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Exploring Cognitive Fluidity: A Comparative Study of Male and Female Adults in Nuclear and Joint Family Structures

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Abstract

This study explores the assessment of cognitive fluidity among male and female adults residing in nuclear and joint family setups in India. With the country's diverse societal fabric marked by varied traditions, languages, and belief systems, understanding cognitive fluidity's role becomes imperative in navigating this complex landscape. Through the meticulously developed Cognitive Fluidity Scale, validated for this study, 120 young adults aged 25 to 30 were evaluated within the Udaipur district, Rajasthan. The district's mix of urban and rural populations provided a rich environment for studying the influence of familial structures on cognitive fluidity. Participants were selected through purposive sampling, ensuring demographic diversity and representation across family types.

Findings indicate a predominant display of moderate cognitive fluidity levels across both family structures. However, noteworthy variations emerged between genders and family types, with joint family environments correlating with higher cognitive fluidity levels compared to nuclear families. Specifically, individuals within joint family setups exhibited greater adaptability, learning capacity, and flexible thinking skills. This suggests that shared experiences and cognitive stimuli within familial environments contribute significantly to shaping cognitive processes. The study underscores the importance of considering family dynamics when assessing cognitive abilities among adults, providing valuable insights for interventions aimed at promoting cognitive development and well-being within diverse family systems in India.

Keywords: Adaptability, Cognitive fluidity, Cognitive Fluidity Scale, Intervention, Young adults.

1. Introduction

With the burgeoning youth population and increasing exposure to diverse experiences, young adults are navigating a complex socio-cultural milieu where adaptability and resilience are paramount for psychological well-being. The ability to embrace change, negotiate multiple identities and confront challenges with an open mindset is integral to fostering a sense of joy and fulfilment among this demographic. India's diverse society is characterized by a myriad of traditions, languages, and belief systems which plays a crucial role in shaping individual cognitive fluidity. Young adult's adept at navigating through various cultural contexts, bridging generational divides, and synthesizing contrasting worldviews are often better equipped to find meaning and adapting to flexible and more adapting way of thinking in their lives. Moreover, the rapid pace of technological advancements and globalization has brought about a paradigm shift in how young Indians perceive success and fulfilment, emphasizing the importance of adaptability and innovation in achieving personal goals. Furthermore, India's socio-economic landscape presents both opportunities and challenges for young adults, requiring them to demonstrate resilience and resourcefulness in the face of adversity. From pursuing higher education and entering the workforce to managing familial expectations and societal pressures, the ability to flexibly adapt to changing circumstances is essential for maintaining mental well-being and cultivating a sense of happiness.

In today's ever-changing society, characterized by constant technological advancements and evolving cultural norms, cognitive fluidity takes on a paramount importance. This concept encompasses adaptability, learning capacity, and flexible thinking, all of which are essential skills in navigating the complexities of modern life.

Within this context, the contrasting dynamics of nuclear and joint family structures offer a compelling framework for exploring the intersection of gender, family environments, and cognitive fluidity development in young adults. By investigating how these familial contexts influence cognitive processes and emotional experiences differently for males and females, we aim to unravel the nuanced ways in which family structures shape cognitive fluidity among young adults of both genders. This inquiry not only holds implications for psychology and sociology but also bears relevance for policymakers, educators, and practitioners dedicated to supporting the well-being and development of young adults within diverse family systems.

2. Objectives:

To assess the cognitive fluidity among male adults and female adults of nuclear families and joint families.

Methodology: The Cognitive Fluidity Scale were meticulously developed by the principal investigator and subjected to rigorous scrutiny by members of the advisory committee to ensure their validity and reliability. Through this process, the Cognitive Fluidity Scale demonstrated a commendable reliability coefficient of **0.805**, signifying their robustness as measurement instruments. These scales were specifically crafted to assess the cognitive fluidity levels of young adults within the Family context.

The study was conducted within the municipal limits of Udaipur district, situated in the state of Rajasthan, India. Udaipur district was selected as the research setting due to its appeal to students from surrounding districts who come to pursue higher education, contributing to its diverse socio-cultural landscape. With a mix of urban and rural populations, Udaipur provided a rich environment for studying the influence of familial structures on cognitive fluidity among young adults. The sample comprised 120 young adults, all falling within the age bracket of 25 to 30 years, selected through a purposive sampling technique to ensure

demographic diversity and representativeness. Furthermore, the sample was stratified to encompass an equitable distribution of participants from both nuclear and joint family structures, which are prevalent familial configurations in the region. Each family type comprised 60 participants, with an equal split between males and females, resulting in a total of 30 males and 30 females from nuclear families, and an identical distribution from joint families.

This deliberate stratification was essential to capture the potential variations in cognitive fluidity levels attributable to different familial contexts. By including participants from both nuclear and joint family backgrounds, the study aimed to provide a comprehensive understanding of how family structures influence cognitive fluidity among young adults in the specific socio-cultural context of Udaipur district, Rajasthan, India.

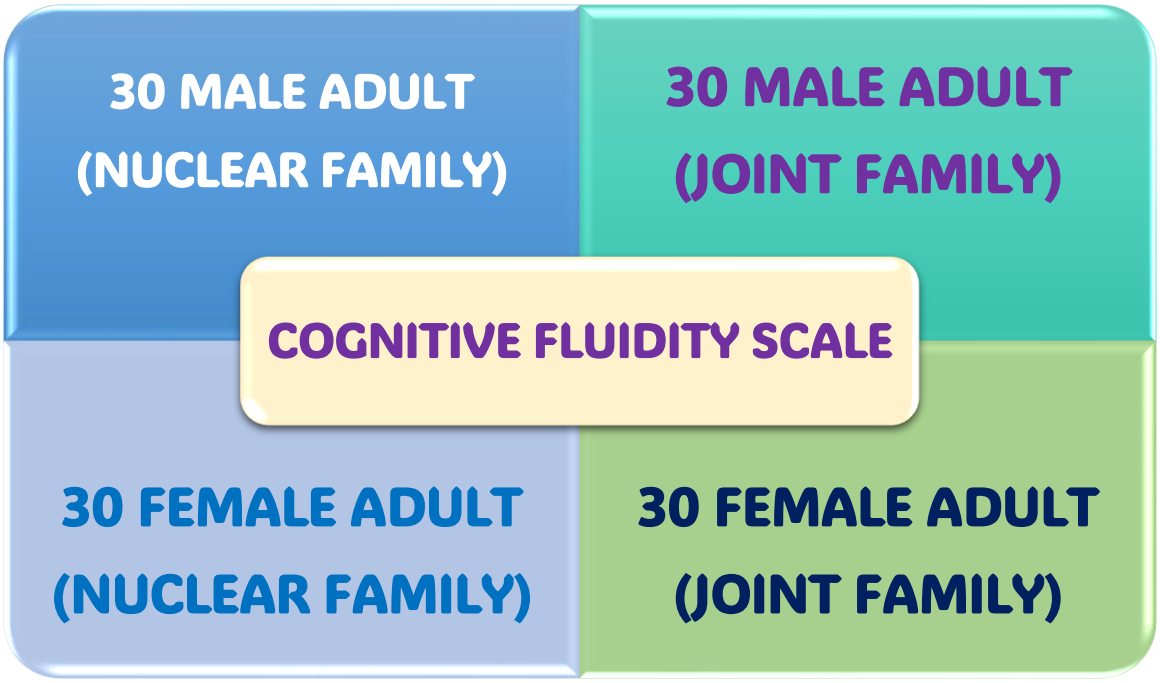

Fig 1: Sample Design for Study.

3. Review of Literature:

Cognitive fluidity, the ability to adaptively switch between different tasks or stimuli, is deeply intertwined with family dynamics, particularly in the context of India where both nuclear and joint family structures prevail. Understanding how cognitive fluidity manifests among male and female adults within these family types offers valuable insights into the interplay between cognitive processes and familial environments. The maturation of cognitive processes, as illustrated by Gogtay et al. (2004), is a dynamic process influenced by synaptic pruning, myelination, and neurochemical alterations. These mechanisms are crucial for cognitive development, particularly in shaping the adaptability of individuals to their familial contexts. In both nuclear and joint families, synaptic pruning and neurochemical alterations may interact differently due to variations in familial experiences and interactions.

Within the familial context, cognitive fluidity, as highlighted by Zelazo et al. (2013), plays a pivotal role in navigating various familial roles and responsibilities. In joint families, where intergenerational interactions are more prevalent, individuals may need to rapidly switch between different tasks and stimuli, necessitating higher levels of cognitive fluidity. Conversely, in nuclear families, the focus may be more on adapting to external stimuli, such as work demands or social engagements. Family socio economic

status and parental education levels also plays a significant role in context to nuclear and joint families and impact cognitive functioning and development of adults. Low parental education, as emphasized by Lorant et al. (2003) and Pinquart and Sörensen (2000), can exert detrimental effects on cognitive abilities, potentially influencing cognitive fluidity differently across family types. In joint families, where there may be a greater pooling of resources and intergenerational support, the impact of parental education on cognitive development may manifest differently compared to nuclear families.

Rueda and Valls (2020) propose that cognitive fluidity enables individuals to respond appropriately to familial demands, contributing to decision-making and adaptive behaviours within the family unit. Gender dynamics within nuclear and joint families may influence the expression of cognitive fluidity, with males and females potentially adopting different cognitive strategies based on familial roles and expectations.

Understanding the nuanced interplay between cognitive fluidity and family dynamics is essential for comprehending the cognitive experiences of male and female adults in nuclear and joint families in India.

4. Results and Discussions:

4.1. Cognitive fluidity among young male and female adults of nuclear families n=120

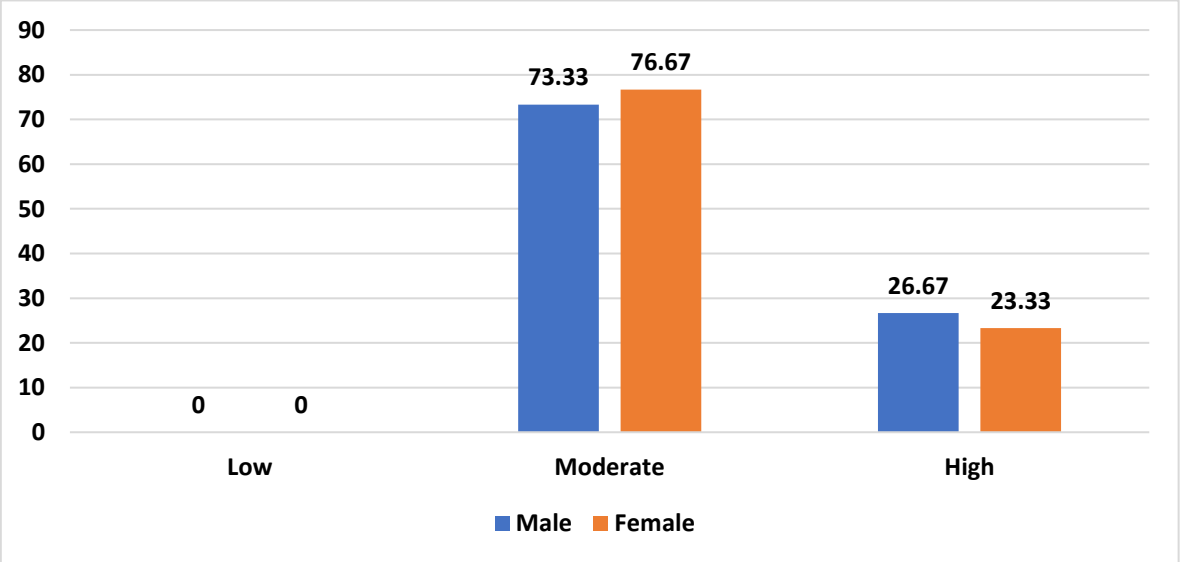

Figure 2 Percentage distribution of adult male and adult female for cognitive fluidity among nuclear family

The data depicted in Figure 2 reveals that a majority of respondents exhibited a moderate level of cognitive fluidity. Specifically, 26.67 percent of males from nuclear families and 23.33 percent of females from nuclear families demonstrated a high level of cognitive fluidity, contrasting with 76.67 percent of male adult from nuclear families and 73.33 percent of female from nuclear families exhibiting a moderate level. This observed pattern highlights the intricate relationship between gender and cognitive fluidity. This finding resembles with the study done by Hooman & Asgari (2013) They found that the mean score of female students on fluid intelligence was significantly higher than that of male students.

One potential explanation for the observed gender differences in cognitive fluidity could be found in research examining brain size and its correlation with changes in intelligence among children and adolescents. Studies by Lynn, Allik, and Must (2000) as well as Lynn (1999) conducted comparisons of fluid intelligence among children aged 7 to 15 across genders, with consistent findings in samples from

Estonia and the United States. These studies revealed that sex differences in intelligence tend to peak around the age of 10 in favour of girls. The researchers postulated that this difference may stem from the rapid growth of the female brain between the ages of 7 and 10, as girls experience an earlier growth spurt compared to boys. Furthermore, existing literature has highlighted various cognitive strengths associated with each gender. Females tend to excel in processing speed, logical reasoning, tasks requiring fine motor coordination, and utilization of long-term memory, while males typically outperform in areas such as quantitative reasoning, latent comprehension, and visuo-spatial processing, as evidenced by studies conducted by Keith, Reynolds, Patel, and Ridly (2008), Halpern and LaMay (2000), and Nasser, Singhal, and Abouchedid (2008). These findings suggest that differences in cognitive abilities between males and females may contribute to variations in cognitive fluidity observed within the studied demographic.

This discrepancy in specific cognitive abilities may have contributed to the perception of males as superior, particularly in areas associated with understanding, manipulating, and applying knowledge. Males often exhibit superiority in aspects of intelligence crucial for academic and professional success, such as quantitative reasoning and problem-solving, reinforcing the stereotype of "brilliance equals male." Conversely, females tend to excel in abilities essential for everyday problem-solving and interpersonal interactions, which may not have historically been recognized as requiring intelligence by societal standards. Research by Galdi, Cadinu, and Tomasetto (2014) and Murphy, Steele, and Gross (2007) suggest that this gender-based perception of brilliance may stem from traditional roles and expectations, wherein males are valued for their proficiency in knowledge-driven fields, while females' strengths are often overlooked or undervalued in comparison.

4.2 Cognitive fluidity among young male and female adults of joint families

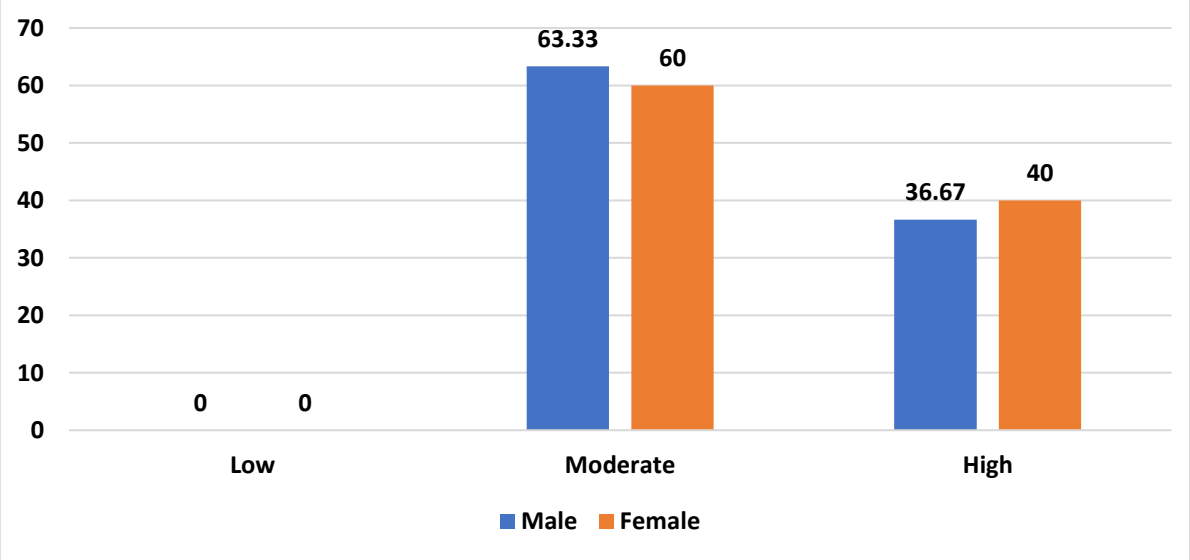

Figure 3 Percentage distribution of adult male and adult female for cognitive fluidity among joint family

The analysis of cognitive fluidity among male and female members of joint families revealed notable findings. Specifically, 63.33% of males and 60% of females exhibited a moderate level of cognitive fluidity, while 36.67% of males and 40% of females displayed a high level. Remarkably, none of the respondents demonstrated a low level of cognitive fluidity. These results suggest a predominant presence of moderate to high levels of cognitive fluidity among both male and female members of joint families.

Such uniformity in cognitive fluidity levels may indicate shared experiences, interactions, and cognitive stimuli within the familial environment. In joint family settings, parents often prioritize fostering collaborative problem-solving, encouraging open communication and providing opportunities for diverse cognitive stimulation among family members. These proactive activities not only contribute to individual cognitive development but also serve to strengthen familial bonds and enhance overall well-being. By engaging in collaborative problem-solving, family members learn to work together, share ideas, and negotiate solutions, fostering critical thinking skills and promoting a sense of unity within the family unit which help the adults to adapt a flexible and adaptive way of thinking. Moreover, in the Indian scenario, joint families often serve as a support system, particularly in times of crisis or adversity. Family members collectively navigate challenges and provide emotional and practical support to one another. This supportive environment can contribute to the development of adaptive coping mechanisms and resilience, thereby enhancing cognitive fluidity among adults in joint families.

When comparing between the cognitive fluidity among nuclear and joint family adults, 40% of females and 36.67% of males from joint families were high level of cognitive fluidity whereas 23.33% of females and 26.67% of males were having high levels of cognitive fluidity. This difference may be attributed to the rich social interactions, collaborative problem-solving, and emotional support that are inherent in joint family systems. This support network can mitigate the negative impact of stressful events on adults' psychological well-being, thereby indirectly influencing cognitive fluidity. In contrast, individuals from nuclear families may have fewer opportunities for such interactions and support, potentially impacting their cognitive development. Thus, the absence of such support structures in nuclear families may contribute to differences in psychological development and cognitive functioning between individuals in joint and nuclear family settings.

5. Conclusion

The study investigates cognitive fluidity among male and female adults in both nuclear and joint family structures in India. The data analysis reveals that a majority of respondents across both family types exhibited a moderate level of cognitive fluidity, with a notable presence of high cognitive fluidity levels particularly among males and females in joint families. These findings underscore the significance of family dynamics in shaping cognitive processes.

Gender differences in cognitive fluidity were observed, with females demonstrating higher fluid intelligence scores compared to males, aligning with previous research. Variations in cognitive abilities between genders, such as processing speed and logical reasoning, may contribute to the observed differences in cognitive fluidity. Moreover, societal perceptions of gender roles and intelligence may influence these differences, with males traditionally valued for proficiency in knowledge-driven fields and females' strengths often overlooked.

In joint family settings, where collaborative problem-solving and open communication are encouraged, both male and female adults displayed moderate to high levels of cognitive fluidity. This suggests that shared experiences and cognitive stimuli within the familial environment contribute to uniformity in cognitive fluidity levels. In contrast, the absence of such supportive structures in nuclear families may lead to differences in psychological development and cognitive functioning between individuals in nuclear and joint family settings.

Furthermore, the study highlights the potential negative impact of parental mental health issues, such as post-traumatic stress symptoms, on children's psychological well-being and cognitive development.

Adults in joint families benefit from the support of other family members during times of crisis, which may mitigate the adverse effects of stressful events on cognitive fluidity.

Overall, the study emphasizes the intricate relationship between gender, family dynamics, and cognitive fluidity, underscoring the importance of familial environments in shaping cognitive processes among male and female adults in India.

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