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IMPACT OF ACROSS GENERATIONAL TRANSMISSION OF PARENTAL PRACTICES ON EXECUTIVE FUNCTIONING; MODERATING ROLE OF GENDER AND AGE

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ABSTRACT

This study investigates the acrossgenerational transmission of parental practices and their influence on executive functioning across three generations (X, Y, and Z) in Rawalpindi and Islamabad, Pakistan. With a sample size of 400 participants evenly distributed across genders, the study utilizes the Parental Bonding Instrument (PBI), the Executive Function Questionnaire for Adults, and a Demographic Questionnaire to assess parental practices, executive functioning, and demographic variables. Data collection involves administering questionnaires via the paper-pen method, supplemented by interviews for older adults. Correlation analysis reveals significant relationships between parental practices and executive functioning across generations. Linear regression analysis illustrates the impact of parental practices on changes in executive functioning. Additionally, t-tests and ANOVA indicate significant differences across demographic variables. The findings contribute to indigenous literature by elucidating the effects of parental practices on executive functioning, considering variations across generations, genders, and cultural/environmental factors. Understanding the transmission of parental practices and changes over time can inform family counseling sessions and interventions aimed at enhancing executive functioning skills. Overall, this study sheds light on the complex dynamics of parental practices and their implications for individual development across different generations and cultural contexts.

Keywords: Parenting Practices, Parenting Styles, Executive Functioning, Generational Transmission

INTRODUCTION

This article explores the intergenerational impact of parenting practices on executive functioning, focusing on the transmission of parenting techniques across three generations (Generation X, Millennials, and Generation Z). It distinguishes between parenting practices and styles, examining the authoritative, permissive, uninvolved, and authoritarian parenting styles and their consequences for cognitive development. The study spans from early childhood to adulthood, considering the neurobiological aspects of executive functions and their association with parenting practices. The article highlights the link between parent-child connections, adult attachment styles, and psychological mindedness, emphasizing the role of executive control in early learning and academic achievement. Cultural influences, particularly in Pakistani culture, are also explored. Overall, the article aims to unravel the complex relationship between parenting practices and executive functioning, offering insights into the enduring impact across generations.

Parental Practices

Parenting methods and parenting style have frequently been used interchangeably by researchers. Between these two parenting philosophies and approaches, there is a noticeable distinction. Parenting practices are defined as particular behaviors used by parents

to socialize their kids[1]. These kinds of social behaviors support a child's survival as well as his socio-emotional and cognitive development. For instance, parents who want their kids to thrive in school would engage in specific behaviors, including assisting them with their schoolwork, inspiring them to learn, and giving them time to read. Parental responsiveness and demandingness are two characteristics of parenting styles that involve a variety of parental practices and where behaviors are impacted by parental personality and numerous cultural influences.

Parenting Styles

The impact of parental fostering on child cognitive development transcends generations[2]. This research identifies four main parenting styles, each with distinct practices and outcomes. The authoritative parenting style, characterized by nurturing, responsiveness, warmth, inductive discipline, open discussion, and reasoned control of child behavior, fosters children who are friendlier, cheerful, independent, self-controlled, curious, cooperative, and achievement-oriented, with secure attachment styles and positive parent-child relationships. Conversely, permissive parenting, marked by loose boundaries, warmth, and leniency, often results in egotistical, impulsive, rebellious, aimless, dominating, violent children lacking in self-reliance, self-control, and achievement[3]. Uninvolved parenting, involving unavailability, unresponsiveness, and rejection, correlates with low self-esteem, poor performance, low self-confidence, and deficient emotional regulation in children, potentially leading to the substitution of inadequate role models. Lastly, authoritarian parenting, characterized by low parental responsiveness, high demandingness, directive and coercive practices, and strict rules, tends to produce children with low self-esteem, insecure attachment, less independence, unhappiness, susceptibility to depression, substance abuse, and diminished social competence. These findings highlight the lasting impact of diverse parenting styles on child development and emphasize the need for comprehensive understanding and tailored interventions.

Parent-child connections

Children in their early years of life are mostly dependent on their care givers, who also serve as the primary source of their surroundings throughout this time. During the first two years of life, neurodevelopment in particular was a continuous and astonishingly fast process[4] making the growing brain of the young child susceptible to environmental impacts like early caregiving. Early caregiving might have a major impact on a child's neurodevelopmental results[5]. In addition to having a detrimental impact on the results of the child in the future, a suboptimal parental bond, the affective relationship between parent and child was also harmful to the parents. According to research, for instance, parenting

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stress levels are correlated with lower parental attachment.

Parental Bonding

It was widely accepted that parenting behaviors and styles are transmitted across generations[6]. Limited researches had focused on exploring the ongoing presence of positive parenting behaviors, yet recent findings suggest its transmission across generations. The continuity of positive parenting denotes the persistent and unwavering application of nurturing, supportive, and beneficial parenting methods over time. This idea underscores the significance of consistently upholding these positive parenting behaviors throughout a child's growth, spanning from early infancy through adolescence and into adulthood. Positive parenting practices encompass various supportive actions that significantly contribute to a child's emotional, social, and cognitive development. Key components of maintaining continuity in positive parenting involve maintaining consistency in approach, providing emotional support, establishing clear and positive limits, fostering effective communication, and modeling behavior.

Executive Functioning

Because the development of more complex executive functioning depends on the mastery of simpler skills, it is detrimental to the development of more complex executive functioning when it is sub-optimally developed in toddlerhood and the preschool years. Accordingly, earlier research has demonstrated that preschool executive functioning abilities, such as working memory and inhibitory control, are predictive of academic achievement (mathematical and reading abilities) in the first years of primary school and beyond[7]. Children's internalizing and externalizing problem behavior has also been connected to low executive functioning in preschool[8]. It is critical to look at child executive functioning and its determinants early in life since early executive functioning has a significant impact on a number of significant markers of child psychosocial well-being and neurodevelopmental functioning.

Parenting Practices and Executive Functioning

The quality of parenting behaviors turned out to be a major modifying possibility, providing more evidence in favor of a social relational approach to executive functioning development. Among these, parental scaffolding and sensitive parenting were linked to early children's strong executive functioning. Parents are thought to act as self-regulating triggers and focus switches for their offspring during the development of the brain structures that will eventually control these processes. Early and middle childhood is a sensitive time when children and parents form a close attachment and continue to build executive functioning.

According to Bernier et al. (2015), toddlers who were securely attached outperformed their classmates who were insecurely attached on executive functioning activities when they started school. Additionally, instructors noted that the latter group of children had fewer executive functioning issues. Furthermore, it has been demonstrated that executive functioning is correlated with maternal sensitivity, autonomy support, and mindfulness, with autonomy support serving as the most powerful predictor of executive functioning in infants and young children.

Indigenous Studies

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Islam and the ancient South Asian history both influence Pakistani culture and its structures. Islamic literature and culture place a strong emphasis on parents' roles in raising their children. According to Obeid (1988), social development necessitates empathy for others, a sense of group solidarity, a shared outlook on life, and the ability to connect positively with others. In childhood, obedience and acceptance of elders' authority are required, with cooperation with others being stressed as the ultimate goal. Like other communal societies, Pakistan values conformity. One of Islam's key tenets is respect for parents, who are regarded as being "second only to God."

Like in many other cultures, Pakistani society places a high value on parental care, which can take many different forms, such as support, direction, and protection. This care, which is motivated by a desire to guarantee the children's safety and well-being, may emerge as overprotectiveness. Overprotective parenting can be influenced by a number of things, such as parenting styles, cultural norms, society expectations, and economic circumstances. Because of societal standards or worries about their children's safety, some parents may take a more protective stance, while others may place greater emphasis on independence and give their kids more freedom.

Research Questions

Q1. What is the impact of parental bonding, including factors such as attachment security, emotional warmth, and communication patterns, on the development and maintenance of executive functioning abilities?

Q2. How do gender differences influence the relationship between parenting practices and executive functioning in individuals?

Q3. What role does age play in moderating the association between parenting practices and executive functioning across the lifespan?

Q4. How do different parenting practices, such as authoritative, authoritarian, and permissive styles, correlate with various aspects of executive functioning in individuals?

Objectives of Study

1. To explore the relationship between Parenting practices and Executive Functioning
2. To study the influence of parental bonding and its effect on executive functioning of individuals.
3. To study the influence of moderating factors i.e. Gender, Age effecting executive functioning of individuals.

Hypothesis of Study

H1. For Generation X, the executive functioning of individuals will be significantly affected by parenting practices, especially considering the traditional and authoritarian parenting styles prevalent during their upbringing.

H2. Individuals who will experience high parental overprotection will have low executive function.

H3. There will be a negative correlation between parental overprotectiveness and the three generations (X, Y, Z).

H4. Role of moderating factors i.e. Gender and Age will also affect the executive functioning of individuals belonging from each generation.

Material and Methods

The research aims to investigate the relationship between parenting practices and executive functioning, focusing on three main objectives. First, the study seeks to explore how parenting practices, particularly prevalent during the upbringing of Generation X, significantly impact the executive functioning of individuals. This involves an examination of traditional and authoritative parenting styles and their effects on the cognitive processes of Generation X.

Second, the research delves into the influence of parental bonding on the executive functioning of individuals. By utilizing the Parental Bonding Instrument (PBI), the study categorizes parenting styles into neglectful, optimal, affectionless control, and affectionate constraint. This categorization aids in understanding the dynamics of care and protection in the parent-child relationship and their subsequent impact on executive functioning.

The third objective involves investigating moderating factors such as gender and age, which may affect executive functioning across different generations (X, Y, Z). This includes an analysis of how gender and age variations influence the correlation between parenting

practices and executive functioning in individuals.

The study posits several hypotheses to guide the research. For instance, it is hypothesized that the executive functioning of Generation X individuals will be significantly affected by parenting practices prevalent during their upbringing. Additionally, individuals experiencing high levels of parental overprotection are expected to exhibit lower executive function. The study also predicts a negative correlation between parental overprotectiveness and the three generations (X, Y, Z). Furthermore, the role of moderating factors, specifically gender and age, is hypothesized to influence the executive functioning of individuals across different generations.

To operationalize parenting practices, the Parental Bonding Instrument (PBI) is employed. Developed in 1979 by Parker, Tupling, and Brown, this instrument categorizes parents based on care and protection scores, offering insights into neglectful parenting, optimal parenting, affectionless control, and affectionate constraint. On the other hand, executive functioning is measured using the Executive Function Questionnaire (EFQ), developed by Marc Schwartz in 2007. This questionnaire evaluates various aspects of executive functioning, including planning, organization, problem-solving, attention, and impulse control.

The research design adopts a cross-sectional, correlational approach, employing quantitative studies to calculate the relationships between parenting practices and executive functioning. The sample comprises individuals from Generation Z, Millennial, and Generation X, with 400 participants representing diverse genders and backgrounds. Inclusion criteria encompass individuals with both living and deceased parents, those with a single parent, and individuals from specific geographical locations.

Ethical considerations are integral to the research process. The study obtained approval from the university's ethics committee, ensuring adherence to recognized ethical standards. Informed consent was secured from both parents and participants, emphasizing transparency and the right to refuse participation. Formal agreements were established with college principals, highlighting a collaborative and transparent approach. Post-study debriefing was conducted to provide participants with a comprehensive understanding of the study, and measures were implemented to ensure confidentiality, voluntariness, and protection against potential harm. The ethical integrity of the research is underscored by a principled and conscientious approach to human subject research.

Results

Sample consisted of 400 individuals with age range 11-26 were 33.3%, 27-42 were 33.3% and 43-58 were 33.5%. Our target population 49.8% were males and 50.2% were females. In socio-economic category, frequency for lower class was 30 (7.5%), middle class was 309 (77.3%) and upper class was 52. In birth-order category, frequency of 1st born was 162 (52.6%), frequency of 2nd born was 63 (15.8%), frequency of middle child was 74 & percentage was 18.3%, frequency of 4th born was 25 & percentage was 6.3%, frequency of last born was 64 & percentage was 16%, frequency of only child was 12 & percentage was 3%. In parental status category, frequency of alive was 305 (76.3%) while frequency of Deceased was 95 (23.8%). In parental marital status category, frequency of single parent was 99 (24.5%) while frequency of separated was 34 (8.5%) and frequency of parents live together was 267 (66.8%). Alpha reliability coefficients values showed that all scales had acceptable level of alpha reliability which is > .70 while the parental bonding instrument consisting items 50 had been divided into two domains of care and overprotection mean value for parental bonding instrument for care was 49.2, standard deviation value was 12.5, skewness value was -.234 and kurtosis value is -1.17.and mean value for parental bonding instrument for overprotection was 29.2, standard deviation value was 11.4, skewness value was -.088 and kurtosis value is -.75. While Executive Functioning Questionnaire consisting 48 items had a mean value 46.2, standard deviation value 20.1, skewness value was 0.92 and kurtosis value was 1. The comprehensive analysis of data involving 400 participants yielded noteworthy results, shedding light on the intricate relationship between

parental practices, executive functioning, and the moderating influences of age and gender. The demographic distribution was well-balanced across age groups and genders. Psychometric evaluation confirmed the reliability of the Parental Bonding Instrument (PBI) and the Executive Function Questionnaire (EFQ). Gender differences indicated that females scored lower on the Parental Bonding Instrument for Care (PBIC). Generational disparities were evident through one-way ANOVA, revealing significant differences in parental care, overprotection, and executive functioning across age groups. Post hoc tests further elucidated these variations, emphasizing the nuanced dynamics among different generational cohorts. Correlation analyses unveiled strong negative associations between age and parental overprotection and executive functioning. Additionally, gender exhibited robust negative correlations with parental care. Regression analysis underscored the predictive significance of "Parental Bonding," explaining 8% of the variability in executive functioning. Moderation analyses delved into the intricate roles of age and gender, revealing their nuanced influence on the relationship between parental practices and executive functioning. Graphical representations vividly portrayed these moderation effects, providing a visual representation of the complex interplay between parenting styles and cognitive outcomes across generations. In conclusion, this thorough investigation enhances our understanding of how parental practices, age, and gender collectively contribute to shaping executive functioning in individuals which Parental Bonding Instrument was administered and Executive Functioning Questionnaire (N=400)

Table 1

One way ANOVA to investigate Differences on the bases of three generations (X, Y and Z) on

Variables	11-26 N= 133		27-42 N= 133		43-58 N= 134		f	p
	M	SD	M	SD	M	SD		
PC	51.9	11.5	42.9	12.7	54	10.3	36.5	0.00
POP	32.5	10.7	33.5	9.5	21.7	10	55.5	0.00
EFQ	50	19.8	46	20.6	42	19	4	0.003

Note; PC= Parental Bonding Instrument for Care, POP= Parental Bonding Instrument for OVERPROTECTION, EFQ= Executive Functioning Questionnaire, f=F Statistic;*p < 0.05, *p< .01

	Variables	1	2	3	4	5	6	7	8	9
1	Age	-	0.076	0.082	0.010	.144**	-.387**	-.310**	-.351**	-.168**
2	Gender		-	-.167**	-.195**	-.101*	0.056	0.045	0.051	-0.021
3	PC			-	.911**	.887**	-.567**	-.419**	-.548**	-0.075
4	MC				-	.618**	-.516**	-.493**	-.395**	-0.072
5	FC					-	-.504**	-.248**	-.602**	-0.063
6	POP						-	.845**	.867**	.125*
7	MOP							-	.467**	.164**
8	FOP								-	0.055

9	EFQ	-

Table 2
Correlation across Parental Bonding Instrument and Executive Functioning Questionnaire to see the relationship between variables (N=400)
Note; PC=parental care, MC= mother care, FC= Father Care, POP= parental overprotection, MOP=mother overprotection, FOP=father overprotection, EFQ= executive functioning Questionnaire

Table 3
Regression across Parental Bonding Instrument and Executive Functioning Questionnaire to see the impact of predictor (Parental practices) on outcome variable (Executive Functioning)

Model	B	β	R^2	f	p
Constant	89.294	-.294	0.08	37.7	0.001
Parental Bonding	-.359				

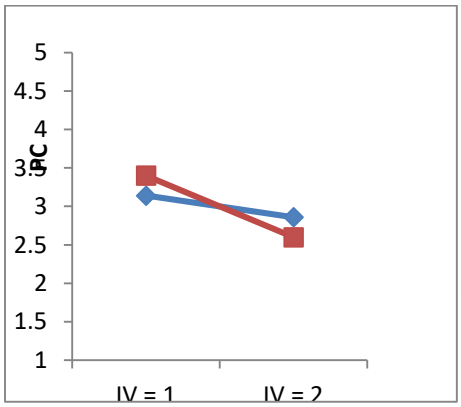
Note; β=standardized Beta, Unstandardized Beta =B, R square=R^2, f = F Statics ($p<0.01$)

Table 4
Moderation (age and gender) across Parental Bonding and Executive Functioning to see the impact

	Variables	Age			
		B	SE	CI	
				LL	UP
1	Constant PC	59.2**	4.03	51.3	67.1
	POP	-0.14**	0.12	-0.39	0.09
	Int_term	-0.26**	0.12	-.37	-0.15
	R^2	0.37			
	F	22.6			
	P	0.000			
2	Constant MC	30.9**	2.93	26.2	35.6
	MOP	-0.19**	0.14	-.04	0.08
	Int_term	-0.19**	0.9	-0.53	3.27
	R^2	0.28			
	F	10.2			
	P	0.001			
3	Constant FC	27.3**	1.6	24.0	30.6
	FOP	-0.10**	0.10	-0.29	0.09
	Int_term	-0.24**	0.6	-0.15	-0.15
	R^2	0.41			
	F	29.3			
	P	0.000			

4	Constant EFQ	46.8**	3.68	39	54
	POP	-0.14**	0.07	-0.28	0.07
	Int_term	0.09**	0.03	0.02	0.15
	R^2	0.16			
	F	3.7			
	P	0.005			
5	Constant EFQ	53.02**	12.43	28.5	77.4
	PC	0.016	0.23	-0.44	0.47
	Int_term	-0.05	0.03	-0.13	0.02
	R^2	0.03			
	F	0.27			
	P	0.5			

Note; PC=parental care, MC= mother care, FC= Father Care, POP= parental overprotection, MOP=mother overprotection, FOP=father overprotection, EFQ= executive functioning Questionnaire, β=standardized Beta, R square=R^2, f = F Statics ($p<0.05$)



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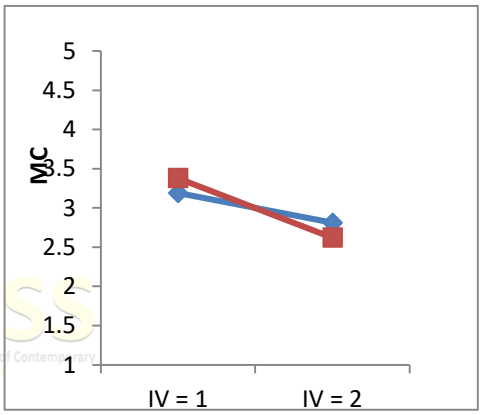

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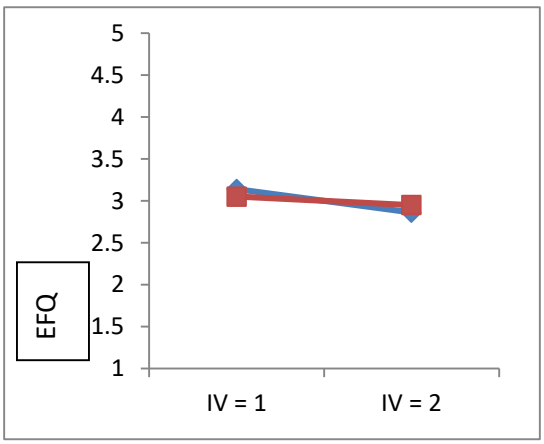

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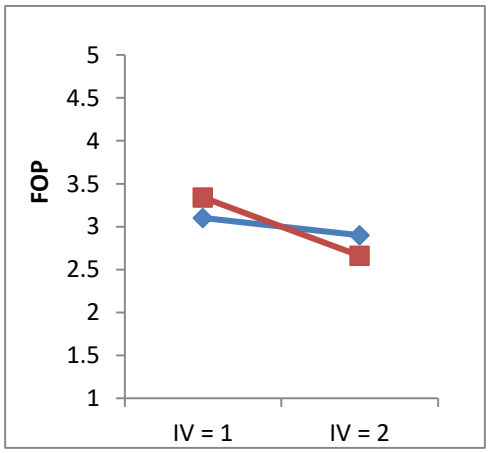

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The moderation graphs presented in this study offer visual insights into the intricate relationships among age, parental care, parental overprotection, and their collective impact on executive functioning. Graph 1 depicts the moderating effect of age on the interplay between parental care and parental overprotection. This visual representation enables a nuanced understanding of how the associations between specific parenting styles

and executive functioning vary across different age groups.

Moving to Graph 2, it explores the moderation effect of age on the relationship between mother care and mother overprotection. The graphical representation provides a clear illustration of how maternal parenting practices interact with age to shape cognitive outcomes. By visually presenting these dynamics, the graph enhances our comprehension of the nuanced connections between mothering styles and executive functioning across various age cohorts.

Graph 3 extends the investigation by illustrating the moderation effect of age on the relationship between father care and father overprotection. This graph offers a visual interpretation of how paternal parenting styles intersect with age, influencing executive functioning in distinct ways. The graphical representation aids in discerning patterns and variations in the impact of fathering practices on cognitive outcomes across different age groups. Turning to Graph 4, it focuses on the moderation effect of age on the association between parental overprotection and executive functioning. This visual representation captures the diverse impact of overprotective parenting on cognitive outcomes within varying age brackets. The graph facilitates a clearer understanding of the complex interplay between parental overprotection, age, and executive functioning. These moderation graphs serve as valuable tools for interpreting the moderating effects of age on the relationships between different parental practices and executive functioning. They provide a clear and accessible way to understand the intricate dynamics of these associations across generational cohorts.

Discussion

The study's principal finding highlights a significant influence of parental bonding on children's executive functioning in the specific context of Rawalpindi, Islamabad, and surrounding areas. Despite encountering slightly diminished alpha reliability in the Parental Bonding Inventory (PBI) and Executive Functioning Questionnaire (EFQ), the research brings attention to critical aspects demanding consideration. The reliability challenges in the scales may originate from the intricate nature of parental bonding and executive functioning, compounded by cultural nuances impacting respondent interpretations. Notwithstanding these challenges, the stability of scales assessing parental care and overprotection remains noteworthy, reinforcing their effectiveness in measuring these constructs. Of particular note are gender disparities in parental bonding perceptions, with a marked difference observed in the Parental Bonding Instrument scores. This aligns with cultural expectations in Pakistan, where distinct gender roles are often dictated by familial dynamics and societal norms. In contrast, the absence of statistical significance in EFQ scores by gender suggests that, within the studied cultural setting, gender might not substantially influence perceived executive functioning abilities. The nuanced relationship between gender and psychological measures in the local context underscores the importance of considering cultural factors when interpreting differences in constructs like parental bonding and executive functioning. Cultural norms and societal expectations in Pakistan may shape gender-specific roles in diverse ways, impacting individuals' perceptions of parental interactions and cognitive abilities. Age emerges as a noteworthy factor influencing parental care, overprotection, and executive functioning. The cultural emphasis on age-based hierarchies and expectations for maturity aligns with findings indicating that advancing age correlates with increased societal expectations of cognitive development and responsibility. This age-related influence suggests a complex interplay between cultural norms, developmental milestones, and perceptions of parental behaviors. The moderation analysis further elucidates the dynamic nature of parent-child interactions across different developmental stages. As individuals mature, the impact of parental care and overprotection undergoes discernible shifts, highlighting age-related changes in how individuals perceive and interpret these behaviors. The study acknowledges the importance of considering cultural dynamics in interpreting these associations within the specific context of Pakistani society. The practical implications outlined for the Pakistani cultural context emphasize the need for cultural sensitivity in parenting practices. Incorporating traditions, fostering emotional connections, and

balancing independence within authoritative parenting styles are recommended. Recognizing the influence of cultural expectations on parenting styles and leveraging community and extended family support are crucial aspects of promoting positive parenting practices.

Limitations and recommendations

The study identifies significant associations between parental bonding and executive functioning in a sample from Rawalpindi, Islamabad, and surrounding areas. Despite some reliability issues with the instruments, particularly cultural bias, findings reveal gender-related differences in parental bonding perceptions but not in executive functioning scores. Age exhibits a significant correlation with both scales, reflecting cultural expectations in Pakistan. Moderation analysis highlights age-related shifts in perceptions of parental care and overprotection. Cultural implications underscore the need for tailored parenting practices and education programs in the region. Limitations include cultural bias in instruments, a limited geographical focus, and exclusion of certain age groups. Future research should explore validated instruments, adopt diverse sampling methods, and consider psychological factors. Addressing these limitations strengthens the study's reliability and generalizability, emphasizing the importance of longitudinal studies to explore developmental patterns.

Conclusion

The study explores the relationship between parental practices and executive functioning across three generations in Pakistani populations. Findings indicate a significant negative association between parental practices (including control and overprotection) and executive functioning. The research considers moderating factors of age and gender, revealing nuanced patterns in their interplay. The study contributes by emphasizing the combined effects of parental practices and their interactions, offering practical implications for interventions targeting executive functioning skills. While age positively correlates with better executive functioning, gender does not show a significant impact. Collectively, the predictors account for 8 percent of the variance in the outcome variable.

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