-demographic and other family related variables with the personality traits. **3.** To assess the correlation between parental bonding and personality traits of the students.

MATERIAL & METHODS

Study type and design: An observational Cross-sectional study.

Study population and setting: A cross-sectional study was conducted among the undergraduate medical students from different professional years of Govt. Medical College Jammu.

Study duration: Six months (Jan-June 2024).

Sample size: The students present in the lecture hall within the study duration from different professional years of MBBS and who provided written informed consent for participation, constituted the study sample.

Inclusion criteria: Apparently healthy students, who had given written informed consent.

Exclusion criteria: Students under medication for any psychiatric illness, absent during the study period, incompletely filled questionnaire, lack of interest, and not willing to give written informed consent.

Ethical issues and informed consent: The study design was reviewed and approved by the Institutional Ethics Committee, GMC, Jammu vide order No. IEC/GMCJ/2023/1634 dated 08.12.2023. Before the start of the actual study, written informed consent was obtained from all the voluntary participants after explaining the purpose of study. An assurance was given to all the students who were willing to participate in the study that their personal information would be kept confidential. To ensure anonymity, no question about the name of the student was included in the questionnaire.

Study Tools: A Self-developed, semi-structured and pre-tested questionnaire seeking information on Socio-demographic variables, and other details related to family of students.

Big five inventory (BFI).(6): Big Five Inventory (BFI) was adopted to assess the personality traits of openness, neuroticism, agreeableness, extraversion and conscientiousness. The scale contains 44 items, using a 5 point Likert scale ranging from (1) = disagree strongly to (5) = agree strongly.

Parental Bonding Instrument (PBI).(7.): The Parental Bonding Instrument (PBI) asks respondents to recall how their parents acted towards them during the first 16 years of their life. The questionnaire consists of 25 items with each item being rated on a 4 point Likert scale from 'very like' to 'very unlike.' Participants are asked to rate their mothers and fathers attitudes separately.

Statistical analysis: The data collected was entered into MS Excel spreadsheets and then analyzed by using IBM SPSS statistical software Version 27.0. The qualitative data was presented as numbers and percentages while as quantitative data was presented as mean (±SD). Association of Personality Traits with various variables was studied using student T-test and ANOVA test. Correlation between parental bonding and personality traits was analyzed using Pearson's correlation test. A p value of <0.05 was considered to be statistically significant.

RESULTS

A total of 296 Medical undergraduates from Phase1& 2 participated in the study out of which 36 submitted incomplete questionnaire. After excluding these, final sample of 260 was analyzed. Mean age of the participants was (19.51 ±1.46) years. Among the total study participants, 61.9% were females. Majority of the participants were Hindu (67.3%). 53.1% of the total participants belonged to urban area. Different personality traits studied were openness, conscientiousness, extraversion, agreeableness and neuroticism and their mean (± SD) scores were (37.97 ±5.44), (31.85 ±4.49), (27.58 ±4.21), (31.41±3.60), (26.49±3.36) respectively, showing higher scores for conscientiousness and extraversion.

Table 1: Association of variables related to personal history with Personality traits of students

Variable	n(%) 260	Openness Mean ±SD	Conscientiousness Mean ±SD	Extraversion Mean ±SD	Agreeableness Mean ±SD	Neuroticism Mean ±SD	Average score
Gender							
Male	99 (38.1)	36.35± 6.05	30.01± 5.24	26.51± 6.16	30.07± 4.66	24.30± 4.75	30.00±3.83
Female	161 (61.9)	36.65±6.26	31.33± 4.64	25.71± 5.35	30.37± 3.94	25.46± 4.21	30.10±3.77
P value		0.71	0.03	0.22	0.57	0.042	0.83
Religion							

Variable	n (%)	Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism	Average score
Hindu	175 (67.3)	36.43± 6.62	30.63± 4.83	26.41± 5.09	30.41± 4.21	24.90± 3.95	30.04±3.86
Others	85(32.7)	36.74± 6.20	31.22±5.14	25.33±5.47	29.94±4.32	25.59±4.25	30.05±3.93
P value		0.71	0.36	0.11	0.40	0.19	0.98
Residence							
Rural	122 (46.9)	35.80±6.44	30.33± 5.21	25.96± 5.31	30.44± 4.29	25.04± 4.97	29.83±3.80
Urban	138 (53.1)	37.18± 5.87	31.27± 4.60	26.14± 6.00	30.09± 4.18	25.00± 3.95	30.26±3.78
P value		0.073	0.12	0.80	0.50	0.94	0.36
Birth order							
First	120 (46.15)	35.85± 6.58	31.55± 5.25	25.31± 5.57	29.99± 4.05	24.93± 4.23	29.82±4.03
2nd or above	140(53.85)	36.48± 5.79	30.23± 4.54	26.70± 5.77	30.49± 4.91	25.10± 3.50	30.26± 3.60
P value		0.41	0.03	0.05	0.37	0.72	0.35
Daily Time spent on electronic gadgets							
<5 hrs	110 (42.30)	38.49±5.21	31.22± 4.87	27.86±4.64	31.14±3.73	26.50±3.41	31.04±2.60
>5 hrs	150(57.70)	35.10±6.43	30.48±4.97	24.69±6.08	29.60±4.61	23.94±4.76	29.35±4.41
P value		0.000	0.23	0.000	0.003	0.004	0.0004

Table 1 shows the association of variables related to personal history with various Personality traits. Mean (±SD) scores of conscientiousness and Neuroticism among males and females were (30.01± 5.24, 31.33± 4.64) and (24.30± 4.75,25.46± 4.21) respectively and the differences were found to be statistically significant with p value <0.05. Religion and residence showed no significant association with the personality traits of the participants. First birth order child had higher Conscientiousness scores with mean ± SD (31.55± 5.25) as compared to child with birth order 2 or above with mean ± SD (30.23± 4.54) and the difference was found to be statistically significant(p=0.03). More than half of the participants (57.7%) spent >5 hours using social media and electronic gadgets as TV, laptops etc and they had lesser mean ± SD scores for the personality traits as compared to those spending <5 hours on social media /TV/laptops etc. Based on time spent on electronic gadgets, the differences among mean ± SD scores of all personality traits except for Conscientiousness were found to be statistically significant (<0.05)

Table 2 : Association of variables related to family with the personality traits of students

Variable	n (%)	Openness Mean ±SD	Conscientiousness Mean ±SD	Extraversion Mean ±SD	Agreeableness Mean ±SD	Neuroticism Mean ±SD	Average score
Mother's educational status							
illiterate	19 (7.30)	36.00± 4.93	30.11± 4.45	25.63± 4.13	30.63± 4.34	23.68± 7.04	30.14±3.42
Up to 10th std	146 (56.15)	35.60± 6.11	30.10± 5.00	25.69± 4.59	29.91± 4.61	24.11± 4.16	29.38±4.30
Higher secondary and above	95 (36.55)	38.07±6.25	32.11±4.72	26.73±6.99	30.69±3.57	26.78±3.68	31.36±2.63
P value		0.000	0.006	0.345	0.34	0.000	0.0003
Father's educational status							
Up to 10th std	108 (41.54)	34.99± 6.34	29.95± 5.31	25.10± 4.60	29.40±4.37	24.04± 4.01	29.08±4.62

	N (%)					
Higher secondary and above	152 (58.46)	37.62± 5.63	31.51± 4.49	26.85± 5.91	30.90± 4.00	25.76± 4.33	30.82± 2.87
P value		0.000	0.011	0.01	0.004	.001	0.000
Current status of parents							
Living together(Married)	244 (93.85)	36.46±6.23	30.66± 4.71	26.11±5.78	30.24±4.09	24.95±4.40	29.98±3.80
Single	16(6.15)	36.69± 5.91	33.39± 5.80	10.26± 9.64	30.06± 5.70	25.56± 4.91	31.09± 3.32
P value		0.88	0.02	<0.00	0.86	0.59	0.25
Monthly family income							
upto 50000	138 (53.1)	35.85± 6.27	30.46± 4.93	25.74± 5.72	29.96± 4.56	24.45± 5.08	29.59±4.11
>50000	122 (46.9)	37.31± 5.99	31.25± 4.87	26.41± 5.63	30.60± 3.80	25.66± 3.52	30.60±3.31
P value		0.05	0.19	0.34	0.22	0.02	0.031
Type of family							
Nuclear	72 (27.7)	36.88± 5.55	31.01± 5.16	26.26± 5.22	30.33± 4.06	25.53± 4.56	30.38±3.70
Joint	188 (72.3)	36.40± 6.40	30.76± 4.82	25.97± 5.85	30.23± 4.30	24.82± 4.40	29.94±3.82
P value		0.58	0.70	0.71	0.85	0.25	0.40

Table 2 shows the mean (SD) scores of the Big Five personality traits in relation to various family-related variables. Participants whose mother and father had higher educational status reported comparatively higher mean scores in all the personality traits and these differences were found to be statistically significant (p < 0.05). Participants from families where parents were living together had significantly higher mean scores in conscientiousness and extraversion. Higher monthly family income (>₹50,000) was associated with higher mean scores for openness and lower for neuroticism, both were found to be statistically significant (p <0.05). No significant differences in personality traits were found based on type of family. These findings highlight that higher parental education, marital cohabitation, and better socioeconomic status are associated with more favorable personality profiles among participants.

Table 3: Relationship between Parental Bonding and Big-Five Personality Traits

VARIABLE		Openness	Consciousness	Extraversion	Agreeableness	Neuroticism
Mother Care	r	.036	0.189	0.339	0.009	0.052
	p	.566	0.002	0.000	0.882	0.400
Mother Over Protection	r	0.063	-0.049	-0.139	-0.008	-0.023
	p	0.314	0.432	0.025	0.900	0.710
Father Care	r	-0.005	0.135	0.304	0.098	0.099
	p	0.935	0.030	0.000	0.115	0.110
Father Over Protection	r	0.024	0.10	-0.017	-0.029	0.064
	p	0.696	0.873	0.784	0.645	0.303

Table 3 illustrates the correlation between dimensions of parental bonding—care and overprotection from both mother and father and the Big Five personality traits. A significant positive correlation was observed between mother & Father care with both conscientiousness and extraversion indicating that higher perceived parental care is associated with greater levels of these traits. Mother's overprotection showed a weak but statistically significant negative correlation with extraversion suggesting that higher overprotection from mothers may reduce extraversion levels. However, no significant associations were found between father overprotection and any of the personality traits (p > 0.05) across all the domains. Overall, these findings suggest that parental care—especially from both mother and father—is positively linked to conscientiousness and extraversion, while overprotection, particularly from mothers, may hinder the development of extraversion.

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DISCUSSION

Our findings reinforce the established theoretical framework that parenting, particularly during the formative years, plays a vital role in shaping personality dimensions including openness, conscientiousness, extraversion, agreeableness, and neuroticism.

Our study observed that conscientiousness and neuroticism varied significantly with gender, with females scoring higher in neuroticism and males showing lower conscientiousness. This aligns with developmental perspectives outlined by Knafo A et al(3)and Briley DA *et al* (4), who emphasized that personality traits evolve through genetic and environmental interactions—including gender norms. Kapetanovic S et al(8)discussed how family emotional climate interacts with gender to influence psychosocial outcomes, reinforcing our observations.

The present results revealed that first-born participants exhibited higher conscientiousness and lower extraversion compared to later-borns. This pattern reflects behavioral trends described by Saha11 AK et al (9)in context of individualism-collectivism, and aligns with Ashraf A et al (10), who discussed that birth order and other sociodemographic variables—though showing small associations—still contribute to child personality.

A noteworthy finding was in the present study was the influence of screen time on personality. Participants who spent more than 5 hours on electronic gadgets showed significantly lower scores in openness, extraversion, agreeableness, and neuroticism. This supports the concerns raised by Donker MH et al (11), who highlighted that excessive digital engagement can hinder meaningful interpersonal interactions. Von Soest T et al (12) linked screen time to traits like extraversion and neuroticism. Furthermore, Peng B et al (13)demonstrated that self-esteem and psychological inflexibility mediate the effect of parenting style on adolescent mental health—mechanisms likely influenced by digital habits.

We also found that participants from two-parent households scored higher in conscientiousness and extraversion than those from single-parent families. This is in agreement with Ferreira T et al (14), who emphasized that secure attachments within the family system support personality development and emotional regulation. Frosch CA et al(15) similarly emphasized that relational health within families buffers developmental risks.

Parental education emerged as another significant factor. Participants whose parents had higher educational level exhibited higher openness, conscientiousness, and lower neuroticism. These observations align with Ashraf A et al (10) who showed that authoritative parenting styles—often more prevalent among educated parents—support positive personality development. Alvi SM et al(16)also observed that parenting style significantly predicts both emotional intelligence and Big Five traits among medical students.

The negative association between maternal overprotection and extraversion is also supported by Yakub NA et al (17), who found that emotionally controlling parenting suppresses social engagement. This echoes the Interparental Positivity Spillover Theory by Don BP et al (18), which posits that reducing negativity alone is insufficient; instead, positive parent-parent interactions enhance children's personality growth and emotional resilience.

Ayoub et al(19) explored longitudinal associations between parenting and Big Five traits, emphasizing the enduring impact of parenting on personality development. The findings showed that nurturing parenting predicts higher levels of sociability and responsibility in children. The results in present study are in agreement with those reported by Abell L et al (20)who examined how parental bonding impacts adult traits like Machiavellianism and friendship quality, indicating that high-quality parental care can shape positive adult characteristics.

In our study, maternal care showed a significant positive correlation with conscientiousness and extraversion, while maternal overprotection had a weak but statistically significant negative correlation with extraversion. Similarly, paternal care was positively associated with conscientiousness and extraversion. These results are consistent with Parker *et al* (7), who demonstrated that the Parental Bonding Instrument (PBI) effectively differentiates between parental care and overprotection. Furthermore, Nijssens L et al (21) highlighted the role of parental reflective functioning in social-emotional outcomes, which may imply that nuanced aspects of parenting influence traits like Neuroticism.

Our findings are further supported by the work of Lawrencea KC et al (22), who found that parental bonding positively influenced agreeableness and openness, while showing negative associations with neuroticism. Moreover, the role of emotional warmth in parenting, as described by Kapetanovic S et al(8), supports our finding that adolescents raised in emotionally supportive homes demonstrate more adaptive personality traits. Finally, the significance of secure parental bonding in the Indian context is supported by Bijimol KP (23), who found that lack of parental warmth and acceptance increases adolescent risk behaviors.

Similarly, Charles DY et al(24) observed that secure parental attachment in Indian youth correlates with improved interpersonal relationship satisfaction and self-perception.

CONCLUSION

This study enlightens the crucial role of parental bonding in shaping personality traits among medical undergraduates. High levels of parental care, particularly from both parents, are significantly associated with higher conscientiousness and extraversion, while overprotective parenting—especially from mothers—may hinder the development of sociability. Socio-demographic factors such as parental education, family structure, and digital media use also influence personality development. The findings reinforce the importance of nurturing and emotionally stable home environments for fostering well-adjusted, resilient individuals.

Strength of study: This study is among the few from North India examining parental bonding and personality using validated tools. Moreover, no such study has been conducted priorly in Jammu. The data was collected by a single investigator, ensuring uniformity in explaining the questionnaire and collecting the data.

RECOMMENDATION

We should focus educating parents on the psychological impacts of parenting styles, provide emotional and personality development support in institutions, Encourage balanced parenting without overcontrol and focus must be paid to limit the screen time and promote family interaction.

LIMITATION OF THE STUDY

The cross-sectional design limits the causal inference. Self-reported data may be influenced by recall or social desirability biases. The study was confined to a single institution, limiting its generalizability

RELEVANCE OF THE STUDY

This study highlights the crucial role of parental bonding in shaping the personality traits of medical students. It fills a research gap in the Indian context, where cultural and familial dynamics differ. Understanding these influences can aid in promoting better emotional resilience among future healthcare professionals.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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CONFLICT OF INTEREST

Nil

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DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

THE AUTHORS HAVEN'T USED ANY GENERATIVE AI/AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS.

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