

Research Article



Sexual Dimorphism in Achieved Cognitive Skills of Adolescence Age Group – A Case Study

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ABSTRACT

This work focuses on a gender difference in the component of an achieved target in relation to the cognition skills that are exhibited by the individual. A validated questionnaire that reflects the cognitive skills of the subject were prepared and analyzed statistically. Although gender specific variations in the manner of cognitive skills were observed, it could be concluded that the classroom practices and institutional set up indicates a wholesome development.

Keywords: Sexual Dimorphism, Adolescence, Case study.

INTRODUCTION

In order to assess a variation in the cognitive skills between males and females as this would result in an academic achievement variation between the sexes. A modulation in the cognitive, emotional & behavioural complexes; expressed by an individual might be due to a hormonal fluctuation in the same individual.¹⁰

Decreased levels of estrogen are understood to be cognitively beneficial in men; whereas increased levels of estrogen and/or progesterone have been shown to be cognitively beneficial in women.¹⁰ The idealized menstrual cycle in women usually consists of around 28 days, but it is also considered normal for the cycle to exhibit a variation between 21 to 35 days in duration.⁶ The length of the menstrual cycle has also been found to increase in accordance to the age of the individual. Interestingly 7% of the menstrual cycles that occur in women tend to occur for a period that's less than 28 days in length.² In women the consolidation of emotional memories and fear extinction is modulated by the menstrual cycle. Cognitive skills can be categorically assessed in the manner of assessing one's visuospatial skills, wherein this can be further categorized into spatial perception & spatial visualization.⁷ found that men outperformed their female counterparts in tasks that reflected their visuospatial abilities & that women outperformed their male counterparts in tasks that reflected their verbal skills and verbal memory.¹

Aim: To assess the achieved cognitive skills in relation to the gender of the individual, along with the consideration of women with a regular menstrual cycle.

MATERIALS AND METHODS

After getting an institutional ethical clearance and an informed consent from the subjects that were taken into the study.

The study group included 45 boys and 55 girls.

A validated Questionnaire was given to students that were doing their first year of MBBS.

The analytical materials that were taken into consideration for the study were the individual's memory skills, verbal tasks & decision making skills. The individual's intelligence quotient, the individual's interest in mathematical skills, the number of languages that are known to the individual, driving skills & extracurricular activities such as music, dance & sports. The type of education that was given to these students back in school was also statistically analyzed and recorded.

RESULTS

The cognitive skills that favor the male subjects in the study was that they were more interested in mathematical computations and were also more prone to indulge themselves in risk taking behavior that allowed them to be more efficient when it came to problem solving; and the usage of strategies to do so.

Male subjects were also found to be better at sports as it involved a team based effort in the spheres of decision making. The cognitive skills that favored the female subjects over the male subjects were decision making skills & verbal tasks.

The type of education that was administered to students from a CBSE syllabus in comparison to a Metric syllabus showed that those students from a CBSE syllabus exhibited an improvement in their cognitive skills. This was evident in both the girls and in the boys.

DISCUSSION

Male and female subjects perform differently in the measures of intelligence, reasoning, decision making skills, memory & verbal tasks. This work also highlights the nature of educational system and how the subject's school system would help him/her to develop cognitive



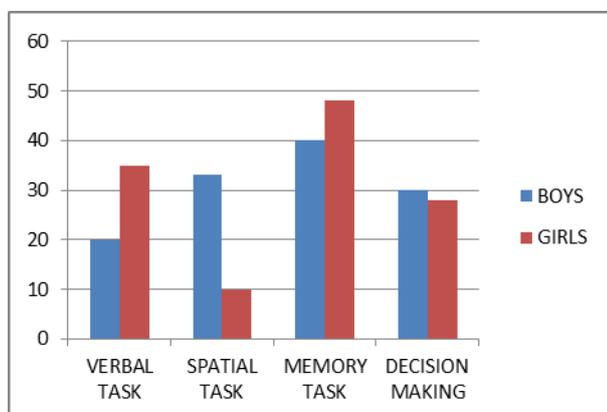
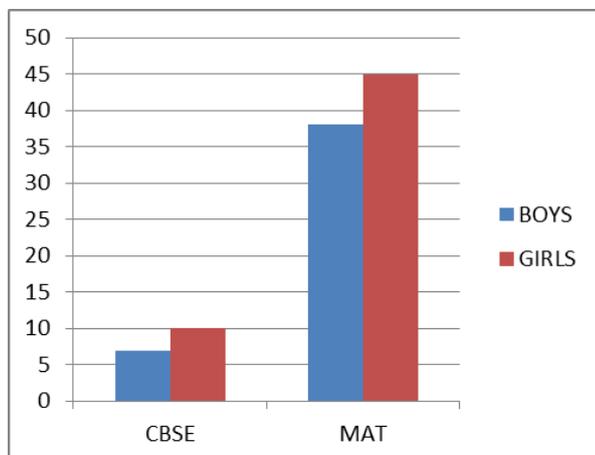
skills. Males performed better in the mental rotation, 3D objects in the manner of different orientations & decision making skills. Females performed better in the areas of verbal fluency, public perception, oriented & in activities such as music.

The impact of expectation seems to start earlier in boys in comparison to girls. Lower expectations were reported by the female subjects in comparison to their male counterparts.

Parents and teachers had the tendency to rate the individuals based on their achieved academic skills, rather than rating the subjects based on their individual cognitive skills.

The perceived societal pressures regarding an academic excellence also had a tendency to impact the achieved skills by the individual. Even though gender differences were observed throughout the study an appropriate educational training would apparently help to bridge the gap between males and females.

The various skills that were assessed throughout the study & the performance of those skills by the male and female participants.



CONCLUSION

Even though sexually dimorphic cognitive skills were observed; classroom practices along with institutional setups influence the performance of various cognitive tasks rather than gender differences.

The number of participants that attended a CBSE syllabus in comparison to the number of students in the study that attended a Metric syllabus.

REFERENCES

1. Andreano J.M., andnovic, N., and Chahill L. (2009) . Sex influence on the neurobiology of learning and memory. *Learn. Mem.* 16, 248-266. Doi: 10.1101/lm. 918309.
2. Brodin, T., Bergh, T., Berglund L., Hadziosmanovic, N., and Holte, J. (2008). Menstrual cycle length is an age-independent marker of female fertility; results from 6271 treatment cycle of in vitro fertilization. *Fertil.Steril.* 90, 1656 – 1661. Doi: 10.1016/j.fertnstert.2007.09.036.
3. Voyer, D., Voyer, S., and Bryden, M.P. (1995). Magnitude of sex differences in spatial abilities: A meta-analysis and consideration of critical variables. *Psychological Bulletin*, 117, 250-270.
4. Weiss, E.M., Ragland, J.D., Brensinger, C.M. Bilker, W.B., Deisenhammer, E.A., and Delazer, M. (2006). Sex differences in clustering and switching in verbal fluency tasks. *Journal of the International Neuropsychological Society*, 12(4), 502-509.
5. Shibley-Hyde, J. (2005). The gender similarities hypothesis. *American Psychologist*, 60
6. Lenton, E.A., Landgren, B.M., Sexton, L., and Harper, R. (1984a). Normal variation in the length of the follicular phase of the menstrual cycle: effect of chronological age. *Br. J. Obstet. Gynaecol.* 91, 681 – 684. Doi: 10.1111/j. 1471-0528. 1984. tb04830 .x.
7. Linn, M.C., and Petersen, A.C., (1985). Emergence and characterization of sex differences in spatial ability: a meta-analysis. *Child Dev.* 56, 1479-1498. Doi: 10.2307/1130467.
8. Spelke, E.S. (2005). Sex differences in intrinsic aptitude for mathematics and science? *American Psychologist*, 60 (9), 950-958. Doi: 10.1037/003-066X 60.9.950.
9. Herbert, J., and Stipek, D. (2005). The emergence of gender differences in children's perceptions of their academic competence. *Journal of Applied Development Psychology*, 26(3), 276-295.
10. Inger Sundstrom Poromaa, and Malin Gingnell (2014). Menstrual cycle influence on cognitive function and emotion processing – from a reproductive perspective. *Frontiers in Neuroscience*, 24, 8, 380.

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