

THE LEARNING CURVE

Volume VIII
e-ISSN 2321-7057



Department of Psychology
Lady Shri Ram College for Women

The Learning Curve

Department of Psychology
Lady Shri Ram College for Women, University of Delhi
Lajpat Nagar IV, New Delhi- 110024

Editors

Dr Kanika K. Ahuja
Associate Professor,
Department of Psychology
Lady Shri Ram College for Women

Ms. Anisha Juneja
Assistant Professor
Department of Psychology
Lady Shri Ram College for Women

Editorial assistants

Madhulika Rathore | Tanya Dutta | Kasish Ngangom

AIMS and SCOPE: The field of psychology with its basic and applied orientation penetrated every sphere of life. The Journal-*The Learning Curve* aims to provide a dynamic platform for researchers to present their research work that brings out a novel and significant perspective of looking at psychological issues of concern. The journal hopes that the papers in the journal will take the field of psychology in unexplored directions and uncharted terrains.

Principal

Dr. Suman Sharma

Editorial Advisory board

Dr. Rashmi Singla
Associate Professor & International Coordinator
in Psychology, Department of People
and Technology, Roskilde University, Denmark

Dr. Matthew Whoolery
Professor, Department of Psychology,
Brigham Young University-Idaho, USA

Dr. Vimla Veeraraghavan
Former Professor and HOD Psychology
and Applied Psychology Department,
Delhi University and Emeritus Professor
Psychology IGNOU

Dr. Ashum Gupta
Retired Professor University of Delhi,
Honorary Professor, Punjab University

Dr. Manju Mehta
Former Professor and HOD Clinical Psychology
Department, AIIMS and Consultant, Holy Family
Hospital

Dr. Nandita Babu
Professor, Department of Psychology,
University of Delhi

Dr. Mohammad Ghazi Shahnawaz
Head, Department of Psychology,
Jamia Millia Islamia

Dr. Navin Kumar
Associate Professor, Department of Psychology,
Bhim Rao Ambedkar College

Reviewers

Dr. Harpreet Bhatia
Assistant Professor, Department of Psychology,
Keshav Mahavidyalaya

Dr. Garima Kumar
Assistant Professor, Department of Psychology, Mata
Sundri College

Dr. Gayatri Arun Kumar
Assistant Professor, Department of Psychology,
Indraprastha College

Dr. Pushpita Behera
Assistant Professor, Department of Psychology, Lady
Shri Ram College

Dr. Suparna Jain
Assistant Professor, Department of Psychology,
Daulat Ram College

Dr. Garima Srivastava
Assistant Professor, Department of Psychology, Lady
Shri Ram College

Dr. Sneh Kapoor
Assistant Professor, Department of Psychology, Jesus
and Mary College

Dr. Shivantika Sharad
Assistant Professor, Department of Applied
Psychology, Vivekananda College, University of Delhi

Dr. Shivani Datta
Assistant Professor, Department of Psychology, Kamla
Nehru College, University of Delhi

THE LEARNING CURVE

Published annually by the Department of Psychology, Lady Shri Ram College, University of Delhi
Information for the Authors

The Learning Curve invites papers reflecting conceptual, theoretical and empirical investigation pertaining to any of the themes including Applied psychology, Psychological assessment and Intervention, Organisational Stress and coping, Neuropsychology, Positive psychology, Sports and health, Stress and Well Being, Emotions, cognition and Health; Changing face of relationships; Spirituality; Addiction; Trauma and resilience; Psychology and its inter disciplinary ties.

The articles should follow the APA style of manuscript submission.

Checklist for Manuscript Submission:

- Format:
 - ✓ MS Word
 - ✓ Font style- Times New Roman
 - ✓ Font size- 12
 - ✓ Spacing- Double
- Abstract
 - ✓ Between 150- 200 words
 - ✓ Followed by 5 keywords
- References
 - ✓ Alphabetical order
 - ✓ APA style

Checklist for headings to be covered in an empirical paper:

- Abstract with keywords
- Hypothesis
- Method
 - ✓ Participants
 - ✓ Design
 - ✓ Measures
 - ✓ Procedure
- Results
- Discussion
- Limitations and Directions for future research
- Conclusion
- References

Checklist for headings to be covered in a theoretical paper:

- Abstract with keywords
- Introduction- with literature section summarizing knowledge of a theme with citations and references to earlier work
- Method- specifying databases, indexes and search terms, objective inclusion and exclusion criteria
- Results- summarizing the collected data with statistical procedures used, tables and figures
- Conclusion and Discussion- making make a clear statement of support or non-support concerning the research question and to state the major findings of the study; limitations and suggestions for future research

Disclaimer: The Publisher and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal. The views and opinions expressed do not necessarily reflect those of the Publisher and Editors.

The Learning Curve

e-ISSN 2321-7057

Volume VIII 2019

Contents

	Page
1. Construction and Development of Academic Stress Scale for College and University Students <i>Dr. Vikas S. Minchekar, Associate Professor, Department of Psychology, Smt. Kasturbai Walchand College, Sangli, affiliated to Shivaji University, Kolhapur, Maharashtra</i>	03-09
2. Psycho-social stressors, H-P-A Axis, and Eating Disorders: A Review of the Etiopathogenesis of Eating Disorders <i>Ms. Sarandha Chandel, Postgraduate student, Department of Psychology, Christ University</i>	10-15
3. Understanding the Neural Basis of Motor Learning by Observation <i>Ms. Ishita Arun, Postgraduate Student, Centre for Cognitive & Brain Sciences, Indian Institute of Technology, Gandhinagar</i>	16-21
4. The Truth on Our Faces: A Literature Review of Micro-expressions in Deception Detection <i>Ms. Nandini Pathak, Undergraduate student, Department of Psychology, Indraprastha College for Women Dr. Nidhi Malik, Assistant Professor, Department of Psychology, Indraprastha College for Women</i>	22-27
5. The Relationship between Gender Discrepant Behavior and Gender Egalitarianism in American College Students <i>Ms. Amanat Bansal, Undergraduate student, Department of Psychology, Boston University</i>	28-31
6. Mental Health in Digital Age <i>Dr. Monika Misra, Assistant Professor, Discipline of Psychology, School of Social Sciences, Indira Gandhi National Open University</i>	32-38
7. Becoming a Pro at Procrastination: Examining the Correlates of Procrastination <i>Ms. Moksha Miskeen, Postgraduate student, Department of Applied Psychology (Clinical Psychology), School of Human Ecology, Tata Institute of Social Sciences, Deonar Ms. Surbhi Kumar, Assistant professor, Department of Psychology, Indraprastha College for Women, University of Delhi</i>	39-46
8. The Effect of Level of Corporate Social Responsibility Engagement on Organizational Attractiveness <i>Ms. Saumya Singh, Ms. Madhulika Rathore, Ms. Mehak Rawal and Ms. Tanya Dutta Undergraduate students, Department of Psychology, Lady Shri Ram College for Women, University of Delhi</i>	47-53
9. Difference in stress and self esteem among exercising and non-exercising young adults <i>Ms. Samhita A. Kumar, Trainee Counsellor, The Heritage School, Kolkata</i>	54-59
10. Cultural Nuances of Morality: Exploring Folktales <i>Ms. Noyonika Gupta, Ms. Simran Kaur. Undergraduate students, Department of Psychology, Indraprastha College for Women, University of Delhi Ms. Surbhi Kumar, Assistant Professor, Department of Psychology, Indraprastha College for Women, University of Delhi</i>	60-66
11. What Are We Afraid Of? Exploring Fear of Crime, Its Correlates, and Gender Differences <i>Ms. Niharika Rawat, Undergraduate student, Department of Psychology, Lady Shri Ram College for Women, University of Delhi</i>	67-73
12. Smoking Behaviour in Indian Females: The Role of Self-Efficacy <i>Ms. Mehak Bawa, Ms. Sagarika Mathur, Undergraduate students, Department of Psychology, Mata Sundri College for Women, University of Delhi</i>	74-80
13. Attitudes towards homosexuality: difference in religion, gender and proximity <i>Ms. Maitri Jain, Ms. Ramya Kaushik, Undergraduate students, Department of Psychology, Lady Shri Ram College for Women, University of Delhi</i>	81-86

Construction and Development of Academic Stress Scale for College and University Students

Vikas S. Minchekar*

The present study aimed at to develop a tool to measure the stress levels of college and university students. At the initial stage, the construct of academic stress was defined on the basis of review of literature, and discussions with various experts. An initial pool of 85 items classified into seven sources of academic stress among college and university students was generated. The 85-item scale was then given to 100 students studying in Arts, Science, Commerce, Engineering, Medical, Law, M. S. W., B. Ed., Polytechnic, Architect, B.C.A. courses to get their responses. The obtained data was analysed through item analysis and factor analysis. After statistical analysis, 66 items out of 85 were retained in the five subscales. The final form of the 66-item scale was then given to another group of 600 students in the second phase of test administration. Participants for the second phase included 300 students from Arts, Science and Commerce streams and 300 students from Engineering, Medicine and Law. High indices of reliability and validity were found for this scale.

Keywords: Academic Stress, Personal Inadequacy, Peer teacher interaction, Fear of Examination, College, Parental Expectations

College life is one of the greatest periods of our life. Making new friends and the good times we share with them are cherished by most youngsters. Apart from this, it is a period of gaining knowledge and assimilating new skills. However in the present era, students are experiencing cut-throat competition. Hence, stress seems very common in college students' lives, especially among those who are in professional courses.

College students, especially newly admitted students are a group prone to academic stress (D' Zurilla & Sheedy, 1991) because of the transitional nature of college life (Towbes & Cohen, 1996) and the pressure to maintain and adjust to a high level of academic achievement (Shah, Trivedi, Diwan, Dixit, & Anand, 2009). College students have to face new demands such as course requirements, time management issues, financial burdens, interaction with faculty, adjustment to the campus environment and pursuit of personal goals (Misra, 2000; Kariv, Heiman, & Zion, 2005; Von Ah, Ebart, Ngamvitraj, Park & Hang, 2004). These demands are stressors in their own ways. Other sources of academic stress in students' lives are excessive homework, confusing assignments, academic ambitions, uncomfortable classrooms, the curriculum, peer pressures, romantic relationships (Kohn & Frozer, 1986; Sgan - Cohen & Lowertal, 1988), the semester pattern and inadequate resources to perform academic work (Agolla & Ongori, 2009). These sources create academic stress among college students which adversely affects their performance.

Various investigators have researched the concept of academic stress. The review of literature suggests that academic stress has gained importance in recent times. According to DeDeyn (2008) "Academic stress is defined as a mental and emotional pressure or tension that occurs due to the demands of college life." If the pressure is prolonged and

perceived as unmanageable, it causes mental and emotional imbalance among students, which affects health and academic achievement. According to Wilks (2008) "Academic stress is the product of a combination of various academic requirements that exceed the adaptive resources available to an individual". According to MacGeorge, Samter, and Gillihan (2005), "Academic stress is viewed as chronic stress due to the nature of academic demands associated with negative health outcomes of depression and physical illness".

It is seen that above mentioned researchers in their definitions have given maximum emphasis on academic demands and the individual's ability to fulfil them successfully. Academic stress includes a student's perceptions regarding the challenging demands and the perception of a shortage of time to accomplish them. Stress can result from anticipation or perception of situations as demanding and pressurising. If students are forced to complete these demands in a short time period, they may feel tremendous amounts of pressure.

Sources of academic stress

Various sources cause stress among students in the educational setting as described below.

Unrealistically high expectations from self and feelings of Personal Inadequacy. It has been observed that the students of professional courses have higher expectations from themselves compared to the students belonging to non-professional courses. Moreover, it is seen that high academic achievement is an important need for students in professional education compared to non-professional education. Hence, the former tend to strive for higher grades or marks. Receiving a lower grade than expected is another frequently reported source of academic stress. Researchers have found

*Associate Professor, Department of Psychology,
Smt. Kasturbai Walchand College, Sangli, affiliated to Shivaji University, Kolhapur, Maharashtra
Corresponding Author: Dr. Vikas S. Minchekar | Email: vikasminchekar@yahoo.com

that students' high academic expectations are associated with higher levels of academic stress (Abouserie, 1994). Some students are unaware of their abilities and limitations.

Such students tend to keep goals that they are never able to accomplish. Consequently, they become stressed and depressed.

Personal inadequacy means lack of qualities and abilities necessary to do something or to cope with challenges in life. In academic life, this term can be linked to perceived lack of ability to complete course work, lack of understanding of the curriculum and an inability to adjust to the academic environment. Some students are unable to complete the course requirements within a stipulated period and some are unable to tolerate the excessive load of assignments and project work.

Parental Expectations. Without considering their abilities, many parents force their children to take up certain professional courses. Hence, such students immediately become victims of academic stress. Although academic stress is usually linked to tests and tutorials, examinations, time and plans, expectations of parents as a factor in contributing to academic stress is very crucial (Akgun & Ciarrochi, 2003). Middle-class parents especially in the Indian context, may compel their children to seek admission in professional courses, especially for medicine and engineering.

This academic stress is found to be very severe and can lead to suicides in college students. To gain a good grade in the course enrolled is another common parental expectation. It also causes great pressure for students. Keeping opposite sex friendships by their children on a college campus is the newly developed parental apprehension and a source of anxiety for them. Believed to be an influence of modernization and Western culture, it creates stress for students too.

Interactions with Peers. There is a rat race among the students of professional courses to score good marks and to get selected in campus interviews for further placements after the completion of college. As a result of this, many students follow unfair means and disrupt the quality of their interpersonal relationships. On the contrary, such problems are reported to be lesser in number in non-professional courses. Hence, the students in non professional courses experience less academic stress. Taunting and teasing or ragging by peers is a common source of academic stress among college students (Struthers, Perry & Mence, 2000; Wenz, Gross, Untch & Widaman, 1997). Michine, Glachan, and Bray (2001) found that students who believed that their peers judged them experienced a higher level of academic stress. Another common problem among peers originates from the unhealthy and excessive competition. Cut-throat competition to get a rank better than one's friends also creates

severe stress in college students. Problems with roommates is another factor contributing to stress. It is seen that some students intentionally create various problems for their roommates in the period of examinations (Rafidah, Azizah, Zorzaidi, Chong, Salwani, & Norani, 2009).

Interactions with Teachers. In professional courses, it is essential to complete the curriculum well in time. Similarly, students have to complete their projects, home assignments and practicals. Due to this there are constant interactions between the students and their teachers. Comparatively, such activities are less common among non-professional courses. In the Indian education system, there is 10 + 2 senior secondary system and up to this level there is one class teacher who controls the class providing personal guidance or direction to every student. When these students enter colleges where they are no longer closely monitored, they are likely to experience stress in the early days. According to Chen, Lin, and Tu (2006) professors usually pay attention to the acquisition of information, neglecting the feelings of students during the teaching process, which can cause emotional stress and learning problems for students. Also, students may face unfamiliar situations evoking nervousness, worry and frustration. The instability of these emotions easily initiates unusual behaviour, which then affects the academic achievement and adjustment of students. Some teachers are perceived to be incapable of delivering lectures in an impactful manner by the students. They are less able to explain the topics resulting in students getting confused and anxious about the examinations. Some teachers give their attention or provide personal guidance to only high achieving students. Facing this partiality may create a severe level of stress in the remaining students of the class.

Fear of Failure or Fear of Examination. Among the various factors, test or exam anxiety is one of the major sources of academic stress (Fisher, 1994). Research on fear of failure originates from the work of McClelland, Atkinson, Clark and Lowell (1953) and Atkinson (1957). These theorists suggest that there is an inherent need to avoid failure. According to Heckhausen (1991), fear of failure is a set of emotional, cognitive and behavioral experiences that is associated with failure in achievement situations. Research conducted by Conroy, Willow and Metzler (2002) had shown that fear of failure is an avoidance based motive that is linked with stress.

The student spends a lot of money for seeking admission to professional courses. The expenditure of educational expenses is also very high per year. The students of professional courses are more afraid of failure in the examinations as they have invested huge amounts of money for their education. Comparatively the expenses of non-professional courses are less. Hence, they experience less academic stress relatively.

The stress level of high achieving students is comparatively all the more higher because of their fear of losing their rank and facing the disapproval of parents and friends (Hariharan & Rath, 2008). Some students have fear about their future, they don't have the assurance of getting a job by the type of education they are gaining.

Inadequate Facilities in College. The environment in which professional education students live is quite different compared to non-professional education students with regards to sources of stress, such as the tight schedule of lectures and practicals and striving for goals, the continuous evaluation such as weekly tests, assignments, project work, semester papers, etc. Professional education is inherently stressful and quite demanding. The continuous flow of information leaves a minimal opportunity to relax and refresh. They face unique academic challenges that make them more vulnerable or prone to stress and anxiety than students of other disciplines.

Many studies underscore the role of college environment as a source of stress for students. (Dyrbye, Thomas, Harper, Massie, Power, & Eacker, 2009). It is essential for all the academic institutions to maintain a well-balanced academic environment, committed to providing better learning with the focus on students' personal needs. Different academic institutions have different infrastructures. Some colleges provide all the facilities to students and faculty, hence students became happy and they enjoy their academic life. On the contrary, most colleges do not provide sufficient facilities for their students. The lack of various facilities such as sufficient reference and reading books, journals, and periodicals, classrooms, spacious library hall and playing grounds, may create stress for students. The administrative

staff is also a great source of stress for students. If the clerical staff is unsupportive, always hesitating to help the students and creating delays for students, then the severe feeling of anger may arise in students.

Financial Problems or Socio economic status. Finance is one of the biggest sources of stress for students especially students from professional courses. Tuition fees, other miscellaneous fees, expenditure on academic fulfillments, campus accommodation and purchase of textbooks for individual study are not affordable for some students. Such students may feel inferior. Some students take educational loans to solve the financial problems. This loan can cause the students to overstrain themselves. They have to do a part-time job. This can make it difficult to concentrate on studies and lead to failure in their course. Some students do not have a comfortable place for studying at their home. Hence they cannot complete home assignments on time, cannot concentrate on studies, thereby, creating a high level of anxiety and stress.

Method

Participants

Participants for this study included undergraduate students enrolled in professional and non-professional courses at various colleges under the jurisdiction of Shivaji University, Kolhapur. Simple random sampling technique was used to select the students in the sample. Subjects were matched on the basis of gender, residence and types of discipline. The ratio of matching variables was kept as 1:1 (300:300). The age range of the student participants was 18 to 22 years. 25 colleges from Sangli, Satara, and Kolhapur districts were visited to recruit the sample.

Table 1

Demographic Characteristics of the Study Sample

Demographic Characteristics		N	%	Mean	Range
Age (Years)	18	117	19.5		
	19	138	23		
	20	153	25.5	20	18-22
	21	136	22.67		
	22	56	9.33		
Sex	Male	300	50	—	—
	Female	300	50	—	—
Place or Area of Residence	Urban	300	50	—	—
	Rural	300	50	—	—

Demographic Characteristics		N	%	Mean	Range
Religion	Buddhist	57	9.5		
	Jain	50	8.33		
	Christian	10	1.67	—	—
	Muslim	47	7.83		
	Hindu	436	72.67		
Type of discipline	Medical	180	30		
	Engineering	89	14.83		
	Law	31	5.17		
	Arts	164	27.33	—	—
	Science	109	18.16		
	Commerce	27	4.5		
Districts	Sangli	291	48.5		
	Kolhapur	206	34.33	—	—
	Satara	103	17.17		

Development of items

The scale named as the Academic Stress Scale for College and University Students (ASSCUS) was planned for construction in order to measure the level of academic stress experienced by students in the whole academic year due to various sources viz. personal inadequacy, interactions with peers and teachers, fear of examination, inadequate facilities at the college, parents' expectations and socioeconomic status. The scale consists of 66 multiple choice items with a 5-point Likert scale. The response options range from strongly agree to strongly disagree. A high score on the scale denotes extremely high academic stress while low score shows very low academic stress.

The researcher went through various steps while constructing academic stress scale. At the initial stage, the construct academic stress was defined through the review of the literature and discussion with various experts. An initial pool of 85 items was generated on the basis of seven sources of academic stress among college and university students. These initial sources were: personal inadequacy; interactions with peers; interactions with teachers and administrative staff; fear of examination; inadequate facilities at college; parents' expectations and socioeconomic status. Items for the scale were written in Marathi, which is a regional language. The rough draft was then sent to three experts to assess these items. After expert judgment, some items were reworded and instead of seven sources, items were classified into five sources by grouping a few areas together resulting in

the sources being personal inadequacy; interactions with peers and teachers; fear of examination; inadequate facilities at college and parents expectations and socio economic status. The scale was then administered to 100 students studying Arts, Science, Commerce, Engineering, Medicine, Law, M. S. W., B. Ed., Polytechnic, Architecture and B.C.A. The response format for the measure was Likert type only ranging from strongly agree (5) to strongly disagree (1).

Items were scored in such a way that higher scores indicated extreme academic stress and vice versa. Factor analysis and item analysis were then performed to generate or create the factors and find out the internal consistency among the factors and items. After this analysis, 19 items were dropped because these items had less than 0.30 correlation. Thus, the remaining 66 items were retained in the final form of the scale.

Procedure

Before administering the academic stress scale on the participants, various steps were followed by the researcher. A list of various colleges under the Shivaji University jurisdiction was obtained. Some colleges located in urban and some in rural settings were selected for data collection. Principals of these colleges were contacted to obtain their approval for participation of their students in the present study. After obtaining permission from the principal or faculty of departments, a list of students was collected from

them and forty students were chosen randomly. Finally, the researcher visited the respective classes and explained the purpose of study. It was also explained that participation was voluntary and they could discontinue their participation at any point in time. Thereafter, the academic stress scale

was given to each participant. Special instructions regarding confidentiality and realistic responses rather than idealistic or socially desirable responses were given to them.

Results and Discussion

Table 2

Item Analysis for ASSCUS

Subscale	No. of Items	Cronbach's Alpha	Item Retained
Personal Inadequacy	22	0.85	16
Interactions with Peers and Teachers	20	0.80	17
Fear of Examination	16	0.84	11
Inadequate facilities at college	13	0.81	9
Parental Expectations and SES	17	0.84	13
Total	88	—	66

Table 2 depicts the item analysis. Twenty two items were generated for the first dimension of 'personal inadequacy'. But only 16 items were retained in the final form. Six items were excluded from the scale because these items had a corrected item-total correlation of less than 0.30. Corrected item-total correlation is the correlation between the score on the item and the scores on the test as a whole multiplied by the standard deviation of that item (Brace, Kemp, & Snelgar 2003). Cronbach's alpha for personal inadequacy was found to be 0.85, which is a highly acceptable value for a research instrument since a good test alpha is greater than 0.70.

The second dimension is of 'interaction with peers and teachers' and originally 20 items were taken. But three items were excluded from the scale, retaining only 17 items. Cronbach's alpha for this dimension was 0.80.

The third component is of 'fear of examination'. Sixteen items were generated, but only 11 items were retained and Cronbach's alpha is 0.84. The next dimension is 'inadequate facilities at college' which was retained with nine items out of the initial 13 and the alpha value is 0.81. The last factor on the scale is 'parental expectations and socio economic status' also having a Cronbach's alpha value of 0.84 which is also quite high. This dimension was finalised with retaining 13 items out of the original 14.

Table 3

Alpha Factoring emerged for ASSCUS

Factor No.	Name of the Factors	Eigen Values	% of explained variance	Cumulative % of explained variance
1.	Personal Inadequacy	11.194	43.052	43.052
2.	Interactions with Peers and Teachers	4.869	18.726	61.778
3.	Fear of Examination	2.062	7.93	69.708
4.	Inadequate facilities at college	1.060	4.076	73.784
5.	Parental Expectations and SES	1.021	3.926	77.71

Alpha factoring of ASSCUS with varimax rotation revealed five independent factors explaining more than 77.71% of the variance. The five factors are five sources of academic stress among college students. The Eigen values show how much of the variance in the 85 items was captured by the factor. Eigen values greater than one are considered as significant in determining the factors (Brace, Kemp, & Snelgar, 2003). It is seen from table 3 that all eigen values are greater than one. The first factor with an Eigen value of 11.194 has explained 43.052% variance in the whole scale. The remaining four factors with significant Eigen value explain 18.276, 7.930, 4.076 and 3.926% variance in ASS respectively.

Table 4

Reliability Coefficients of ASSCUS

Types of Reliability	Reliability Coefficient
Test-Retest Reliability (with one-month interval)	0.73
Split-half Reliability	0.88

Table 4 depicts the reliability coefficient of ASS over the period of one month which is 0.73. Split half reliability is 0.88 indicating the high reliability of the scale.

Table 5

Validity Coefficients of ASSCUS

Test used for validation	Validity coefficient	p
Bisht Battery of Stress Scale	0.86	0.01
Mental Health Scale	-0.71	0.01

Table 5 shows the correlation coefficient of ASSCUS with Bist Battery of Stress Scale and Mental Health Scale. This correlation coefficient was found 0.86 and 0.71 respectively, which was significant at 0.01 level. These values show that the Academic Stress Scale for College and University Students is quite useful for what it intends.

Table 6

Norms of the ASSCUS

Academic Stress Level	Range of Scores
High	240 and above
Moderate	150 to 239
Low	Below 149

The norms of the scale were developed with the mean of 195 and SD of 45 on a sample of 200 subjects. These norms may be referred to for interpreting the academic stress scores. Individuals with a high score can be considered as experiencing high academic stress and vice versa, while the

scores between these extreme limits are considered as moderate academic stress.

Limitations and Directions for Future Research

Innumerable sources can result in academic stress in college students during their academic life. In the present study, based on the literature reviewed, five dominant sources were identified to measure the stress in academic life. There could be other possible sources of stress as well which have not been covered in this scale. These sources may show variation from region to region and in different cultures.

Conclusion

The final form of the Academic Stress Scale for College and University Students consisted of 66 items with five subscales. This scale with a high degree of reliability and validity can be a very useful tool to measure the academic stress of college and university students especially during the period of examinations. It might prove useful to educational counsellors, teachers and parents in order to find out the exact source or sources of stress and hence can play a crucial role in counselling the student with a problem focused approach.

References

- Abouserie, R. (1994). Sources and levels of stress in relation to locus of control and self-esteem in university students. *Educational Psychology, 14*(3), 323-330.
- Agolla, J.E., & Henry, O. (2009). An assessment of academic stress among undergraduate students the case of university of Botswana. *Educational Research and Review, 4*(2), 63-70.
- Akgun, S., & Ciarrochi, J. (2003). Learned resourcefulness moderates the relationship between academic stress and academic performance. *Educational Psychology, 23*, 287-294.
- Atkinson, J. (1957). Motivational determinants of risk-taking behavior. *Psychological Review, 64*, 359-372.
- Bisht, R.A. (1987). *Bisht Battery Stress Scale*. Agra: National Psychological Corporation.
- Brace, N., Kemp, R., & Snelgar, R. (2003). *SPSS for psychologist: A guide to data analysis using SPSS for windows*. UK: Palgrave Macmillan.
- Chen, F. S., Lin, Y. M. & Tu, C.A. (2006). A study of the emotional intelligence and life adjustment of senior high school students. *World Transactions on engineering and Technology Education, 5*(3), 473-476.
- Conroy, D. E., Willow, J. P., & Metzler, J. N. (2002). Multidimensional fear of failure measurement the performance failure appraisal inventory. *Journal of Applied Sport Psychology, 14*(2), 76-109.
- D'Zurilla, T. J., & Sheedy, C.F. (1991). Relation between social problem solving ability and subsequent level of

- psychological stress in college students. *Journal of personality and Social Psychology*, 61(5), 841-846.
- DeDeyn, Rachel. (2008). A comparison of academic stress among Australian and international students. *UW-L Journal of Undergraduate Research XI*. Retrieved from <https://www.uwlax.edu/urc/jur-online/PDF/2008/dedeyn.pdf>
- Dyrbye, L. N., Thomas, M. R., Harper W., Massie, F.S. Jr., Power D. V.,.... Eacker A. (2009). The learning environment and medical student burnout a multicentre study. *Medical Education*, 43(3), 274-282. Doi: 10.1111/j.1365-2923.2008.03282.x
- Fisher, S. (1994). *Stress in Academic life*. Buckingham: Open University Press.
- Hariharan, M., & Rath, R. (2008). *Coping with life stress*. New Delhi: Sage Publications.
- Heckhausen, H. (1991). *Motivational and action*. New York: Springer.
- Kariv, D., Heiman, T., & Zion, R. L. (2005). Stressors, Stress and Coping in Dual-Demand Environments: The Case of Working 'Back to Schoolers'. *Journal of Adult and Continuing Education*, 11(1), 91-110.
- Kohn, J. P., & Frozer, G. H. (1986). An academic stress scale identification and rated importance of academic stressors. *Psychological reports*, 59, 415-426.
- MacGeorge, E. L., Samter, W., & Gillihan, S. J. (2005). Academic stress, supportive communication and health. *Communication Education*, 54(4), 365-372.
- McClelland, D. C. Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The Achievement Motive*. Oxford: Irvington.
- Michine, F., Glachan, M., & Bary, D. (2001). An evaluation of factors influencing the academic self-concept, self-esteem and academic stress for direct and re-entry students in higher education. *Educational Psychology*, 21(4), 455-472.
- Rafidah, K., Azizah, A., Zorzaidi, M.D., Chong, S.C., Salwani, M.I., & Noraini, I. (2009). The impact of perceived stress and stress factors on academic performance of pre-diploma science students a Malaysian study. *International Journal of Scientific Research in Education*. 2(1), 13-16.
- Sgan-Cohen, H. D., Lowental, U. (1988). Sources of stress among Israeli dental students. *The journal of the American College Health Association*, 36, 317-321.
- Shah, C., Trivedi, R. S., Diwan, J., Dixit, R., & Anand, A. K. (2009). Common stressors and coping of stress by medical students. *Journal of clinical and diagnostic research*, 3(4), 1621-1626.
- Towbes, L.C., & Cohen, L.I. (1996). Chronic stress in the lives of college students. *Scale development and prospective prediction of distress*, 25, 199-217.
- Von, Ah.D., Ebert, S., Nagmvitroj, A., Park, N., & Kang, D. (2004). Predictors of health behaviors in college students. *Journal of Advanced Nursing*, 48(5), 463-474.
- Wenz-Gross, M., Untch, A.S., & Widaman, K. F. (1997). Stress, social support, and adjustment of adolescents in middle school. *Journal of Early Adolescence*, 17(2), 129-151.
- Wilks, S.E. (2008). Resilience amid academic stress the moderating impact of social support among social work students. *Advances in Social Work*, 9(2), 106-125.

Psycho-social stressors, H-P-A Axis, and Eating Disorders: A Review of the Etiopathogenesis of Eating Disorders

Sarandha Chandel*

The etiology of eating disorders is multifaceted and has been researched extensively in the recent past. Biological, psychological and environmental factors have all been implicated in the development of eating disorders (EDs), often with contradictory results. Recent literature has looked at the hypothalamic-pituitary-adrenal (HPA) axis as a prominent pathway involved in the onset and persistence of eating disorders. Further, stress as a cause and consequence of EDs has also been a central research topic. With an increase in acceptance of the 'bio-psycho-social' model of health, literature is now looking at prominent psychosocial stressors influencing EDs, providing a new outlook towards therapy and prevention of the illness. The present review considers the relationship between the HPA axis, stress and eating disorders, and the role of psycho-social stressors in mediating the relationship between HPA axis activity and the onset of EDs. A database search using PubMed, PsychINFO, Research Gate and ProQuest was conducted to identify papers, mostly published between 2005 and 2018, relevant for this review. Gaps in literature and future scope for research have also been discussed.

Keywords: Eating disorders, HPA axis, stress, psycho-social stressors.

Eating disorders (EDs) are characterized by a “persistent disturbance of eating or eating-related behaviour that results in the altered consumption or absorption of food”, leading to significant impairment of physical health and psycho-social wellbeing (American Psychiatric Association, 2013). DSM 5 (American Psychiatric Association, 2013) categorizes 6 types eating disorders, namely: pica, rumination disorder, avoidant/restrictive food intake disorder, anorexia nervosa, bulimia nervosa and binge eating disorder. For the purpose of this study, only anorexia nervosa (AN), bulimia nervosa (BN) and binge eating disorder (BED) will be considered in context.

Etiological studies of eating disorders have focused on the role of hypothalamus, specifically ventromedial and lateral hypothalamus in regulating eating behaviour in humans. The ventro-medial hypothalamus, also called the satiety centre, when stimulated, leads to stopping of eating behaviour, as the person experiences satiation. Conversely, the lateral hypothalamus when stimulated leads to increase in eating behaviour. Together, their activity is meant to keep the body at a specific weight called the 'set point', and damage to either of the areas can lead to a change in set point, further leading to abrupt changes in eating patterns. Further, studies have also shown abnormal levels of serotonin, norepinephrine and dopamine associated with the hypothalamus in patients with ED. The hypothalamic-pituitary-adrenal axis has also been implicated in the development of ED. This paper shall review literature linking HPA axis activity to ED.

Apart from purely biological causes, stress has also been identified as a potential risk factor in the development of eating disorders, with evidence showing that individuals often report severe life events or prolonged stress before the expression of symptomology. Dysregulated eating in EDs leads to chronic malnutrition, which has been linked to several endocrine alterations such as hyperactivity of the hypothalamus-pituitary-adrenal (HPA) axis, most likely

preceded by an overdrive of corticotropin releasing factor (CRF). The HPA axis acts as the main functioning system of the body's stress response and several studies have looked at the association between stressful life events and the onset or maintenance of AN. The cortisol awakening response (CAR) has been recognized as a reliable indicator of the HPA axis activity, as will be seen in the present review. Further, a widely accepted idea is that human eating behaviour is affected by changes in emotional arousal and stress. Studies have shown that ED patients show abnormal CAR activity as well as an abnormal cortisol response to stress. However, literature has not been able to address the question of whether stress is a cause or consequence of ED.

Furthermore, psychosocial stressors, such as attachment styles, peer interaction, childhood abuse, sexual abuse and others have been explored in the context of ED. However a very small number of studies have addressed the role of these factors in mediating the relationship between hypothalamic activity and manifestation of ED symptoms.

Within this context, the present review aims to explore and organize literature focusing on the relationship between stress, HPA axis functioning and eating disorders, as well as the influence of some other psychosocial stressors in mediating the relationship between HPA axis dysregulation and eating disorders.

Method

A computer database search of *PubMed*, *PsychINFO*, *Research Gate* and *ProQuest* was conducted, using the following search terms and logic: (hypothalamus AND eating disorders), (hypothalamus AND stress), (eating disorders AND psycho-social stressors). All searches (except in ProQuest) were limited to full text, peer-reviewed papers published from 2005 to 2018. The database search parameters yielded a total of 394 hits, which included results from each database. ProQuest was further used for e-books and theses/dissertations search. A search using google

scholar yielded 19,100 results, which were systematically checked for relevance. Further, journal articles considered for the review were also used for cross-referencing, where a few classic, well-cited articles from high impact factor journals, published before 2005 were also selected. No particular method was followed for quality assessment of articles. A standard Google search was also done to look for relevant web articles, videos and discussion forum materials. This was done in order to identify case studies and real life narratives which may further enhance understanding of eating disorders in the present review.

Discussion

HPA Axis and Eating Disorders

Several studies have suggested the presence of HPA axis alterations in subjects suffering from ED; hyperactivity is particularly well documented in anorexic and bulimic patients during the acute phase of their illness (Ginty, Phillips, Higgs, Heaney, & Carroll, 2012). In contrast with healthy controls, AN and BN patients have shown blunted activity of the sympathetic nervous system and hyperactivity of the HPA axis (Pirke, Platte, Laessle, Seidl, & Fichter, 1992).

Abnormalities of the HPA axis have been studied during two phases of ED, i.e. during the acute phase of the illness and after recovery in order to see differences, if any. Findings are somewhat mixed, but most prominently, plasma cortisol and corticotropin releasing hormone (CRH) levels have been shown to be elevated in women with AN (Boyar, Hellman, Roffwarg, Katz, Zumoff, & O' Connor, 1977; Favaro, Monteleone, Santonastaso, & Maj, 2008). Earlier studies have reported lower cortisol production and excretion, and normal CRH levels and pituitary function in anorexic patients post weight-recovery (Kaye, Gwirtsman, & George, 1989; Walsh et al., 1981). Easter et al., (2017) reported that women with a current diagnosis of ED had lower cortisol declines as compared to controls, suggesting a blunted diurnal cortisol rhythm. Maria et al. (2016) found that underweight anorexic women show heightened cortisol awakening response (CAR), while weight restored patients show normal CAR. The enhanced CAR in underweight anorexic patients suggested hyperactivity of HPA axis in symptomatic patients. also reported ED patients as showing blunted cortisol stress responses combined with heightened alpha-amylase levels, suggesting poor stress HPA axis reactivity to stress exposure and lowered sympathetic nervous system activity. Some studies have also suggested that hypercortisolemia is a consequence of undernutrition, while weight recovery is associated with significant reduction in cortisol secretion and its overall normalization (Misra et al., 2004). Puntignano, et al., (2001) reported less prominent HPA axis alterations, nonetheless significant, in treated patients suffering from anorexia nervosa. Conversely, few studies have failed to find a consistent relationship between normalization of cortisol response and weight gain in anorexia patients (Schweitzer et al., 1990). With respect to

bulimia nervosa, Fichter, Pirke, Pllinger, Wolfram, and Brunner (1990) reported elevated cortisol levels in patients with severe symptoms. Another study observed that remitted bulimics exhibited a pattern of decreased HPA axis activity with a hyperactivity to CRH (Birketvedt et al., 2006). Unlike patients with AN who have been found to display hyperactivity more consistently, HPA axis activity in BN is more variable. Essentially, these findings point towards the idea both AN and BN are associated with dysregulation HPA axis activity, associated with a blunted stress response.

Stress and Eating Disorders

Studies looking at the etiopathogenesis of ED have implicated stress in determining the onset and natural course of these disorders. States of anxiety, anger, joy, depression, sadness and other emotions are associated with human eating behavior. Different psychological features such as emotional instability, pre-menstrual dysphoria can also predict the tendency to eat or avoid food. The common notion is that increased emotional load leads to eating more food, both for emotional as well as restrained eaters. Specifically, sweet and fatty foods with a high calorie intake are more sought after during stress, suggesting that emotional eaters may be unresponsive to the signals of physiological satiety (Gibson, 2006). Further, literature on emotions suggests that emotions, both positive and negative can increase or decrease food consumption. Studies have also shown that patients with ED report having difficulty in identifying and describing their feelings, often being unaware of the link between feelings and eating habits (Larsen, Strien, Eisinga, & Engels, 2006; Raval di et al., 2005). A lack of emotional regulation and poor coping mechanisms hence, have also been implicated as a reason for increase in food intake associated with stress in ED.

Negative emotional states may be considered a result of traumatic or life events categorized as 'severe'. Studies have shown a greater severity of life events experienced by ED patients as compared to healthy controls. There is also evidence that eating disordered individuals perceive certain events as more stressful than healthy controls (Tuschen-Caffier & Vogele, 1999). Essentially, painful events such as academic failures, broken families, death or accidents of loved ones and marital conflicts have been considered as precipitating factors of EDs (Taylor et al., 2006). Studies exploring the relationship between traumatic life events, such as sexual and childhood abuse, physical abuse or neglect and ED have also attempted to link these with dysfunction of the HPA axis. Duval et al. (2004) found that children and adolescents who reported having undergone stressful life events such as maltreatment, neglect, physical and sexual abuse showed inconsistent patterns of neurohormonal activity, such as hypercortisolemia, elevated morning cortisol, lower morning cortisol, elevated afternoon cortisol and a blunted cortisol response to distressing situations. Further, traumatic experiences in ED have been linked with more impulsivity, borderline personality traits

(both which have commonalities with ED behavior) and bulimic behaviors. One study by Steiger et al. (2001) assessed childhood physical and sexual abuse, and eating symptoms in bulimic women, reporting reduced cortisol levels in abused bulimic women, a slight reduction of cortisol levels in abused non-bulimic women and no reduction in non-abused bulimic women, suggesting a strong association between level of plasma cortisol and sexual abuse.

Psycho-Social Factors contributing to ED

Several psychosocial factors have been implicated in the onset of eating disorders. Increased cortisol feedback inhibition has been associated with post-traumatic stress. Studies have shown that trauma history is common among patients with ED, hence the enhanced cortisol suppression maybe related to trauma among patients with BN (Basurte, Diaz-Marsa, Martin, & Carrasco, 2004). found that women with binge eating disorder reported being exposed to a significantly greater number of life events during the year or before onset of ED, some of them including critical comments about shape, weight or eating, school/work related stress, major changes in relationships, physical abuse and feelings of unsafety. Castellini et al., (2012) reported a more frequent history of childhood abuse in patients with ED as compared to healthy controls. suggested that idealization of thinness - in adolescents leads to weight concerns, which is then associated with high alert behaviour and stress, further implicating it to be a risk factor for development of ED. They also suggested personality factors such as negative emotionality and perfectionism to be risk factors in ED, as they seem to increase susceptibility to the 'thin ideal' and can also influence an individual's selection of peer environment. Similarly, in the Indian context, studies exploring the epidemiology of eating disorders in adolescents and young adults have implicated the 'thin ideal' in encouraging weight loss desires, which may in turn lead to, being underweight and eventually anorexic (Chugh & Puri, 2001; Mammen, Russell, & Russell, 2007; Srinivasan, Suresh, Jayaram, & Fernandez, 1995). Upadhyah, Misra, Parchwani and Maheria (2014) reported that in a sample of Indian adolescent females, elevated scores on the Eating Attitudes Test was related to a higher driver for thinness and body dissatisfaction, external pressures, mood susceptibility of feeding patterns, perfectionism, occurrence of negative life events and presence and adequacy of emotional support system.

Attachment relationships studied in the context of ED revealed that participants with an ED reported being significantly more insecurely attached, emotionally unstable and having a less positive family functioning. Gallego (2017) found support for the previous findings suggesting that insecure attachment especially with mothers is associated with developmental and maintaining factors of eating disorders. In one systematic review, Holtom-Viesel

and Allan (2014) found prominent difficulties in family functioning in families of those diagnosed with ED as compared to controls. was one of the first to indicate that the HPA axis' functioning may be affected by attachment styles. They reported that those with avoidant attachment showed an increase in CAR, compared to controls and to patients with secure and anxious attachment styles. In a more recent study, found that maltreated anorexic women exhibited a greater blunted cortisol response as compared to controls and non-maltreated anorexic women. This suggested deranged biological and emotional responses to social stress in AN patients with childhood trauma exposure.

Recent animal studies have also found evidence for the role of psychosocial stressors in the development of EDs. Coccorello et al., (2017) found that mice undergoing chronic psychosocial defeat increased their intake of high fat diet, further showing reduced body weight in the presence of enhanced lipid oxidation. Essentially, the study confirmed the idea that chronic activation of stress response is associated with changes in appetite hormones (orexigenic and anorexigenic hormones), metabolic disorders, altered energy homeostasis, and thereby eating disorders.

These studies reveal that ED patients with their psychopathological attitudes towards food and their body are constantly on the 'alert', and the fact that their illness impacts their physical appearance may lead to a decrease in quality and sometimes quantity of their social relationships. On the other hand, reducing food intake and exercising obsessively influences HPA functioning, leading to several physiological modifications. Essentially, in this vicious circle, literature has not been able to delineate whether these modifications are a result of EDs or reinforcers/causal factors.

Limitations and Directions for Future Research

While the present review attempts to give a well-rounded view on the etiopathogenesis of eating disorders, a few key limitations may be pointed out. One, the studies highlighted in the present review have not been able to establish a cause and effect relationship between psycho-social stressors and development of eating disorders – i.e., whether the relationship is bidirectional or unidirectional. Second, while some studies have implicated psycho-social factors such as stress in eating disorders, literature is not conclusive about how these factors mediate the relationship between hypothalamic activity and manifestation of ED symptoms. Third, there have been very few studies addressing etiology and general prevalence of eating disorders in the Indian context. The studies which have been referred to in the present review are dated – and it is important for future research to look at the recent developments in ED pathology in India. Lastly, research has been limited on women with EDs, most likely owing to the lower prevalence rates of EDs among men. Future research should further aim to cover these gaps in literature.

The current review paper also posed some methodological limitations. One, no proper method was followed to carry out a quality assessment of journal articles. Two, this article mostly reviewed journal articles; very few theses/dissertations, books and web references were used. Sources of information could be more elaborate for further reviews.

Conclusion

This review focused on the links between eating disorders, HPA axis functioning and stress. A number of studies have highlighted HPA axis alterations as being associated with eating disorders, those concerning AN and BN fairly well documented. Literature concerning BED is scarce, and the functioning of this axis in patients with BED remains unclear. Further, numerous studies have delineated the abnormal stress response in patients with ED, with patients mostly showing a blunted cortisol response and a heightened CAR response. Several psycho-social stressors such as abuse, attachment styles, and family functioning have also been implicated in the etiology of eating disorders, but very few studies have looked at their role in mediating the relationship between HPA axis dysregulation and eating disorders. Another point of question is whether HPA axis hyperactivity can alone modify eating behavior, or whether the eating behaviour produces the hyperactivity. Essentially, the causal relationship between biological imbalances associated with hypothalamus in ED and the occurrence of ED has not been well established. Moreover, research has shown that EDs are associated with several psychiatric comorbidities, but literature has not adequately addressed the extent to which these comorbidities might influence neuro-endocrine dysregulations of ED patients. One important methodological flaw with most studies reviewed was the underrepresentation of men in the samples. Additionally, most studies have been based in a Western context; the representation of Asian, East-Asian, Indian population has been limited. Adequate representation would be essential in understanding the kind of psycho-social stressors influencing ED, and the kind of stress response that people from different cultures reflect. Future research can look at answering some of these questions, as this knowledge may have important implications for therapy and prevention of EDs.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Basurte, E., Diaz-Marsa, M., Martin, O., & Carrasco, J.L. (2004). Traumatic childhood background, impulsiveness and hypothalamus-pituitary-adrenal axis dysfunction in eating disorders: a pilot study. *Actas Esp Psiquiatr*, 32(3), 149–152.
- Birketvedt, G.S., Drivenes, E., Agledahl, I., Sundsfjord, J., Olstad, R., & Florholmen, J.R. (2006). Bulimia nervosa – a primary defect in the hypothalamic-pituitary-adrenal axis? *Appetite*, 46(2), 1–4.
- Boyar, R.M., Hellman, L.D., Roffwarg, H., Katz, J., Zumoff, B., & O'Connor, J. (1977). Cortisol secretion and metabolism in anorexia nervosa. *New England Journal of Medicine*, 296(4), 190–193.
- Castellini, G., Lelli, L., Lo, S. C., Vignozzi, L., Maggi, M., & Faravelli, C. (2012). Childhood abuse sexual function and cortisol levels in eating disorders. *Psychotherapy and Psychosomatics*, 81(6), 380–382.
- Chugh, R., & Puri, S. (2001). Affluent adolescent girls of Delhi: Eating and weight concerns. *British Journal of Nutrition*, 86(4), 535–42.
- Coccurello, R., Romano, A., Giacobazzo, G., Tempesta, B., Fiore, M., Maria, A., ... Gaetani, S. (2017). Increased intake of energy-dense diet and negative energy balance in a mouse model of chronic psychosocial defeat. *European Journal of Nutrition*, 57(4), 0.
- Corstorphine, E., Mountford, V., Tomlinson, S., Waller, G., & Meyer, C. (2007). Distress tolerance in the eating disorders. *Eating Behaviors*, 8(1), 91–97.
- Duval, F., Crocq, M.A., Guillon, M.S., Mokrani, M.C., Monreal, J., Bailey, P., Macher, J.P. (2004). Increased adrenocorticotropin suppression following dexamethasone administration in sexually abused adolescents with posttraumatic stress disorder. *Psychoneuroendocrinology*, 29(10), 1281–1289.
- Easter, A., Taborrelli, E., Bye, A., Zunszain, P. A., Pariante, C. M., & Treasure, J. (2017). Psychoneuroendocrinology Perinatal hypothalamic-pituitary-adrenal axis regulation among women with eating disorders and their infants. *Psychoneuroendocrinology*, 76, 127–134.
- Fairburn, C.G., & Bohn, K. (2005). Eating disorder NOS (EDNOS): an example of the troublesome 'not otherwise specified' (NOS) category in DSM-IV. *Behavior Research and Therapy*, 43(6), 691–701.
- Favaro, A., Monteleone, P., Santonastaso, P., & Maj, M. (2008). Psychobiology of eating disorders. In *Annual Review of Eating Disorders* (pp. 9–34). CRC Press: United States
- Fichter, M.M., Pirke, K.M., Pollinger, J., Wolfram, G., & Brunner, E. (1990). Disturbances in the hypothalamo-pituitary-adrenal and other neuroendocrine axes in bulimia. *Biological Psychiatry*, 27(9), 1021–1037.
- Gallego, D.R. (2017). Anorexia nervosa and attachment. *European Psychiatry*, 41, S552.

- Gibson, E.L. (2006). Emotional influences on food choice: sensory, physiological and psychological pathways. *Physiology and Behavior*, 89(1), 53–61.
- Ginty, A. T., Phillips, A. C., Higgs, S., Heaney, J. L. J., & Carroll, D. (2012). Disordered eating behaviour is associated with blunted cortisol and cardiovascular reactions to acute psychological stress. *Psychoneuroendocrinology*, 37(5), 715–724.
- Het, S., Vocks, S., Wolf, J. M., Hammelstein, P., Herpertz, S., & Wolf, O. T. (2015). Blunted neuroendocrine stress reactivity in young women with eating disorders. *Journal of Psychosomatic Research*, 78(3), 260–267.
- Holtom-Viesel, A., & Allan, S. (2014). A systematic review of the literature on family functioning across all eating disorder diagnoses in comparison to control families. *Clinical Psychology Reviews*, 34(1), 29–43.
- Jacobi C., Hayward C., de Zwaan M., Kraemer H.C., & Agras W.S. (2004). Coming to terms with risk factors for eating disorders: application of risk terminology and suggestions for a general taxonomy. *Psychological Bulletin*, 130(1), 19–65.
- Kaye, W.H., Gwirtsman, H.E., & George, D.T. (1989). The effect of bingeing and vomiting on hormonal secretion. *Biological Psychiatry*, 25(6), 768–780.
- Keel, P. K., & Forney, K. J. (2013). Psychosocial Risk Factors for Eating Disorders. *International Journal of Eating Disorders*, 46(5), 433–439.
- Larsen, J.K., Van, S. T., Eisinga R., & Engels R.C. (2006). Gender differences in the association between alexithymia and emotional eating in obese individuals. *Journal of Psychosomatic Research*, 60(3), 237–243.
- Mammen P., Russell S., & Russell P.S. (2007). Prevalence of eating disorders and psychiatric comorbidity among children and adolescents. *Indian Pediatrics*, 44(5), 357–9.
- Maria, A., Monteleone, P., Serino, I., Amodio, R., & Maj, M. (2016). Psychoneuroendocrinology Underweight subjects with anorexia nervosa have an enhanced salivary cortisol response not seen in weight restored subjects with anorexia nervosa. *Psychoneuroendocrinology*, 70, 118–121.
- Maria, A., Patriciello, G., Ruzzi, V., Cimino, M., Del, C., Steardo, L., ...Maj, M. (2018). Deranged emotional and cortisol responses to a psychosocial stressor in anorexia nervosa women with childhood trauma exposure : Evidence for a “maltreated ecophenotype”? *Journal of Psychiatric Research*, 104, 39–45.
- Misra M., Miller K.K., Almazan C., Ramaswamy, K., Lapcharoensap W., Worley M., Neubauer G., Herzog D.B., Klibanski A. (2004). Alter ations in cortisol secretory dynamics in adolescent girls with anorexia nervosa and effects on bone metabolism. *Journal of Clinical Endocrinology and Metabolism*, 89(10), 4972–4980.
- Monteleone, A. M., Monteleone, P., Serino, I., Scognamiglio, P., & Genio, M. Di. (2015). Childhood Trauma and Cortisol Awakening Response in Symptomatic Patients with Anorexia Nervosa and Bulimia Nervosa. *International Journal of Eating Disorders*, 48(6), 615–621.
- Münch, A. L., Hunger, C., & Schweitzer, J. (2016). An investigation of the mediating role of personality and family functioning in the association between attachment styles and eating disorder status. *BMC Psychology*, 4(1), 1–10.
- Pike, K. M., Wilfley, D., Hilbert, A., Fairburn, C. G., Dohm, F., & Striegel-moore, R. H. (2006). Antecedent life events of binge-eating disorder. *Psychology Research*, 142(1), 19–29.
- Pirke, K.M., Platte, P., Laessle, R., Seidl, M., & Fichter, M.M. (1992). The effect of a mental challenge test of plasma norepinephrine and cortisol in bulimia nervosa and in controls. *Biological Psychiatry*, 32(2), 202–206.
- Putignano P., Dubini A., Toja P., Invitti C., Bonfanti S., Redaelli G., Zappulli D., ...Cavagnini F. (2001). Salivary cortisol measurement in normal-weight, obese and anorexic women: comparison with plasma cortisol. *European Journal of Endocrinol*, 145(2), 165–171.
- Ravaldi C., Barboni E., Lai M., Rotella C.M., Vannacci A., & Ricca V. (2005). Obesity and mood disorders: the complex problem of insight. *Journal of Clinical Psychiatry*, 66(2), 265.
- Rojo, L., Conesa, L., Bermudez, O., & Livianos, L. (2006). Influence of stress in the onset of eating disorders: Data from a two-stage epidemiologic controlled study. *Psychosomatic Medicine*, 68(4), 628–635.
- Sauro, C.L., Ravaldi, C., & Cabras, L. (2008). Stress, Hypothalamic-Pituitary-Adrenal Axis and Eating Disorders. *Neuropsychobiology*, 57(3), 95–115.
- Schweitzer I., Szmukler G.I., Maguire K.P., Harrison L.C., Tuckwell V., & Davies B.M. (1990). The dexamethasone suppression test in anorexia nervosa: the influence of

- weight, depression, adrenocorticotrophic hormone and dexamethasone. *British Journal of Psychiatry*, 157(5), 713–717.
- Srinivasan, T.N., Suresh, T.R., Jayaram, V., & Fernandez, M.P. (1995). Eating disorders in India. *Indian Journal of Psychiatry*, 37(1), 26-30.
- Steiger, H., Gauvin, L., Israel, M., Koerner N., Ng, Y. K. N.M., Paris, J.,.... Young, S.N. (2001). Association of serotonin and cortisol indices with childhood abuse in bulimia nervosa. *Archives of General Psychiatry*, 58(9), 837–843.
- Taylor, C.B., Bryson, S., Celio, D.A.A., Luce, K.H., Cunnig, D., Abascal, L.B., Rockwell, R., Field, A.E., Striegel-Moore, R., Winzelberg, A.J., Wilfley, D.E. (2006). The adverse effect of negative comments about weight and shape from family and siblings on women at high risk for eating disorders. *Pediatrics*, 118(2), 731–738.
- Tuschen-Caffier, B., & Vogele, C. (1999). Psychological and physiological reactivity to stress: an experimental study on bulimic patients, restrained eaters, and controls. *Psychotherapy and Psychosomatics*, 68(6), 333–340.
- Upadhyah, A.A., Misra, R., Parchwani, D.N., & Maheria, P.B. (2014). Prevalence and risk factors for eating disorders in Indian adolescent females. *National Journal of Physiology Pharmacy and Pharmacology*, 4(2), 153-157.
- Walsh, B.T., Katz, J.L., Levin, J., Kream, J., Fukushima, D.K., Weiner, H., ...Zumoff, B. (1981). The production rate of cortisol declines during recovery from anorexia nervosa. *Journal of Clinical Endocrinology and Metabolism*, 53(1), 203–205.
- Yehuda, R., Halligan, S. L., Golier, J. A., Grossman, R., & Bierer, L. M. (2004). Effects of trauma exposure on the cortisol response to dexamethasone administration in PTSD and major depressive disorder. *Psychoneuroendocrinology*, 29(3), 389–404.

Understanding the Neural Basis of Motor Learning by Observation

Ishita Arun*

This review focuses on motor learning by observation and its underlying neurophysiology. The neural structures activated while observing the actions performed by others are the same as those involved in actual execution of that particular action. The brain areas involved in this mechanism are collectively known to form the mirror neuron system. Other areas such as the somatosensory cortex have also been shown to mediate motor learning by observing others' actions. The effectiveness of this technique has been contrasted with motor imagery, where an individual rehearses motor actions mentally without observing a model or performing it physically. Moreover, the present and future applications of this technique have been discussed in different contexts.

Keywords: action observation, motor imagery, mirror neuron system, somatosensory system, neuropsychology

The role of learning in adapting and improving our interactions with the environment is indubitable, where movement forms an important way to interact with our surroundings. In addition to movement, communicating through speech, gestures, writing, sign language as well as learning by imitating others' actions also involves the activation of the motor system. This view not only gives rise to questions about the structure of motor programs, sensitivity to error detection, or the strength of movement schemas during learning a new response (Salmoni, Schmidt, & Walter, 1984), but also lays the importance of understanding the phenomenon of motor learning in humans by observing others.

Motor Learning

Motor learning refers to the process of performing actions accurately and effortlessly after interactions with the environment and practice (Gatti, Tettamanti, Gough, Riboldi, Marinoni, & Buccino, 2013). It involves the acquisition of relatively permanent skilled actions through practice, resulting in long-lasting optimal movements to accomplish a goal. Two important aspects of motor learning are the retention of the motor representation in memory and the generalisability of the learned action across different contexts.

Motor learning can involve the acquisition of forward and inverse models to reduce the discrepancy between the predicted and the desired action's outcome. The acquisition of the inverse model enables us to estimate the motor demands in response to a sensory stimulus accurately and the acquisition of the forward model enables us to compute the properties, for example, the distance of the stimuli and our current state as well as the movement that can be made as a response to that stimulus. The inverse model provides a feedforward control that is necessary to guide movements, especially when the sensory feedback is behindhand.

Laboratory studies exploring motor learning use experimental paradigms that usually fall into one of these

categories: motor adaptation (assesses the capacity of an individual to compensate for alterations in the environment) and motor sequence learning (involves an incremental acquisition of movement required to execute a particular behaviour). Motor learning begins with the fast learning stage involving considerable performance improvements in the first session itself. In the second, slow learning stage, additional improvements in performance after some practice sessions are observed. The following stage of consolidation brings in a spontaneous improvement after a latent period of at least six hours after the first learning session in the absence of the practice phase or interference from a competing task. An automatic stage that requires minimal cognitive resources and is resistant to interference and time effects is the fourth stage of motor learning. Lastly, the retention stage results in the execution of the learned motor behaviour efficiently after a long delay period without further practice. Doyon and Benali (2005) suggested that the fast learning phase employs both cortico-striatal and cortico-cerebellar systems. After an individual successfully learns the motor behaviour, it is believed to be neurally represented in either the cortico-striatal system for consolidating and maintaining the trace in long-term memory for motor adaptation or the cortico-cerebellar system for motor sequence learning.

Brain areas influencing motor actions include the primary motor cortex influencing learning and memory for coordinated, precise actions; the cerebellum that maintains the forward model to predict the consequences of actions and errors (Penhune & Steele, 2012); and the basal ganglia which performs computations and rewards based on the selection of accurate action. Neurons originating in the primary motor cortex (M1) and several subdivisions of the premotor cortex (dorsal premotor cortex, ventral premotor cortex, and supplementary motor area) modulate muscle activity (Dum & Strick, 2002). Kalaska and Rizzolatti (2013) postulated that M1 represents a dynamic computational map with spinal connections and internal organisations converting signals about the state of the limbs into motor commands, depending

*Postgraduate Student, Centre for Cognitive & Brain Sciences, Indian Institute of Technology, Gandhinagar
Corresponding Author: Ms. Ishita Arun | Email: ishitaarun3003@gmail.com

on the sensory feedback and motor intentions. While Andersen and Bueno (2002) suggested that neurons in the parietal reach area are involved in encoding the locations of the target stimuli using the eye-centred coordinates and fire before the onset of an action or planning period before any delayed action; Romo, Hernandez, and Zainos (2004) found the activation of neurons in the ventral premotor cortex during the selection of motor response based on sensory inputs. Moreover, higher-order control in actions like reaching, grasping, and manipulating objects as well as in encoding a specific sequence of motor actions have been shown to involve supplementary motor area and pre-supplementary motor area (Tanji, 2001).

Motor learning by observation

Motor learning by observation is “the process of learning a motor action using the information presented to the learner by an execution model” (Rodríguez, Cheeran, Koch, Hortobagyi, & del Olmo 2014). Depending on the level of action-analysis, individuals can reproduce others' actions using mimicry or imitation. Mimicry involves a shallow level processing for reproducing actions using sensorimotor transformations, without making inferences about the actor's goals and intentions. On the other hand, imitation involves a deeper level of processing of the observed actions to understand the goals and/or intentions of the act to reproduce it oneself. To achieve the same goal, not only do adults mimic and imitate others' actions but also infants seem to replicate this behaviour (Gergely, Bekkering, & Kiraly, 2002). In their study, infants watched an adult press a button using their foreheads in two conditions: one, the adults' arms and hands were wrapped around in a blanket restricting its use in pressing the button; two, adults' hands were free. They observed that in the first condition, infants imitated the goal to press the button using their hands instead of mimicking the action using their foreheads.

The social learning theory proposed by Bandura and Walters (1977) posits that individuals construct a conceptual representation by transforming observed actions into symbols and schemas and rehearse them for retention. These representations provide the internal model for responding to stimuli and form the basis for measuring error from the feedback accompanying the executed response. Further, observationally learned responses from an unobservable action pattern are facilitated by concurrent visual feedback that helps to decrease the discrepancy between the conceptual representation and the action (Carroll & Bandura, 1982). Thus, observing a motor sequence has shown to improve learning as it provides a perceptual blueprint or a basis of reference for performing an action.

On similar lines, Schmidt (1975) proposed the schema theory, positing that humans can store abstract forms of movements in their memory system as a schema or a rule. He suggested that to regulate similar types of movements,

individuals use generalised motor programs that form an abstract representation of the temporal structure of movements, the sequence of movements, and the relative force needed for producing an action.

In addition to understanding observational learning using an expert human model, a more inclusive approach to study this phenomenon comprises of forming a conceptual representation using physical or symbolic instructions that are sufficient to provide a model for the target action (Cross, Kraemer, Hamilton, Kelley, & Grafton, 2008). The specificity of the perceptual blueprint model formed during observational learning has been confirmed using psychophysical and EMG recordings, where it was found that humans learned better when they observed other individuals learn how to perform a complex task when compared to observing those models while they performed either the same task without learning or performed a different task (Mattar & Gribble, 2005). The same neural mechanisms underlying physical and observational learning have been demonstrated using single-cell recordings, where the activity of neurons in the dorsal premotor cortex of monkeys during passive observation of a saccadic motor task was similar while they physically performed the task (Ciesk & Kalaska, 2004).

Neural basis of motor learning by observation

The neurophysiological support for motor learning by observation and execution came from the discovery of 532 neurons in the rostral part of the inferior area (area F5) of the brain, known as the mirror neurons, that were observed to become active when a macaque monkey not only executes an action but also observes the experimenter perform a given action (di Pellegrino, Fadiga, Fogasso, Gallese, & Rizolaati, 1992). They observed that an interaction between an individual and an object was necessary for the firing of the mirror neurons, instead of the mere presence of the individual or the object. A recent meta-analysis of fMRI studies showed that the inferior parietal lobule, the inferior frontal gyrus, and the adjacent ventral premotor cortex, forming the mirror neuron system (MNS) in humans, get activated in humans during observation (Molenberghs, Cunnington, & Mattingley, 2012). The MNS is proposed to provide the foundations of pragmatic speech (Arbib & Rizzolatti, 1996) and predict one's actions by reconstructing the mental correlates of action while executing control and necessary inhibition to prevent automatic replication of the observed action according to the Theory of Mind (Gallese & Goldman, 2000).

For true imitation, “the underlying mechanism consists of two distinct steps: the encoding of the elementary motor acts present in the action to be imitated by mirror neurons and recombination of these coded acts in such a way that the observed action can be replicated” (Buccino, Vogt, Ritzl, Fink, Zilles, Freund, & Rizzolatti, 2004). The inferior parietal

lobule, the inferior frontal gyrus, and the adjacent premotor cortex were active from the observation to the execution phase. During the pause between these two phases, extremely high brain activity was observed in the cortex in the imitation group but not in the non-imitation group. In this phase, the middle frontal gyrus (area 46) and the structures of the brain involved in motor planning and execution (dorsal premotor cortex, superior parietal lobule, rostral mesial areas, and primary motor cortex) were activated. While executing the observed actions using their left hands, the participants showed an increased activity from the right primary sensory-motor cortex to the superior parietal lobe. There is an absence of coherence between occipito-parietal electrodes and the central electrodes as well as independent mu and alpha generators in the learning process of a new sequence of actions (Helden, Schie, & Rombouts, 2010). The correlation between the parieto-frontal coherence per repetition and period and imitation accuracy during the pause supports the active rehearsal of the observed actions in the memory store.

The involvement of the primary motor cortex in action observation was proved by applying repetitive transcranial magnetic stimulation (rTMS) to this area (Brown, Wilson, & Gribble, 2009). Further, Grafton, Arbib, Fadiga, & Rizzolatti (1996) reported the activation of the inferior frontal gyrus, the inferior parietal lobe, and superior temporal sulcus during PET scans of normal human participants while they observed a sequence of actions. The cerebral activation of regions involved in planning and generating actions during observation of actions with an intent to reproduce it (Decety, Grezes, Costes, Perani, Jeannerod, Procyk, & Fazio, 1997), indicated that observers' intentions play a beneficial role in learning (Goschke & Kuhl, 1993).

Role of somatosensory cortex

There has been a growing interest in studying the overlap between perception and action. For example, Goodale and Humphrey (1998) suggested that the visual system comprises of two major functions: vision is responsible for perception, it creates an internal model of the external world and involves the ventral stream; vision for action is transformed from visual inputs to motor outputs and involves the dorsal stream.

The median nerve, known to activate the primary somatosensory cortex and the posterior parietal cortex, influences the observers' perceptions of actions in motor learning (McGregor, Cashaback, & Gribble, 2016). Stimulating median nerve impairs action-observation learning in individuals in a limb-specific way, suggesting that somatosensory representation of the action is important and must be available for action-observation learning to take place. In a follow-up experiment, McGregor et al. (2016) found an increase in the amplitude of SEPs over primary somatosensory cortex for participants in the learning group

than control participants who did not observe the tutor. Further, across these participants, an increase in the functional plasticity of the primary somatosensory cortex was found to be positively correlated with the measured performance of motor learning by observation. Somatosensory system, therefore, plays a key role in mapping the visual signals of the movement of another individual to the motor circuits and supports motor learning by observation. Learning actions through observation is more effective when individuals perceive a learnable error signal (McGregor et al, 2016; Mattar et al., 2005). During the fast learning phase of motor skill learning and motor adaptation, there are physiological and functional changes at the intra-system level making neuroplasticity a necessity to learn new motor actions and skills (Doyon, Bellec, Amsel, Penhune, Monchi, Carrier, & Benali, 2009).

Motor imagery

Individuals frequently use action observation and action imagery as strategies for motor learning. Action imagery (also called kinetic or motor imagery) is defined as the ability of an individual to rehearse motor acts mentally in the absence of overt body movements. An individual imagines himself/herself executing a motor action such that s/he perceives the bodily experience of that action. Motor imagery significantly improves learning a sequence of movements by reducing movement duration and increasing peak acceleration (Gentili et al., 2006). Several brain areas, such as the mirror neuron system, become active during motor learning by kinetic imagery, action observation, and action execution (Jeannerod, 2001). An fMRI study by Roth et al. (1996) showed the activation of precentral motor cortex in motor imagery. The lack of activity in the ipsilateral premotor cortex and the inferior parietal cortex resulting in an impairment of action preparation during motor imagery tasks has been reported in patients with Parkinson's disease (Cunnington et al., 2001).

Comparison of motor imagery and action observation while learning a novel, complex motor task indicated that learning in the early, fast phase was significantly better when participants used action observation as a learning strategy than when they used motor imagery (Gatti et al, 2013). While motor imagery completely relies on the ability of an individual to recruit and rehearse the correct action representations and to perform those actions correctly covertly, motor learning by observation employs a model or a tutor who performs the desired action and provides visual inputs to the participant to reproduce the same action. The representations of actions constructed by the participants while observing a model or a tutor provide a basis for the detection and correction of errors and result in better motor learning due to observation than imagery.

Motor learning by observation in everyday life

Action observation can be used as an efficacious training method in a variety of fields such as education, sports, and rehabilitation. The ability of action-learning is remarkable at a young age, enabling learning of how to grasp and reach to objects, walk, as well as acquire language with more accuracy. Gentili et al. (2006) suggested that observational learning has a strong physiological basis and the hypo-function of the brain areas involved in action-observation in people with developmental disorders like autism could possibly explain the difficulty in language acquisition and skill learning. Thus, using appropriate tutors for imitation could help children learn new, complex skills better. This technique can also be used for initial sports training.

Action-observation treatment has been developed for motor learning and motor recovery in rehabilitation among patients suffering from disorders like stroke, cerebral palsy, and Parkinson's disease. During one session, the patient is required to observe a video depicting a particular object-directed action followed by executing this action which is usually divided into three to four motor acts. A recent review by Buccino (2014) demonstrated the effectiveness of action-observation treatment, especially when it is applied to the upper-limb motor functions, speech recovery, and remediating freezing gait in patients with Parkinson's disease. It also helps in reorganising and maintaining the pathways connecting motor cortex and basal ganglia via the thalamus as well as those between premotor cortex and prefrontal cortex, improving performance of actions in appropriate contexts.

Discussion

To improve our interactions with the environment, we frequently use two strategies for motor learning in addition to motor practice: action-observation and motor imagery. While action execution is dependent on both the forward model and the inverse model, action observation as well as motor imagery can be seen as contributors to the forward model, that help in predicting the movement an individual should perform in a given task or context. These two strategies are currently seen as distinct and independent of each other. Action-observation involves the formation of mental representations of the observed behaviour along with rehearsals of the observed action to create a memory trace in the brain. Thus, action-observation may include motor imagery instead of being disjunct from it.

Moreover, motor imagery and action-observation involve the activation of similar brain areas, including the mirror neuron system. The activation of the mirror neuron system comprising of the inferior parietal lobule, the inferior frontal gyrus, and the adjacent ventral premotor cortex dominates the current literature for motor learning by observation. The primary motor cortex and the somatosensory system are also involved in motor learning by

observation. Action selection involves the anticipation of intended actions and suppression of unwanted actions. Observing a model learning how to perform a task is more effective than observing directly performed, learned action. This may provide the learner with information important for action selection. Since action-observation provides the learner with the set of intended actions, thereby reducing the anticipation of movements that s/he needs to make, the role of basal ganglia might be limited in motor learning by observation. However, it might play a role in action preparation, planning, or execution in addition to the areas mentioned above.

Action-observation can be applied as a useful technique to learn motor skills in different settings. Instead of showing the learned response as a task to children, educational psychologists can explore the effectiveness of learning when a child model is shown to learn the response after committing a series of errors while performing the same task. While designing a video to teach software to users, it can be explored if it is more effective when the motor movements of the hand are shown along with the recording of the screen. This technique can be used in training a variety of motor skills among drivers, pilots, surgeons, counsellors, etc along with their conventional use of training dancers, musicians, sportsmen, and actors. Action observation is used as an efficient technique in the rehabilitation of patients suffering from many disorders. Several factors may mediate motor learning by observation, such as the intention of the learner. Therefore, it can be seen that learning complex behaviours is dependent on the acquisition of neural representations of the motor actions.

Limitations and Directions for Future Research

Although neurological evidence gives important insights into the brain regions involved in a particular cognitive function, these findings are mostly correlational in nature and provide indirect evidence of the strategies used by participants during motor learning by observation. Moreover, these studies assume that the brain is modular and focus on exploring the functions of specific brain areas, instead of identifying the integrated and coordinated mechanisms underlying this phenomenon. Lastly, this paper includes only a few studies conducted to understand motor learning and is not a comprehensive analysis of the complete set of literature.

Future research can be conducted to understand the role of the cerebellum, basal ganglia, the limbic system, and other pathways. The boundary between action-observational learning and motor imagery can be reanalysed to assess if these are not two discrete techniques within motor learning. The influence of the characteristics of the observer, the model that the learner is observing, the context in which the model is presented can be explored in the future. Lastly, a combination of action observation, motor imagery, and reinforcement learning can be developed to enhance motor learning.

Conclusion

This paper discussed the neural underpinnings of motor learning by observation, which takes place while observing a model demonstrating an action even when these overt actions are absent. The brain areas involved in this method of learning have been identified, including primary motor cortex, inferior parietal lobule, the inferior frontal gyrus, and the adjacent ventral premotor cortex; and its effectiveness has been established. These areas are also active when individuals engage in motor imagery. Although currently seen as two distinct strategies of motor learning by observation, this paper suggests that motor imagery may be involved in action observation instead of being disjunct from it. A combination of these two techniques can be used in educational, sports, and neurorehabilitation settings for motor skill development. However, larger, randomised studies need to be conducted to establish the coherent neural mechanism underlying this phenomenon and find the most effective ways to apply this technique in learning of motor tasks in different fields and across different demographics by adapting the characteristics of the model for individual needs to enhance motor learning.

References

- Andersen, R.A., & Bueno, C.A. (2002). Intentional maps in posterior parietal cortex. *Annual Review of Neuroscience*, 25, 189-220.
- Arbib, M., & Rizzolatti, G. (1996). Neural expectations: A possible evolutionary path from manual skills to language. *Communication and Cognition*, 29, 393-424.
- Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Englewood Cliffs, NJ: Prentice-hall.
- Brown, L. E., Wilson, E. T., & Gribble, P. L. (2009). Repetitive transcranial magnetic stimulation to the primary motor cortex interferes with motor learning by observing. *Journal of Cognitive Neuroscience*, 21(5), 1013-1022.
- Buccino, G. (2014). Action observation treatment: a novel tool in neurorehabilitation. *Philosophical Transactions of the Royal Society*, 369(1644), 20130185.
- Buccino, G., Vogt, S., Ritzl, A., Fink, G. R., Zilles, K., Freund, H. J., & Rizzolatti, G. (2004). Neural circuits underlying imitation learning of hand actions: an event-related fMRI study. *Neuron*, 42(2), 323-334.
- Carroll, W. R., & Bandura, A. (1982). The role of visual monitoring in observational learning of action patterns: Making the unobservable observable. *Journal of motor behavior*, 14(2), 153-167.
- Cisek, P., & Kalaska, J. F. (2004). Neural correlates of mental rehearsal in dorsal premotor cortex. *Nature*, 431(7011), 993.
- Cross, E. S., Kraemer, D. J., Hamilton, A. F. D. C., Kelley, W. M., & Grafton, S. T. (2008). Sensitivity of the action observation network to physical and observational learning. *Cerebral cortex*, 19(2), 315-326.
- Cunnington, R., Egan, G. F., O'sullivan, J. D., Hughes, A. J., Bradshaw, J. L., & Colebatch, J. G. (2001). Motor imagery in Parkinson's disease: a PET study. *Movement Disorders*, 16(5), 849-857.
- Decety, J., Grezes, J., Costes, N., Perani, D., Jeannerod, M., Procyk, E., & Fazio, F. (1997). Brain activity during observation of actions. Influence of action content and subject's strategy. *Brain: a journal of neurology*, 120(10), 1763-1777.
- di Pellegrino, G., Fadiga, L., Fogassi, L., Gallese, V., & Rizzolatti, G. (1992). Understanding motor events: a neurophysiological study. *Experimental Brain Research*, 91(1), 176-180.
- Doyon, J., Bellec, P., Amsel, R., Penhune, V., Monchi, O., Carrier, J., & Benali, H. (2009). Contributions of the basal ganglia and functionally related brain structures to motor learning. *Behavioural brain research*, 199(1), 61-75.
- Doyon, J., & Benali, H. (2005). Reorganization and plasticity in the adult brain during learning of motor skills. *Current opinion in neurobiology*, 15(2), 161-167.
- Dum, R. P., & Strick, P. L. (2002). Motor areas in the frontal lobe of the primate. *Physiology & behavior*, 77(4-5), 677-682.
- Gallese, V., & Goldman, A. (2000). Mirror neurons and the simulation theory of mind-reading. *Trends in Cognitive Sciences*, 12, 493-501.
- Gatti, R., Tettamanti, A., Gough, P. M., Riboldi, E., Marinoni, L., & Buccino, G. (2013). Action observation versus motor imagery in learning a complex motor task: a short review of literature and a kinematics study. *Neuroscience letters*, 540, 37-42.
- Gentili, R., Papaxanthis, C., & Pozzo, T. (2006). Improvement and generalization of arm motor performance through motor imagery practice. *Neuroscience*, 137(3), 761-772.
- Gergely, G., Bekkering, H., & Király, I. (2002). Developmental psychology: Rational imitation in preverbal infants. *Nature*, 415(6873), 755.
- Goodale, M. A., & Humphrey, G. K. (1998). The objects of action and perception. *Cognition*, 67(1-2), 181-207.

- Goschke, T., & Kuhl, J. (1993). Representation of intentions: Persisting activation in memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(5), 1211-1226.
- Grafton, S. T., Arbib, M. A., Fadiga, L., & Rizzolatti, G. (1996). Localization of grasp representations in humans by positron emission tomography. *Experimental brain research*, 112(1), 103-111.
- Helden, D.V.J., Schie, V.T.H., & Rombouts, C. (2010). Observational Learning of New Movement Sequences Is Reflected in Fronto-Parietal Coherence. *Plos one*, 5(12).
- Jeannerod, M. (2001). Neural simulation of action: a unifying mechanism for motor cognition. *Neuroimage*, 14(1), S103-S109.
- Kalaska, J. F., & Rizzolatti, G. (2013). Voluntary movement: the primary motor cortex. *Principle Neural Science*, 843.
- Mattar, A. A., & Gribble, P. L. (2005). Motor learning by observing. *Neuron*, 46(1), 153-160.
- McGregor, H. R., Cashaback, J. G., & Gribble, P. L. (2016). Functional plasticity in somatosensory cortex supports motor learning by observing. *Current Biology*, 26(7), 921-927.
- Molenberghs, P., Cunnington, R., & Mattingley, J. B. (2012). Brain regions with mirror properties: a meta-analysis of 125 human fMRI studies. *Neuroscience & Biobehavioral Reviews*, 36(1), 341-349.
- Penhune, V. B., & Steele, C. J. (2012). Parallel contributions of cerebellar, striatal and M1 mechanisms to motor sequence learning. *Behavioural brain research*, 226(2), 579-591.
- Rodríguez, Á. L., Cheeran, B., Koch, G., Hortobágyi, T., & del Olmo, M. Á. F. (2014). The role of mirror neurons in observational motor learning: an integrative review. *European Journal of Human Movement*, 32, 82-103.
- Romo, R., Hernández, A., & Zainos, A. (2004). Neuronal correlates of a perceptual decision in ventral premotor cortex. *Neuron*, 41(1), 165-173.
- Roth, M., Decety, J., Raybaudi, M., Massarelli, R., Delon-Martin, C., Segebarth, C., ... Jeannerod, M. (1996). Possible involvement of primary motor cortex in mentally simulated movement: a functional magnetic resonance imaging study. *Neuroreport*, 7(7), 1280-1284.
- Salmoni, A. W., Schmidt, R. A., & Walter, C. B. (1984). Knowledge of results and motor learning: a review and critical reappraisal. *Psychological bulletin*, 95(3), 355.
- Schmidt, R. A. (1975). A schema theory of discrete motor skill learning. *Psychological review*, 82(4), 225.
- Tanji, J. 2001. Sequential organization of multiple movements: Involvement of cortical motor areas. *Annual Review of Neuroscience*, 24(1), 631-651.

The Truth on Our Faces: A Literature Review of Micro-expressions in Deception Detection

Nandini Pathak¹ and Nidhi Malik²

Deception is an all-pervading aspect of human interaction, and techniques for its detection are just as rampant. Since the face is the canvas of human emotions, micro-expressions, defined as fleeting leakages of one's true emotions manifested as a facial expression lasting a fraction of a second, are important indicators or clues to deceit. Micro-expressions were first mentioned by Charles Darwin in the 19th century, discovered by Haggard and Isaacs (1966), and studied extensively in Paul Ekman's cross-cultural research. The present paper systematically examines research done on micro-expressions in the last decade to provide a comprehensive thematic synthesis of previously published information. Using multiple databases such as Google Scholar and Scopus, research studies published on micro-expressions that fit the inclusion criteria were retrieved. Sub-themes from each of these studies were derived and translated into overarching themes that summarized the examined literature. Finally, overarching themes were discussed to integrate the current body of literature on deception, and provide its significance in human interaction.

Keywords: micro-expressions, deception, lie detection, truth

Deception is a ubiquitous component of every human interaction. Lying has references as ancient as the serpent enticing Eve into committing the first sin. Deception is defined as “when one person intends to mislead another, doing so deliberately, without prior notification of this purpose, and without having been explicitly asked to do so by the target” (Ekman, 1992). It has also been defined as “a successful or unsuccessful attempt, without forewarning, to create in another a belief which the communicator considers to be untrue” (Vrij, 2008). In spite of enormous experience with being deceived and deceiving others, most people perform no better than chance at detecting deceit. There can be several reasons for this. Most people often wish to dwell on the fabrication as it is more pleasant than the otherwise unconscious truth. For instance, if a man discovers that his wife is having an extra-marital affair, this revelation could create several problems for the cuckolded husband as the wife may ask for dissolution of marriage which may be considered undesirable as it may adversely affect their children. Thus, in such a scenario the husband may engage in denial. This phenomenon is referred to as the “ostrich effect” (Vrij, 2008).

Another hurdle in detecting lies is the absence of an absolute sign of deceit. Unlike the classic tale of Pinocchio's nose, there is no expression, muscle twitch or gesture that in and of itself means that a person is lying (Ekman, 1992; DePaulo et al., 2003). There can only be clues of the liar's poor preparation or clues of emotions that are incongruent with his/her current situation. In DePaulo et al.'s (2003) meta-analysis, 28% cues revealed an association with deception. However the average effect size of the relation between various behaviours and lying was considerably small. Moreover, there are only subtle differences between liars and truth tellers. Even a truthful person who is under the stress of being wrongfully charged may appear to be lying. This is referred to as the 'Othello error' from the Shakespearean tragic protagonist Othello, who misconstrued his wife's anguish as a sign of her guilt.

Deception has been researched through the ages and techniques for its detection have existed ever since. Over time these have ranged from the ancient methods of Trial by Ordeal

tophrenology and graphology to the more modern techniques of polygraph, brain-fingerprinting, and micro-expressions. Micro-expressions are defined as a fleeting leakage of one's true emotions manifested as a facial expression lasting a fraction of a second. They prove to be reliable cues to deception as they reveal the liar's true emotional state.

A large body of research has shown micro-expressions to be a rich source of information for uncovering lies. Darwin (1872) studied facial expressions of emotions and elaborated upon the work of French neurologists, Duchenne and deBoulogne (1862) on how to distinguish a smile of enjoyment from non-enjoyment smiling. Duchenne contrasted the smile produced when he electrically stimulated the zygomatic major muscle with a smile generated when he told the man a joke. The smile in response to a joke included not just the zygomatic major, but also the orbicularis oculi muscle, which orbits the eye. He said that “...(without the orbicularis oculi) no joy could be painted on the face truthfully...it is only brought into play by a genuinely agreeable emotion. Its inertia in smiling unmasks a false friend” (Duchenne et al., 1862). Darwin believed that facial expressions were universal and not cultural artifacts. When the expressions of congenitally blind athletes in the 2004 Paralympic Games were compared with the sighted athletes of 2004 Olympic Games, it was found that the blind and the sighted athletes did not differ in their expressions after winning or losing a medal match (Matsumoto & Willingham, 2009).

Microexpressions were first discovered by Haggard and Isaacs (1966) while examining motion picture films of psychotherapy hours. However, they believed that microexpressions were products of repression and referred to them as “indicators of ego mechanisms” (p. 165). Ekman and Friesen (1969) also studied them in the clinical setting but referred to them as products of deliberate concealment. Since deception detection is a fascinating area of human interaction, the present study aims to synthesise and critically examine existing literature on the use of micro-expressions for deception detection.

¹ Undergraduate student, Department of Psychology, Indraprastha College for Women, University of Delhi

² Assistant Professor, Department of Psychology, Indraprastha College for Women, University of Delhi
Corresponding Author: Ms. Nandini Pathak | Email: nandinipathak98@gmail.com

Method

For the purpose of conducting a comprehensive literature review, potential articles were located by searching online databases like Google Scholar and Scopus. A Boolean search strategy was used with the following keywords “micro-expressions”, “deception”, “deception detection”, “lie detection”.

Inclusion criteria included the following:

- Published in a peer-reviewed journal in the English Language
- Published between the years 2008-2018
- Examined micro-expressions in deception detection

Exclusion criteria included the following:

- Broadly centred around lie detection with no particular emphasis on micro-expressions

- Provided a mathematical model for detection of such facial expressions

After the initial search, reference sections of relevant review articles or other published studies were scanned for additional articles that were not discovered from the initial database search. Once the research studies were finalized, thematic synthesis was used to analyze and summarize the research papers.

Thematic synthesis was seen as an appropriate method to be used in this study. Thematic synthesis involves three coherent steps. Firstly, the data is coded into relevant themes. Second, common sub-themes among studies are translated into overarching descriptive themes. Lastly, the descriptive themes are analyzed and a thematic synthesis of literature is presented (Snilstveit, Oliver, & Vojtkova, 2012).

Results

The major sub-themes derived from the examined research studies are tabulated in Table 1, and the overarching themes are presented in Table 2

Table 1

Sub Themes Emerging from Literature Reviewed

Author and year of publication	Major Sub-themes
Porter, Ten Brinke, and Wallace (2012)	• Greater the emotional intensity, greater the chances of leakages. • The greatest and least amount of emotional leakage occurs during fearful and happiness expressions respectively. • More leakage in the upper face.
Warren, Schertler, and Bull (2009)	• Emotional lie detection accuracy is significantly higher than the unemotional. • There is a significant positive correlation between reported use of facial expressions and emotional lie detection.
Hurley and Frank (2011)	• Micro expressions cannot be deliberately inhibited. • Suppression of smile is easier than suppression of brow movements.
Svetieva and Frank (2016)	• Emotional dysregulation is associated with enhanced detection accuracy especially anger. • Affective empathy is associated with increased recognition of anger micro expression in natural stimulus set but unassociated with overall recognition accuracy.
Hurley (2012)	• Training with METT leads to significant increase in detection ability. • Exposure plays a crucial role in increasing accuracy. • Instructor-led training is more effective.
Stanley and Blanchard-Fields (2008)	• Older individuals perform worse at deception detection than young adults. • Older adults and young adults showno difference in ability to detect deception in audio condition.

Author and year of publication	Major Sub-themes
Porter, ten Brinke, Baker, and Wallace (2011)	- Emotionally intelligent individuals display more convincing deceptive emotions and also maintain these displays for longer; yet are no better at concealing felt emotions. - EI is associated with increased consistent expression, and psychopathy, with decreased inconsistent expression, during deceptive emotion. - Specific facets of psychopathy are associated with emotional deception.
Porter and ten Brinke (2008)	- Negative emotions are more difficult to falsify than happiness. - Inconsistent expressions occur more frequently in masked than in genuine expressions. - It is easier to neutralize a felt emotion than to adopt an emotional mask.
Curtis (2017)	- Training is efficacious in improving recognition of single emotions but has less impact on masked and leaked expressions. - Effectiveness of training is dependent on the therapists' experience level.
Shen, Wu, and Fu (2012)	- Participants' performance improves with practice. - Duration of expressions significantly affects the recognition of micro-expressions. - Surprise is easiest to recognize followed by happiness.

Table 2

Overarching and synthesized themes derived from the original sub-themes

New, overarching themes	Original sub-themes (along with author and year of publication)
Differences in suppression as well as expression of various micro-expressions	- The greatest and least amount of emotional leakage occurs during fearful and happiness expressions respectively (Porter et al., 2012). - Suppression of smile is easier than suppression of brow movements (Hurley et al., 2011). - Negative emotions are more difficult to falsify than happiness (Porter et al., 2008).
Micro-expressions as a function of emotional intensity	- Greater the emotional intensity, greater the chances of leakages (Porter et al., 2012). - Emotional lie detection accuracy is significantly higher than the unemotional (Warren et al., 2009).
Individual differences in lying as well as lie detection abilities	- Emotional dysregulation is associated with enhanced detection accuracy especially anger (Svetieva et al., 2016). - Affective empathy is associated with increased recognition of anger micro expression (Porter et al., 2011). - Specific facets of psychopathy are associated with emotional deception (Porter et al., 2011). - Emotionally intelligent individuals display more convincing deceptive emotions and also maintain these displays for longer (Porter et al., 2011).

New, overarching themes	Original sub-themes (along with author and year of publication)
Training had significant impact on the detection of micro-expressions and in turn deception	• Training with METT leadsto significant increase in detection ability (Hurley, 2012). • Participants' performance improves with practice (Curtis, 2017; Shen et al., 2012).
Residual theme	• Older individuals perform worse at deception detection than young adults (Stanley et al., 2008).

Discussion

Results are now discussed with reference to the themes obtained after conducting a thematic synthesis of available empirical research studies on the use of micro-expressions in deception detection.

Differences in suppression and expression of various micro-expressions

The inhibition hypothesis, as proposed by Ekman (2003), states that if the voluntary activation of a muscle is not possible, then its inhibition in an involuntary activation during a spontaneous facial expression is also not possible. It also states that within the facial musculature, there are certain muscles which are “reliable” and cannot be deliberately inhibited during deceptive displays.

Porter and Brinke (2008) investigated empirical evidence for the inhibition hypothesis. The participants viewed emotionally photographic images and responded to each with a genuine or deceptive emotional expression. Participants were better able to create convincing displays of happiness than that of negative expressions. This could be because in everyday life people are more experienced in fabricating happiness than any of the negative emotions. It is also the easiest facial expression to produce voluntarily. From the perspective of the inhibition hypothesis, the muscles associated with negative facial expressions include the orbicularis oris and triangularis amongst others, which are considered to be reliable facial muscles and thus, difficult to inhibit as well as falsely display.

Hurley et al. (2011) also provide evidence for the inhibition hypothesis. They examined whether participants could suppress facial expressions on command when under scrutiny by a lie catcher. They found that participants significantly reduced their smiling rates but had little control over their brow movements. Similar to Porter et al.'s (2008) study, the muscles involved in brow movements are ones which are in less volitional control than those in smiles. Another explanation by the authors is that upper face movements particularly the brow are not easily recognised and performed.

Micro-expressions as a function of emotional intensity

According to the non-verbal leakage theory, when an emotion is concealed or masked, the true emotion manifests itself as a micro-expression. This is because the liar experiences emotions such as fear or guilt which are incongruent with his/her fabrication. These emotions then flash for 1/25-1/5 of a second (Ekman& Friesen, 1975). Thus, emotions play a paramount role in manifestation of micro-expressions.

Warren, Schertler, and Bull (2009) studied the differences in lie detection abilities through emotional and unemotional cues. If the participants saw surgical clips, they were asked to -talk as if they were watching a Hawaii beach scene and vice versa. The other participants on average detected these lies with an accuracy of 64% to emotional stimuli, and mere 36%for unemotional stimuli.

Porter et al. (2012) examined micro-expressions as a function of emotional intensity. The participants viewed low or high intensity emotion images that varied in valence, and in response produced genuine or fabricated expressions. Deceptive emotions which were high on intensity were associated with significantly more emotional leakage than low intensity ones. Low intensity emotions were concealed easily compared to high intensity emotions. The premise of micro-expressions is based on the idea that suppression of true emotions or/and expression of deceptive expression manifests itself as a microexpression. Thus, the stronger the emotion, greater is the incongruence and so is the probability of microexpressions.

Individual differences in lying as well as lie detection ability

Across all studies, it has been proven that people are not particularly adept at detecting deceit. There are, however certain individual differences in this regard.

Since emotional intelligence and psychopathy are associated with expertise in communication, Porter et al. (2011) assessed if these personality variables were associated with superior skills in simulating deceptive expressions. They found that people high on emotional intelligence displayed more convincing displays of deceptive emotions, were able to feign intended emotions convincingly, and also maintained these displays longer. Though better at simulating false expressions, they were, however, no better at concealing the felt emotion.

They administered a self report measure to map the four facets of psychopathy- antisocial behaviour, interpersonal manipulation, cold affect, and impulsive thrill-seeking. Unlike emotional intelligence, psychopathy was associated with decreased inconsistent expressions during deceptive displays. Also, high levels of trait interpersonal manipulation was related to shorter durations of leakage during deceptive displays. In another study, Porter, ten Brinke, and Wilson (2009) found that psychopaths were 2.5 times more likely to be granted parole than their fellow inmates, due to their convincing emotional performances in front of the parole board.

Svetievaet al. (2016) studied specific facets of emotional intelligence like empathy and emotion dysregulation, and the

ability to detect micro expressions. Empathy is the ability to understand (cognitive empathy) and feel (affective empathy) the mental and emotional states of others (Decety & Meyer 2008). In the study, it was found that empathy and micro-expressions association was much weaker. However, affective empathy was associated with greater accuracy in recognizing anger.

Positive impact of training on lie detection

The ability to detect micro-expressions is an important social skill for both personal and professional use. Much like all skills, this can be developed and may be more important in certain occupational settings than others.

Curtis (2017) studied therapists and examined the impact of training on the ability to apprehend authentic from falsified expressions and the role of experience. It was found that for therapists with greater experience, training was more effective in increasing their deception detection accuracy. Therapists, owing to their profession, are more exposed to people in emotionally expressive situations. Thus, this experience adds to their emotion recognition ability despite increasing age.

Hurley (2012) examined the effects of boundary factors such as training format, exposure, motivation, feedback and reinforcement on the detection of microexpressions. The experimental group who was trained through the Micro-Expressions Training Tool (METT) outperformed the control group who received no training. The results revealed that the best way for using METT is to have a knowledgeable trainer guide the participants, explain the subtleties and provide feedback. The study also revealed how repeated exposure played a crucial role as the performance of untrained participants also improved.

Shen et al. (2012) examined how duration of training affects the ability to detect micro-expressions. They found that after considerable practice, individuals could even identify micro-expressions that were below the threshold limit as defined by Ekman (1969) i.e. 40ms. This indicates that the perception of facial expression information is very fast and one can become adept by experience.

Residual themes

Age and deception. Geriatric literature has shown an age-related decline in the ability to decode emotions. Stanley et al. (2008) in their study, examined the role of emotion recognition in the challenges faced by the elderly in detecting deception. The participants were presented with one of the three modalities of stimuli - visual, audio and audio-visual. Young adults performed better on the audio-visual condition compared to the audio or visual condition alone as it provides more information. In contrast, the older adults showed equivalent levels of performance in both audio and audio-visual conditions which demonstrates that the added visual information was not useful for them. The integration of information across sensory channels appears to be preserved with age (Laurienti, Burdette, Maldjian, & Wallace, 2006), suggesting that this lack of enhanced performance in the audio-visual condition is not due to age-related decline. Firstly, the older adults may be worse at identifying negative emotions because of reduced exposure as some emotions like anger are not as prevalently experienced in

older adulthood as they are during young adulthood (Birditt & Fingerman, 2003). Another perspective views the older adults as tending to avoid negative emotions in their everyday lives as an emotional regulation strategy (Stanley et al., 2008). Thus, if they avoid these emotions, they may also be worse at identifying them in others. Finally, Ruffman, Henry, Livingstone, and Phillips (2008) proposed that the differences in the emotion recognition ability with age can be accounted for by changes in brain structure like the decline in the orbitofrontal cortex, cingulate cortex and the amygdala. The amygdala is particularly associated with recognition of fear. This may explain why older individuals are more susceptible to con artists.

Limitations and directions for future research

Although careful and systematic research was undertaken in completing the study, it has a few limitations. The lack of time and resources to access all the available literature as the paper had to be completed in a stipulated time period, is one major limitation. Moreover, the researcher lacks a high level of expertise in the given field of study and hence, the conclusions drawn are tentative.

Most research done on micro-expressions are laboratory studies that have college students as participants who are instructed to either lie or tell the truth and are videotaped doing so. This is quite different from real life scenarios where people may choose to lie than being directed by the experimenter. Moreover, the stakes for a successful fabrication are never really high in laboratory studies. The stakes of a lie by a crime suspect, a corrupt politician or an unfaithful wife are -much higher than those elicited in these studies. Thus, future research should focus on increasing the stakes and the motivation of the participants to deceive for more realistic results. Also, in lie detection studies, the participants are shown short video clips of people they do not know and asked to judge whether they are lying or telling the truth. In these studies, mere conjecture will lead to a 50% accuracy rate. The studies examining individual differences in both the expression and detection of micro-expressions are relatively scarce. Thus, more research should be conducted in this arena as it has wide implications.

Conclusion

Micro-expressions are an integral component in deception literature as well as practice. The paper examined existing literature and several conclusions can be drawn. Positive expressions are easier to simulate as well as suppress compared to negative expressions, and greater emotional intensity warrants greater leakages. People with high levels of interpersonal manipulation, a facet of psychopathy, are better at emotional deception. People higher in emotional intelligence are better at simulating false emotions but not concealing them. Emotional dysregulation and affective empathy are associated with enhanced ability to detect anger. The ability to detect micro-expressions can be learned and improved with practice. Younger adults exhibit superior ability in detecting microexpressions and deception than older persons. Micro-expressions are a reliable predictor of the internal states of a person. They must however be scrutinized carefully as they only reveal the presence of a particular emotion and not the cause of it. Moreover, not all people produce micro-expressions all the time, thus other cues to deception must also be considered.

References

- Birditt, K. S., & Fingerman, K. L. (2003). Age and gender differences in adults' descriptions of emotional reactions to interpersonal problems. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 58(4), 237-245.
- Curtis, A. A. (2017). *Behind the mask: recognising genuine and masked expressions of emotion: the effect of therapists' training and experience* (Unpublished doctoral dissertation). Massey University, New Zealand.
- Darwin, C. (1872). *The expression of the emotions in man and animals*. London, UK: John Murray.
- Decety, J., & Meyer, M. (2008). From emotion resonance to empathic understanding: A social developmental neuroscience account. *Development and Psychopathology*, 20(4), 1053-1080.
- DePaulo, B. M., Lindsay, J. J., Malone, B. E., Muhlenbruck, L., Charlton, K., & Cooper, H. (2003). Cues to deception. *Psychological Bulletin*, 129(1), 74.
- Duchenne, G. B., & de Boulogne, G. B. D. (1990). *The mechanism of human facial expression*. UK: Cambridge university press.
- Ekman, P. (1992). *Telling Lies: Clues to deceit in the marketplace, politics, and marriage*. New York: W. W. Norton & Co.
- Ekman, P. (2003). *Emotions revealed: Recognizing faces and feelings to improve communication and emotional life*. New York: Henry Holt & Co.
- Ekman, P., & Friesen, W.V. (1969). Nonverbal leakage and clues to deception. *Psychiatry*, 32(1), 88-106
- Ekman, P., & Friesen, W.V. (1975). *Unmasking the Face*. New Jersey, USA: Prentice Hall.
- Haggard, E. A., & Isaacs, K. S. (1966). Micromomentary facial expressions as indicators of ego mechanisms in psychotherapy. In L. A. Gottschalk, & A.H. Auerbach (Eds.), *Methods of research in psychotherapy* (pp. 154-165). Boston, MA: Springer.
- Hurley, C. M., & Frank, M. G. (2011). Executing facial control during deception situations. *Journal of Nonverbal Behavior*, 35(2), 119-131.
- Hurley, C. M. (2012). Do you see what I see? Learning to detect micro expressions of emotion. *Motivation and Emotion*, 36(3), 371-381.
- Laurienti, P. J., Burdette, J. H., Maldjian, J. A., & Wallace, M. T. (2006). Enhanced multisensory integration in older adults. *Neurobiology of Aging*, 27(8), 1155-1163.
- Matsumoto, D., & Willingham, B. (2009). Spontaneous facial expressions of emotion of congenitally and noncongenitally blind individuals. *Journal of Personality and Social Psychology*, 96(1), 1-10.
- Porter, S., & ten Brinke, L. (2008). Reading between the lies: Identifying concealed and falsified emotions in universal facial expressions. *Psychological Science*, 19(5), 508-514.
- Porter, S., ten Brinke, L., & Wallace, B. (2012). Secrets and lies: Involuntary leakage in deceptive facial expressions as a function of emotional intensity. *Journal of Nonverbal Behavior*, 36(1), 23-37.
- Porter, S., ten Brinke, L., & Wilson, K. (2009). Crime profiles and conditional release performance of psychopathic and nonpsychopathic sexual offenders. *Legal and Criminological Psychology*, 14(1), 109-118.
- Porter, S., ten Brinke, L., Baker, A., & Wallace, B. (2011). Would I lie to you? "Leakage" in deceptive facial expressions relate to psychopathy and emotional intelligence. *Personality and Individual Differences*, 51(2), 133-137.
- Ruffman, T., Henry, J. D., Livingstone, V., & Phillips, L. H. (2008). A meta-analytic review of emotion recognition and aging: Implications for neuropsychological models of aging. *Neuroscience & Biobehavioral Reviews*, 32(4), 863-881.
- Shen, X. B., Wu, Q., & Fu, X. L. (2012). Effects of the duration of expressions on the recognition of microexpressions. *Journal of Zhejiang University Science B*, 13(3), 221-230.
- Snilstveit, B., Oliver, S., & Vojtkova, M. (2012). Narrative approaches to systematic review and synthesis of evidence for international development policy and practice. *Journal of Development Effectiveness*, 4(3), 409-429.
- Stanley, J. T., & Blanchard-Fields, F. (2008). Challenges older adults face in detecting deceit: The role of emotion recognition. *Psychology and Aging*, 23(1), 24.
- Svetieva, E., & Frank, M. G. (2016). Empathy, emotion dysregulation, and enhanced microexpression recognition ability. *Motivation and Emotion*, 40(2), 309-320.
- Vrij, A. (2008). *Detecting lies and deceit: Pitfalls and opportunities* (2nd edition). Chichester: John Wiley and Sons.
- Warren, G., Schertler, E., & Bull, P. (2009). Detecting deception from emotional and unemotional cues. *Journal of Nonverbal Behavior*, 33(1), 59-69.

The Relationship between Gender Discrepant Behavior and Gender Egalitarianism in American College Students

Amanat Bansal*

The present study explores the relationship between gender discrepant behavior and gender egalitarianism in 59 American college students (mean age = 20.98 years). The Gender Role Egalitarian Attitudes Test and the Traditional Masculinity & Femininity Scale were administered to 40 females and 19 males online. Correlation coefficients were computed for both males and females separately between the two measures used. Consistent with the hypothesis, a statistically significant association was found between gender discrepant behaviour and gender egalitarian attitudes in the sample. However, findings indicated that only females reflect a statistically significant, positive correlation between their views on gender equality and gender discrepant behavior whereas males do not. The study reveals that young men in egalitarian contexts have not adopted gender-egalitarian attitudes to the same extent as young women. This finding has practical implications since it suggests a slowdown in the achievement of societal gender equality.

Keywords: Gender-discrimination, gender-equality, egalitarianism, gender-roles, gender discrepant

Over the past few decades, there have been pronounced ameliorations in a women's contribution to the working society. Women in the past were mostly occupied in subordinate jobs like secretaries, sales clerks, private household workers and teachers but since the 1960s there has been a marked increase in the number of women admitting themselves into graduate and professional schools. This warrants one to say that various stereotypes that have been closely linked to traditional women's social and work roles, have taken a newer, positive shape which have bridged the overt gender division (Donnelly, Twenge, Clark, Shaikh, Beiler-May, & Carter, 2016). However, research by Gaunt (2013) suggests that hostile sexism is demonstrated consistent hostility is projected towards women who violate gendered family roles. Women are still expected to fulfil their role as a "warm and kind mother"; a "sensitive and patient confidant" or a "wholesome and cooperative homemaker" (Prentice & Carranza, 2002). This brings us to the question of how the challenging goal of gender equality will be accomplished if only a certain section of society is flourishing. Women are travelling less trodden paths with increasingly frequency. Yet many people are reluctant to accept these changes, thus slowing down societal progress. The ensuing hypothesis is that individuals who engage in gender discrepant behavior or behavior that is not stereotypically associated with their gender, serve to illustrate a notion of acceptance. That is, accepting the opposite gender's characteristic behaviors as adaptive actions. The following research explores how the notion of this acceptance dignifies female efforts. Once these efforts of approval proliferate to larger scales, a gender egalitarian society may potentially mushroom.

Historically, researchers have persistently claimed that, traditional females are not expected to indulge in stereotypical male behaviors because they are specific to men (Donnelly et al., 2016). Scholars suggest that masculine

interests and behaviors have been more valued at the societal level and there is more pressure for men to conform to the masculine sex role than it is for women to conform to the feminine sex role (Galambos, Almeida, & Petersen, 1990). Moreover, authors in the late 20th century even claimed that "women's dependence at both the societal and the individual levels is associated with less egalitarian gender attitudes" (Baxter & Kane, 1995). This highlights an important observation, where the degree of masculinity or femininity could strongly affect an individual's notion of gender equality. Conventional wisdom has it that each successive generation has consistently continued to trend towards more egalitarian gender roles. But is the movement towards gender equality riding more on the shoulders of young women, rather than their male counter-parts?

Women are continuously and rapidly stepping out of their traditional roles but a majority of men are disinclined to be an anomaly to traditional legacy of masculinity. Thus the common notion of an evolving society may be false. Coherent with Donnelly's (2015) views, if men are more pressured to conform to social roles and only females are budding towards gender equality, it is possible for research to argue that the due result, i.e., gender equality may be delayed due to the persistent social pressure that keeps men from letting go of their dominance. In fact, "significant differences exist when comparing the men with full-time employed wives, those with part-time employed wives, and men married to homemakers" (Cassidy & Warren, 1996). The findings suggest an important link between work experiences, lifestyle choices, and gender role attitudes. So much so, that the attitudes of homemakers are more similar to those of the men (Cassidy et al., 1996).

Newer research posits that attitudes toward gender roles have changed. Both adult women and men worldwide are more likely to have attitudes that support gender equality as

*Undergraduate student, Department of Psychology, Boston University
Corresponding author: Ms. Amanat Bansal | Email: amanat06@bu.edu

compared to the past, but at the same time, it can be agreed that a modern woman differs from a traditional woman more than a modern man differs from a traditional man. In other words, behaviors have flipped around for women and we can see a clear developmental trend—women who engaged in masculine behaviors (e.g. full-time employments) were more likely to have opinions different from those men because there is a clash of attitudes.

Similar behaviour buds similar attitudes. Researchers claim that the increase in gender egalitarian attitudes is primarily due to the growth in female employment, mostly because paid work has upgraded a single women's lifestyle (Zuo & Tang, 2000). Furthermore, labor force experience and educational attainment contribute to the foundation of egalitarian views of a women's role (Thornton, Alwin, & Camburn, 1983). The actions mentioned above describe women performing stereotypical male actions and an association of these women with more gender egalitarian attitudes. Additionally, Thornton et al. (1983) also claimed that engagements such as “church attendance and religious activities,” which are stereotypically associated with women, “tend to preserve more traditional outlooks”. In short, on one hand, there has been a significant change over time in the average women's attitude and behaviour. On the other hand, societal change such as gender equality needs to include both folds of the society—even though women have been shifting towards more egalitarian behavior like working in male-dominated jobs, the other half of the society, the men, especially less educated ones are not as open to this change (Cotter, Hermesen, & Vanneman, 2011). Although overall attitudes towards gender equality have changed, we do not know if these attitudes have incited a change in male and female behaviors. Female behavior has been observed and documented but there is little research supporting a change in specific male behavior.

The primary purpose of the present study was built on the predictive relation between attitudes and behaviors. Attitudes are defined as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly & Chaiken, 1993). As discussed in the past literature examined above, there have been a myriad of societal changes over the past few decades. This study aims to explore these changes and observe if they underscore the notion “attitudes follow behaviors”. It is established that women have engaged in more gender discrepant behavior over the years as compared to men. Therefore, the primary objective of the study is to see if that is one of the reasons why men are less likely to have gender egalitarian attitudes, consequently influencing overall gender equality. Wells and Twenge (1999) too suggest that attitudes predict behaviors when “attitudes are potent and specific to the behaviour”.

The current study hypothesized that American collegial male students, who score higher in feminine traits (behavior)

will score higher in gender egalitarian views (attitude) and females admitted in colleges, who score higher in masculine traits (behavior) are more likely to score higher in gender egalitarian views (attitude). To put it succinctly, men who are more open to indulging in stereotypical feminine tasks/behaviors, or associate themselves with traits common to women, are more likely to have gender egalitarian attitudes. Consequently, by coding the respondents' personal preferences (sex-role) in interpersonal situations including their implicit gender egalitarian views, the evidence to support the male stagnancy in gender equality can be found. It was therefore hypothesized that 'There will be a significant correlation between discrepant behaviour and gender egalitarian attitudes'.

Method

Participants

The sample in this study consisted of 59 college students, 40 females and 19 males ranging in age from 18 to 35 years ($M = 21.00$, $SD = 2.64$). All of the participants were American citizens enrolled in a university. The participants included 29 Whites (48.30%), 22 Asians (36.70%), 7 Hispanic/Latino (11.70%) and 1 Black/African (1.7%).

Design

The research study follows a correlational design. The scores on the measures were correlated for the total sample of 59 participants first. Thereafter the scores were correlated for males and females separately.

Measures

Gender Role Egalitarian Attitudes Test. Gender Role Egalitarian Attitudes Test (GREAT) (Chang, 1999) is a 10-item measure designed to assess each individual's stance on gender egalitarianism. For each of the tasks, participants decide if the statements are more important/appropriate for women or men (for example, “Be a leader,”). For a task that is equally important/appropriate, participants mark 0. If it is more important/appropriate for men than for women, participants mark the circle on the scale under “men” from 1 to 4, with 1 being slightly more important for men than for women, and 4 being the most important for men as opposed to women. If participants consider the task to be more important for women than for men, then they mark the circle on the scale under “women” from 1 to 4, with 1 being slightly more important for women than for men, and 4 being the most important for women as opposed to men. Scores are calculated by two composite scores—home and work, computed by averaging the five domestic and five work role items, respectively. Scores range from 0 to 4 on a 9 point scale, with higher scores indicating the degree to which one has gender-stereotypical attitudes. Scores are calculated by mean of the total score divided by the number of items. The Cronbach's alpha in the present sample was $\alpha = .82$, showing adequate internal reliability.

Traditional Masculinity and Femininity Scale. Traditional Masculinity and Femininity Scale (TMF) (Kachel, Steffens, & Niedlich, 2016) is a 6-item measure designed to assess how intensely one identifies with their sex. Participants respond to each statement, (for example, “I consider myself...”) with the following options: very masculine, quite masculine, somewhat masculine, neutral, somewhat feminine, quite feminine, very feminine. Scores can range from 1 to 7, with higher scores indicating that the activity is considered more masculine versus a lower score which indicates it is a feminine activity. The reliability as noted by Kachel et al. (2016) is high ($\alpha = .94$). The Cronbach's alpha in the present sample was $\alpha = .82$, showing adequate internal reliability. The measure shows high predictive validity. Item specific congruity spanned from 0.66 to 0.72.

Procedure

Participants were asked to take part in an online study about gender roles, gender traits and egalitarian views. They were recruited through simple random sampling and administered the questionnaires via online mode on a software called Qualtrics. Informed consent was taken from the participants. They were notified regarding the duration of the study and the description of the various processes involved. Anonymity and confidentiality of personal information was ensured. The participants also obtained a written guarantee that the study is at minimal risk and that they were free to withdraw at any given point without a penalty. After the study culminated, they were debriefed about the purpose and focus of the study.

Results

Table 1 provides the descriptive statistics for all the major study variable the GREAT and TMF.

Table 1

Scores of participants obtained on the research tools (n=60)

Gender	Scale	n	M	SD
Male	GREAT	19	4.65	0.63
	TMF	19	2.91	0.98
	GREAT	41	4.85	0.39
	TMF	41	5.14	0.86

Correlation tests were run to assess the relationship between gender egalitarianism and gender discrepant behaviour. Correlations were also calculated separately for men and women as depicted in Table 2. Correlational analysis indicated that there were differences between men and women in the correlation results of GREAT and TMF. As a whole population, survey scores on the GREAT were significantly positively correlated with survey scores on the TMF, $r(60) = 0.26$, $p = 0.05$. But when looked separately for males and females, females have a significant positive correlation, $r(41) = 0.47$, $p = 0.04$ and men do not have a significant negative correlation $r(19) = -0.05$, $p = 0.78$.

Table 2

Correlation matrix of GREAT and TMF

Gender	r	p
Male	-0.05	0.78
Female	0.47*	0.04
Total	0.26*	0.05

* $p \leq .05$

The correlation values have been interpreted using the guidelines given by Cohen (1998) according to which a

correlation coefficient between 0.1 to 0.29 may be considered as low; between 0.3 to 0.409 be regarded as moderate, and 0.5 to 1 may be considered as high.

Discussion

The aim of the study was to assess the relationship between gender role egalitarianism and endorsement of traditional masculine and feminine roles. The current study hypothesized that American collegial male students, who score higher in feminine traits (behaviour) will score higher in gender egalitarian views (attitude) and females admitted in colleges, who score higher in masculine traits (behavior) are more likely to score higher in gender egalitarian views (attitude). Overall, the results were consistent with our hypothesis. There was a significant relationship found between gender egalitarianism and gender discrepant behavior in college students. To put it in simpler words, individuals who engage in behavior that is not stereotypically assigned to their gender, tend to have more gender egalitarian views. The present study did not predict any gender differences, but the results suggest that females have a significant positive relationship regarding gender equality and gender discrepant behavior, whereas men, show no such significant relationship. These results are consistent with previous research. For instance, Dotti Sani and Quaranta (2017)

reported that gender egalitarianism was stronger for women than men in 36 countries. This indicates that even in more progressive societies, young men may support traditional gender roles. Only “men of lower breadwinner status and women of higher status are less likely to hold conventional gender ideologies”(Zuo et al., 2000) because the decline in men's breadwinner status (behavior) tends to promote egalitarian ideology among men (attitude). Results from the current study are also in line with Spence and Hahn's (1997) findings which indicate that females were found to be significantly less traditional in their beliefs than males in all the groups that were tested. These studies highlight that historically, there has been a relationship between attitudes and behaviours of gender equality, but that latter is mostly applicable to women. Larsen and Long (1988) argued that the concern with changing sex roles is associated with the rise in women's movement. This could potentially contribute to the notion that gender-equality is predominantly progressing from the female side (Donnelly et al., 2015) and only if men dilute their dominance by accepting and engaging in feminine tasks, could there be an impact on their deeply grounded attitudes. Both genders are moving in the direction of egalitarianism, but the development is more rapid in the case of women because they are more open to masculine tasks.

Limitations and Directions for Future Research

The sample consisted of more women ($n = 41$) than men ($n = 19$) which could have skewed the results. The sample for men could have also affected the power of the results. The age range is 17 years which does not seem to reflect the average age-range given by US college-student Demographics, which is, 6 years (2012). This could indicate random errors. Also, the sample only consisted of college level American citizens so the results are not generalizable to other cultures. Additionally, the authors did not look for contextual differences like information about the parents' attitudes toward gender roles. Thus, it would be useful for future research to investigate attitudes toward gender roles not only across other cultural groups but also across generations. Moreover, it is also important to address personal preferences of groups of each respondent, such as political affiliation, birth order, etc. and its implications. Dotti Sani et al. (2017) suggested that parents are models for children; therefore, it is likely that gender-egalitarian parents raise egalitarian children. Therefore, future studies on this topic should try incorporating parent's views on gender equality as well, and see its effect on children's gender-typed behavior.

Conclusion

Gender egalitarianism and gender discrepant behavior in college students are linked to each other. People who believe that any behavior is not stereotypically assigned to their gender, tend to hold more gender egalitarian views. Females are more open to holding gender discrepant and egalitarian views compared to males who still have traditional stereotypical roles assigned to each gender.

References

- Baxter, J., & Kane, E. W. (1995). Dependence and independence: A crossnational analysis of gender inequality and gender attitudes. *Gender and Society*, 2, 193–215.
- Cassidy, M. L., & Warren, B. O. (1996). Family employment status and gender role attitudes: A comparison of women and men college graduates. *Gender and Society*, 10, 312–329.
- Chang, L. (1999). Gender role egalitarian attitudes in Beijing, Hong Kong, Florida, and Michigan. *Journal of Cross-Cultural Psychology*, 30(6), 722–741.
- Cotter, D.A., Hermesen, J.M., & Vanneman, R. (2011). The End of the Gender Revolution? Gender Role Attitudes from 1977 to 2008. *American Journal of Sociology*, 117(1), 259–289.
- Donnelly, K., Twenge, J. M., Clark, M. A., Shaikh, S. K., Beiler-May, A., & Carter, N. T. (2016). Attitudes toward women's work and family roles in the United States, 1976–2013. *Psychology of Women Quarterly*, 40(1), 41–54.
- Dotti Sani, G. M., & Quaranta, M. (2017). The best is yet to come? Attitudes toward gender roles among adolescents in 36 countries. *Sex Roles*, 77(1–2), 30–45.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Orlando: Harcourt Brace Jovanovich College.
- Galambos, N. L., Almeida, D. M., & Petersen, A. C. (1990). Masculinity, femininity, and sex role attitudes in early adolescence: Exploring gender intensification. *Child development*, 61(6), 1905–1914.
- Gaunt, R. (2013). Ambivalent sexism and perceptions of men and women who violate gendered family roles. *Community, Work & Family*, 16, 401–416.
- Kachel, S., Steffens, M. C., & Niedlich, C. (2016). Traditional masculinity and femininity: Validation of a new scale assessing gender roles. *Frontiers in Psychology*, 7, 956.
- Larsen, K. S., & Long, E. (1988). Attitudes toward sex-roles: Traditional or egalitarian?. *Sex Roles*, 19(1–2), 1–12.
- Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of women quarterly*, 26(4), 269–281.
- Spence, J. T., & Hahn, E. D. (1997). The Attitudes Toward Women Scale and Attitude Change in College Students. *Psychology of Women Quarterly*, 21(1), 17–34.
- Thornton, A., Alwin, D.F., & Camburn, D. (1983). Causes and Consequences of Sex-Role Attitudes and Attitude Change. *American Sociological Review*, 48, 211–27.
- Thornton, A., Alwin, D.F., & Camburn, D. (1983). Causes and Consequences of Sex-Role Attitudes and Attitude Change. *American Sociological Review*, 48, 211–27.
- Zuo, J., & Tang, S. (2000). Breadwinner status and gender ideologies of men and women regarding family roles. *Sociological Perspectives*, 43, 29–43.

Mental Health in Digital Age

Monika Misra*

Mental health encompasses emotional, social and psychological well-being. It influences the individual at affective, cognitive and behavioral levels. Mental health comes into play when a person makes choices, copes with events and relates to others. With the advent of digital technology such as computers, laptops and mobile phones, there are noticeable changes in people's attitudes and behaviors. These include changes in mood patterns and social behavior. Nevertheless, technology has become part of daily life, used for many activities, for instance, online shopping, banking, maintaining relationships with significant others, maintaining professional profiles and self-representation. In present times, technology also has come to offer applications for mobile and web-based services to enhance one's mental health. Technological innovations in mental healthcare have the capacity to influence humans and the capability to promote measures for positive mental health. Thus, this paper presents a review of the challenges posed by technology and also the positive impact on assessment and delivery of mental healthcare facilities to a wide array of people.

Keywords: Mental health, digital technology, mental illness, cyberspace, digital citizenship

Engagement with cyberspace, a space within which communication occurs via interconnected computer networks, is an almost necessary activity in the era of digitalization. Keeping in view the pervasiveness of digitalization, questions are emerging about the challenges and benefits presented by the digital world. Most often, the discourse on health mainly focuses on physical aspects. Dr. Brock Chisholm, the first Director-General of the World Health Organization (WHO), in 1954, stated that "without mental health there can be no true physical health". Mental health as defined by WHO "is a state of well-being in which an individual can realize his or her own potential, cope with the normal stresses of life, work productively, and make a contribution to the community" (in Kolappa, Henderson, & Kishore, 2013). Ryff and Singer (1998) posit that health is a complete state consisting, not only of the absence of illness but the presence of something positive. The markers of mental health include perceived life satisfaction, experience of positive emotions, optimism, purpose in life, healthy relationships with others, and self-acceptance. Mental health thus, is regarded as an optimal psychological state that becomes an overarching goal to be obtained by the populace in all societies. Nevertheless, it is greatly influenced by biological, psychological and environmental factors.

Given that mental health contributes significantly in the overall development of a society, two important goals related to mental health have been stated by the United Nations Development Program under Sustainable Development Goals (2015). The first is to reduce by one-third, the premature mortality caused due to non-communicable diseases (behavioural, developmental, and neurological disorders) through prevention and treatment and to promote mental health and well-being by 2030. The second aim is to strengthen the prevention and treatment of substance use disorder(s), including narcotic drug use and harmful use of

alcohol. Mental health is a major public health concern in both developing and developed societies. For instance, anxiety and depression are the most common disorders in developed countries like the US and UK, to name a few. About 20 percent people in the United States experience mental illness in a given year and approximately 25 percent people in UK experience a mental health problem each year (McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009). Mental illnesses place burdens on the individual, family, workplace and also on society and the economy. Though, there are research gaps in assessment of economic burden, finding cost-effective interventions and solutions is the most important strategy to reduce the burden (Doran & Kinchin, 2017). With the rapid change in demographic profiles of developing and developed societies, the long term burden of mental disorders is expected to increase. Economic burden of disease and disorders with 'Human Capital Costs' approached and acknowledged that the 'indirect costs' referred as 'hidden or invisible costs', are associated with productivity losses and income losses (Trautmann, Rehm, & Wittchen, 2016). The former includes losses due to work absence, and/or family retirement and the latter is related to losses due to mortality, disability and care seeking. Here in comes the role of mental health and mental health services.

Status of mental illness in India

In the past, epidemiological studies on the prevalence of mental disorders have been conducted in Indian states (Ganguly, 2000) such as Uttar Pradesh (Dube, 1970; Sethi, Gupta & Kumar, 1967), Bihar (Bhaskaran, Seth, & Jadava, 1970), West Bengal (Nandi, Banerjee, Boral, Ganguli, Ghosh, & Sarkar, 1979), and Gujarat (Shah, Goswami, Maniar, Hajariwala, & Sinha, 1980). The National Mental Health Survey 2015-16 conducted by the National Institute of Mental Health and Neurosciences, Bangalore in 12 states of the country on 34,802 participants who were above the age of

**Assistant Professor, Discipline of Psychology, School of Social Sciences, Indira Gandhi National Open University
Corresponding author: Dr. Monika Misra | Email: monikamisra@ignou.ac.in*

18 years, estimated that approximately 150 million people in India are experiencing one or the other kind of mental health problems. According to the survey, 13.7% people experience various psychological disorders. The prevalence of mental disorders including common mental health disorders, severe mental health disorders, and alcohol and substance use disorders (excluding tobacco use disorder) in adults over the age of 18 years is about 10.6%. The prevalence of mental illness is high in urban metropolitan areas; neurosis and stress related disorders are twice as high in women as compared to males. Nearly 50% people with major depressive disorders face difficulty in carrying out their daily activities. The common psychological problems reported by participants are problems in anger management, emotional instability, lack of tolerance and reduced attention span. Poverty and inaccessibility to basic amenities are barriers to mental health and well being. Due to stigmatization of mental illness, huge gaps in the treatment modalities were found like the patient being left untreated even after 12 months of illness. The general mindset does not prioritize mental health like physical health, which impacts the availability of mental health specialists as well. Among the 12 states covered in the survey, Manipur had the highest prevalence of mental disorders (Murthy, 2017).

Another multi-site survey conducted by Department of Psychiatry, AIIMS, Delhi (2017) in 11 cities across India (total participants being 24,371, above 18 years of age) concluded that women had a higher prevalence of anxiety and mood disorders. Women were twice more likely than men to have anxiety disorders (4.42% women, 2.44% men), and 1.16 times (1.79% women, 1.11% men) more likely to have mood disorders. Substance use was more common among men (2.23% men, 0.08% women). The most important finding was the huge treatment gap of about 95%, that is only 5 of 100 individuals with common mental disorders received any treatment over the past year. Urbanisation, migration, recent advances in technology and communication have led to changes in lifestyle, family systems, and relationships. Rapid improvement in education and health care sectors has led to a greater awareness of mental health problems. However, problems related to mental health have risen manifold (Kaul, 2017).

Interface of individual and digital technology

Digital technology has become all pervasive and is expected to grow in usage and importance. The community of netizens includes 'digital natives' and 'digital immigrants' (Prensky, 2001). Digital natives are the generation of young people who are 'native speakers' of the digital language of computers, games and internet. Digital immigrants on the other hand have not been exposed to digital technology at an early age. Access to Information and Communication Technology (ICT) has been a key driver of development in India. The number of internet users in India

was expected to reach 500 Million by June, 2018 (Internet and Mobile Association of India). There was an increase of 11.30% from December 2016 to December 2017. The internet penetration in urban India is 64.84% whereas the rural internet penetration is 20.26% (Agarwal, 2018). In light of this data, it appears that more and more people will be able to access cyberspace in future. The new technologies like video conferencing, smart mobile devices, virtual world, and electronic games, are here to stay.

Digital technology: Harmful or Empowering

A survey conducted in India reveals that social networking causes 88 percent of youth to experience negative situations offline according to McAfee Report, 2014. Nearly 70 percent of internet use by people at work has nothing to do with their jobs. Addiction to technology in the form of social media is on an increase which has strong associations with depression / mood disorders and anxiety (Diwakar, 2016). Access is not a problem anymore. Everything is accessible at any point of time in cyberspace. This constant engagement disrupts the sleep cycle and has an impact on relationships as well. 'The Blue Whale Challenge', a game that does not physically exist, took cyberbullying to a new and dangerous level. The game spans over fifty days and ends when the player takes his or her life. Cyberbullying and trolling are part of this game which have created serious concerns from psycho-social and legal perspectives. People who are vulnerable and suggestible to persuasion and emotionally disturbed, become victims of the game. On similar lines, there are online video series that might deeply affect adolescents or vulnerable groups. '13 Reasons Why', an online series (based on an English novel by Jay Asher) unravels 13 reasons for one of the characters committing suicide. The story is about rash and extreme behavior that will have a definite impact on adolescent viewers.

It has been observed that people develop a habitual pattern of the overuse of technology with increase in screen time (mobile, laptop, computer and television) to the extent of impairing healthy functioning. With reference to the misuse of technology, Internet Addiction (IA) has recently been added by APA (2013) in Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Block (2008) states "Internet addiction is a compulsive-impulsive spectrum disorder that involves online/ and or offline computer usage and consists of at least three subtypes- excessive gaming, sexual preoccupations and email/text messaging". Block (2008) further suggests that IA shows similarities with symptoms of substance use disorders, like excessive use, withdrawal phenomenon, tolerance and negative influences. Presently, IA is a major public health concern in China and South Korea. On the other hand, the cyber world has immense information. It has been regarded as convenient and resourceful with economic and social benefits at the same time. It has the potential to empower an individual. Media

plays an important role in generating awareness about psychiatric illnesses (Shrivastava, Kalra & Ajinkiya, 2015). With celebrities accepting and disclosing their mental disorders, the attempt has been able to garner support and reduce stigma towards mental health issues. There has been a positive effect on creating awareness and changing the attitudes of the common public.

It is clear from the challenges and benefits presented above that 'digital mindfulness' or 'digital citizenship' must be included in the discourse around technology. 'Digital mindfulness' refers to making conscious and mindful choices in cyberspace and being aware of one's actions and related consequences. Digital citizenship focuses on appropriate and responsible use of technology. This act further reflects how technology can promote well-being. Ribble (2011) includes nine areas in digital citizenship, namely, digital access (full electronic participation), digital commerce (online buying and selling of goods), digital communications (electronic exchange of information), digital literacy (process of teaching and learning about technology and the use of technology), digital etiquette (standards of conduct or procedures online), digital law (responsibility for actions and deeds using electronics), digital security (electronic precautions to protect learners, staff and organizations), digital health and wellness (physical and psychological well-being in a digital world), and digital rights and responsibilities (freedoms extended to those in a digital world). Digital health and wellness is one domain of digital citizenship. This especially focuses on psychosocial and physical well-being in a technological world. The psychosocial domain includes what is expected from an individual in social situations, in relation to others and how it is mediated by technology. Any interference with normal living has an impact on family, friends, and work-life (Whitty & Young, 2017).

Cyberspace and developmental stages

The usage of digital technologies differs across developmental stages. Though variations do exist within groups, overall, there is a pattern that emerges across different age groups (Third, Forrest-Lawrence, & Collier, 2014). The primary need for children (upto 11 years) is to use digital technology for entertainment, watching cartoons via streaming videos or playing online games. According to the UNICEF report (2017), one in three internet users worldwide is a child. Parents also use technology to pacify infants and children. Jenny Radesky, a developmental behavioural pediatrician, School of Medicine, University of Michigan, whose research focuses on family digital media use, points out that this strategy used by parents may have negative consequences for social and emotional development of children. Children face difficulty in developing emotional self-regulation and social competence. Children are able to register themselves on adult social networking sites where

one's age cannot be verified. They also become a target for free online games like, 'advergames' intended to interest children for their products. Most often the advertisement is for unhealthy foods for which the children might be greatly influenced (Green, 2014). Children are exposed to cyberbullying, and contact with strangers. This age group is also vulnerable in getting access to pornographic or violent content unintentionally. The problems encountered thereof, are likely to be lack of social competence and emotional regulation. In order to overcome the risks, parents should be familiar with technology and vigilant about their children's online activities.

For the adolescent age group, that is between 12 to 17 years, technology is primarily used to socialize with peers, for communication as well as for entertainment. The risks involved for this age include cyberbullying, sexting, violation of privacy, being exposed to sexual images and text. Many a times, adolescents are also not aware of the legal implications of some online activities like sexting. Development of aggressive behaviours like self-harm, truancy, neglecting school duties, addictive behaviours are common problems in this stage of development. Considering the adult age group from 18-64 years, cyberspace is primarily used for gathering information, shopping, banking and communication. Apart from the advantages of cyberspace for adults, Pew Research Centre (2014) reported that 73% of adults have witnessed online harassment, such as being threatened, cyberstalking, and sexual harassment. Adults are also at risk for online fraud and identities being stolen. Similarly, the older adults above 65 years, primarily use cyberspace to maintain contact with friends and family, receive or send updates of significant others who are not in close proximity, for medical purposes and information for local services. At times, older adults may also use cyberspace for online gaming and not be particularly aware of misuse of cyberspace making them particularly vulnerable to cyber criminals (Jane, 2016).

Thus, it may be said that people who misuse technology or are not aware of the threats posed by technology are more often at a greater risk. This dimension increases the vulnerability of all age groups in cyberspace. The other risks involved in cyberspace are content-related risks, conduct-related risks, contact-related risks, and other risks (Livingstone, Kirwil, Ponte, & Staksrud, 2013). Researches have concluded that the risks involved with content are primarily because of pornographic or violent content. This type of content many a times pops up accidentally and thus, is shocking and upsetting. Violent content may be frightening and cause anxiety disorders. Contact-related risks include people assuming false personalities and later trying to meet face-to-face. Conduct-related risks include hacking of information, sharing images without consent, and cyberbullying. Cyberbullying has been linked to many negative mental health problems like

depression, social anxiety, somatic symptoms, poor self-concept, increased absence from school and lowered academic performance. Adolescents who are victims of cyberbullying reported increased depression, anxiety, loneliness and suicidal behavior (Bonanno & Hymel, 2013; Hinduja & Patchin, 2010; Klomek, Marocco, Kleinman, Schonfeld, & Gould, 2008). Perpetrators of cyberbullying are likely to report increased substance use, aggression and delinquent behavior (Nixon, 2014; Litwiller & Brausch, 2013). At workplace, cyber-bullying may cause high levels of stress and strain that may lead to anxiety, and depression, decrease in productivity and job satisfaction and increased absenteeism.

Cyberspace for delivering Mental Health Services

Delivering mental health services is a big advantage of digital technology. Promoting mental health and treating mental illness should work together. Delivery of mental health services in developing countries, like India, is at a very slow pace. For instance, India is facing a possible "mental health epidemic" and not simply a challenge. Addressing this concern, the President of India in his address at NIMHANS, stressed the need for providing access to treatment facilities to those suffering from mental disorders by 2022 (India facing mental health epidemic, 2017)

To achieve this objective, and to bridge the burgeoning gap between service providers and unmet needs of the patients, there has to be an increased use of ICT (or the cyberspace) to improve healthcare mechanisms and access to services. Digital movement in mental health care or e-mental health is regarded as a cultural phenomenon that has empowered patients to exercise greater choice and control. The online space helps in overcoming stigma, prevention of mental illnesses and provides practical interventions in community settings. The services for e-health and m-health already exist. Similarly, now we have e-mental health on the same lines that uses ICT to support and improve mental health with the use of online resources, social media, and smartphone application. Given the fact, that there are only 43 government-run hospitals across India to provide services to more than seventy million people living with mental disorders and 0.30 psychiatrists, 0.17 nurses, and .05 psychologists per 1 Lakh mentally ill patients in the country being available, the role of ICT becomes significant (Kulkarni & Gaiha, 2017).

There are two types of e-mental health, one being web interventions and the second is mobile applications (Mapps), referred to as Internet-and Mobile-based psychological interventions (IMIs). Another delivery mechanism related to it is telemental health, a subset of telehealth that uses video-conferencing techniques to provide mental health services from a distance. It includes, telepsychology, telepsychiatry, telemental nursing and telebehavioural health. An example

of telepsychiatry is SCARF's (Schizophrenia Research Foundation, based in Chennai) use of mobile clinics in rural India. This has been used since 2005 when it started counseling tsunami victims through video conferencing. It also has introduced mobile telepsychiatry since 2010. Blogging and social media have shown positive result in this area. The basic premise of using digital technology in providing mental health services is to ensure that everyone has access to mental health and emotional health support at all times. This also serves the purpose of reaching the underserved population of the society, at all times using synchronous or asynchronous text communication for screening, prevention, therapy, psychoeducation and so on (Kulkarni, 2018).

Recent advances have also added virtual reality (VR) technology in assessment and treatment of mental disorders. VR technology is being used to assess the ability of children with Attention Deficit Hyperactivity Disorder. VR technology as a treatment strategy has been used to deliver exposure therapy to people with Post Traumatic Stress Disorder (McClay et al., 2012). Observing the ill-effects of mobile addiction (negative impact of technology), clinical psychologists at NIMHANS, have established 'The Service for Healthy Use of Technology (SHUT)' Clinic. After a pilot test on college students in the age-group 18-25 years, the SHUT Clinic has come up with mobile application known as 'Digital Detox by SHUT Clinic', (Kulkarni, 2018). The application helps the users to reduce the problems caused by mobile addiction and offers self-help strategies for the same. This method becomes useful for people at large who would otherwise, will not seek help.

Mental health services have followed a traditional path of face-to-face therapy in clinical settings. But now with the advent of mobile applications, the patient can record and measure his/her mood, behavior, activities in real-time and share the information with the therapist. Early detection of problems, greater engagement in one's care, timely adjustment, shared decision making, flexibility, are few of the benefits of the innovation. Secondly, this modality has paved the way for more objectivity, and reliability to the process of assessment, diagnosis, and monitoring of psychological disorders. This has been validated by few studies as well (Proudfoot, Parker, Hadzi, Manicavasagar, Adler, & Whitton, 2012). Thirdly, it addresses the concern of the underserved. It also helps in overcoming social stigma, and social isolation. There is an increase in social media platforms thereby impacting the ability to access information and support from peers and professionals in informal ways. At present, a large section of young adults are being afflicted with mental health issues and this is also the largest group using ICT. Such a platform can be an enabler for providing such services to those who otherwise will not go for traditional ways, thereby maintaining their anonymity. Lastly, it will also sensitize general masses about mental

health and will be able to address the low psychologist to patient ratio challenge in India in a cost-effective manner. Blended mode that is combining face-to-face traditional approach with Internet-and mobile-based approach, has the potential of increasing the effect of psychological intervention as well as being cost-effective at the same time.

Challenges

Digital technology has huge potential in delivering and transforming mental health services in a developing country like, India. There are also a few gaps such as the 'digital divide' i.e., the gap between people who do not have access to technology and those who have it. Also, people who face certain barriers in using the technology like older adults, people with intellectual disability, and people who are not able to adapt the technology because of a severe mental disorder or some other cause, may also not benefit from the services. Hence, customizing the device to the needs of such a group is particularly important. Secondly, there is an absence of any clear-cut guidelines with regard to mental health services being provided in cyberspace. Specific guidelines for licensure, referrals, privacy, screening, assessment, record-keeping, etc., are the present-day requirement. The American Psychological Association guidelines for the practice of telepsychology, in general are being applied and that includes standards on informed consent, competence to practice, confidentiality, doing no harm, termination, interruption of services, payments, technology disposal and interjurisdictional practices. Apart from this, training is required for the software being used when treatment is being planned. Lastly, trial-based experimental validation and randomized trial of the mental health applications is also required. This would help in public acceptability of innovative methods for delivering mental health services

Conclusion

It may be said that mental health and mental illness can be addressed positively within cyberspace. Paradoxically, cyberspace also has the potential of risks and threats for its users. The focus should be on minimizing negative aspects and maximizing benefits. Bullying, harassment, sexual activities, gaming and gambling, deception, scams, frauds and pornography are examples of risks posed by technology. Technological innovations in ICT are thrusting new challenges for psychologists. In light of this fact, technology should be used in a healthy way. Apart from conventional media, the online space is a way forward in creating awareness, access to treatment and adoption of preventive measures about mental health. ICT has the potential to cater to underserved populations and to address mental health issues. Face-to-face consultations have not been able to meet the needs of a large number of people and so cyber solutions in mental health services in the country promise healthier functioning. Thus, the way forward is to adopt and adapt an

integrated approach to mental health and digital technology. In a developing society like India, conscious usage and consumption of technology and information has the potential to promote mental and physical well-being in a big way.

References

- Agarwal, S. (2018, February 20). Internet users in India expected to reach 500 million by June: IAMAI. *The Economic Times*. Retrieved from <https://economictimes.indiatimes.com/tech/internet/internet-users-in-india-expected-to-reach-500-million-by-june-iamai/articleshow/63000198.cms>
- Amichai-Hamburger, Y. (2017). *Internet Psychology*. Routledge.
- Bakker, D., Kazantzis, N., Rickwood, D., & Rickard, N. (2016). Mental health smartphone apps: review and evidence-based recommendations for future developments. *JMIR mental health*, 3(1), e7.
- Bauman, S., & Rivers, I. (2015). *Mental Health in the Digital Age*. London: Palgrave Macmillan.
- Bhaskaran, K., Seth, R.C., & Jadava, S.N. (1970). Migration and mental health in industry. *Indian Journal of Psychiatry*, 12, 102.
- Block, J.J. (2008). Issues for DSM-V: Internet addiction. *American Journal of Psychiatry*, 165, 306–307.
- Bonanno, R.A., Hymel, S. (2013). Cyber bullying and internalizing difficulties: above and beyond the impact of traditional forms of bullying. *Journal of Youth and Adolescence*, 42(5), 685–697.
- Connor, C. (July 17, 2012). *Employees really do waste time at work*. Retrieved from <https://www.forbes.com/sites/cherylnappconner/2012/07/17/employees-really-do-waste-time-at-work/#4a82240b5e6d>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. US: American Psychiatric Pub.
- Diwakar, V. (2016). 'It's Complicated': The Construction of Indian Middle-class Teens in Social Media. *Journal of Creative Communications*, 11(2), 161–182.
- Donker, T., Petrie, K., Proudfoot, J., Clarke, J., Birch, M., & Christensen, H. (2013). Smartphones for smarter delivery of mental health programs: A systematic review. *Journal of Medical Internet Research*, 15(11), e247.
- Doran, C. M., & Kinchin, I. (2019). A review of the economic impact of mental illness. *Australian Health Review*, 43(1), 43–48.

- Dube, K.C. (1970). A study of prevalence and biosocial variables in mental illness in a rural and an urban community in Uttar Pradesh - India. *Acta Psychiatrica Scandinavica*, 46(4), 327-359.
- Ganguli, H.C. (1968). Prevalence of psychological disorders in an Indian industrial population. *Indian Journal of Medical Research*, 56(5), 754-760.
- Ganguli, H.C. (2000). Epidemiological findings on prevalence of mental disorders in India. *Indian Journal of Psychiatry*, 42 (1), 14-20.
- Green, C. (2014, March 29). Food giants target children with additives 'advergemes'. *The Independent*. Retrieved from <https://www.independent.co.uk/news/uk/home-news/food-giants-target-children-with-addictive-advergemes-9222302.html>
- Hinduja S., Patchin J.W. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research*, 14(3), 206-221.
- India facing possible mental health epidemic, warns President. (2017, December). *The Economic Times*. Retrieved from <https://economictimes.indiatimes.com/news/politics-and-nation/india-facing-possible-mental-health-epidemic-warns-president/articleshow/62308115.cms>
- Jane, E. A. (2016). Online misogyny and feminist digilantism. *Continuum*, 30(3), 284-297.
- Kaul, R. (2017, April 15). Only 1 out of 20 Indians with mental illness gets treatment. *The Hindustan Times*. Retrieved from <https://www.hindustantimes.com/india-news/only-1-out-of-20-indians-with-mental-illness-gets-treatment/story-cPraSFBENsQIRcGoZuOZ2K.html>
- Klomek, A.B, Marrocco, F., Kleinman, M., Schonfeld, I. S., & Gould, M.S. (2008). Peer victimization, depression, and suicidality in adolescents. *Suicide and Life Threatening Behavior*, 38(2), 166-180
- Kulkarni, T. (2018, December 31). An app to cure your mobile addiction. *The Hindu*. Retrieved from <https://www.thehindu.com/sci-tech/health/an-app-to-cure-your-mobile-addiction/article25874949.ece>
- Kulkarni, V.S., & Gaiha, R. (2017, April 11). Mind the treatment gap. Implementation of the Mental Health Care Act will require a restructuring of health-care services. *The Hindu*. Retrieved from <https://www.thehindu.com/opinion/op-ed/mind-the-treatment-gap/article17912683.ece>
- Kolappa, K., Henderson, D.C., & Kishore, S.P. (2013). No Physical health without Mental Health: Lessons unlearned. *Bulletin of World Health Organisation*, 91(1), 3-3A.
- Litwiller B.J., & Brausch, A.M. (2013). Cyber bullying and physical bullying in adolescent suicide: the role of violent behavior and substance use. *Journal of Youth and Adolescence*. 42(5), 675-684.
- Livingstone, S., Kirwil, L., Ponte, C., & Staksrud, E. (2013). *In their own words: what bothers children online? with the EU Kids Online Network*. The London School of Economics & Political Science. Retrieved from [http://eprints.lse.ac.uk/48357/1/In%20their%20own%20words%20\(lsero\).pdf](http://eprints.lse.ac.uk/48357/1/In%20their%20own%20words%20(lsero).pdf)
- McLay, R.N., Graap, K., Spira, J., Perlman, K., Johnston, S., Rothbaum, B.O., & Bordnick, P.S. (2012). Development and testing of virtual reality exposure therapy for post-traumatic stress disorder in active duty service members who served in Iraq and Afghanistan. *Military Medicine*, 177, 635-642.
- McManus, S., Meltzer, H., Brugha, T. S., Bebbington, P. E., & Jenkins, R. (2009). *Adult psychiatric morbidity in England, 2007: results of a household survey*. UK: The NHS Information Centre for health and social care.
- Murthy, R. S. (2017). National mental health survey of India 2015-2016. *Indian journal of psychiatry*, 59(1), 21.
- Nandi, D. N., Banerjee, G., Boral, G. C., Ganguli, H., Ghosh, A., & Sarkar, S. (1979). Socio.economic status and prevalence of mental disorders in certain rural communities in India. *Actapsychiatricascandinavica*, 59(3), 276-293.
- Nixon, C. L. (2014). Current perspectives: the impact of cyberbullying on adolescent health. *Adolescent health, medicine and therapeutics*, 5, 143.
- Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the horizon*, 9(5), 1-6.
- Proudfoot, J. G., Parker, G. B., Pavlovic, D. H., Manicavasagar, V., Adler, E., & Whitton, A. E. (2010). Community attitudes to the appropriation of mobile phones for monitoring and managing depression, anxiety, and stress. *Journal of medical Internet research*, 12(5), e64.
- Ribble, M (2011). *Digital Citizenship in Schools* (2nd ed.). Washington DC: International Society for Technology in Education.
- Ryff, C.D, & Singer, B. (1998). Human health: New dimensions for the next millennium. *Psychological Inquiry*, 9, 69-85.
- Sethi, B.B., Gupta, S.C., & Kumar, R. (1967). 300 urban families. *Indian Journal of Psychiatry*, 9, 280-301.
- Shah, A. V., Goswami, U. A., Maniar, R. C., Hajariwala, D.

- C., & Sinha, B. K. (1980). Prevalence of psychiatric disorders in Ahmedabad (an epidemiological study). *Indian journal of psychiatry*, 22(4), 384-389.
- Shrivastava, S., Kalra, G., & Ajinkya, S. (2015). People see what papers show! Psychiatry's stint with print media: A pilot study from Mumbai, India. *Indian journal of psychiatry*, 57(4), 407.
- Third, A., Forrest-Lawrence, P., & Collier, A. (2014). *Addressing the Cyber Safety Challenge: From Risk to Resilience*. Retrieved from http://apo.org.au/files/Resource/telstra_addressing-cyber-safety-challenge_2014_2014.pdf
- Trautmann, S. Rehm, J., & Wittchen, H. U. (2016). The economic costs of mental disorders: Do our societies react appropriately to the burden of mental disorders? *EMBO reports*, 17(9), 1245-1249.
- United Nations (2015). *The Millennium Development Goals Report 2015*. Retrieved from [https://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20\(July%201\).pdf](https://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20(July%201).pdf)
- United Nations Development Program (September, 2015). *Sustainable development goals*. Retrieved from <http://www.in.undp.org/content/india/en/home/post-2015/sdg-overview.html>
- UNICEF (December, 2017). *The state of the world's children in 2017: Children in Digital World*. Retrieved from https://www.unicef.org/publications/index_101992.html
- Whitty, M.T., & Young, G. (2017). *Cyberpsychology. The study of Individuals, Society and Digital Technologies*. UK: John Wiley & Sons, Ltd.

Becoming a Pro at Procrastination: Examining the Correlates of Procrastination

Moksha Miskeen¹ and Surbhi Kumar²

The present study attempted at examining the phenomena of procrastination in adolescence and young adulthood. Procrastination in many ways is reflective of the perennial struggle with self-control which proves to be challenging in today's world where instant gratification is both valued and available at ease. The relationship between procrastination, self-esteem, self-efficacy, personality and motivation was examined by comparing two groups, i.e., 13 to 20 year olds and 21 to 28 years olds. The sample comprised of 80 participants (40 from each group). The measures included Pure Procrastination scale, Irrational Procrastination Scale, Motivational Diagnostic Test, Coping Self Efficacy scale, Big Five Inventory and Rosenberg Self esteem scale. The data was analyzed using t-test for independent samples and Pearson's correlation. The results indicated conscientiousness, delay, coping self-efficacy and openness to be important predictors of procrastination. Procrastination had significant positive correlation with value, delay and neuroticism and significant negative correlation with conscientiousness, coping self efficacy and expectancy. Interestingly, there was a significant positive correlation between procrastination and self esteem, indicating that people who procrastinate may have a higher sense of self worth. There was no age related correlation found with procrastination among all the variables. The study has implications for improving performance, motivation and self-control in this technology driven world.

Keywords: Procrastination, self-esteem, self-efficacy, personality, motivation

Procrastination is derived from the Latin words pro, meaning forward, forth, or in favour of and crastinus, meaning of tomorrow. Procrastination is the tendency of people to delay completing their tasks. They generally tend to avoid the work assign to them and keep themselves busy by preoccupying other assignments. According to Steel (2007, p.66), "to procrastinate is to voluntarily delay an intended course of action despite expecting to be worse off for the delay". It is based on false assumptions by putting off work till tomorrow with a faith without any evidence that will support the completion of work. Thus procrastination is not simply delay, but irrational delay. (Stroud, 2010)

Procrastination is not only a habit of simply delaying work, but is actually much more than that and has some really serious implications. Procrastination not only has an effect at the work front (task not completed on time, job at risk, exam pressure) but also it starts to affect one's self and his or her perception about it, hence again giving rise to other relational and self conflicts. Milgram (1991) explained procrastination as postponement of tasks that usually results in a substandard behavioural product and a state of emotional upset. The task is perceived by the procrastinator as being important to perform. Procrastination as is understood is not a cause but an effect or a response to certain dimension. Some of those dimensions which are still under research include, low self esteem, low self efficacy, fear of failure, personality traits, perfectionism, anxiety, task characteristics, low on motivation, etc.

Self-esteem refers to judgments of global self-worth (Bandura, 1997). According to Tesser (1991), how one evaluates his or her accomplishments, capabilities, values,

beliefs, perception and how other responds to us, constitutes Self esteem. Procrastination has been described as a self-protective strategy that masks a fragile self-esteem. Flett, Hewitt, Blankstein and O'Brien (1991) proposed low self-esteem in procrastinators causes them to engage in behaviours that involve delaying task or avoiding them to protect oneself from poor performance and negative outcomes.

Self efficacy is defined as a person's belief in one's own capability of completing a specific task (Bandura, 1997). According to the self-efficacy theory, a person's belief in oneself is strongly influenced by task choice, level of effort and persistence, and how one subsequently performs. Avoidance behaviour may be related to low or poor self efficacy and strong SEF may play a role in the onset and persistence of behaviour (Bandura, 1985). It has been studied in several previous procrastination studies, with results showing an inverse relationship with procrastination. It is also suggested by Hermann (2005) that high self efficacy is predictive of high self-esteem; whereas, low self-efficacy predicts low self-esteem. Research findings demonstrate that self-esteem predicts neither the choice of personal goals, nor performance accomplishments (Mone, Baker, & Jeffries, 1995). Therefore, it can be inferred that self efficacy predicts self-esteem (rather than self-esteem predicts self efficacy), particularly in predicting trait procrastination. (Hajloo, 2014). Katz, Eilot, and Nevov (2013) studied role of motivation in the relations between self-efficacy and procrastination for fifth grade students in relation to their homework. It was found that motivation had a role to play with both self efficacy and procrastination. Temporal Motivation Theory, given by Steel and Konig (2006) suggest how motivation is dependent on four components;

¹Postgraduate student, Department of Applied Psychology (Clinical Psychology), School of Human Ecology, Tata Institute of Social Sciences, Deonar

² Assistant professor, Department of Psychology, Indraprastha College for Women, University of Delhi
Corresponding author: Ms. Moksha Miskeen | Email: mokshamiskeen@gmail.com

Expectancy, Value, Impulsiveness and Delay. Motivation to perform a task is directly proportional to expectancy and value of the task and inversely to impulsiveness and delay. The theory suggests that people tend to pursue goals or tasks that are pleasurable and that are easily attainable. On the other hand, people put off tasks or procrastinate when there are difficult tasks with no pleasurable qualities (Steel & Klingsieck, 2016). Thus people with low self-efficacy, experiencing the feelings of incompetence, are more likely to procrastinate (Steel, 2007).

Personality is defined by stable traits and characteristics that influence the way a person, think, feel and act. It is dynamic in nature. The factor analytic studies suggest that five higher order factors that explain the basic structure of personality; Openness to experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism (McCrae & Costa, 2003). All these traits have characteristics varying on both ends of each trait spectrum. With respect to procrastination, many of these traits have been correlated with self-reported procrastination behaviour: neuroticism (Ellis & Knaus, 1979), agreeableness (Knaus, 1979), impulsiveness (Blatt & Quinlan, 1967), and conscientiousness (Kuhl, 2000).

The rationale behind the present study is to focus on the causes of procrastination, and how it is related to these four variables (self esteem, self efficacy, personality and motivation). The relationship between procrastination and the other variables can be positive or negative or may involve interplay of other variables. In the present study we are trying to draw a relationship between procrastination and the variables taking varying sample depending on the age group. The present study has the following objectives: to find a relationship between procrastination and other variables including self esteem, self efficacy, personality, and motivation.

Hypotheses

- H1: There will be no significant difference between the participants of both the age groups (13-20 and 21-28 years) on the procrastination scale.
- H2: Procrastination will have a significant positive correlation with value, delay and neuroticism.
- H3: Procrastination will have a significant negative correlation with self esteem, coping self efficacy, conscientiousness and expectancy.

Method

Participants

80 participants belonging to two age groups, i.e., 13 to 20 years ($M=19.83$, $SD=0.38$) old and 21 to 28 years old ($M=23.10$, $SD=2.18$). They were selected through convenience and snowball sampling.

Design

A correlation design was used for the current research study. The study attempted to study the interaction between different variables. The variables include procrastination, self esteem, self efficacy, three components of motivation (value, expectancy and delay) and five personality factors (openness, agreeableness, neuroticism, extraversion and conscientiousness).

Measures

Demographic details. This included name, age, sex, marital status, Number of children, Educational qualification and Professional qualification.

Irrational Procrastination Scale (IPS). Developed by Steel in 2010 and features nine items measuring the degree of irrational delay causing procrastination, and its English version has yielded a good internal consistency, Cronbach's $\alpha = .91$, and correlates with PPS at $r = .87$, or $r = .96$, after correcting for attenuation due to unreliability (Steel, 2010). The scoring for this scale is done by adding up the item values. Reverse scoring to be done for three items. Steel (2010) introduced two instruments to measure procrastination. One is Pure Procrastination Scale (PPS) and the other is Irrational Procrastination Scale (IPS). According to a study conducted by Svartdal et al., (2016) concluded that the PPS and IPS are valid measures of procrastination, and that the PPS may be particularly useful in assessing cultural differences in unnecessary delay. Since IPS was serving the major purpose of assessing the irrational delays in the individuals we decided to administer the same scale.

Motivational Diagnostic Scale. Also developed by Steel (2011) and has 24 items, assessing motivation through three factors, expectancy, value and delay. The reliability measures are high with 0.83 for Expectancy, 0.84 for Value, and 0.83 for Impulsiveness. The scoring is done by adding the items specific to each factor.

Rosenberg's self-esteem scale. Developed by Rosenberg (1965), it is 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale is believed to be uni-dimensional. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree. Scoring for the scale is done by adding the values, only items 2, 5, 6, 8, 9 are reverse scored.

Coping Self efficacy. Developed by Chesney, Nielsens, Chambers, Taylor, and Folkman (2006), it is a 26-item measure of perceived self-efficacy for coping with challenges and threats. An overall CSES score is created by summing the item ratings ($\alpha = .95$; scale mean = 137.4, $SD = 45.6$).

Big Five Inventory. Developed by John & Srivastava (1999), it is 44-item inventory that measures an individual on

the Big Five Factors of personality – Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism (Goldberg, 1993). It has a reliability alpha mean of 0.83. The mean for the validity correlation between BFI and NEO FFI is $r = 0.73$. The scoring of the scale is done by adding up the values of items with respect to the factor it is representing.

Procedure

The planning of the study included forming of the questionnaire as well as the selection of the target population. After the two were done, the questionnaire was administered for the purpose of pilot study. Informed consent from the participants was taken before administering the test on them. The purpose was to assess if the scales used in the

questionnaire are providing consistent data and any other feedback that is necessary before the final study is conducted. The sample size of the pilot study was 8. Based on the feedback from pilot study, the survey questionnaire was then edited and some of the scales were removed. The final questionnaire had 5 scales. The average time taken to complete the questionnaire was 15-20 minutes.

Results

The two age groups have been discussed with the help of A1 referring to 13-20 years old and A2 referring to 21-28 years old participants.

Table I

Means and Standard deviation of two age groups and comparison using t test

Variables	A1(n=40)		A2 (n=40)		t (df=78)	p
	M	SD	M	SD		
IPS	25.05	5.927	25.70	5.534	-0.507	.614
Expectancy	30.98	6.200	30.65	6.298	0.233	.817
Value	21.60	6.003	20.80	6.077	0.592	.555
Delay	22.80	6.783	21.60	6.400	0.814	.418
Self-Esteem	22.38	6.762	22.65	6.826	-0.181	.857
Extra version	25.50	6.135	26.33	6.395	-0.589	.558
Agreeableness	31.78	6.282	32.18	6.238	-0.286	.776
Conscientiousness	29.33	5.549	30.55	5.866	-0.960	.340
Neuroticism	24.65	6.769	25.25	6.356	-0.409	.684
Openness	35.28	4.972	37.58	5.223	-2.017	.057
Coping self-efficacy	169.65	44.324	179.10	38.805	-1.015	.313

* $p \leq .05$

** $p \leq .01$

Table 2

Relationship between variables using Pearson's Correlation

Variable	IPS	Expectancy	Value	Delay	SE	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness	CSE
IPS	1	-.318**	.513**	.527**	.266*	-0.187	-0.174	-.718**	.549**	-0.005	-.620**
Expectancy		1	-.274*	-0.05	-.331**	.464**	0.147	.517**	-.437**	.284*	.528**
Value			1	.707**	.269*	-0.184	-.266*	-.557**	.304**	-0.1-	.472**
Delay				1	0.160	.045	-.221*	-.459**	0.209	-0.069	-.415**
SE					1	-0.17	-0.142	-.311**	.353**	-.240*	-.305**
Extra version						1	-0.017	.355**	-.310**	.231*	.492**
Agreeableness							1	.416**	-.293**	.257*	.271*
Conscientiousness								1	-.619**	.255*	.660**
Neuroticism									1	-0.168	-.650**
Openness										1	.285*
CSE											1

* $p \leq .05$ ** $p \leq .01$

Table 3

Regression analysis predicting procrastination from conscientiousness, delay, openness and coping self efficacy

Independent variables	β	r	t	R^2
Conscientiousness	-.718	-.718**	-9.099	.515
Delay	.250	.527**	2.954	.564
Openness	.178	-.005	2.349	.631
Coping self efficacy	-.263	-.620**	-2.741	.594

* $p \leq .05$ ** $p \leq .01$

Discussion

The present study is aimed at understanding how procrastination is affected by or affects the different attributes in an individual's life. The study attempted to study the relationship between procrastination and constructs like self esteem, personality, coping self efficacy and motivation and how each one of the relationships have an impact on the well being of a person. In items of the test like, "There are aspects of my life that I put off, though I know I shouldn't" and "I put things off so long that my well-being or efficiency unnecessarily suffers", participants had high scores, indicating their increased tendency to procrastinate.

It was hypothesised that there will be a no significant

difference between the participants of both the age groups on procrastination. It was found that there was no significant difference between age and IPS. Hence, the hypothesis is retained. Although the literature suggests that procrastination increases with age, in a study with German students it was found that procrastination was highest among the age group of 14-29. It was also indicated that procrastination among emerging adults tends to be higher because of the kind of decisions they are to take pertaining to shaping of their identity. (Beutel, et al., 2016)

IPS which measures procrastination (irrational delay) was found to have the following significant correlations with the three dimensions of motivation. As hypothesised there was a significant negative correlation between

procrastination and expectancy (the expectation for receiving an outcome) ($r = -0.318, p < 0.01$). This suggests that the more expectancy of receiving an outcome after doing a task, the lesser the procrastination would be or there would be no work (more procrastination), if the expectancy of getting a result is less, therefore there will be very low motivation to complete the task. Thus the hypothesis is retained.

It was hypothesised that there will be a positive correlation between procrastination and value. A significant positive correlation was found with value (higher the score on value dimension, the lower the value of the task) ($r = .513, p < 0.01$). This indicates that the higher the score on value, lower will be the value of the task, hence people will procrastinate more. There will be no motivation to complete a task, when the value assumed for it is low. Thus the hypothesis is retained.

It was hypothesised that there will be a positive correlation between procrastination and delay. IPS was found to have a significant positive correlation with delay (the time taken to receive an outcome) ($r = 0.527, p < 0.01$). Therefore, the more delayed the outcome is or the more one assumes to wait to receive an outcome (more delay), will lead to higher procrastination. Similarly, the lesser the delay in getting the result, the lower will be the procrastination and more motivated the individual will feel to complete the task. Since, the result is in sync with the literature reviewed, the hypothesis is retained.

According to a study conducted, it was found that the three factors of expectancy, value and impulsivity accounted for 49% of the variance in procrastination (Steel & Klingsieck, 2016). Therefore the more expectancy of receiving an outcome will motivate people to work more and lead to lesser procrastination. Similarly, lower the value of the outcome or reward is, less motivation towards the task and leading to more procrastinating behaviour.

It was hypothesised that there will be a negative correlation between procrastination and self-esteem. However, it was interestingly found that IPS and self esteem are significantly positively correlated ($r = 0.266, p < 0.05$). This may be indicative of the fact that people who procrastinate continue to hold a good sense of self worth, and procrastination a task does not affect in lowering their self esteem. Self esteem is a global measure and is not marked by only tasks. Since it was found in the previous researches that procrastination is negatively correlated with self esteem, the result obtained is different. Therefore the hypothesis is rejected.

In terms of personality, as hypothesised a significantly high negative correlation between IPS and Conscientiousness ($r = -0.718, p < 0.01$) was found, indicating people who are organised, regular, and efficient workers will procrastinate less. As hypothesised, neuroticism had a significant positive correlation with IPS. ($r = 0.549, p < 0.01$)

suggesting people with tendency to get more anxious about the task and fear the outcome will push them to delay the task and procrastinate more. Hence the hypothesis is retained. A study by Steel (2007), found that procrastination was strongly associated with conscientiousness ($r = -0.60$), impulsiveness ($r = 0.41$) and lack of self-control ($r = 0.58$). It could be indicated that the fear of failure or self regulation can cause people to procrastinate more or less, respectively.

Finally, it was hypothesised that there will be a negative correlation between procrastination and coping self efficacy. IPS was found to have a significantly high negative correlation with coping self efficacy ($r = -.620, p < 0.01$), suggesting the more perceived ability of the individual to deal with stressful situation, lower will be the procrastination. A meta-analytic study conducted by Steel (2007) to assess the possible causes and effects of procrastination. It was found that procrastination was strongly correlated to task aversiveness, task delay, self-efficacy, and impulsiveness, suggesting people who are not confident about coping in or handling work anxiety will procrastinate more.

Motivation

Expectancy. Expectancy was found to have a significant negative correlation with value ($r = -.274, p < 0.05$), this indicates that when the perceived value of the task is high (low score on value), there will be greater expectation for the outcome (high score on expectancy). Similarly, when expectancy of the outcome is lower, it is correlated to low rewarding value of the outcome (more score on value).

Expectancy was found to have a significant correlation with four factors of personality, extraversion, conscientiousness, neuroticism and openness. A significant positive correlation with extraversion ($r = .464, p < 0.01$), conscientiousness ($r = .517, p < .01$), openness ($r = 0.284, p < .05$) and coping self-efficacy ($r = 0.528, p < 0.01$).

Thus, people who score high on extroversion, that is who are extrovert, socially outgoing or high on conscientiousness, more orderly, regular or are open to change (high on openness) tend to expect task outcome more. Also, people with high coping self efficacy, who perceive to handle task oriented stress effectively expect task outcomes more (high expectancy).

Neuroticism and expectancy have a significant negative correlation ($r = -.437, p < 0.01$). This indicates people who experience feelings of anxiety, fear and are generally moody (high neuroticism) will expect less from a task (low expectancy). The anxiety of completing a task may be related to low expectancy from a task.

Value. Value is found to be significantly correlated (positive) with delay ($r = .707, P < 0.01$), which indicates that people assume the outcome to be rewarding (more value, low value score), they will be less delay in receiving the outcome (low delay). Similarly, when task is delay more people will

perceive the value of the task to be less rewarding (more value score).

Value has a significant correlation with three factors of personality, agreeableness, conscientiousness and neuroticism. It is found to have significant negative correlation with agreeableness ($r = -0.266$, $p < 0.05$) and conscientiousness ($r = -0.557$, $p < 0.01$). This suggests that that people who score high on value (expects less rewarding outcomes) will score low on agreeableness. Also people who are very regular and particular about their work (high on conscientiousness) will score low on value (more value to the task outcome).

Neuroticism and value are found to be significantly positively correlated ($r = 0.304$, $p < 0.01$). It can be indicates that people who score high on neuroticism will place low value of the task outcome (high value score) or people who are high on neuroticism engage in tasks that have lower value outcomes (high value score).

Value is found to have a significant negative correlation with the coping self-efficacy ($r = -0.472$, $p < 0.01$). Thus people who perceive themselves to be able to handle stress will choose task with the high outcome value (low value score). Similarly, people with low self efficacy will be motivated to indulge in task with low outcome value (high value score).

Delay. Delay is found to have a significant negative correlation with conscientiousness ($r = -0.459$, $p < 0.01$), agreeableness ($r = -0.221$, $p < 0.05$) and coping self-efficacy ($r = -0.415$, $p < 0.01$). This indicates that people who score high on conscientiousness, agreeableness will be motivated to complete as task with less outcome delay. People who score high on CSE, perceive that will be able to deal with task stress effectively, will be motivated to complete a task with low outcome delay.

As it can be seen from the results, Conscientiousness, Delay, Coping self-efficacy and Openness are the Predictors of Procrastination, out of all the variables that we selected for the purpose of this study. In other words, a significant amount of variance in the scores of Procrastination in the sample can be accounted for by these 4 variables.

It can be seen that low levels of conscientiousness is the most powerful predictor of Procrastination. It was predicted to account 51.5% variance in the levels of procrastination. In a study by Lay (1997) it was found that the lack of conscientiousness is an important reason behind procrastination. Another study by Lee, Kelly, and Edwards (2006) also found that the Conscientiousness mediator model accounted for 24% of the variance in trait procrastination. This suggests that people who are more orderly and regular will not procrastinate as they like to complete their tasks on time as compared to people who score low on conscientiousness.

The results also indicate that the procrastination can also be predicted by the levels of delay. Delay predicted 4.9% variance in the score of procrastination. Thus more the delay in getting an outcome, the less motivated individual will be to complete the task and hence, more procrastination level will be.

Further it is also indicated that coping self efficacy also is an important predictor of procrastination. Coping self efficacy predicted 3.7% variance in the score of procrastination. Thus procrastination has a direct impact on the well being of an individual. In stressful situations where individual is not able to perceive his/her ability to deal with it, he or she will most likely procrastinate. According to a study by (Haycock, McCarthy, & Skay, 1998), self efficacy was a significant predictor of procrastination. A significant correlation was also found between anxiety and procrastination.

Results also indicated that openness as a personality trait also predicts procrastination by accounting to 2.9% variance in the scores of procrastination. Thus individuals who are open to new experiences and have intellectual curiosity will predict less procrastination. Openness controls intellect, creativity and willingness to learn. Open people are more likely to see flaws in their personality and actions and learn from them. Hence, scoring high on openness is likely to produce a person who procrastinates less. (Psychology2010.tumblr.com, 2011)

Limitations and Directions for Future Research

The study was conducted on a sample size of 80 and with age groups varying from 13-28. One of the major limiting factors of this study was this sample size and the restricted age group. For the purpose of future research, more contrasted results can be expected if people of middle age and old age are also included. That way it could be studied how the levels of procrastination vary across different age groups.

Further, since all the scales were self reported measures, the factor like social desirability and acquiescence plays an important role, thereby affecting the authenticity of results. The length of the form might have affected the attention span of the participants, leading to random answering. There was also a limited scope of rapport building with the participants. Further, the levels of procrastination should be studied across different genders and a qualitative study can be carried out to assess the life style of procrastinators and to know how it affects their lives and their well being.

Conclusion

The study aimed at examining the factors that affects the level of procrastination in people. It was found that procrastination is a very common habit adopted by people. Conscientiousness, delay, coping self-efficacy and openness were found to be important predictors of procrastination. As

hypothesized, procrastination had significant positive correlation with value, delay and neuroticism and significant negative correlation with conscientiousness, coping self efficacy and expectancy. Interestingly, there was a significant positive correlation between procrastination and self esteem, indicating that people who procrastinate may have a higher sense of self worth. There was no age related correlation found with procrastination among all the variables.

In terms of implication of the study, since it was found that conscientiousness can predict procrastination, several techniques can be adopted to increase the regularity and conscientiousness in people and hence can aim at reducing procrastination, for example, logging progresses (Hallquist, 2012). Further, many coping styles can be used (emotion focussed, problem focussed, avoidance-withdrawal focussed) and learning programmes can be developed in order to enhance ones' coping self efficacy in order to reduce their procrastination levels. For example, experiential Learning holistically focuses on people's thoughts, feelings, perceptions, and behaviours while learning (Kolb & Kolb, 2005).

References

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Worth Publishers.
- Bandura, A. (1985). Explorations in self-efficacy. In S. Sukumune (Ed.), *Advances in social learning theory*. Tokyo: Kaneko-shoho.
- Beutel, M.E., Klein, E.M., Aufenanger, S., Brähler, E., Dreier, M., Müller, K.W., et al. (2016).
- Procrastination, Distress and Life Satisfaction across the Age Range – A German Representative Community Study. *PLoS ONE*, 11(2), e0148054.
- Blatt, S. J., & Quinlan, P. (1967). Punctual and procrastinating students: A study of temporal parameters. *Journal of Consulting Psychology*, 31(2), 169-174.
- Chesney, M. A., Neilands, T. B., Chambers, D. B., Taylor, J. M., & Folkman, S. (2006). A validity and reliability study of the coping self-efficacy scale. *British journal of health psychology*, 11(3), 421-37.
- Ellis, A., & Knaus, W.J. (1979). *Overcoming Procrastination: Or, How to Think and Act Rationally in Spite of Life's Inevitable Hassles*. New York: New American Library
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & O'Brien, S. (1991). Perfectionism and learned resourcefulness in depression and self-esteem. *Personality and Individual Differences*, 12(1), 61-68.
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, 48(1), 26-34.
- Hajloo, N. (2014). Relationships Between Self-Efficacy, Self-Esteem and Procrastination in Undergraduate Psychology Students. *Iranian journal of psychiatry and behavioural sciences*, 8(3), 42-49.
- Hallquist, C. (2012, July 19). *Logging progress improving conscientiousness and overcoming procrastination at Less Wrong*. Retrieved from http://lesswrong.com/lw/dop/logging_progress_improving_conscientiousness_and/
- Haycock, I., McCarthy, P., & Skay, C. (1998). Procrastination in college students: The role of self efficacy and anxiety. *Journal of counselling and development*, 76(3), 317-324.
- Hermann, K. (2005). *The influence of social self-efficacy, self-esteem, and personality differences on loneliness, and depression* [Dissertation]. Retrieved from
- John, O. P., & Srivastava, S. (1999). The Big Five Trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102-138). New York: Guilford Press.
- Katz, I., Eilott, K., & Nevov, N. (2013). "I'll do it later": Type of motivation, selfefficacy. *Official journal of the society for the study of motivation*, 38(1) 111-119.
- Knaus, W.J (1979). *Do it now: How to stop procrastinating*. NJ: Prentice-Hall.
- Kolb, A., & Kolb, D. (2005). Learning Styles and Learning Spaces: Enhancing Experiential Learning in Higher Education. *Academy of Management Learning & Education*, 4(2), 193-212.
- Kuhl, J. (2000). A functional-design approach to motivation and selfregulation: The dynamics of personality systems interactions. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self regulation* (pp. 111–169). San Diego, CA: Academic Press.
- Lay, C. (1997). Explaining lower-order traits through higher-order factors: The case of trait procrastination, conscientiousness, and the specificity dilemma. *European Journal of Personality*, 11, 267-278.
- Lee, D., Kelly, K. R., & Edwards, J. K. (2006). A closer look at the relationships among trait procrastination, neuroticism, and conscientiousness. *Personality and Individual Differences*, 40(2006), 27-37.
- McCrae, R. R., & Costa, P. T., Jr. (2003). *Personality in adulthood: A five-factor theory perspective* (2nd ed.). New York: Guilford Press.
- Milgram, N. (1991). Procrastination. In R. Dulbecco, *Encyclopedia of human biology* (Vol. 6, pp. 149-155).

- New York: Academic Press.
- Mone, M., Baker., & Jeffries, F. (1995). Predictive validity and time dependency of self-efficacy, self-esteem, personal goals, and academic performance. *Educational and Psychological Measurement*, 55(5), 716-25.
- Psychology2010.tumblr.com. (2011). *Psych2go*. Retrieved from [taipsychologyblog : https://taipsychologyblog.wordpress.com/tag/procrastination/](https://taipsychologyblog.wordpress.com/tag/procrastination/)
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Steel, P. (2007). The nature of procrastination: a meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133, 65-94.
- Steel, P. (2010). Arousal, avoidant and decisional procrastinators: Do they exist? *Personality and Individual Differences*, 48, 926-934.
- Steel P. (2011). "A diagnostic measure of procrastination." Paper Presented at the 7th Procrastination Research Conference Biennial Meeting, Amsterdam.
- Steel, P., & Klingsieck, K. B. (2016). Academic procrastination: Psychological antecedents revisited. *Australian Psychologist*, 51(1), 36-46.
- Steel, P., & König, C. (2006). Integrating Theories of Motivation. *Academy of Management Review*, 31(4), 889-913.
- Stroud, S. (2010). "Is Procrastination Weakness of Will?" In *The Thief of Time*. (C. Andreou, & M. White, Eds.). New York: Oxford University Press.
- Svardal, F., Pfuhl, G., Nordby, K., Foschi, G., Klingsieck, K., Rozental, A., . . . Rębkowska, K. (2016). On the Measurement of Procrastination: Comparing Two Scales in Six European Countries. *Front Psychol*, 7, 1-11.
- Tesser, A. (1991). On the confluence of self processes. *Journal of Experimental Social Psychology*, 26(6), 501-26.

The Effect of Level of Corporate Social Responsibility Engagement on Organizational Attractiveness

Saumya Singh¹, Madhulika Rathore², Mehak Rawal³ and Tanya Dutta⁴

The present study examined the effect of level of engagement in Corporate Social Responsibility (CSR) activities on organizational attractiveness as perceived by a young Indian population. A sample of 100 participants (49 males and 51 females) between the ages of 18-23 years were sent an online form containing three fictitious company profiles and questionnaires that assessed how attractive the participants found these companies as potential places to work. The company profiles differed in their descriptions of the company's CSR activities with one profile describing a high level of engagement in CSR, the second describing a low level of engagement and a third with no description of CSR activities. The mean scores on organizational attractiveness given to the three profiles were compared using one-way repeated measures ANOVA and paired sample t-test. Findings showed significant differences in the mean scores of the three profiles, with the High CSR company profile being significantly higher on organizational attractiveness than both the Low CSR profile and the No CSR profile indicating that engagement in CSR activities influenced respondents' evaluation of the companies and was perceived favorably.

Keywords: Corporate-social responsibility, organizational attractiveness, talent pool, job applicants, competitive advantage

Given the paradoxical nature of India, with its flourishing private sector – as reflected in the country's high rates of economic growth in recent times – existing alongside acute poverty and vast inequalities, it becomes increasingly important for the development of the nation that the private sector contributes to alleviating the disparities of opportunities in society. India was the first country in the world to make corporate social responsibility (CSR) mandatory, following an amendment of The Company Act, 2013 in April 2014. Listed companies in India have invested into various programs ranging from educational programs, skill development, social welfare, healthcare, environment conservation and employment creation.

At a macro level, engagement in CSR activities helps in generating opportunities for people who may be otherwise deprived of the same, thus improving the quality of the workforce in the country and ultimately enhancing the capabilities of an organisation's employees. However, there are some benefits in the short term too. For instance, studies by the UK Small Business Consortium and Kenexa Research Institute suggest that companies engaging in CSR activities attract more consumers, have greater number of job applicants, improve employee engagement and retention (Hanau, 2017). The present study investigates this relationship between CSR and organizational attractiveness in the Indian context.

Corporate Social Responsibility

Academicians and practitioners around the world have been striving to establish an agreed-upon definition of this concept for the past 30 years. The Committee for Economic Development, in 1971 came up with a "three concentric circles" approach to understand and represent Corporate Social Responsibility. The inner circle includes basic

economic functions—growth, products, jobs. The intermediate circle holds or prescribes that the economic functions of an organization must be exercised with a sensitive awareness. The outer circle outlines responsibilities that businesses should assume to become more actively involved in improving the social environment.

At present, The World Business Council for Sustainable Development (WBCSD) defines CSR as "the commitment of business to contribute to sustainable economic development, working with employees, their families and the local communities" (WBCSD, 2001). In theory, the widely accepted models that explain Corporate Social Responsibility is that of Carroll (1971) who devised a four-part definition of CSR that differentiated between four main types of corporate social responsibilities: economic, legal, ethical, and discretionary.

Organizational Attractiveness

Organizational attractiveness has been conceptualised in many different ways. Organizational attractiveness refers to the "envisioned benefits that a potential employee sees in working for a specific organization" (Berthon, Ewing, & Hah, 2005), or "the degree to which potential and current employees perceive organizations as good places to work" (Jiang & Iles, 2011). Previous research literature suggests that the impression an applicant holds about an organization's attractiveness is related to their decision to apply for a job (Greening & Turban, 2000). The tool used in this research to measure organizational attractiveness, authored by Highhouse, Lievens, and Sinar (2003) purports that the construct consists of three components: company attraction, intent to pursue, and company prestige. The three components are defined as follows:

^{1,2,3,4} Undergraduate students, Lady Shri Ram College for Women, University of Delhi

Corresponding author: Ms. Saumya Singh | Email: saumya964@gmail.com

The authors acknowledge Dr. Kanika K. Ahuja's (Associate Professor, Department of Psychology, LSR) and Dr. Pushpita Behera's (Assistant Professor, Department of Psychology, LSR) guidance in their research work.

“Company attractiveness refers to an individual's affective and attitudinal thoughts about particular a company as potential place for employment.

Intention to pursuerefers to thoughts about a company that specifically imply further action. As such, intentions move beyond the passivity of company attractiveness to involve active pursuit of a job.

Social reference is the basis for company prestige. A company is prestigious if it inspires thoughts of fame and renown in the minds of those who hear of it.”

Link between CSR and Organizational Attractiveness

An extensive amount of literature strongly supports the link between organizational attractiveness and CSR. Neves, Duarte, and Gomes (2015) attempted to study the effect of perceived CSR on organizational attractiveness. It was found that perceived level of engagement in socially responsible practices leads individuals to evaluate an organization as a good place to work. The study concluded that CSR can thus provide competitive advantage in the recruitment of new employees. Similarly, Ibrahim (2017) studied the relationship between CSR and Employer Attractiveness in Egypt. Findings indicated that there is a strong positive relationship between socially responsible organizations and their attractiveness as employers. Kim & Park(2011) found a positive relationship between CSR and organizational attractiveness as CSR was concluded as an imperative ethical fit condition for a company.

Keeping the past research studies in mind, in the present study, the researchers were interested in examining the following questions:

- How does information about an organization's level of engagement in CSR activities affect the organization's attractiveness to potential employees?
- How is an organization with high level of engagement in CSR activities perceived as compared to an organization with relatively lower levels of engagement?
- How is an organization that offers no information on its CSR activities perceived when compared to organizations that convey information about CSR activities, one having a high level of engagement and one having low levels of engagement?

Hypotheses

The researchers thus formulated the following hypotheses:

H1: There will be a significant difference in the overall scores of Organizational Attractiveness given by respondents to the three company profiles that differ in terms of level of engagement in CSR.

H2: The scores of Organizational Attractiveness will be significantly higher for the company engaging in high

levels of CSR activities as compared to the company with low levels of engagement in CSR activities.

H3: The scores of Organizational Attractiveness given to the company whose profile had no mention of CSR activities will significantly differ from the companies whose profiles do.

Method

Participants

The present study used a sample of 100 Indian nationals (n=100; females= 51, males=49), between the ages of 18-23, with a mean age of 20 years. Convenience sampling was used where a link to the online form was sent out on social media platforms by the researchers. Participants were either college-going or had graduated college recently, were proficient in English and belonged to the upper-middle socio-economic strata.

Design

The study used a within-subject experimental design. The aim of the study was to assess the effect of level of engagement in CSR activities on organizational attractiveness as perceived by a young Indian population. The study was conducted through online platforms for two reasons. Firstly, it is much more convenient for participants to fill out questionnaires online rather than be physically present to participate in the study, thus increasing the reach of the researcher and size of the sample. Secondly, the online design resembles a real-life scenario, where job seekers are likely to read company profiles online while researching about potential places to apply, thus increasing external validity of the research.

The independent variable under study was the level of engagement in CSR activities by the company. The dependent variable was organizational attractiveness as perceived by the respondents, measured through the two components of company attractiveness and intent to apply. The variables controlled for included the field the company works in/type of work the company does, the locations of its offices, the average salary given to employees, the performance of the company in the last few years, the type of CSR activities the two company profiles with CSR descriptions engaged in, and the word count of the three profiles.

Measures

Organizational Attractiveness Scale (Highhouse et al., 2003). The scale consists of 3 parts measuring company attractiveness, intent to pursue and company prestige, with five items each. For the present study, the component of company prestige was not assessed as the company profiles used in the study were of fictional nature. Some examples of items measuring company attractiveness were 'a job at this company is very appealing to me', 'for me, this company

would be a good place to work' and examples of items measuring intent to apply were 'I would accept a job offer from this company', 'I would recommend this company to a friend looking for a job.' Responses are obtained on a 5-point Likert scale ranging from 1 to 5. The questionnaire used for the present study has a minimum score of 10 and maximum score of 50. A higher score indicates higher organizational attractiveness. This measure is reported to have internal consistency reliability of $\alpha=0.82$.

Procedure

The company profiles used in the present study (Refer to Appendix) were prepared based on the guidelines and samples given by Kim and Park (2011). Three fictional profiles describing hypothetical corporations were created based on real companies' information. The type of company was Information and Technology companies, and the name of the company was made up. This type of company was chosen because an IT company was selected as the best place to work in the Fortune 100 Best Companies to Work for 2018 list (Fortune 100 best companies, 2018), and so it was assumed that people would pay more attention to this kind of company. All profiles started with general information about the company like its history and business condition and this was followed by a description of its CSR activities. The profiles differed in their level of engagement in CSR activities with one company profile describing a high level of engagement (High CSR condition), one profile describing a low level of engagement (Low CSR condition), and the third having no mention of CSR activity at all (No CSR condition). CSR was described in the profiles using examples of community involvement and charitable giving. Level of engagement in CSR activities was determined by the percentage of net profits that is given for charitable purposes, and the percentage of employees involved in community outreach projects and volunteer programs. The profiles made no mention of the term 'Corporate Social Responsibility' even in their descriptions of CSR activities.

Two pilot studies were conducted by the researchers. The first one was done to check whether there was a difference perceived in the descriptions of CSR given in the profiles. This was assessed on a sample of 20 participants of similar demographics as the target population. Five company profiles with differing descriptions of CSR were given to respondents and they were asked to fill a questionnaire that asked them to rate each profile on social responsibility and concern for welfare of society. The tool used was adapted from Neves et al. (2014) tool with α of .86. The profile with the highest mean score and the lowest mean score were then compared using t-tests and the results were in line with the expectations of the researcher- the company profile with a description of high level of engagement in CSR activities was perceived to be significantly more socially responsible and concerned about the welfare of society ($t=7.60$, $p<0.000$) than the company with a description of low

engagement in CSR activities.

The second pilot study was done to check if the three profiles were perceived to be similar in attractiveness when the descriptions of CSR activities of the companies were omitted (thus finding out whether the extraneous variables had indeed been controlled). A sample of 58 participants was used for this study, and sample characteristics were kept similar to those of the target population. An online form was used for this assessment too. ANOVA was done to compare the scores given to the three companies. Results showed no significant differences ($F=1.81$, $p=0.17$) in the mean scores of the companies, indicating that the profiles were perceived as similarly attractive by respondents when the CSR descriptions were omitted from them.

Post the pilot studies, the online forms were prepared. The first two pages contained an informed consent form and demographic sheet on completing which the participant could proceed to a page that had the instructions and the company profiles. This was followed by the three company profiles. The page after this contained three questionnaires on organizational attractiveness with the company's name given on top to indicate to participants which company they were supposed to score. Each researcher reached out to potential participants via social media platforms such as WhatsApp and Facebook and inquired about their willingness to participate in the study. Links to the online form were sent to those people who agreed to take part. To curtail primacy and recency effects, half the participants received a form in which the High CSR profile was first, and half received a form in which the Low CSR profile was first. The data collected was analysed using Statistical Package for Social Sciences (SPSS) version 16. One-way repeated measures ANOVA and dependent sample t-tests were done in order to study the objectives of the research.

Results

Table 1 presents the means and standard deviations of the scores on organizational attractiveness given by respondents to the three company profiles.

Table 1

Means and Standard Deviations of Scores on Organizational Attractiveness

Groups	n	M	SD
High CSR	100	38.81	7.28
High CSR	100	31.97	6.30
No CSR	100	34.74	5.76

The highest score given by respondents was 50/50 to the High CSR profile and the lowest score given by respondents was 21/50 to the Low CSR and No CSR profiles.

Table 2 shows the results of the one-way repeated measures

ANOVA done to determine whether the mean scores given to the three profiles significantly differ.

Table 2

One-way repeated measures ANOVA of scores given to the three company profiles

Effect	MS	df	F	p
Level of CSR	1245.808	1.900	28.314	0.000***
Error	44.000	188.133		

* $p \leq .05$
 ** $p \leq .01$
 *** $p \leq .001$

The difference between the means of the levels of CSR was statistically significant: $F(1.900, 188.133) = 28.314$, $p \leq 0.000$. Thus, the first hypothesis which states that there will be a significant difference in the overall scores of Organizational Attractiveness given by respondents to the three company profiles is accepted.

Table 3 shows the scores of the dependent sample t test done to compare the means of the scores of High CSR profile and Low CSR profile.

Table 3

Dependent sample t-test on scores of High CSR profile and Low CSR profile

	High CSR		Low CSR		t	p
	M	SD	M	SD		
Organization attractiveness	38.81	7.28	31.97	6.30	6.64	0.000

* $p \leq .05$
 ** $p \leq .01$
 *** $p \leq .001$

As can be seen from Table 3, the High CSR profile has a higher mean score. This difference in scores is significant ($t = 6.64$, $p \leq 0.000$). Thus, hypothesis which states that the scores of Organizational Attractiveness will be significantly higher for the company engaging in high levels of CSR activities as compared to the company with low levels of engagement in CSR activities is accepted. Table 4 shows the results of the dependent sample t-test done to compare the means of the scores of the High CSR profile and the No CSR profile.

Table 4

Dependent sample t-test on scores of High CSR profile and No CSR profile

	High CSR		No CSR		t	p
	M	SD	M	SD		
Organization	38.81	7.28	34.74	5.76	4.82	0.000*

* $p \leq .05$
 ** $p \leq .01$
 *** $p \leq .001$

As can be seen from Table 4, the High CSR profile has a higher mean score. This difference in scores is significant ($t = 4.82$, $p \leq 0.000$). Thus, hypothesis which states that the scores of Organizational Attractiveness given to the company whose profile had no mention of CSR activities will significantly differ from the companies whose profiles do is partially accepted.

Table 5 presents the results of the dependent sample t-test done to compare the means of the scores of the Low CSR profile and the No CSR profile.

Table 5

Dependent sample t-test on scores of Low CSR profile and No CSR profile

	Low CSR		No CSR		t	p
	M	SD	M	SD		
Organization attractiveness	31.97	6.30	34.74	5.76	-3.23	0.002**

* $p \leq .05$
 ** $p \leq .01$
 *** $p \leq .001$

As can be seen from Table 5, the No CSR profile has a higher mean score on organizational attractiveness. This difference in scores is significant ($t = 3.23$, $p = 0.002$). Thus, hypothesis which states that the scores of Organizational Attractiveness given to the company whose profile had no mention of CSR activities will significantly differ from the companies whose profiles do is partially accepted.

Discussion

The study was designed to assess the effect of level of engagement in CSR activities on organizational attractiveness as perceived by a young Indian population. The F-value calculated for the scores on organizational attractiveness given to the three company profiles was found to be significant. Results of t-tests show that the scores given to the profile describing High CSR were significantly higher than those given to the profile describing Low CSR. The t-values calculated comparing the mean of the No CSR profile to those with CSR descriptions showed that No CSR received significantly lower scores than the High CSR profile ($t = 4.82$, $p \leq 0.000$) but significantly higher scores than the Low CSR profile ($t = 3.23$, $p = 0.002$). All three hypotheses proposed by the researchers were accepted.

It can be inferred from the results that CSR communication has a substantial role to play in influencing prospective employees' perceptions of an organization as an attractive place to work. The higher the level of engagement

in CSR activities, the more favourably the organization is evaluated. Also, the absence of CSR communication seems to have been perceived ambiguously by respondents in the present study. This suggests that the communicating low levels of engagement in CSR activities, especially in cases where the organization may be easily compared to other organizations with higher levels of CSR engagement may be worse for the organization's image than when no CSR communication is made. The results are in line with the findings of previous literature.

A theory which validates the present finding is the social identity theory (Tajfel, 2010) which suggests that people classify themselves into various social categories based on various factors, such as the organization they work for, and this membership then influences their self-concept (Dukerich, & Harquail, 1994). Therefore, as the corporate social performance will enhance a firm's image, it will then lead to increase in the applicant's self-concept if they were to work in that firm (Dukerich & Dutton, 1991). The findings are validated through another view which explains the relationship between CSR and organization attractiveness. This theory was used to explain similar results found by Turban and Greening in their study on CSR and employer attractiveness. A firm's actions govern its social values, programmes and policies which then are expected to determine its reputation and attractiveness to the pool of applicants (Fombrun & Shanley, 1990). This is rooted in the signalling theory which suggests that a firm's social policies serve as a signal for interpreting its working conditions, therefore, suggesting what it will be like working for that firm. Hence, a firm's CSR, which is one of the social policies of the firm, signals its working conditions thereby governing its attractiveness to the job seekers (Chatman, 1989). Another important theory to consider when looking at the present findings is the person-organization fit theory (Schneider, 1987), the prospective job applicant's specific values will influence the extent to which a firm's CSP influences that attraction (Greening & Turban, 2000). Thus, the better the CSR record of a company, the more participants may have felt that their ethical standards are well fit with the organization.

Limitations and Directions for Future Research

Since the sample involved in the study was small, the claim to generalizability should be made with caution. The chosen method of data collection was an online questionnaire; hence results were based on a single source of inquiry. The entirety of the sample did not comprise students looking for jobs, because a portion of them were going to study further. As a result, it may be possible that they gave importance to organizational characteristics other than those prioritized by prospective job seekers. Furthermore, in testing respondents' perceptions about CSR initiatives, this study only exemplified charitable giving and community programs as CSR activities. These two types of CSR

initiatives do not represent all companies' CSR programs, and this may have had an impact on respondents' perceptions.

Future research in this area could utilize multiple resources of data to study the variables of the present study. The sample could be diversified by including students from various universities across India, corporate employees, working professionals and different age groups. Further studies could also include various types of CSR programs beyond the two in the present study. Thus, the present study reveals several promising avenues for further research.

Conclusion

The results of the present study revealed that an organization's level of engagement in corporate social responsibility has a significant impact on its perceived attractiveness. The findings suggest that organizations engaging in high level of CSR activities are perceived as more responsible, ethical, giving, and better spaces to work in and are indicative of increased emphasis among young people on working towards bettering society and improving lives of the underprivileged. Another implication is that higher levels of engagement in CSR may lead to an increase in the number and therefore talent pool of applicants applying to an organization. Thus, results indicate that it may be beneficial for organizations to increase their level of engagement in CSR activities so as to improve their competitive advantage over other organizations. Additionally, firms should attempt to include information about their CSR activities in their recruitment procedures.

References

- Berthon, P., Ewing, M. J., & Hah L. L. (2005). Captivating Company: Dimensions of Attractiveness in Employer Branding. *International Journal of Advertising*, 24(2), 151-172.
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate social performance. *Academy of Management Review*, 4, 497-505.
- Chatman, A. J. (1989). Improving Interactional Organizational Research: A Model of Person-Organization Fit. *Academy of Management Review*, 14(3), 333-349.
- Committee for Economic Development of The Conference Board (CED). (1971). *Social responsibilities of business corporations*. Retrieved from <https://www.ced.org/reports/single/social-responsibilities-of-business-corporations>
- Das VNeves, J.G., Duarte, A.P., & Gomes, D.R. (2014). Finding the jigsaw piece for our jigsaw puzzle with corporate social responsibility: The impact of CSR on prospective applicants' responses. *Management Research: The Journal of the Iberoamerican Academy of Management*, 12(3), 240-258.

- Dukerich, M. J., & Dutton, E. J. (1991). Keeping an eye on the mirror: Image and identity in organizational adaptation. *Academy of management journal*, 34 (3), 517-554.
- Dukerich, M. J., & Harquail, E. J. (1994). Organizational Images and Member Identification. *Administrative Science Quarterly*, 39(2), 239-263.
- Fombrun, C., & Shanley, M. (1990). What's in a Name? Reputation Building and Corporate Strategy. *The Academy of Management Journal*, 33(2), 233-258.
- Fortune 100 Best Companies to Work For 2018 (2018). *Great Place to Work*. Retrieved from <https://www.greatplacetowork.com/best-workplaces/100-best/2018>
- Greening, D. W., & Turban, D. B. (2000). Corporate Social Performance As a Competitive Advantage in Attracting a Quality Workforce. *Business & Society*, 39(3), 254-280.
- Hanau S. (2017, July 28). How a Corporate Social Responsibility programme can improve your business. Retrieved from <https://cparla.world/business-insight/corporate-social-responsibility-programme-can-improve-business/>
- Highhouse, S., Lievens, F., & Sinar, E. F. (2003). Measuring attraction to organizations. *Educational and Psychological Measurement*, 63(6), 986-1001.
- Highhouse, S., Lievens, F., & Sinar, E. F. (2003). Measuring attraction to organizations. *Educational and Psychological Measurement*, 63(6), 986-1001.
- Jiang, T. T., Iles, P. (2011). Employer brand equity, organizational attractiveness and talent management in the Zhejiang private sector, China. *Journal of Technology Management in China*, 6(1), 97-110.
- Kim, S., & Park, H. (2011). Corporate Social Responsibility as an Organizational Attractiveness for Prospective Public Relations Practitioners. *Journal of Business Ethics*, 103(4), 639-653.
- Schneider, B. (1987). The people make the place. *Personnel Psychology*, 40(3), 437-453.
- Tajfel, H. (Ed.). (2010). *Social identity and intergroup relations* (Vol. 7). UK: Cambridge University Press.
- World Business Council of Sustainable Development. (1998). *WBCSD - Corporate Social Responsibility*. Retrieved from <http://www.wbcsd.org/DocRoot/hbdf19Txhmk3kDxBQDWW/CSRmeeting.pdf>

Appendix

Vignettes of Company Profiles

Magsons (high CSR)

Magsons was founded in Mumbai in 1938 by two Scottish engineers, Henning Holck and Soren Kristian. It is a provider of technology, engineering, construction and manufacturing and financial services conglomerate. Magsons offers comprehensive, end-to-end software solutions and services with a focus on Manufacturing, BFSI and Communications & Embedded Systems. The company has various branches all over India, the main offices being in Bangalore, New Delhi and Mumbai. The demand for the company's services is increasing globally and Magsons is currently in the process of opening offices in Beijing, San Francisco and London as well. In 2017, the company generated a net profit of Rs 10,108 crores. The average salary of a full-time employee was 24,00,000 per annum last year and also receive full medical coverage for themselves and their families from the company. Employees of Magsons may avail of up to two months of paid leave. Magsons invests 4% of its profits to research and development into green technology and another 4% to organisations working towards environmental protection. Magsons also collaborates with the government to promote the education of underprivileged children. Employees of Magsons are highly encouraged to volunteer hours for teaching children in understaffed government schools and are given paid time off for the same. Approximately 52% of employees at Magsons spend an average of 70 hours volunteering to teach. The necessary training and certification for this is also arranged for interested employees by the company.

Bxinc (low CSR)

Bx Inc. is an Indian IT services corporation headquartered in Bengaluru, India. An integrated corporation, BX Inc. offers a diverse range of products, solutions and services in systems, software, consumer care, healthcare, lighting and infrastructure technology. BX Inc.'s world-class technologies division provides a range of high-tech services such as global IT consulting, e-business integration, and legacy systems maintenance. The company started out with a sunflower oil business, and has since made significant progress. Currently, it has branches in Mumbai, Bengaluru, New Delhi, and Jakarta. With its solid reputation in these businesses, deep ties with major world companies, and plans to expand and open offices in the United Kingdom, Germany, Paris, Singapore, the Middle East, and the United States, BX Inc. promised to quickly become a true multinational corporation. The sales have grown by 30% in the last five years and made a profit of Rs 10,548 crores in 2017. The average full-time employee earns around Rs 24,00,000 per annum (including health insurance and paid leave for 2 weeks).

The company donates less than 1% of net profits to non-profit organizations working towards improving the lives of the underprivileged in India. The organizations that the

company donates to are selected every three years. Only about 20% of company employees are involved in their local communities. Participation in such activities is often difficult, however, since it is not easy to get time off from the company to attend important meetings.

NSW limited (no CSR)

NSW Limited was established in 2001 by Nalini Kapur in New Delhi. NSW delivers an entire spectrum of business process management services such as finance and accounting, customer interaction services, technology solutions, research and analytics and industry specific back office and front office processes. NSW offers business value to 350+ global clients by combining operational excellence with deep domain expertise in key industry verticals

including Travel, Insurance, Banking and Financial Services. Its main branches are in Mumbai, New Delhi and Shanghai. NSW is rated among the best IT companies in India in the sphere of cutting-edge technology and analytics. NSW generated a net profit of Rs. 9,240 crores in 2017 with an increasing trend in the salaries of the employees. The current average salary of an NSW employee is Rs. 24,00,000 per annum. The company also has a 100% health insurance policy for all its employees. Employees receive two weeks of paid leave, plus additional paid medical leaves if need be. NSW aims to providing excellent quality product/services that combines performance with value of money, thus establishing successful relation with clients worldwide by 2021.

Difference in stress and self esteem among exercising and non-exercising young adults

Samhita Asoc Kumar*

The aim of the present study was to investigate the difference in stress and self-esteem among young adults between the ages of 20-30 years. The objectives of the research were to measure difference in stress as well as self esteem between exercising and non-exercising young adults. It was hypothesised that exercise leads to low stress levels and high self esteem in young adults. The participants for the study included 60 young adults in the age range of 20-30 years (30 exercising and 30 non-exercising individuals). Depression, Anxiety, Stress Scale (DASS) and Rosenberg Self Esteem Scale (RSE) were administered to the participants. For analysis of the data, independent samples t-test was used. The results reflected that there is a significant difference in stress levels and self-esteem between young adults who exercise and those who do not exercise. Stress levels were found to be significantly low and self-esteem was found to be significantly high among the group that exercises which were congruent with previous research studies. The research holds practical importance in increasing awareness of exercise and physical activity among young adults.

Keywords: stress, self-esteem, exercisers, non-exercisers, young adults.

The benefits of exercise range from enabling individuals to stay fit, maintaining physical appearance, reducing the chances of diseases, improving stamina, increasing flexibility and improving the quality of life. In the recent past, understanding the effects of exercise on psychological wellbeing has been given considerable importance. Researches have been conducted to understand the relationship between psychological aspects of human beings and exercise. The age group of 20-30 years is fraught with great transitions as one moves from schools to universities and further on to choosing a career. During this stage young adults are required to take a number of life altering decisions. Furthermore, due to increased competitiveness, individuals - strive to be the best and achieve success. As a result, young adults experience high levels of stress. Demoralising life experiences more often than not, especially during this time can impact self-esteem. Life changes, breakups and loss of employment are certain situations that cause fear or self-doubt. These feelings may affect one's confidence, resilience and self-worth. Thus, stress and self-esteem are psychological aspects that - quite evidently play a role in the lives of young adults.

Exercise

Exercise as a term has been defined in a variety of ways. As defined in the Oxford dictionary (2019) it is an "activity requiring physical effort, carried out to sustain or improve health and fitness." It is also a type of bodily activity that enhances or maintains the physical fitness and overall health and wellness of a person. Exercise has been considered a planned and purposive physical activity to improve fitness, health or performance. Physical activity further more may be defined as any bodily movement produced by skeletal muscles that requires energy expenditure (World Health Organisation, 2018). The different types of physical activity

range from sports and exercise to play, with each one of them having a unique impact on one's body.

The U.S Department of Health and Human Services (2015) in its dietary guidelines for 2015-2020, recommends certain exercise guidelines for most healthy adults. In case of aerobic exercise, they suggest to 150 minutes of moderate aerobic activity or 75 minutes of vigorous aerobic activity a week, or a combination of moderate and vigorous activity. These 150 minutes of exercise should ideally be spread out over the course of the week.-

The benefits of exercise are numerous including controlling weight, improving mood, boosting energy, promoting better sleep and overall health. It is proven to lead to a reduction and an enhanced ability to cope with stress. Furthermore, exercise creates an increased satisfaction with oneself thereby facilitating positive perceptions of one's own body and self-esteem (Tiggeman & Williamson, 2000).

Stress

Hans Selye (1936) defined stress "the non-specific response of the body to any demand for change". This later was expanded in 1979 as he explained further that "stress is a 'perception'. In 1982, Holroyd and Lazarus stated that "psychological stress requires a judgment such that environmental and/or internal demands exceed the individual's resources for managing them".

The word "stress" holds -different meanings for different people. Some would define it as events or situations that cause them to feel tense, they experience pressure, or negative emotions such as anxiety and anger. Others view stress as a response to the situation. It is characterised by physiological changes such as increased heart rate, muscle tension and emotional or behavioural changes. However, most psychologists regard stress to be a process involving a

*Trainee Counsellor, The Heritage School, Kolkata

Corresponding author: Ms. Samhita A. Kumar | Email: samhita.a.kumar@gmail.com

person's interpretation and response to a threatening event.

Apart from the negative impact, stress can at times have positive effects-. It is considered to be a normal adaptive reaction to a threat. It ideally signals danger and prepares us to defend our self. However exposure to chronic stress is one condition individuals should avoid as it can result in not just physical but mental illnesses as well. In studying the significance of the mind- body relationship and its manifestations, health psychology as a field has been occupying an increasingly greater space in today's time. A part of it focuses on the effects of stress on body functions and how stress management techniques can help people prevent or minimize such effects.

Self Esteem

Self-esteem refers to individual's perception or subjective appraisals of one's own self-worth, one's feelings of self-respect and self-confidence and the extent to which the individual holds positive or negative views about self (Sedikides & Gress, 2003). It may range from high to low depending on an individual's satisfaction with their identity and their overall judgement of themselves. Low self-esteem can be particularly hard for young people as during this time they are exposed to new life events, for instance starting college or work and forming new friendships and relationships. Certain aspects which influence self-esteem in young adults include:

Negative Peers

Being part of a social group that brings an individual down by not giving due respect, pressurising them to do things which are uncomfortable, not valuing their thoughts and feelings, etc. can cause one to feel like something is wrong with them. The Individuals during this period believe that the only way to be liked is to do what others want and not listen to their own mind. This tends to become very damaging for a person's self-esteem.

Body Image

The media constantly objectifies women's bodies, thereby creating unrealistic expectations for women and increasingly now men as well. When puberty comes around and bodies start to change, they do not change into what is observed in magazine covers or music videos. This may lead to a sense of inadequacy and feeling unattractive. Additionally, profound disempowerment also plays a role when one sees their body as an object for others to behold. Although it is more common for young women to be disproportionately affected by body image messages, young men suffer from the brunt of this too. Young men often struggle with low self-esteem associated with weight and body composition – particularly concerning muscle mass. The body of a man may not be treated or looked at as an object in our culture, but as a sign of his masculinity. In case

of young men, there may be the pressure to develop large muscles as a sign of strength and manliness; moreover, the height of oneself also may be a point that makes them self-conscious about themselves.

It is easy for young people to get absorbed into a world where they are unable to exercise much control, and this can lead to feelings of powerlessness and worthlessness. Although, until adulthood -most young people do not experience the infamous “existential crisis” – a period of time when the meaning of one's life is called into question, thoughts like “Why am I here?”, “What do I matter?” come up very often. The inability to answer these questions can pose a significant challenge for one's sense of self-worth.

Unrealistic Goals

Whether the pressure comes from within, authority figures or peers, some young people expect a great deal from themselves in terms of school achievement, extracurricular involvement and/or social status. Those who struggle academically may think they should be getting straight A's all the time; those who perform well academically may try to take on too many other activities and expect to be “the best” at all of them. Young people who are at the stage where they crave popularity may expect those around them to like them. Failure to meet unrealistic goals inevitably leads to an overall sense of failure.

Stress and exercise

There are a number of studies that have been conducted which suggest that physical activity helps people deal with stress. Atlantis, Chow, Kirby, and Singh (2004) placed workers from a single worksite into a program that included aerobic exercise, weight training and behaviour modification, or on a waiting list to be the control group. After 24 weeks it was observed that workers in the exercise group demonstrated a significantly higher quality of life and - lower stress levels than those in the control group. Sonntag (2001) showed that leisure activities, including sports participation were a factor that helped protect people against workplace stress. Kim and McKenzie (2014) examined how physical exercise is conducive to reducing stress and enhancing overall well-being in university students. The authors found that regular physical exercise was conducive to enhancing self-esteem, as participants felt they were making progress toward their goals and engaging in activities that challenged them. Further, the participants mentioned that physical exercise was more effective in reducing stress than passive forms of leisure such as watching TV or even social leisure, such as meeting with friends. von Haaren, Haertel, Stumpp, and Ebner-Priemer, (2015) found that aerobic exercise intervention can be a useful strategy against the negative health effects of accumulated emotional stress reactivity related to academic stressors in students. Azizi (2011) studied the effect of exercise on stress

management strategies and addressed the severity of stress experienced by an average university student. The results reflected that problem-based coping strategies scores in athletic students were higher than those of the non-athletic ones.

From a biological perspective, exercise seems to give the body an opportunity to understand how to deal with stress as it forces the body's physiological systems which are involved in the stress response to communicate much more closely than usual. According to a study done by Schoenfeld, Rada, Pieruzzini, Hsueh, and Gould, (2013), when mice were allowed to exercise regularly experienced a stressor, their brains exhibited a spike in the activity of neurons that shut off excitement in the ventral hippocampus, a brain region shown to regulate anxiety. The brains of active and sedentary mice behaved differently almost as soon as the stressor occurred. In the neurons of sedentary mice, the stressor spurred an increase in "immediate early genes," or short-lived genes that are rapidly turned on when a neuron fires. The lack of these genes in the neurons of active mice suggested that their brain cells did not immediately leap into an excited state in response to the stressor. Instead, the brain in a runner mouse showed every sign of controlling its reaction to an extent not observed in the brain of a sedentary mouse. There was a boost of activity in inhibitory neurons that are known to keep excitable neurons in check.

Self Esteem and exercise

People who exercise regularly decrease their risk of cardiovascular diseases, cancer and diabetes, experience an improvement in their cholesterol ratio, have lower levels of depression, decreased anxiety levels and fewer stress related illnesses. Exercise may not directly lead to enhanced feelings of self-esteem, but it may contribute indirectly through each of the above mentioned physiological factors. Research has shown that participation in an exercise program is strongly associated with feeling good about oneself. This has been reported for adults (Alfermann & Stoll, 2000), children and adolescents (Ekeland, Heian, Hagen, Abbot, & Nordheim, 2004).

Zade, Mahmoodi, and Hashemi (2015) evaluated the impact of exercise on the self-esteem, happiness and quality of life of young adults. It was observed that physical training positively impacted all three variables in the test group. Athletes who participated in physical training and exercise had significantly higher ratings on the three variables in comparison to the control group. This finding along with the results of many other researches (Elasky, 2010) has indicated the effectiveness of physical training interventions in increasing self-esteem, well-being and quality of life. Similarly, Sani, Fahirezaie, Brand, Puhse, Holsboer-Taschler, Gerber, and Taalepasand, (2016) tried to assess the direct and indirect relationship between physical activity and self-esteem. The findings indicated that physical activity was

associated both directly and indirectly with self esteem.

Hence, the rationale behind conducting the present research was to check whether a study on a different sample unlike the European and American populations in the reviewed literature reveal similar results. Studies have not been found on the Indian population of youth between the age group of 20-30 years and hence the present research may bridge the gap in research. The objectives of the present research were measuring the difference in stress and self esteem between exercising and non-exercising young adults between the ages of 20-30 years.

Hypotheses

There will be a significant difference in the stress levels of exercising and non exercising adults.

There will be a significant difference in the self esteem of exercising and non exercising adults

Method

Participants

The sample was part of a college going population and young adults who work out at the gym. The sample consisted of both males and females. Falling in the age range of 20-30 years, they were English speaking young adults, belonging to a middle socio economic background and residing in Bangalore. The participants were selected through snowball sampling. A total sample of 60 participants was taken and divided into two groups where 30 participants took part in some form of physical exercise while the other 30 participants did not.

Design

Quasi experimental research design was used. The target population was chosen with certain criteria like age group, socio-economic status and educational level kept constant. The independent variable of the study is exercise and dependent variable stress and self-esteem.

Measures

Rosenberg Self Esteem Scale (Rosenberg, 1965). It is a questionnaire consisting of 10 items in which the subject is asked to put a checkmark in the box next to the item that applied to their general feeling about themselves. Originally designed to measure self-esteem of high school students, the scale has been used with a number of other groups including adults with a variety of occupations. RSE has a Guttman scale coefficient of reproducibility of .92, indicating excellent internal consistency. Two studies of two-week test retest reliability show correlations of .85 and .88, indicating excellent stability.

Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995). It is a questionnaire consisting of 21 items in which the subject is asked to put a checkmark in the blank

next to the item that applied to them in the past week. It was created by researchers at the university of New South Wales (Australia). In terms of Cronbach's alpha scores, the

reliability scores of the scales rate the Depression scale at .91, the Anxiety scale at .84 and the Stress scale at .90 in the normative sample.

Results

Table 1

Mean, standard deviation and t-score of exercising and non-exercising groups pertaining to stress

	n	M	SD	t	p
Exercising	30	8.60	6.626	2.536**	0.002
Non-Exercising	30	15.13	8.939		

* $p \leq .05$

** $p \leq .01$

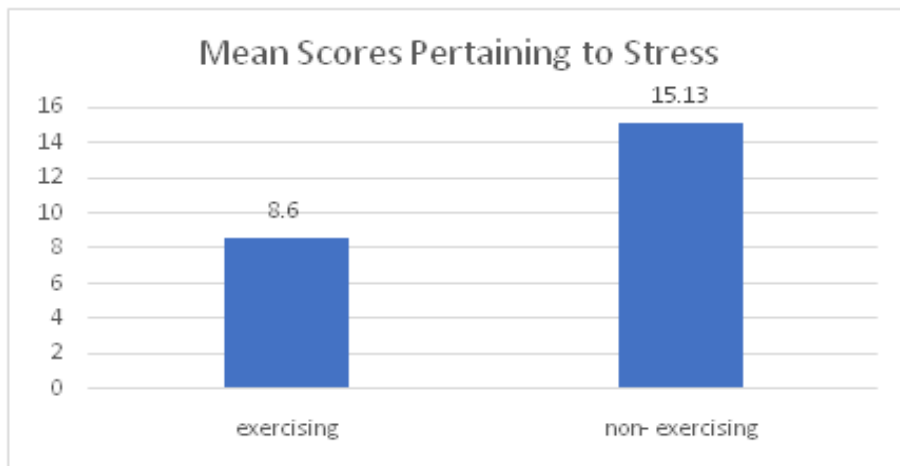


Figure 1

Mean of exercising and non-exercising groups pertaining to stress.

According to Table1, the mean score for stress was found to be 8.60 (SD=6.62) for those in the exercising group. This was much lower than the mean score obtained by the non-exercising group (15.13, SD=8.93). The difference in the means of the two groups was found to be significant ($t=2.53$, $p=0.002$)

Table 2

Mean, standard deviation and t-score of exercising and non-exercising groups pertaining to stress

	n	M	SD	t	p
Exercising	30	21.83	4.276	6.533**	0.014
Non-Exercising	30	19.17	3.860		

* $p \leq .05$

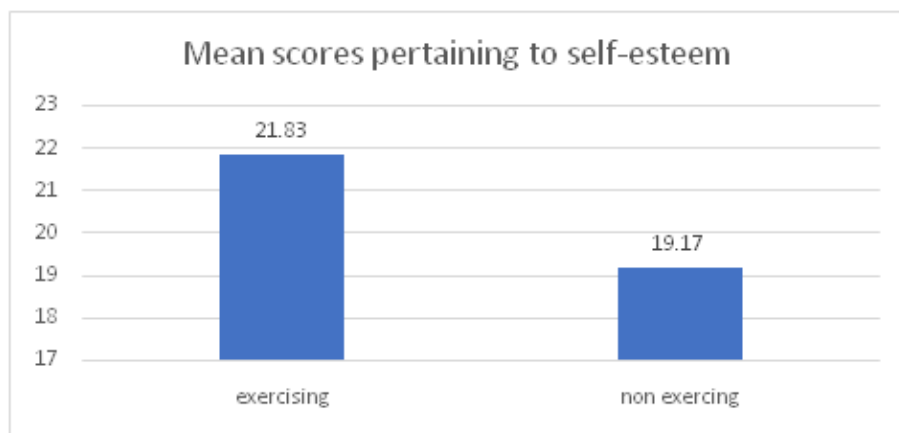


Figure 2

Means of exercising and non-exercising groups pertaining to self-esteem

According to Table 2, the mean score for self esteem was found to be 21.83 (SD=4.28) for those in the exercising group. This was much lower than the mean score obtained by the non-exercising group (19.17, SD=3.89). The difference in the means of the two groups was found to be significant ($t=6.53$, $p=0.01$).

Discussion

The aim of the study was to assess the difference in stress and self-esteem among exercising and non exercising young adults between the age of 20-30 years. According to the results, the t-score obtained for stress clearly reflects a significant difference among the exercising and non-exercising groups and it may be said that there are significantly lower stress levels among the participants who exercise regularly. Therefore, the hypothesis that 'there will be a significant difference in the stress levels of exercising and non exercising adults' is accepted.

The mean scores of those who exercise (8.60) is much lower than the mean scores of the non-exercising group (15.13). A study by Azizi (2011) helps in strengthening the notion that lower levels of stress are experienced by those who participate in some form of exercise or physical activity. Exercising has often been used in intervention strategies to help with the reduction of stress. Studies suggest that exercise increases -concentrations of norepinephrine in brain regions involved in the body's stress response. A study by Cohen and Jeniki-Deverts (2009) produced results which led to the conclusion that a relationship between cortisol and stress does exist. The cortisol level in the body usually balances within 30 minutes of moderate intensity aerobic exercise. The reduction in cortisol levels in the body gives a sense of wellbeing, health, increases self-esteem and reduces the long-term stress. Further, it may also lead to improved self-acceptance, self-concept and self-esteem. This is in line with the current study which attempts to assess whether exercise reduces stress and increases self-esteem.

Table 2 shows the t-score obtained for self-esteem clearly reflects a significant difference among the exercising and

non-exercising groups. It may be said that there is a significantly higher level of self-esteem among the participants who exercise regularly. Thereby the hypothesis that 'there will be a significant difference in the self esteem of exercising and non exercising adults' is accepted.

The difference found in the self-esteem scores of both groups was smaller than the difference found for stress scores. This may be due to the fact that self-esteem is tied to an individual's overall concept of their self and may be dependent on several other factors. This is in sync with the study by Kim and McKenzie (2014) that regular physical exercise seems to be conducive to enhancing self-esteem in which people make progress toward reaching goals they set as well as achieving a sense of accomplishment after engaging in activities which challenge them.

Limitations and Directions for Future Research

The study was restricted to a small number of young people. When it comes to exercise, the study looked at exercise in general and not at any specific type. A research on a larger scale would be helpful so that the results have greater generalizability. Additional methods of data collection could be used such as interviewing the participants, which would help understand their context or situation as factors affecting stress and self esteem. Gender differences can also be investigated to assess whether gender causes a difference in how one experiences stress or their own self-esteem.

Conclusion

The present research was conducted with the aim to assess the difference in stress and self-esteem among young adults who are sedentary and those who exercise. As there are limited studies available in the Indian population, the

research will hopefully shed some light on how the Indian population gets affected with respect to the variables studied. In a country like India where a lot of importance is given to academics and work, there is a touch of negligence when it comes to paying attention to the importance of exercise in our lives to attain holistic development.

References

- Alfermann, D. & Stoll, O. (2000). Effects of Physical Exercise on Self-Concept and Well-Being. *International Journal of Sport Psychology*, 31 (1), 47-65.
- Atlantis, E., Chow, C. M., Kirby, A., Singh, M. F., (2004). An effective exercise-based intervention for improving mental health and quality of life measures: a randomized controlled trial. *Preventive Medicine*, 39(2), 424-34.
- Azizi, M. (2011). Effects of Doing Physical Exercises on Stress-Coping Strategies and the Intensity of the Stress Experienced by University Students in Zabol, Southeastern Iran. *Procedia - Social and Behavioral Sciences*, 30, 372-375.
- Cohen, S., & JanickiDeverts, Denise (2012). Who's stressed? Distributions of psychological stress in the United States in probability samples from 1983, 2006, and 2009. *Journal of applied social psychology*, 42(6), 1320-1334.
- Ekeland, E., Heain, F., Hagen, B, K., & Nordheim, L. (2004). Exercise to improve self-esteem in children and young people. *Cochrane Database Systematic Reviews*, 1.
- Elavsky, S. (2010). Longitudinal Examination of the Exercise and Self-Esteem Model in Middle-Aged Women. *Journal Of Sport And Exercise Psychology*, 32(6), 862-880.
- Exercise (n.d.). In *Oxford English Dictionary*. Retrieved from <https://en.oxforddictionaries.com/definition/exercise>
- Holroyd KA, & Lazarus RS. (1982). Stress, coping and somatic adaptation. In: Goldberger LEaB, S. editor. *Handbook of Stress: Theoretical and Clinical Aspects* New York, NY: Free Press. p pp. 21-35
- Kim, J., & McKenzie, L. (2014). The Impacts of Physical Exercise on Stress Coping and Well-Being in University Students in the Context of Leisure. *Health*, 6(19), 2570-2580.
- Lovibond, P.F. & Lovibond, S.H. (1995). *Depression Anxiety Stress Scales (DASS)*. Sydney: Psychology Foundation of Australia.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Sani, S., Fathirezaie, Z., Brand, S., Pühse, U., Holsboer-Trachsler, E., Gerber, M., & Talepasand, S. (2016). Physical activity and self-esteem: testing direct and indirect relationships associated with psychological and physical mechanisms. *Neuropsychiatric Disease and Treatment*, 12, 2617-2625.
- Schoenfeld, T.J., Rada, P., Pieruzzini, P.R., Hsueh, B., & Gould, E. (2013). Physical exercise prevents stress-induced activation of granule neurons and enhances local inhibitory mechanisms in the dentate gyrus. *Journal of Neuroscience*, 33(18), 7770-7777.
- Sedikides, C., & Gress, A.P. (2003). Portraits of self. In M.A. hogs & J. Cooper (Eds.), *Sage Handbook of Social Psychology*. London, United Kingdom: Sage.
- Selye, H. (1936). A syndrome produced by diverse nocuous agents. *Nature*, 138, 32.
- The U.S Department of Health and Human Services, 2015–2020 (2015). *Dietary Guidelines for Americans*. Retrieved from <https://health.gov/dietaryguidelines/2015/guidelines>
- Tiggemann, M., & Williamson, S. (2000). The effect of exercise on body satisfaction and self-esteem as a function of gender and age. *Sex Roles*, 43, 119–127.
- Von.H, B., Haertel, S., Stumpp, J., Hey, S., & Ebner-Priemer, U. (2015). Reduced emotional stress reactivity to a real-life academic examination stressor in students participating in a 20-week aerobic exercise training: A randomised controlled trial using Ambulatory Assessment. *Psychology of sport and exercise*, 20, 67-75.
- World Health Organisation (2018). *Physical activity*. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
- Zade, T. T., Mahmoodi, M., & Hashemi, L. (2015). Study of the effectiveness of exercise on the self-esteem, happiness and quality of life of young. *Trends in Life Sciences*, 4(1), 123-129.

Cultural Nuances of Morality: Exploring Folktales

Noyonika Gupta¹, Simran Kaur² and Surbhi Kumar³

Morality as a construct deals with concepts such as justice, rights, questions of virtue and ethics. An area of controversy revolves around the cross-cultural universality of the models commonly used to study them. The present study aims to explore how the concept of morality unfolds in Western and Eastern context. Since folktales are a common vehicle of transmitting morals from one generation to the other, the understanding of morality in these contexts is supplemented by an analysis of two folktales; one from the Panchatantra (The Monkey and Crocodile) embedded in the Indian context, and the other from the Aesop's Fables (The Two Fellows and the Bear) rooted in the Western philosophical ideas. The stories were analysed to compare the moral messages conveyed by each of the two fables using thematic analysis. The study permits not only an insight into the moral development within the cultural milieu of India but also helps appreciate the similarities and differences which cross the boundaries of other cultures. Furthermore, since in the modern era, reliance on traditional methods such as storytelling in imparting moral education to children has declined, the study highlights the effectiveness of employing such interactive and traditional techniques in transmission of values and morals.

Keywords: Aesop's Fables, Cross Cultural Psychology, Folktales, Morality, Panchatantra

Morality develops in human beings spontaneously alongside basic mental, physical and social capacities and revolves around issues such as justice, rights and ethics. The development of morality is encouraged in all cultures by a predominant social structure that specifies guidelines for expected behaviour and harmony in the society.

The biological theories of human social behaviour suggest that morality is embedded in our genetics whereas psychoanalytic and social learning theories regard moral development as a process of internalization of societal standards. The cognitive-developmental perspective, particularly the works of Piaget and Kohlberg assumes that the individual develops morally through active constructions (Berk, 2010).

Two notable theories which emerged to understand the concept of moral development were done by Jean Piaget (1932) and Kohlberg (1969). While on one hand, Piaget focused on two stages of moral development: heteronomous morality (5-8 years) and the morality of cooperation (9-10 years), Kohlberg, on the other hand viewed moral development as a gradual process and proposed three levels of moral development. namely: Preconventional level, Conventional level, and Postconventional level (Berk, 2010).

However, despite the wide applicability of Kohlberg's stages of moral development some questions also have been raised whether the theory is applicable in those cultures that may define higher morality in terms of divine duties or obedience to authority, or that view human dignity as residing in the position one holds within a social system, as in societies with strictly defined caste or gender hierarchies, such as India (Helwig, 2009).

Moral Development in the Indian Context

Given its rich culture and distinct heritage, the conception of morality tends to unfold differently in the Indian context. Though studies have noted many similarities with Kohlberg's theory, there are considerable differences in terms of how an individual move through these stages and attains different levels of moral reasoning.

Since humans are regarded as social animals, the very process of human development too is understood as a socializing process wherein the culture and society in which the child is raised plays a crucial role in their development. Bron fenbrenner (1979) suggested that how the different layers of the environment interact with the growing individual to influence his development. In addition to this, Erickson too shared his views in similar lines wherein he believed that the “the functioning of society, through the agencies of tradition, takes the individual in trust and tries to give consistent meaning to the emerging drive fragments and growing capacities” (Friedman, 1999)

Thus, the context of one's existence has a major role to play in shaping any form of development that an individual goes through among which some are as follows:

Cultural Orientation. Killen, Rutland, and Ruck (2011) considered the norms of social groups and families as the two most significant contexts which facilitate the formation of children's morality. Numerous cross-sectional researches propose that individuals from Western cultures are individualistic, with a moral orientation towards autonomy, rights and personal prerogative, while individuals from non-Western cultures are collectivistic, with a moral orientation towards connectedness, social duty and interpersonal responsibility (Markus & Kitayama, 1991).

^{1,2} Undergraduate students, Department of Psychology, Indraprastha College for Women, University of Delhi

³ Assistant Professor, Department of Psychology, Indraprastha College for Women, University of Delhi

Corresponding author: Ms. Noyonika Gupta | Email: noyonika.gupta.ng@gmail.com

Evidence demonstrates that though American and Indian children and adults agree in categorizing benevolence in fully moral terms in life-threatening situations, they disagree in their view of what benevolence is, in less extreme cases (Miller & Bersoff, 1992). In less extreme cases, Americans tend to view prosocial behaviour as a resultant of personal choices whereas Indians tend to view it as a moral obligation.

Moreover, as opposed to the Kantian conception of an individual, the Hindu Indian culture considers social units and social duties as the starting point of society (Shweder, Mahapatra, & Miller, 1987) which can be one reason that can be attributed to Indians possessing a post-conventional moral code which give priority to interpersonal responsibilities over justice obligations (Miller et al., 1992).

Another study in similar lines which was done by Shweder et al. (1987) in which they compared the ideas of morality amongst Hindu families and Judeo-Christian families, it was found that there was a clear disagreement between the communities regarding the moral position of 16 practices which included things like; love marriage out of status, menstruating women cooking, addressing father by first name, etc. Besides differences, certain morals that both the Indian and American children uphold include instances such as judging stealing flowers or kicking harmless animals as wrong.

Philosophic traditions and Religion. Religion and the philosophical teachings too are a crucial influencing factor, most profound in India wherein the child is taught to obey and oblige by the religious norms from the very beginning of its birth.

Dasgupta (1991) notes that the Indian philosophy is characterized by three fundamental beliefs. The first is the belief in the karma theory which holds that all actions that are performed have the power to proclaim for their doers' joy or sorrow in the future depending on whether the action is good or bad. The second is the belief in an eternal divine energy that exists within all organisms in form of the soul (atma) or 'Brahman'. The third is the belief in the doctrine of salvation (mukti) which is attained through achieving equanimity i.e. a state free of all emotions or desire.

The teachings of Vedanta and Vedas emphasize Dharma - righteous conduct wherein one is supposed to perform his/her duty with sincerity and Purusharthas - the goal or aim of the human existence. As Kakar, (1979) stated, "In its social implication, dharma is an inherent force in human being which holds the individual and society together, or going one step further, the force which makes 'individual and society hold each other together'. Four factors are believed to shape the notion of Dharma of a person, namely, (a) desh (country, region), (b) kala (period of history), (c) shrama (work, occupation), and (d) guna (biomental attributes).

Vasudev and Hummel (1987) in their study, highlighted that, pre-conventional, conventional, and post-conventional stages can be found in a complex non-Western culture, like India as well where 11% of adults were seen to attain the Post-conventional moral reasoning state. The study also revealed two significant values embedded in the Indian cultural context, namely, Ahimsa (nonviolence) and the concept of 'Related value of all life'. Ahimsa (nonviolence) in the Hindu tradition is identified as a fundamental virtue which comes close to the concept of justice in Kohlberg's theory. Typically, Indians tend to understand 'The Heinz dilemma' in the context of the mass deprivation, poverty, and social injustice prevalent in their surroundings. Thus, it is seen that post-conventional reasoning in this sample, often focuses, on finding a macro solution, through which the general deprivation prevalent in the society can be dealt with, rather than focusing solely on Hienz case, which in no way is a unique or distinct narrative to Indians, given the widespread poverty in the country.

With respect to the 'Related value of all life', the Indian worldview places immense emphasis on interrelatedness and interdependence of man and society wherein each individual is believed to be related to the other in terms of numerous relationships (based on class, caste, family, community and God) which has the potential to shape one's ego identity and define one's existence. It also means that all organisms function according to one universal law in harmony and natural rhythm. This notion can be linked successfully to the concept of Dharma which suggests that the self-development is shaped by realization of one's unreal existence (as social self exists only in mind) and in carrying out one's dharma without a sense of attachment (Dalal & Misra, 2001).

Morality in Folklore: The Panchatantra and The Aesop's Fables

One of the most common sources through which the moral values of a culture are transmitted from one generation to another is through literature. Fables and folktales act as better pedagogical models for teaching values to children, then instruction-based learning environments as they use induction, i.e. an explanation-based reasoning as to why certain behaviours should be adopted as opposed to the others. Through elaborate illustrations, the stories first grab the young readers' attention and then initiate the higher purpose of educating in the guise of entertaining. The characters are intentionally placed in situations which require them to make certain moral decision which is extended to the young readers' consideration of what they would do in such circumstances.

The Panchatantra, a popular collection of Indian folktales, written by Vishnu Sharma is divided into five major categories: Mitra-bheda (The Separation of Friends), Mitra-samprāpti (The Gaining of Friends), Kākolūkīyam (Crows and Owls - War and Peace), Labdhapraṇāśam (Loss of

Gains), and Aparīkṣitākārakaṃ (Ill-Considered Action / Rash deeds).

On the other hand, The Aesop's Fables, a collection of fables by Aesop, storyteller from ancient Greece between 620 and 564 BCE, possess a blend of delicate ideas conveyed in an entertaining manner with a plethora of educative material. Interestingly, from a psychological point of view, each fable talks about developing certain qualities such as 'Hope', 'Will', 'Purpose' and 'Competence'.

Method

Based on review of literature from multiple sources, a basic understanding of the concept of morality in the Eastern and Western context was developed. Since, the social nature of man has intrigued scholars and artists throughout history, which finds reflections in their art providing valuable insight into human behaviour and psyche; literature, folktales and other forms emerged as a prominent source of understanding the complexities of human nature across cultures (Dalal et al., 2001). Thus, to contrast, how morality unfolds in each context, and supplement the conceptual framework built based on literature review, two stories one from the Panchatantra (The Monkey and Crocodile) embedded in the Indian context, and the other from the Aesop's Fables (The Two Fellows and the Bear) rooted in the Western philosophical ideas were selected.

Thereafter, these stories were analysed in depth using the method of thematic analysis as it enables to identify patterned meanings across data and formulate a broader understanding from it. The form of analysis was predominantly deductive, wherein the themes were driven from the researcher's prior theoretical interest in the area as a basis to look up for two parallel stories appropriate for a comparative analysis. The themes have been identified at the latent level to identify and examine the underlying assumptions, ideas and conceptualizations of morality that are theorized as forming the semantic substance of the data. Under this view, convergent and divergent themes emerging from the narratives were identified to compare the moral messages conveyed by each of the two fables (Braun & Clarke, 2006).

Results

Table 1

Emergent themes derived from the folktales

Folktale	Themes
Two Fellows and the Bear	Tendency to protect oneself first, in face of danger Betrayal of trust in friendship Presence of mind and use of intellect Emerging successfully out of the situation, with a learning

The Monkey and Crocodile

Friendship
Respect for Guests (Attithi Devo Bhava)
The crocodile's conflict of roles
Betrayal of trust in friendship
Presence of mind and use of intellect
Emerging successfully from the situation, 'Rebirth'.

Table 2

Convergent and divergent themes derived from the folktales

	Theme
Convergent Themes	Friendship Presence of mind in the face of difficulty
Divergent Themes	The concept of betrayal Dealing with difficult life circumstances Emerging Successfully from difficulty

Discussion

Morality can be described as beliefs concerning the distinction between right and wrong or good and bad action. Each society has its own 'way of life' derived from cultural traditions, philosophical orientation and religious teachings. The present study aims to explore how the concept of morality unfolds in the Western and Eastern context. Since folklores are a common vehicle of transmitting morals and values from one generation to the other, the understanding of morality in these contexts is supplemented by an analysis of two folktales; one from the Panchatantra embedded in the Indian context, and the other from the Aesop's Fables rooted in the Western philosophy. The two folktales share a similar structure and series of events. In a very rudimentary form, the stories can be divided into three distinct parts, realisation of an unfaithful friend, facing life threatening circumstances and emerging successfully and safely, based on one's intelligence.

Upon analysis, two major **convergent themes** were identified namely friendship and presence of mind in the face of difficulty.

Friendship. The idea of a true friend is shared across both the narratives. A true friend is one who is loyal, trustworthy, and one whom a person can share both his joys and suffering with. In the fable from Aesop, the title itself is an embodiment of the expression of friendship as it makes use of the term 'fellows. Similarly, in the story of Panchatantra, the concept of friendship is fairly clear cut through excerpts of the story like

“And the crocodile ate them and enjoyed a long and pleasant conversation with the monkey before returning to his home. So the monkey and the crocodile rested each day in the shade of the rowe-apple tree”

These lines emphasize that the very notion of friendship is all about sharing one's life with one's companion. Even, at a later stage in both the stories when one friend betrays the other, the concept of friendship come at the forefront as we are more likely to feel betrayed by someone whom we trust and share a close bond with.

Presence of mind in the face of difficulty. Another theme which occurred as similar in both the stories was the use of intellect to deal with the prevailing adverse situation. In both the stories, the characters showed a spontaneous presence of mind i.e., by assessing the problem and coming up with a possible solution at the spur of the moment. In the Aesop's fable, both the friends acted out in their own ways to confront the situation i.e., safely avoiding the Bear's attack, wherein, on one hand one fellow immediately rushed up the tree with the logic that Bear won't be able to reach out to him by climbing, on the other hand, the other fellow used prior knowledge that since bears don't hunt dead meat, he laid down patiently and acted as if he was dead.

Likewise, in the Panchatantra tale too, the monkey upon realizing the crocodile's real intentions of killing him, played out a witty act by lying that he has two hearts in which the sweetened one is back home on the tree so that the crocodile in desperation of the sweet heart to please his wife, leaves the monkey safely back home to obtain the concerned heart. Such a witty response reflects the monkey's ability to appraise the situation in terms of both how his life could be saved for the time being as well as without letting the crocodile know about the lie, thereby fooling him. Therefore, a presence of mind requires a subtle amount of patience and consideration of available resources which was evident in both the stories respectively.

The underlying theme of both the stories is the same, i.e. the experience of betrayal in friendship and how one must keep calm, deal rationally and logically in the face of difficulty. However, as the stories progress, the different values they emphasize and the morals they intend to communicate differ based on the cultural context they are set in.

Upon analysis, three major **divergent themes** were identified as discussed below.

Concept of Betrayal. The theme of betrayal in friendship is common to both the stories. In the story from Aesop's Fable, the friend betrays the protagonist by leaving him unarmed in front of the wild Bear, when he himself, ran and hid behind a bush. On the other hand, the crocodile proves to be an unfaithful friend to the monkey as he plots his murder, in the Panchatantra tale. It is important to note that while, in both stories, the themes of betrayal and unfaithfulness in friendship have been portrayed, the reason of fuelling the breach of trust between the friends is drastically different. In the former story the protagonist friend leaves him alone and runs away, to protect himself from impending danger i.e. the

wild bear representing the cultural orientation of the west, Individualism, i.e. the emphasis on autonomy and personal prerogatives. On the other hand, in the second story, the crocodile wants to kill the monkey to prove himself to be a good husband to satisfy his wife's need thereby highlighting the cultural ethos of the east; i.e. Collectivism, orientation towards connectedness and interpersonal responsibility. It shows how the stories have suited the concept of betrayal according to their cultural contexts, so that the instances are more conceivable by the young readers, as these may entail dilemmas they face in their daily lives.

What is interesting to note, is how the boundaries of what is considered immoral differs across the stories. In the Aesop's fable the concept of wrong action is fairly clear cut and unambiguous. The reader is fairly content with the idea that a 'Person who does not help his friend in times of need is immoral' as suggested in the ending statement of the story

'Never trust a friend who deserts you at a pinch'.

However, the same idea of morality has a multifaceted and complex expression in the Panchatantra tale. The crocodile, in the process of being a good husband to his wife, ends up betraying his friend. The lines mentioned below reflect the dilemma of identities the crocodile faces.

*'In the first place, my dear, he is our adopted brother.
Secondly, he gives us fruit. I cannot kill him.
Please do no insist.'*

Through this dilemma, the story highlights the fact that morality is contextual in nature; what may seem ethical in one circumstance, may unfold as unethical in the other. This is in line with the findings of Miller et al. (1992) where Indians have been found to possess a post-conventional moral code in which interpersonal responsibilities may be given priority over justice obligations. It also throws light on the importance of carrying out ones 'Dharma' without attachment to the material world and social relationships, a teaching which holds primary importance in the Vedic scriptures.

Dealing with difficult life circumstances. The second theme that emerged from the two narratives show how keeping calm and analysing the situation logically helps in successfully overcoming obstacles in life. However, one distinct characteristic of the Panchatantra tale is its emphasis on religiosity, and dependence on divine power, for support and strength in times of need. The protagonist in the Aesop's fable, when faced with bear immediately acted in accordance of his past knowledge of that bears do not attack dead meat. The monkey from the Panchatantra tales, at first instinct used his intelligence and wit to manipulate the crocodile by telling him that he had left his heart and home. Additionally, there is a mention of the fact that the monkey murmured a hundred prayers to every kind of a god in the story. This is indicative of the notion of religiosity that is most profound in the Indian

culture. Jensen (2004) argues that in a culture like India where religious devotions finds expression in everyday life, and where certain people are attributed with godlike status (guru), children may reason in terms of Ethics of Divinity, when faced with dilemma from a fairly young age. Moreover, it is important to note that the monkey first relied on his own rational processes to deal the situation, and then turned towards divine forces for strength to endure difficulty. This is supported by the teachings of the Vidur Neeti that states that

“the gods don’t protect like a shepherd with a stick. whom they want to protect, they give them intelligence.”

Emerging Successfully from difficulty. The third theme that emerged from the narrative is how “emerging successfully from difficulty” manifests differently in both the stories. In the Panchatantra fable, the monkey reasoned the coming out of the difficult situation i.e., being saved from the crocodile's attempt to kill him, in terms of the Hindu philosophical ideas of “Rebirth”, as stated through the following statement by the monkey.

“So today is my rebirth day”.

Rebirth, in Hindu tradition, encompasses the gradual progression of souls from ignorance to knowledge, untruth to truth, or darkness to light. It allows for the opportunity to the souls to initiate anew on the path of liberation to use the lessons learned in the past lives. Since the monkey is exposed to truth of the crocodile's real intentions (untruth to truth) and is saved from near to death situation (death to immortality), the monkey reasoned the coming out of the difficult situation in terms of the Hindu beliefs of the possibility for a second life (Mulla & Krishnan, 2014). On the contrary, in the Aesop's fable, when successfully saved from the bear, the protagonist sees the entire episode as a learning experience that adds on to his repertoire of behaviour and action and practically reasons “Never trust a friend who deserts you at a pinch”. This is suggestive of the importance placed on rational reasoning and practicality in the West.

What is interesting to note, is how there is an echo of the culturally conceived idea of morality in the folktales which are in line with the philosophical and religious teachings of the culture and serve as effective means of sowing seeds of these ideas in the young minds of the future generations. Furthermore, while the basic structure of both the stories is the same, the Panchatantra Fable conveys multiple morals as opposed to the Aesop's fable, which revolves around a singular moral.

The East Asian collectivistic conceptions of morality find reflection in the story time and again, emphasising interpersonal harmony, mutual benevolence and concern for the welfare of the others which is reflected through the lines;

“To give us birth, we need a mother; For second birth we need another; And friendship's brothers seem by far More dear than natural brothers are”.

There is also mention of practices like 'Attithi Devo Bhava' or the notion of giving guest the stature of god, which provides insights into how the different practices in Indian tradition aims to strengthen community sentiments. In the beginning of the story, the instance wherein the monkey offers his precious fruit to the guest crocodile, highlights regard for the guest, throwing light on East Asian collectivistic conceptions of morality that emphasises welfare and respect for others in group. Serving the guest corresponds to the righteous duty towards others which is conceptualized in the Hindu tradition as Dharma and reflected in the statements:

“By honouring the guests who come Way worn from some far-distant home To share the sacrifice, you go The noblest way that mortals know.” and “If guests unhonoured leave your for get their love.”

Vedic Hinduism treats hospitality as a cardinal virtue, flowing out from the great human virtue of liberality. In the Upanishads, hospitality and speaking of truth were considered two positive virtues, which can be traced to the great Indian virtue of ahimsā or non-injury. Negatively you are not to cause harm, and positively you are to give and be hospitable. (Hospitality as Openness to the Other: Levinas, Derrida and the Indian Hospitality Ethos). Furthermore, the core notion held within Hinduism is the four duties performed by the castes (Varna Dharma) among which the one shown in the story is in lines with The Grihastha or householder. Dharma is in accordance with the atithi- yajna which is “giving food to guests and honouring them”. Within this notion, it is proposed that the householder must first feed his guests, Brahmans and his relatives, and then he and his wife should eat. This brings us again to the realisation of how the concept of morality is completely embedded in one's context (place, time, age, stage of life and work).

The story also brings to notice a very important moral of Ahimsa or Nonviolence which in the Hindu tradition is identified as a cardinal virtue. Thus, the crocodile's desire to kill the monkey, was portrayed as unethical, and immoral in all senses. Vasudev et al. (1987) in their study note that ahimsa proves to be a common narrative in moral reasoning amongst Indian adults. The concept of nonviolence in Indian thought is not limited to valuing the tangible life of living organisms; one is advised not to injure 'by mind, word, or deed.' Furthermore, ahimsa is not simply an absence of violence; it includes values of love, compassion, impartiality, and sympathy. Another related emergent moral from the story, which is concurrent to Vasudeva et al. (1987) research findings is the concept of 'Respecting all forms of life'. Even though the crocodile is much more powerful as an animal in comparison to the monkey, the monkey prevails as the more intelligent one, between the two. There is emphasis on the fact that it is incorrect to underestimate the value of any living being. These morals are connected to the idea of the 'Brahman' which is an eternal, indestructible and immortal

form of divine energy, that resides within and all living organism and binds humanity. The inability to realise such power within oneself and others, propels an individual to engage in acts of violence, be it latent (considering others inferior) or manifest (impending harm on others) in nature. Moreover, the philosophy of 'Respect for all forms of life' is rooted in the belief that a part of god resides in all organisms, and thus all living beings are regarded as equals.

Lastly, the concept of 'Karma' plays an important role in the story which basically puts forward that all actions that are done have the power to ordain for their doer's joy or sorrow in the future depending on whether the action is good or bad. Often, individuals may be required to take birth in another body to experience fully the joy or suffering that is due to them because of their past (Mulla et al., 2014). In the Panchatantra story, the monkey engages in good actions by sharing his fruits with the crocodile, and thus, destiny plays a role in saving his life on a later date, by making him cognizant of the fact that the crocodile intends to kill him, before he reaches the crocodile's home. The notion of Karma is also evident in how because the crocodile made attempts to fool the monkey in his plan to murder him, he himself is caught in the vicious cycle of karma and is fooled by the monkey's witty lie that he has two hearts. The notion of Karma central to the Indian conception of morality, emphasises the cyclic nature of destiny, and reaffirms one's faith in natural justice and makes every person responsible for his or her own well-being and suffering (Mulla et al., 2014).

Limitations and Directions for Future Research

The present study has wide ranging implications as it helps understand the notions of morality in reference to the Indian context which has been neglected since ages due to a biased attention towards western perspective. Furthermore, in the modern era, reliance on traditional methods such as storytelling in educating children has declined, thereby evoking an urgent need in inculcating core moral values by employing more interactive and traditional techniques of storytelling.

A major limitation of this study was the use of translated secondary data for analysis. Further research may analyse the original versions i.e. in Sanskrit. Furthermore, the study focused on only one story each from both the fables due to insufficient time making the scope narrow. Also, the study could have been made more interesting and richer by exploring how morality actually unfolds across children of different age groups by supplementing the obtained data with primary data. Lastly, gaining an insight into how the same stories are interpreted in terms of arguments of morality by individuals across other different cultures may be valuable in future.

Conclusion

The present study highlights how morality unfolds in different cultural contexts. Since literature, art and folktales play an important role in transmitting values and morals from one generation to another, an analysis of two folktales from the Western and Indian cultural contexts have been done to supplement the theoretical understanding. Through the analysis of these folktales, it is evident that morality in Indian culture is predominantly influenced by the collectivistic orientation giving priority to group sentiments and cohesiveness of community. Moreover, the importance of religious actions and other philosophical ideas of the Indian tradition (like the notion of Karma, Ahimsa, Related value of life etc.) find expression in the text. This is in sharp contrast to the Western notions of individualism which prioritize personal goals more and consider respecting one's individual motives as a core moral of life. However, it is also important to note here that despite of stark differences across these cultures in imparting morality, they at times share commonalities too.

References

- Berk, L. E. (2010). *Child Development (9th Ed.)*. New Delhi: Prentice Hall.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77 - 101.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiment in nature and design*. Cambridge, MA: Harvard University Press.
- Dalal, A., & Misra, G. (2001). *Social Psychology in India: Evolution and Emerging Trends*. New Delhi: Sage Publications.
- Dasgupta, S. (1991). *A history of Indian philosophy (Vol. 1)*. Delhi: Motilal Banarasidas.
- Friedman, L. (1999). *Identity's architect: A Biography of Erik.H. Erikson*. Cambridge MA: Harvard University Press.
- Helwig, C. (2009). Moral Judgement. In S. Lopez, *The Encyclopedia of Positive Psychology* (pp. 626-632). West Sussex: Blackwell Publishing Limited.
- Jensen, R. A. (2004). Thinking in Picture. *Dialog: A Journal of Theology*, 43(4), 297-303.
- Kakar, S. (1979). *Identity and Adulthood*. Oxford: Oxford University Press.
- Killen, M., Rutland, A., & Ruck, M. (2011). Promoting equity, tolerance, and justice: Policy implications. *Sharing Child and Youth Development Knowledge*, 25, 1 -33..

- Mulla, Z., & Krishnan, V. (2014). Karma-Yoga: The Indian Model of Moral Development. *Journal of Business Ethics*, 123(2), 340-351.
- Kohlberg, L. (1969). Stage and sequence: The cognitive developmental approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research* (pp. 347-480). Chicago: Rand McNally
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98(2), pp 224-253
- Miller, J. G., & Bersoff, D. M. (1992). Culture and moral judgment: How are conflicts between justice and interpersonal responsibilities resolved? *Journal of personality and social psychology*, 62(4), 541.
- Piaget, J. (1965). *The moral judgment of the child*. New York: Free Press.
- Shweder, R., Mahapatra, M., & Miller, J. (1987). Culture and Moral Development. In J. Kagan, & S. Lamb, *The Emergence of Morality in Young Children* (pp. 230-245). Chicago: University of Chicago.
- Vasudev, J., & Hummel, R. C. (1987). Moral stage sequence and principled reasoning in an Indian sample. *Human Development*, 30, 105–118.

What Are We Afraid of? Exploring Fear of Crime, Its Correlates, and Gender Differences

Niharika Rawat*

The present study explores fear of crime in the Indian context through a survey of college students. Gender differences in the fear of crime and possible explanations for it are looked into, focusing on the shadow hypothesis. The relationship between constrained behaviour and fear of crime, and the stranger-danger paradox are also explored. Findings indicate that women's fear of crime is indeed influenced by their fear of sexual assault, and that they have a gap in knowledge about who might victimize them. A significant relationship between fear of crime and constrained behaviour was found, along with some situational influences on fear.

Keywords: fear of crime, shadow hypothesis, constrained behaviour, stranger danger, contemporaneous offences.

Research on people's response to crime has focused on perceived risk, or the individual's cognitive evaluation of how likely they are to be victimized, and fear of crime. Garofalo (1981) defines fear of crime as an emotional reaction of danger and anxiety produced by the threat of harm to one's physical well-being. This does not mean that property crimes elicit no fear. Rather, the relative importance of the property and the possible cues to physical harm that the crime may contain influence an individual's fear. Fear of crime can contribute to an individual's feeling of isolation and vulnerability and can produce loss in well-being. It channels resources towards protection and avoidance, thus decreasing activities and quality of life (Moore & Trajanowicz, 1988). Fear of crime can cripple the ability of a neighbourhood to deal with crime. Social divisions increase between the rich who can afford protection and the poor who cannot. Those who are able to move out of localities do so, thereby reducing interest and investment in vulnerable areas. Additionally, fear of crime may contribute to greater crime rates by atomizing neighbourhoods, encouraging protective behaviours such as gun-ownership, and reducing surveillance and accountability in public areas (Box, Hale, & Andrews, 1988).

Three major findings about fear of crime are of interest to the present paper, which pertain especially to women's fear of crime.

Shadow of Sexual Assault

Findings indicate that despite being victimized less frequently for all types of crimes apart from sexual assault, women tend to report higher fear of crime as compared to men. Amongst the various explanations for this paradox, the one given by Ferraro (1996) in his study of women's fear of victimization is prominent. For women, rape is an ever-present possibility, and any kind of offense can escalate into sexual assault. Thus, while a man may be mugged, a woman may be mugged and then subsequently raped. *In other words, sexual assault may "shadow" other types of victimization among women. Rape may operate like a*

"master offense"...heightening fear reactions for other offenses" (Ferraro, 1996). The shadowing effect of rape was tested by Ferraro, and results indicated that women were indeed more fearful of crime as compared to men, and that the fear of rape contributed significantly to this. A number of subsequent studies have generated evidence to support the shadow hypothesis. Fisher and Sloan (2003) found that female students reported a greater fear for all crimes. Ozasclar (2013) found that the fear of sexual assault had a positive relationship with the fear of nonsexual, violent crimes for women. Taken as an independent variable, fear of sexual assault became a more significant predictor for the overall fear of crime than perceived risk.

However, some researchers have questioned the hypothesis. Hirtenlehner and Farrall (2014) for example showed that while women had a higher fear of burglary, it was mainly due to the possibility of physical harm. But, fear of sexual assault was also mentioned. Another study (Hilinski, Neeson, & Andrews, 2011) found that while female college students' qualitative experiences did provide support for the shadow hypothesis, alternative explanations that focused on prior victimization and women's inherent vulnerability also emerged. Even, prevailing gender roles have been put forward as an explanation. A study conducted by Sutton (2005) suggests that it is social desirability that leads to men underreporting their fear of crime, which consequently leads to higher reporting by women.

It is significant to note however that even studies which provide alternative explanations continue to yield data that supports the basic premise of the shadow hypothesis - women's higher fear of crime is, at least in part, due to the fear of sexual assault that any victimizing situation has.

Constrained Behaviour

In the face of possible victimization people may respond with fear, but they may also respond by curtailing or altering their behaviour in a manner that they believe will reduce the chances of them falling victim to a crime. This is known as

* Undergraduate student, Department of Psychology, Lady Shri Ram College for Women, University of Delhi
Corresponding author: Ms. Niharika Rawat | Email: rawat.niharika97@gmail.com

constrained behaviour. In India, there is a seamless transition of patriarchal notions from households to the streets, which contributes to women having to use self-protective but restrictive behaviour (Bhattacharyya, 2015).

Research however indicates that instead of assuaging fear, constrained behaviour may actually increase fear of crime. Liska, Sanchirico, and Reed (1988) found that fear and constrained behaviour tend to form a positive escalating loop. Avoidance of vulnerable situations means that individuals are never exposed to the possibility that the situation may not be dangerous and, they may also be unable to learn the techniques of staying safe. While avoiding dangerous situations may decrease the anxiety and fear that comes from being in the risky situation, it does not lead to a reduction in the fear of the situation. Later studies have shown that while constrained behaviour leads to fear, the reverse is not supported empirically (Ferraro, 1996; Scott, 2003).

Stranger Danger Paradox

According to National Crime Records Bureau (NCRB) report of 2016, nearly 95% of the offenders were known to the women who were raped. This does not include unreported rape cases, sexual coercion occurring in intimate relationships, and other forms of sexual assault. Media has created a public perception of women as being in danger from unknown sexual offenders. The 'stranger-danger' paradox comes from the factual negation of this public perception – women are much more likely to be victimized by people known to them. Scott (2003) found that the negative experiences women have with strange males had a positive impact on their fear. Other studies have similarly shown women's tendency to fear victimization at the hands of strangers more than acquaintances (Fisher & Sloan, 2003; Barbaret, Fisher, Farrell, & Taylor, 2003). This gap in knowledge means that while women may be justifiably wary of strangers, they may not exercise necessary caution in closer social circles or recognize the need to do so, thereby increasing their chances of victimization.

Given the dearth of research, the present study sought to explore the Indian context with respect to fear of crime and its correlates. The study aimed to explore:

- Salient gender differences in fear of crime and the possible explanations for it. Based on previous literature, it was expected that women would report significantly higher fear of crime.
- The relationship between constrained behaviour and fear of crime.
- Assumptions about who is likely to be an offender towards self and others.

Method

Participants

The sample consisted of 140 college students (70 females and 70 males) studying at various institutions of Delhi-NCR selected through convenience sampling. They were aged between 18 – 23 years (mean age 21.4 years), and belonged exclusively to middle and upper-middle class backgrounds. Majority of the participants (51.4%) lived with their families; 32.9% lived in hostels, while 15% lived as paying guests or alone.

Design

The research follows a correlational design to study the variables of interest and relationship between them.

Measures

Questions for the present study were initially developed by Warr (1984), and have been taken verbatim from Ferraro's (1996) study. Basic demographic information was collected, and participants were subsequently asked to rate their fear of various personal and property crimes on a 1-to-7 scale. The second section asked about the extent to which they engaged in various types of constraining behaviour. Lastly, a single statement asked participants to state whether they believed strangers or known individuals were more likely to victimize them and others.

Procedure

Following selection of questions, an online survey was designed on Google Forms and sent to various group communication networks of educational institutions. Data was collected over two weeks. 143 participants responded, of which one repeated response and two incomplete responses were dropped, bringing the total to 140 participants. Simple addition of the scores on the nine types of crimes surveyed yielded an overall score that represented participants' total fear of crime. Subsequently, SPSS v23 was used to analyse the data. Independent samples t test was conducted to study gender differences, and regression analysis was undertaken to examine the influence of the fear of sexual assault on the fear of other crimes. Correlation was used to establish the relationship between constrained behaviour and fear of crime. The stranger danger paradox was studied through a comparison of participants' responses with factual data.

Results

The results have been presented in the tables below.

Gender Differences in Fear of Crime

Table 1

Independent sample t-test Comparing Males and Females on Overall Fear of Crime

Gender	n	M	SD	t	df
Female	70	39.84	10.105	4.131**	130.728
Male	70	31.77	12.851		

** $p < 0.01$

As can be seen from Table 1, women in the sample have shown significantly higher fear of crime. To gain more understanding into the gender differences, independent samples t-test were computed for all the nine types of crimes.

Table 2

Independent samples t-test Comparing Fears of Men and Women on Specific Crimes

Type of Crime	Men		Women		t
	M	SD	M	SD	
Being cheated or conned out of your money	3.53	1.604	3.49	1.491	-.164
Being attacked with a weapon	3.79	2.119	4.23	1.721	1.357
Having your house broken into or robbed while you were not present	3.67	1.939	4.00	1.834	1.030
Having your house broken into or robbed while you were present	3.23	2.201	4.23	1.965	2.836**
Having your valuables stolen (from your bag, car, etc.)	4.70	1.921	4.69	1.584	-.048
Being robbed on the street or somewhere else outside	3.89	1.923	5.00	1.513	3.810**
Being sexually assaulted (raped, molested, eve-teased, etc.)	2.56	1.953	5.74	1.491	10.847**
Being kidnapped	2.93	2.066	4.56	1.938	4.809**
Being murdered	3.49	2.251	3.91	2.104	1.164

** $p < 0.01$

As can be seen from Table 2, significant gender differences exist for most of the personal crimes, with women showing greater fear for all. The fears of being attacked with a weapon and of being murdered show no significant differences, and neither do any of the property crimes. The most salient difference existed in the fear of sexual assault, which is the most strongly reported for women and has the highest score across gender and types of crimes. Men seemed to be the most afraid of an impersonal property crime (having their valuables stolen from their bags or cars).

To see whether women's fear of crime was influenced by their fear of sexual assault, simple linear regression was calculated. A significant regression equation was found $\{F(1,68) = 13.500, p < 0.01\}$, with an R^2 of 0.166, indicating that

16.6% of the variability in women's total fear of crime can be predicted by their fear of sexual assault. When only personal crimes were taken into consideration, a significant regression equation was once again found, $\{F(1, 68) = 16.324, p < 0.01\}$, with an R^2 of .194. Hence, 19.4% of the variability in women's overall fear of personal crime could be attributed to their fear of sexual assault.

Thus, women's fear of sexual assault does play a role in influencing their fear of other types of crime. However, this relationship seems weaker in this case than what has been suggested, and only moderate correlations have been found between the fear of sexual assault and overall fear (0.407) and fear of personal crimes (0.440).

To further understand the role that fear of sexual assault plays in women's fear of crime, multiple regression models were

created with the fear of sexual assault being added and excluded as an independent variable. For the fear of kidnapping, adding the fear of sexual assault as an independent variable increased the R² from 34.8% to 50.3%. Similarly, the variability explained of being robbed on the street increased from 38.5% to 42%, and in both cases, the fear of sexual assault was a significant

contributor to predicting the dependent fears. Such a relationship was not found with respect to women's fear of murder. Multiple regression analyses of the fear of being kidnapped and fear of robbery also yielded some noteworthy trends.

Table 3

Summary of Regression Analyses for the Types of Fears Predicting the Fear of Being Kidnapped

Type of Fear	Females			Males		
	B	SEB	β	B	SEB	β
Being attacked with a weapon	-.063	.121	-.056	.038	.077	.038
Being sexually assaulted	.545	.116	.419**	.409	.090	.387**
Being Murdered	.467	.101	.507**	.487	.078	.531**
R ²		.503			.666	
F		24.307**			46.907**	

** $p < 0.01$

As can be seen from Table 3, for both men and women the fears of being murdered and sexually assaulted seemed to influence their fear of kidnapping, while the fear of violence seemed to have no impact. The fear of murder exerted the strongest influence on the fear of kidnapping, and the model predicts 50.3% variability for women and 66.6% variability for men.

Table 4

Summary of Regression Analyses for the Types of Fears Predicting Fear of Being Robbed Outside

Type of Fear	Females			Males		
	B	SEB	β	B	SEB	β
Being attacked with a weapon	.432	.071	.461**	.430	.101	.474**
Being sexually assaulted	.213	.055	.277**	.079	.117	.081
Being Murdered	.065	.065	.078	.145	.102	.169
R ²		.420			.344	
F		34.591**			13.040**	

** $p < 0.01$

Similarly, the regression model for predicting the fear of being robbed based on the three variables was significant, predicting 42% variance for females and 34% variance for males. Here it was the fear of murder that was a non-significant factor, while the fear of violence became a significant, and indeed the strongest influencer for both men and women. Additionally, the fear of sexual assault became a non-significant influencer for males with respect to their fear of robbery.

It is noteworthy that the fears of murder and violence, in which men and women showed no significant differences, influence the fears of kidnapping and robbery in gender-neutral trends as can be seen in Table 1. Importantly, the fear of sexual assault remained a significant contributory factor for both fears of crime for women, though in both cases other types of fear showed a stronger relationship with the master offence.

Constrained Behaviour and Fear of Crime

Table 5

Correlation between total fear and total constraint for men and women

	n	r
Males	70	.282*
Females	70	.341**

* $p < 0.05$

** $p < 0.01$

As can be seen from Table 5, a significant but weak positive correlation exists between constraining behaviour and fear of crime. The relationship was slightly stronger for women, likely due to the fact that they engage in more constraining behaviour. Since such behaviour is particularly seen and endorsed in the context of protecting women from sexual assault, a correlation was also conducted for women's fear of sexual assault and their constraining behaviour, which indicated a moderate correlation of .486.

Perception of Who Victimizes

Table 6

Fear of being victimized by strangers versus known person

	n	By A Stranger	By A Known Person
Total Sample	140	87 (62.14%)	53
Men	70	42 (60%)	28
Women	70	45 (64.28%)	25

Table 6 presents the sample's prevailing views about who is likely to victimize them and others, with both men and women implicating strangers, the latter at a higher rate.

Discussion

The present study was aimed at understanding fear of crime in the Indian context. Results indicate that women show a significantly higher fear of crime as compared to men, being most afraid of sexual assault. The 'dishonour' that follows sexual assault (Prabhu & Pilot, 2014) may drive the fear of becoming a victim in the first place. Hilinski, Pentecost Neeson, & Andrews (2011) highlighted men's position in society, which made both fighting sexual assault and recovery from it difficult, thus contributing to women's fear. Recognizing that sexual assault takes something much harder to replace than property crimes creates a sense of inherent vulnerability for women. This coupled, with the high rates of actual sex crimes and the poor rate of case processing shown by the Indian judiciary also likely contributes to women's fear.

Men have shown only a non-significantly higher fear of property crimes as compared to women. They have shown lesser fear even for the crimes that they are more likely to be victims for, such as being attacked with a weapon or being murdered. One possible explanation for this is that men view their perceived risks as very low for personal crimes (Smith & Torstensson, 1997). However, studies (Sutton & Farrall, 2005; Gilchrist, Bannister, Ditton, & Farrall, 1998) have presented the idea that masculine gender identities may lead men to downplay their fears with respect to crime,

leading to under-reporting.

Women have shown higher fears for personal crimes, all of which are situations wherein one crime may lead to another – sexual assault. Results indicate that women's fear of sexual assault is a significant predictor of their overall fear of crime, meaning their fear of sexual assault does shadow their fear of other crimes.

The personal crime of being kidnapped, and the property/personal crime of being robbed outside were put through multiple regression and highlighted some important findings. Firstly, women's fear of sexual assault was a significant contributor to their fear of both these offences, but in both cases, other fears had a stronger association with the master fear. Fear of sexual assault was a stronger predictor for the fear of kidnapping as compared to robbery. Secondly, some gender-neutral trends in the fears were also seen. For both men and women, their fear of murder was the strongest predictor for their fear of kidnapping, and the fear of being attacked with a weapon was similarly associated with the fear of being robbed outside.

Some conclusions can be tentatively drawn. It seems that the crime situation itself is a major driving force for the kind of fears that contribute to the fear of the situation, and that these trends are similar for men and women. Just like certain social and physical contexts such as darkness can be cues to

the fear of crime (Warr, 1990), specific crime situations may act as cues for specific secondary crime fears, such as the fear of being attacked stemming from the fear of robbery.

The fear of sexual assault continues to be a significant contributor for both types of fears, indicating support for Ferarro's shadow hypothesis. The hypothesis essentially assumes that in women's perception, crimes are contemporaneous offences. Unfortunately, this link is a reality in India. In 2016, nearly 66,000 females were kidnapped, mostly for forced marriage or rape (NCRB, 2016). Kidnapping and sexual assault are thus contemporaneous offences in India, with one inevitably leading to the other, making women's shadowing fear justifiable. But it is women's fear of murder, and not sexual assault, which is the strongest influencer on their fear of kidnapping.

Another aim of the present study was to understand the relationship between constrained behaviour and fear of crime. Analysis shows a weak, positive correlation for both men and women, with the correlation being slightly stronger for women. With the fear of sexual assault, women's constrained behaviour showed a moderately strong positive correlation with a coefficient of .486.

The onus of protecting oneself by avoiding certain public places or avoiding going out after the dark is such an intense social prescription that women are often accused of bringing forth their own misery when they do not engage in such behaviour. This considerably restricts a woman's right to movement and public space, and is often a hindrance in daily living that reduces women's quality of life. It also rids authorities and society from addressing the actual causes and perpetuating factors that lead to sexual assault. Additionally, constrained behaviour also contributes to increasing women's fear of crime. Fear of crime and constrained behaviour often form escalating positive loops, with both feeding into each other (Liska, Sanchirico & Reed, 1988). Even in cases where fear of crime may not lead to constrained behaviour, such behaviour definitely increases one's fear of crime (Scott, 2003).

Lastly, the study also looked into the paradox of 'stranger-danger'. In over 95% of rape cases registered in the country in 2015, the perpetrator was somebody known to the victim (NCRB, 2016). From the very start women are cautioned about strangers, yet a dark curtain of silence prevails with respect to intimate sexual assault – victims are usually quietened or threatened by their own family and are forced to maintain contact with their offender, leading to repeated offences (Kacker, Varadan, & Kumar, 2007). The finding that nearly 64% of women in the sample (a higher percentage than males) believe that they and others are more likely to be victimized by strangers thus indicates a critical gap in knowledge, perhaps indicating the success of this veil of silence. Since information about such crimes is rarely brought forth to light in public and private discussions, women never learn to exercise caution in intimate social relationships.

The paper presents certain important implications. It provides empirical evidence about women's higher fear of crime in India, and gives support for the shadow hypothesis in this context. Additionally, the results indicate that the features of certain crimes, such as robbery, may drive the kind of fears that influence the fear of this situation in gender-neutral ways, highlighting that the fear of crime is not completely gendered. The results about constrained behaviour highlight that not only does this strategy prevent society and authorities from taking responsibility, it also prevents individuals from learning coping strategies, thereby adding to individual distress, especially for women. Findings from the stranger-danger paradox indicate that women in particular may have a gap in knowledge about who potential perpetrators may actually be and also indicates the role of the country's culture of silence, which leads to misperceptions about one's level of safety in intimate contexts. All of these point towards the fact that the fear of crime, especially for women, reduces their quality of life in more ways than one, that the affective perceptions of crime are closely linked to statistical facts, and that both need to be adequately addressed to improve conditions.

Limitations and Directions for Future Research

The present study has some limitations. The sample size is small and data is self-reported. The study has not considered the impact that perceived risk and other variables such as previous victimization may have on people's fear of crime. The unique context of crime and fear created by specificities of the Indian society, such as the rural-urban divide and the identities of marginalized communities, has not been considered. Data has been collected through an online survey, and the validity is thus compromised in the face of possible faking and response biases.

Future research directed towards confirming the findings would be helpful in strengthening implications. Qualitative research that delves into experiences and perceptions can help in closing gaps in knowledge about crime and victimization. Taking into consideration the variables of perceived risk, prior victimization and identities of salience to the Indian context would also enhance future research designs.

Conclusion

The present study was aimed at exploring fear of crime in the Indian context. Results supported the shadow hypothesis, showing that women's fear of other offences was influenced by their fear of sexual assault. Other salient trends in gender differences were discussed, along with the relationship between fear of crime and constrained behaviour. The paradox of women's perception of who is likely to victimize them was also presented, along with the implications.

References

- Barbaree, R., Fisher, B. S., Farrell, G., & Taylor, H. (2003). *University student safety in the east midlands* (Home

- Office Online Report). Retrieved from <http://library.college.police.uk/docs/hordsolr/rdsolr6104.pdf>
- Bhattacharyya, R. (2015). Understanding the spatialities of sexual assault against Indian women in India. *Gender, Place & Culture*, 22(9), 1340-1356.
- Box, S., Hale, C., & Andrews, G. (1988). Explaining fear of crime. *The British Journal of Criminology*, 28(3), 340-356.
- Ferraro, K. F. (1996). Women's fear of victimization: Shadow of sexual assault?. *Social forces*, 75(2), 667-690.
- Fisher, B. S., & Sloan III, J. J. (2003). Unraveling the fear of victimization among college women: Is the "shadow of sexual assault hypothesis" supported?. *Justice Quarterly*, 20(3), 633-659.
- Garofalo, J. (1981). The fear of crime: Causes and consequences. *Journal of Criminal Law & Criminology*, 72, 839. Retrieved from www.heinonline.com
- Gilchrist, E., Bannister, J., Ditton, J., & Farrall, S. (1998). Women And The 'Fear Of Crime' Challenging the Accepted Stereotype. *The British Journal of Criminology*, 38(2), 283-298.
- Hale, C. (1996). Fear of crime: A review of the literature. *International review of Victimology*, 4(2), 79-150.
- Hilinski, C. M., Pentecost Neeson, K. E., & Andrews, H. (2011). Explaining the Fear of Crime Among College Women, in their own Words. *Southwest Journal of Criminal Justice*, 8(1). Retrieved from www.web.aebsscohost.com
- Hirtenlehner, H., & Farrall, S. (2014). Is the 'Shadow of Sexual Assault' Responsible for Women's Higher Fear of Burglary?. *British Journal of Criminology*, 54(6), 1167-1185.
- Kacker, L., Varadan, S., & Kumar, P. (2007). *Study on Child Abuse: INDIA 2007*. Ministry of Women and Child Development, Government of India. Retrieved from http://www.unodc.org/pdf/india/publications/htvs_miniweb/childabuse_
- Liska, A. E., Sanchirico, A., & Reed, M. D. (1988). Fear of crime and constrained behavior specifying and estimating a reciprocal effects model. *Social Forces*, 66(3), 827-837. doi:10.1093/sf/66.3.827
- National Crime Records Bureau (2016). *Crime In India 2016: Statistics (Report No. 64)*. Retrieved from <http://ncrb.gov.in/StatPublications/CII/CII2016/pdfs/NEWPDFs/Crime%20in%20India%20-%202016%20Complete%20PDF%20291117.pdf>
- Moore, M. H., & Trojanowicz, R. C. (1988). *Policing and the fear of crime* (No. 3). Retrieved from US Department of Justice, National Institute of Justice website: <https://www.ncjrs.gov/pdffiles1/nij/111459.pdf>
- Özascilar, M. (2013). Predicting fear of crime: A test of the shadow of sexual assault hypothesis. *International review of Victimology*, 19(3), 269-284.
- Prabhu, L., & Pilot, S. (Eds.). (2014). *The Fear that Stalks: Gender-Based Violence in Public Spaces*. Chicago: University of Chicago Press
- Scott, H. (2003). Stranger Danger: Explaining Women's Fear of Crime. *Western criminology review*, 4(3), 203-214. Retrieved from http://westerncriminology.org/documents/WCR/v04n3/article_pdfs/scott.pdf
- Smith, W. R., & Torstensson, M. (1997). Gender differences in risk perception and neutralizing fear of crime: Toward resolving the paradoxes. *The British Journal of Criminology*, 37(4), 608-634.
- Sutton, R. M., & Farrall, S. (2004). Gender, socially desirable responding and the fear of crime: Are women really more anxious about crime?. *British Journal of Criminology*, 45(2), 212-224.
- Warr, M. (1984). Fear of victimization: Why are women and the elderly more afraid?. *Social Science Quarterly*, 65(3), 681-695. Retrieved from <http://iproxy.inflibnet.ac.in:2060/stable/42861723>
- Warr, M. (1990). Dangerous situations: Social context and fear of victimization. *Social forces*, 68(3), 891-907.

Smoking Behaviour in Indian Females: The Role of Self-Efficacy

Mehak Bawa¹ and Sagarika Mathur²

It is estimated that India has over 12.1 million female smokers, the second highest in the world after the United States. Yet, there is a dearth of research about the smoking behaviours of females in India. Self-efficacy continues to successfully predict health behaviour change and maintenance. The aim of the present study was to compare levels of self-efficacy in young female cigarette smokers who have been preparing to quit smoking for the last 5-7 months and those who have successfully quit smoking in the last 5-7 months. The sample consisted of 60 women between the ages of 18 and 24 years. The General Self-Efficacy scale by Jerusalem and Schwarzer (1992) was used to measure self-efficacy. It was hypothesized that there would be a significant difference in the self-efficacy levels of both groups. The results of the study confirmed the hypothesis. These findings point towards the need of tailoring interventions according to the specific needs of an individual trying to bring about a behaviour change and find ways to enhance their self-efficacy.

Keywords: Smoking behaviour, Indian females, Self-efficacy, preparation, maintenance

There are 373 million young people in the age group of 10 – 24 years in India, and they constitute 30.9% of the country's total population. Young people are considered to be the backbone of a country and serve as its most powerful resource. However, a staggering 10-30% of this population engages in high risk health behaviours which include tobacco use, cigarette smoking, substance abuse and unsafe sexual practises (Sunitha & Gururaj, 2014). Thus, the health behaviours of young people require urgent attention from the government, policy makers and health professionals.

The term health behaviour refers to any behaviour an individual engages in that has a direct effect on their mental and/or physical health. Favourable health behaviours include those that are beneficial for an individual's health, for example, exercise with balanced diet. Unfavourable health behaviours include those that are harmful for an individual's health, such as smoking and over-exercising. Health behaviour change refers to promoting favourable health behaviours and reducing the occurrence of unfavourable health behaviours. For example, an individual may quit smoking after realizing its injurious effects.

A number of theories have been developed to help explain the dynamics of health behaviour change and to guide intervention efforts in this area (Schneider, Gruman & Coutts, 2011). One of the most influential theories is the Stages of Change Model, also called the Transtheoretical model of behaviour change. The model attempts to account for individual differences in the process of changing health behaviours (Prochaska & DiClemente, 1986). It specifies five stages that individuals may move through while attempting to make a particular health behaviour change (Figure 1)

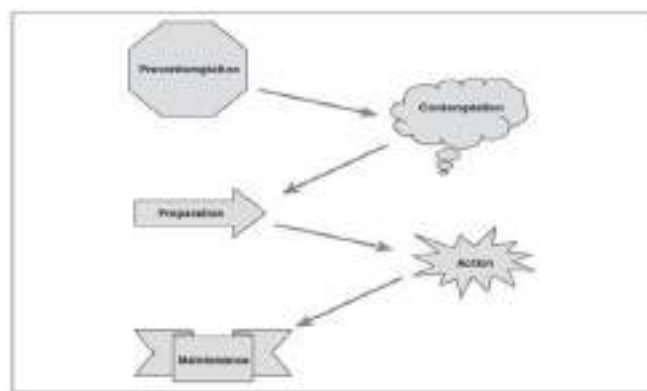


Figure 1

Transtheoretical model of behaviour change

Source: Adapted from Prochaska and DiClemente (1983).

Precontemplation - People express their intention to change their health behaviour. They may be in this stage as they do not find the behaviour to be particularly problematic or because they have considered changing it but decided against it.

Contemplation - In this stage, people seriously consider undertaking a change in their health behaviour. If people express an interest in changing the particular behaviour within the next 6 months, they are said to be in the contemplation stage.

Preparation - Individuals in this stage are ready to make a change and intend to do so within the next month or so. Some people who have made an unsuccessful change (e.g. quitting smoking and then relapsing) may prepare to quit again. People might start to engage in a specific action towards changing the health behaviour. For example, individuals who smoke may either reduce the number of cigarettes they smoke in a day or may choose to quit altogether.

¹² Undergraduate students, Department of Psychology, Mata Sundri College for Women, University of Delhi
Corresponding author: Ms. Mehak Bawa | Email: bawamehak@ignou.ac.in

Action –During this stage, individuals are in the process of modifying their health behaviour. For example, smokers will have quit smoking or will be abstaining from smoking in this stage.

Maintenance – If people are successful in changing their behaviour during the action stage, then 6 months afterwards they are considered to have entered the maintenance stage. They continue to try and maintain the behavioural change they have made. For example, someone who has quit smoking will try to maintain abstinence from smoking.

The Stages of Change model was initially developed to address addictive behaviours. Not surprisingly, a great deal of research based on the model has focussed on smoking. The model has several advantages. It not only conceptualizes the actual processes an individual goes through while trying to change a particular health behaviour, but also accounts for individual differences in the process of changing a health behaviour. Further, it provides a framework for tailoring interventions according to the stage in which a person is, rather than assuming that a single intervention can be applicable for everyone (Prochaska, DiClemente, & Norcross, 1992). In a study conducted to determine whether programs matched to stages of change were more effective than other smoking cessation programs, it was found that all stage matched conditions were significantly more effective for getting people to quit smoking and remain abstinent (Prochaska, DiClemente, & Norcross, 1993). Most smoking cessation programs are directed at individuals who are at least in the Preparation stage indicating that they are ready to make a change. Another advantage is that it offers an optimistic picture of the relapse situation. Relapse is seen as a spiral to the previous stage and so the model allows for the fact that this happens often. Moreover relapses can be learning opportunities for the individual.

Self-efficacy or perceived behavioural control is one of the strongest factors implicated in mediating and guiding the process of health behaviour change. The concept of self-efficacy, originated by Bandura (1977) states that the confidence a person has in their own ability to perform a given behaviour is strongly related to the individual's actual ability to perform the behaviour. Self-efficacy beliefs are closely related to the performance of many health behaviours, such as exercise (Marcus, Selby, Niaura, & Rossi, 1992; Sallis & Hovell, 1990), smoking cessation (Conditte & Lichtenstein, 1981; DiClemente, Prochaska, & Gibertini, 1985), and weight loss (Bernier & Avard, 1986). Additionally, scores on a smoking specific self-efficacy measure appear to be related to stages of change and success at smoking cessation, with Precontemplators and Contemplators scoring the lowest and those in the Maintenance stage scoring the highest (DiClemente et al.,

1985). Self-efficacy plays an important role in other prominent models of health behaviour change as well. This includes the self-efficacy component in the Health Belief Model (Rosenstock, 1974) and the perceived behavioural component in the Theory of Planned Behaviour (Ajzen, 1991).

Cigarette smoking is the intentional consumption of one or more tobacco cigarettes, and differs from passive smoking, which is the unintentional inhalation of tobacco smoke. It does not include tobacco smoking in form of cigars or pipes, the consumption of tobacco in another form like chewing, or cigarettes of any other kind like herbal. Cigarette smoking is found to be a prevalent health related behaviour among the youth. Patel, Doshi, Jadeja, Chaudhary, Desai, & Chaudhary (2016) found a very high prevalence rate for smoking (43%) among the youth. In a study conducted on cigarette smoking behaviours among the youth in south India, the prevalence rate for female smokers was found to be alarmingly high (Gajalakshmi, Asma, & Warren, 2004). In a longitudinal analysis of national surveys, it was found that smoking use among women had doubled from 1.4% to 2.9% during the period 2005-2010. It was also observed that female smoking was growing at a faster rate than smoking among males (Goel, Tripathy, Singh, & Lal, 2014).

As there is lack of research about the smoking behaviours of females in India and the influence of psychological constructs like self-efficacy in relation to such behaviours, the present study was conceptualized to compare the levels of self-efficacy of participants at two different stages of the Transtheoretical model- Preparation and Maintenance. The objective of the study was an attempt to compare levels of self-efficacy among female college students who have been preparing to quit smoking for the last 5-7 months (Preparation stage) and those who have successfully quit smoking and maintained the behaviour for the last 5-7 months (Maintenance stage).

Hypothesis

There will be a significant difference between the levels of self-efficacy of young women who have been preparing to quit smoking for the past 5-7 months and those who have successfully quit smoking and maintained the behaviour for the past 5-7 months.

Method

Participants

Sixty female college students participated in the study. The participants were approached using purposive sampling. They were further divided in two groups of 30 each on the basis of the stage of the Transtheoretical Model (Prochaska & DiClemente, 1986) they were in, i.e. either Preparation or

Maintenance stage. The mean age of the participants was 20 years and the modal educational qualification was found to be undergraduate.

Inclusion Criteria:

- Only female participants were included.
- Participants between the ages of 18-24 were included.
- Only participants who were in either the Preparation or Maintenance stage with respect to their smoking behaviour were included. According to the model, people are classified into the Preparation stage if they have taken some action to change the health behaviour within the past 5-7 months. People are classified into the Maintenance stage if they have been able to maintain the behaviour change (quitting smoking) successfully for the past 5-7 months.

Design

This was a cross-sectional study following an ex post facto research design. In the present study, the independent variable was cigarette smoking behaviour of the participants and dependent variable was self-efficacy among the female participants. The difference between the levels of self-efficacy of participants in the Preparation stage and those in the Maintenance stage of the Transtheoretical model (Prochaska & DiClemente, 1986) was assessed quantitatively through a questionnaire.

Measures

Preliminary Questionnaire (attached in Appendix B). A preliminary questionnaire was developed to gather information about the demographic details of the participants and to assess the stage of the Transtheoretical model (Prochaska & DiClemente, 1986) the participants were in. The questionnaire also sought information about whether the successful behaviour change or the attempt to change the behaviour was an independent and individual endeavour or if

any external assistance was taken, for e.g. therapy, nicotine patches etc.

General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995) (attached in Appendix C). The construct of perceived self-efficacy reflects an optimistic self-belief (Jerusalem & Schwarzer, 1992). This is the belief that one can perform novel or difficult tasks, or cope with adversity -- in various domains of human functioning. Perceived self-efficacy is an operative construct, i.e., it is related to subsequent behaviour and, therefore, is relevant for behaviour change. This scale is a self-report measure of self-efficacy. Ten items are used to tap this construct. Higher scores on the General Self-Efficacy Scale indicate higher levels of self-efficacy (Schwarzer & Jerusalem, 1995). In samples from 23 nations, Cronbach alphas ranged from .76 to .90, with the majority in the high .80s. The scale is unidimensional. Criterion-related validity is documented in numerous correlation studies.

Procedure

The study was conducted on a sample of 60 students residing in Delhi-NCR selected through purposive sampling technique. A Google document ensuring anonymity and confidentiality was circulated among the participants which sought consent regarding their participation in the study, information about their age, education and smoking habits. The self-efficacy questionnaire was also attached along with the document. The participants were requested to circulate the form further among their peers. Contact details of the authors were forwarded along with the document in case of any queries. The means and the standard deviation on self-efficacy were obtained for both groups. The means were compared using the t-test for independent samples.

Results

Table 1

Mean scores, Standard Deviation and t value of self-efficacy of female participants in Preparation and Maintenance stage

Variable	Stage	M	SD	t	P
Self-efficacy	Preparation	17.76	3.22	-9.81**	.010
	Maintenance	26.16	3.44		

* $p \leq .05$

** $p \leq .01$

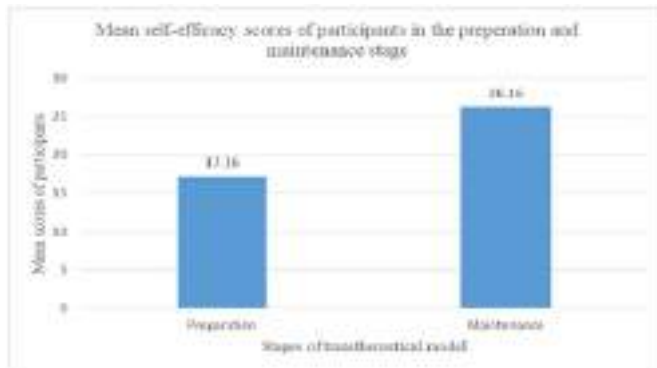


Figure 2

Bar graph representing mean self-efficacy scores of the participants in the preparation and maintenance stage.

As shown in Table 1, the mean of participants in the Preparation stage was found to be 17.76 ($SD=3.22$). The mean of participants in the Maintenance stage was found to be 26.16 ($SD=3.44$). On comparing the means, the difference was found to be statistically significant ($t=-9.18$, $p=0.010$).

Discussion

The objective of the present study was to compare self-efficacy levels of female participants in two different stages of the Transtheoretical model (Prochaska & DiClemente, 1986): Preparation (participants who have been preparing to quit smoking for the last 5-7 months) and Maintenance (participants who have successfully quit smoking and maintained the behaviour change for the last 5-7 months). A number of studies suggest that self-efficacy expectations influence both attempts at smoking cessation and maintenance processes once the behaviour change has been achieved (Strecher, McEvoy Devillis, Becker, & Rosenstock, 1986). It was hypothesized that there would be a significant difference between the levels of self-efficacy of the participants who have been trying to quit smoking and those who have already quit smoking and have been able to maintain the behaviour.

A preliminary study conducted on 20 participants using the General Self - Efficacy Scale confirmed that there was a significant difference between the levels of self-efficacy of participants in the Preparation stage and those in the Maintenance stage. Following this, the self-efficacy levels for the main sample of 60 females were calculated. The results obtained clearly demonstrated that participants who were in the Maintenance stage have higher levels of self-efficacy than the participants who were in the Preparation stage of the Transtheoretical model (Prochaska & DiClemente, 1986). Therefore the hypothesis proposed for the present study is retained.

According to the Transtheoretical model of behaviour change (Prochaska & DiClemente, 1986) an individual gradually moves through 5 stages while undertaking a

behaviour change such as trying to quit smoking. The influence and role of a number of psychological constructs on an individual's movement through these stages has been rigorously studied in a number of researches by Prochaska and DiClemente (1983, 1986, 1992, 1993). Out of these constructs, self-efficacy has emerged as one of the strongest factors with regard to smoking behaviour change. As predicted by the Transtheoretical model (Prochaska & DiClemente, 1986) people who are at the later stages of the model (action and maintenance) show higher levels of self-efficacy than people who are at the early stages (contemplation and preparation) (Prochaska & DiClemente, 1986). According to Bandura (1977) self-efficacy refers to the personal judgement of how well an individual can execute courses of action to deal with prospective situations. For people in the Maintenance stage this judgement is more pronounced and well-defined which enables them to work effectively towards achieving the prospective change (quitting smoking) and enhances their belief in their ability to maintain that behaviour. However, for people in the Preparation stage, the judgment regarding one's ability to execute courses of action in order to bring about a behaviour change is negative, leading people to believe they are not capable enough to carry out the change and then maintain it. Such beliefs prevent people in the Preparation stage from making a successful attempt at changing behaviour, even if they take some action towards making the desired change (Schneider, Gruman, & Coutts, 2011). DiClemente & Prochaska (1985) examined 872 active smokers and categorized them into the five stages of the Transtheoretical model (Prochaska & DiClemente, 1986) and it was found that self-efficacy of the participants was associated with movement from pre-contemplation, preparation, action and maintenance stages. Self-efficacy of the people categorized in the Maintenance stage was found to be the highest, as compared to participants in all the other stages. In a study conducted by DiClemente et al. (1985) on 957 volunteers representing different stages of behaviour change including people in the Preparation and Maintenance stages using a 31 item measure of self-efficacy, it was found that participants in the Maintenance stage showed the highest magnitude of self-efficacy which increased with the length of abstinence. This shows that people in the Maintenance stage have considerably higher levels of self-efficacy which enables them to maintain the behaviour change they desire.

In the present study the mean self-efficacy score (26.16) obtained by participants in the maintenance stage are higher than the mean self-efficacy score obtained by participants in the preparation stage (17.76) which indicates that participants in the maintenance stage have higher self-efficacy. These findings are supported by a study in which DiClemente, Prochaska, Fairhurst, Velicer, Velasquez, and Rossi (1991) operationalized the construct of self-efficacy developed by Bandura (1977) and applied it to the problem of long-term maintenance of smoking cessation. A measure of

self-efficacy for avoiding smoking was used to assess the relationship between self-efficacy and participant's ability to maintain abstinence at a 5-month follow-up. Results indicated that 'maintainers' did show significantly higher self-efficacy scores than recidivists. A similar study conducted by Prochaska, Crimi, Lapasanski, Martel, and Reid (1982) found that maintainers experience high congruence of self-concepts and their concepts of self as non-smokers, have confidence in coping with situations that evoke negative emotions and experience higher levels of self-efficacy which in turn enables them to undertake successful behaviour change such as quitting smoking. Similar findings have been obtained through the present study, where maintainers scored significantly higher on the dimension of self-efficacy as compared to the participants in the preparation stage.

Limitations and Directions for Future Research

The sample chosen for the present study was small, and from a geographically restricted area due to a dearth of time and resources. The design used for the present study was cross-sectional design. More in-depth information regarding the smoking behaviour of the participants can be achieved through a longitudinal study because it allows the researcher to observe changes over a period of time during follow-up investigations. The General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995) is a general measure and thus does not tap specific behaviour change; therefore in most applications it is essential to add a few items to cover the particular content of the intervention such as smoking cessation self-efficacy. Hence a scale that specifically taps self-efficacy with regard to smoking behaviour change would have been a better choice for the purpose of the present study but could not be used due to lack of resources.

Conclusion

In the present study, it was hypothesized that there will be a significant difference in the levels of self-efficacy of the preparators and maintainers. Results revealed that self-efficacy scores of participants in the Maintenance stage were significantly higher than the self-efficacy scores of the participants in the Preparation stage. Owing to the paucity of research regarding smoking behaviours of females in India, findings such as obtained through the present study have significant implications for health policy makers and health intervention planners for women in India, and point towards the need of tailoring interventions according to the specific needs of an individual as described by several relapse models such as the Transtheoretical model of behaviour change (Prochaska & DiClemente, 1986). There is also a growing need to identify major psychological constructs such as self-efficacy that influence health behaviour change and find ways to enhance self-efficacy in individuals who are trying to quit smoking.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211.
- Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*, 84(2), 191.
- Bandura, A., Adams, N. E., Hardy, A. B., & Howells, G. N. (1980). Tests of the generality of self-efficacy theory. *Cognitive therapy and research*, 4(1), 39-66.
- Bernier, M., & Avard, J. (1986). Self-efficacy, outcome, and attrition in a weight-reduction program. *Cognitive Therapy and Research*, 10(3), 319-338.
- Conditte, M. M., & Lichtenstein, E. (1981). Self-efficacy and relapse in smoking cessation programs. *Journal of consulting and clinical psychology*, 49(5), 648.
- DiClemente, C. C. (1981). Self-efficacy and smoking cessation maintenance: A preliminary report. *Cognitive Therapy and Research*, 5(2), 175-187.
- DiClemente, C. C., Prochaska, J. O., & Gibertini, M. (1985). Self-efficacy and the stages of self-change of smoking. *Cognitive therapy and Research*, 9(2), 181-200.
- DiClemente, C. C., Prochaska, J. O., Fairhurst, S. K., Velicer, W. F., Velasquez, M. M., & Rossi, J. S. (1991). The process of smoking cessation: an analysis of precontemplation, contemplation, and preparation stages of change. *Journal of consulting and clinical psychology*, 59(2), 295.
- Gajalakshmi, V., Asma, S., & Warren, C. W. (2004). Tobacco survey among youth in South India. *Asian pacific journal of cancer prevention*, 5(3), 273-278.
- Goel, S., Tripathy, J. P., Singh, R. J., & Lal, P. (2014). Smoking trends among women in India: Analysis of nationally representative surveys (1993–2009). *South Asian journal of cancer*, 3(4), 200.
- Jerusalem, M., & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal processes. *Self-efficacy: Thought control of action*, 195213.
- Marcus, B. H., Selby, V. C., Niaura, R. S., & Rossi, J. S. (1992). Self-efficacy and the stages of exercise behavior change. *Research quarterly for exercise and sport*, 63(1), 60-66.
- Patel, D. N., Doshy, K., Jadeja, M., Chaudhary, H., Desai, J., & Chaudhary, V. (2016). A Cross sectional study of smoking among youth population. *International Journal of Biomedical and Advance Research*, 7(12), 574-577.
- Prochaska, J. O., Crimi, P., Lapsanski, D., Martel, L., & Reid, P. (1982). Self-change processes, self-efficacy and self-concept in relapse and maintenance of cessation of

- smoking. *Psychological Reports*, 51(3), 983-990.
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, 51, 390-395.
- Prochaska, J. O., & DiClemente, C. C. (1986). Toward a comprehensive model of change. *Treating Addictive Behaviors*, 13, 3-27.
- Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: applications to addictive behaviors. *American psychologist*, 47(9), 110-120.
- Prochaska, J. O., DiClemente, C. C., Velicer, W. F., & Rossi, J. S. (1993). Standardized, individualized, interactive, and personalized self-help programs for smoking cessation. *Health Psychology*, 12(5), 399.
- Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health education monographs*, 2(4), 328-335.
- Sallis, J. F., & Hovell, M. F. (1990). Determinants of exercise behavior. *Exercise and sport sciences reviews*, 18(1), 307-330.
- Schneider, F. W., Gruman, J. A., & Coutts, L. M. (2011). *Applied social psychology: Understanding and addressing social and practical problems*. New Delhi: Sage Publications.
- Sunitha, S., & Gururaj, G. (2014). Health behaviours & problems among young people in India: Cause for concern & call for action. *The Indian journal of medical research*, 140(2), 185.
- Schneider, F. W., Gruman, J. A., & Coutts, L. M. (Eds.). (2011). *Applied social psychology: Understanding and addressing social and practical problems*. California: Sage.
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). UK: Windsor.
- Strecher, V. J., McEvoy DeVellis, B., Becker, M. H., & Rosenstock, I. M. (1986). The role of self-efficacy in achieving health behavior change. *Health education quarterly*, 13(1), 73-92.
- Sunitha, S., & Gururaj, G. (2014). Health behaviours & problems among young people in India: Cause for concern & call for action. *The Indian Journal of Medical Research*, 140(2), 185-201.

Appendix A

Consent form

I agree that I understand the present study and I have been assured that I am free to withdraw from the study at any given time without any repercussions.

I understand that any information obtained from me during the course of the study, written or verbal will be used only for research purposes and will be kept strictly confidential and not be revealed to any other person, organization or party.

I understand that any information that could lead to my identification will not be disclosed in any reports on the study and no identifiable personal data will be published.

Appendix B

The following information is sought only for the purpose of this research. It shall remain strictly confidential. You are requested to take out 5 minutes of your time and answer the following questions. Kindly respond with patience and honesty.

A) Please mention your age.

B) Please mention your educational qualification.

C) Please tick the appropriate response.

- I am trying to quit smoking.
- I have already quit smoking.

D) For how long have you been trying to quit? / How long has it been since you last smoked?

E) Is it an individual and independent initiative or are you taking any assistance in the form of:

- Individual and independent initiative
- Therapy
- Nicotine patches
- Other : please specify –

Appendix C

Please select the option most suitable for your response.

1. I can always manage to solve difficult problems if I try hard enough.

- Not true at all
- Hardly true
- Moderately true
- Exactly true

2. If someone opposes me, I can find the means and ways to

- get what I want.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true
3. It is easy for me to stick to my aims and accomplish my goals.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true
4. I am confident that I could deal efficiently with unexpected events.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true
6. I can solve most problems if I invest the necessary effort.
- Not true at all
 - Hardly true
- Moderately true
 - Exactly true
7. I can remain calm when facing difficulties because I can rely on my coping abilities.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true
8. When I am confronted with a problem, I can usually find several solutions.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true
9. If I am in trouble, I can usually think of a solution.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true
10. I can usually handle whatever comes my way.
- Not true at all
 - Hardly true
 - Moderately true
 - Exactly true

Attitudes towards Homosexuality: Difference in Religion, Gender and Proximity

Maitri Jain¹ and Ramya Kaushik²

The aim of the present study was to understand the attitudes of Indian college students towards homosexuality and explore how it is impacted by religion, gender and contact with homosexuals. This descriptive study was conducted on 160 college-going participants through convenience sampling. Data was collected through a self-administered questionnaire consisting of two sections- demographic sheet and an adaptation of Attitudes Towards Homosexuality Scale for Indians (Ahuja, 2017). The data was analyzed through ANOVA and t-test. The results indicated that people who had contact with homosexual people have a more positive attitude towards them than the people who had no contact with homosexuals. There were no significant differences found between males and females, or among people from various religious groups on attitudes towards homosexuality.

Keywords: Homosexuality, attitudes, religion, gender, attitudes towards homosexuality scale for Indians (AHSI)

The American Psychological Association (2015) website defines sexual orientation as “*an enduring pattern of emotional, romantic and/or sexual attractions to men, women or both sexes. Sexual orientation also refers to a person's sense of identity based on those attractions, related behaviors and membership in a community of others who share those attractions*”. Sexual orientation occurs along a continuum from explicit attraction towards the same sex to explicit attraction towards the opposite sex. But in a lay man's terms, sexual orientation is seen to be of 3 types: Heterosexuality, Homosexuality and bisexuality. Homosexuality is the phenomenon in which an individual is attracted to, or has sexual relations with people of the same sex (Sahni, Gupta, Nodiyal, & Pant, 2016). While the word “homosexuality” is technically used to specifically refer to the individuals who are attracted and have sexual relations with the same sex, people use it to refer to anyone who doesn't fit into the category of “heterosexual”. In this paper, the word “homosexual” has been used to refer to the LGBTQ continuum in order to avoid confusion on the end of the participants.

India has a long and complex history of attitudes towards homosexuality. The existence of homosexuality in ancient Indian culture is apparent through the art, sculptures, paintings, and carvings in various temples such as Ambernath Shiva, Bagali Shiva, Konark, Khajuraho, etc. Various texts such as Arthashastra, Kamasutra, and Dharmashashtra make a mention of homosexuality. The evidence from scriptures and carvings suggests that Hinduism has been open to homosexuality in both ancient and medieval times. In contrast, many other cultures are known to discourage homosexuality. In Christianity, homosexuality is considered as a sin and the Bible lays down death penalties for those who engage in it. In Quran also, the religious text of Islam, such behavior is considered unnatural and sinful. It believes that such behavior is undesirable for men and should not even be acknowledged by women (Sahni et al., 2016).

During colonial rule, the British criminalized homosexual relations under section 377 of the Indian Penal Code in 1861. This section condemned volunteer carnal intercourse “against the order of nature with any man, woman or animal” as “unnatural offences,” considering it punishable by fine, lifetime imprisonment or a 10-year jail term (Ahuja, 2017). After India gained independence, various judgements regarding section 377 were made by the High Court and the Supreme Court in 2009, 2013 and 2016. This struggle came to an end on 5th September, 2018, when the Supreme Court scrapped Section 377, giving statements such as “Social morality cannot violate the rights of even one single individual”-CJI Misra and Justice Khanwilkar (Sinha, 2018).

Little research has been done to explain variation in homosexuality outside of the USA. Research done in USA suggests that religion is the most important predictor of the attitudes towards homosexuals. Yuchtman-Yaar and Alkalay (2007) found that Muslims have more conservative social values than Catholics and Protestants. Finke and Adameczyk (2008), in their research, concluded that Muslims had more conservative attitudes towards sexual morality compared to Christians. There is minimal research that has been conducted in Asian cultures, especially India, that looks at religion and homosexuality. This study tries to look at the religious differences in attitudes towards homosexuality in Indian context.

Several studies have also indicated how men and women differ in their attitudes towards homosexuals. Men's attitudes have been shown to be particularly negative when the person being rated is a gay man or a person of unspecified sex, while men and women are similar in their ratings of lesbian women (Kite & Whitley, 1996). Studies have also been conducted on how gender interacts with other factors like religion to affect attitudes towards homosexuality. One study found that although boys appeared more negative towards homosexuality compared to girls in general, the

^{1,2} Undergraduate Students, Department of Psychology, Lady Shri Ram College for Women, University of Delhi

Corresponding Author: Ms. Maitri Jain | Email: maitri.jain.mj@gmail.com

The authors acknowledge Dr. Kanika K. Ahuja's (Associate Professor, Department of Psychology, LSR) guidance in their research work

gender gap is twice as large in Muslims compared to Non-Muslims (Roggemans, Spruyt, Droogenbroeck, & Keppens, 2015). Herek (2010) showed that the factors underlying males' and females' attitudes towards homosexuality are religiosity, adherence to traditional ideologies of family and gender, perception of friends' agreement with one's own attitudes, and past interactions with homosexuals. People who have had contact with homosexuals tend to hold more positive attitudes towards them compared to non-contact groups (Sahni et al., 2016). The "Contact hypothesis" developed by Gordon Allport in 1954 says that "contact between two groups can promote tolerance and acceptance, but only under certain conditions, such as equal status among groups and common goals." (APA, 2001). Sagalli and Ugurlu (2008) showed that exposure and contact with homosexuals led to more positive attitudes towards them.

Various other factors have been shown to affect the attitudes towards homosexuality, such as media, family, peers (Lehman & Thornwall, 2010), type of schooling etc. The present study will help understand the dynamics of homosexuality in India in a deeper and more concrete manner, describing the specific attributes that can be targeted to bring about a positive change in people's attitudes towards homosexuality. It aims to understand the attitudes of Indian college students with respect to the homosexual community. It explores how religion, gender and contact with homosexuals affects the attitudes of students towards them.

Hypotheses

H1: Muslims will have more negative attitudes towards homosexuality compared to those of Hindus and Christians.

H2: Females will have more positive attitudes towards homosexuality compared to males.

H3: People with greater contact with homosexuals will have more positive attitude towards homosexuality compared to those with no contact with homosexuals.

Method

Participants

The sample gathered through convenience sampling consisted of 160 participants. They were within the age group of 18-23 years, with mean age of 19.29, and a SD of 2.05. They were pursuing bachelor courses in arts, engineering, medical etc. from colleges throughout India. It consisted of 80 males and 80 females. 45 Hindus, 45 Christians and 39 Muslims were sub-sampled from the full sample for analysis of religion. The sample was divided evenly between the contact group and the non-contact group.

Design

The study is quantitative and descriptive in nature, and tries to understand the attitudes of students towards homosexuality based on 3 variables: their gender, religion

and contact with the homosexual. The survey method was used for data collection, and random selection of participants was done for the same. Their responses were classified into the various categories based on the above 3 variables for analysis. Religion was divided in three categories: Hindu, Muslim and Christian; Gender was classified as Male or Female, and Contact with homosexuals had 2 levels: Yes and No.

Measures

Demographic profile sheet. To collect preliminary information about the participants, a demographic sheet was circulated along with the standardized tool. It was used to assess basic information about the participants such as their education level, gender and sexuality, religiousness, and their contact with homosexuals.

Attitudes Toward Homosexuality Scale for Indians (Ahuja, 2017). AHSI was used in the present study. It is a 5-point Likert type scale (1 = strongly disagree, 5 = strongly agree) consisting of 20 items. A modified version of the scale was used. Only 18 items were included and the first 2 items were removed from the questionnaire, as they were seen as being too direct, and could have put the participants on guard. Evidence of the validity of the scale was found by assessing participants' attitudes towards homosexuality on the basis of their sex, education, and contact with homosexuals. Significant differences were found between men and women's attitudes towards homosexuality, with women holding more favorable attitudes ($t = 7.16, p < .001$, Cohen's $d = 1.23$). Students pursuing liberal arts courses were found to have more favorable attitudes towards homosexuals than those pursuing STEM courses (science, technology, engineering, mathematics) ($t = 3.57, p = .001$, Cohen's $d = 0.63$). Lastly, participants with more interpersonal contact with homosexuals had more favorable attitudes towards them.

The split half reliability coefficient of AHSI (Ahuja, 2017) was also calculated and found to be 0.84, and after correction using Spearman-Brown prophecy formula, it yielded a coefficient of 0.91. Thus, the scale has good psychometric properties and was found appropriate for the current research.

Procedure

An informed consent form and the demographic profile sheet were attached with the questionnaire, and it was circulated through E-mail and WhatsApp. Some specific colleges like Jesus and Mary College, St. Stephens, and Jamia Milia Islamia were targeted to get responses from people of different religions. The data was analyzed through Microsoft Excel. ANOVA was used to analyze the effect of religion, while the variables of gender and contact with homosexuals were analyzed through t-test.

Results

After the completion of the analysis of data gathered under three independent variables i.e. Religion, Gender, and Contact with Homosexuals, the following results were obtained.

Religion

A one-way between-subjects ANOVA, as shown in Table 2, was conducted to compare the attitudes among three religious groups i.e. Hindus, Muslims and Christians on attitudes towards homosexuality. Although the means of the three groups differed as seen in Table 1, it did not reach statistical significance [$F(2,126)=2.34, p=0.099$].

Table 1

Mean scores of attitudes towards homosexuality of participants belonging to different religious groups

Religious group	N	M	SD
Hindu	45	77.3333	7.38
Muslim	39	72.97436	14.24
Christians	45	71.73333	15.52

Table 2

ANOVA results comparing three religious groups on attitudes towards homosexuality

Source of Variation	SS	df	MS	F	P
Between groups	771.7295	2	385.8648	2.348087	0.09972
Within groups	20705.77	126	164.3315		

The results imply no active role of religion on people's attitudes towards homosexuality. All three religions had similar attitudes on an average. H1 that 'Muslims will have more negative attitudes towards homosexuality compared to those of Hindus and Christians' is rejected.

Gender

An independent sample t-test, as shown in Table 3, was used to see if there was a statistically significant difference between males and females on attitudes towards homosexuality. H2 that 'Females will have more positive attitudes towards homosexuality compared to males' is thereby rejected.

Table 3

t-test results comparing males and females on attitudes towards homosexuality

Gender	M	N	df	t	P
Male	72.725	80	158	-1.856	0.065
Female	76.1125	80			

Contact with Homosexuals

Table 4 shows that a statistically significant difference was found between the attitudes of those who had contact with homosexuals and those who did not on attitudes towards homosexuality. It was observed that the group which had some kind of contact with the homosexuals had a more positive attitude ($M=79.25$) than the group which did not

have any contact with the homosexuals previously ($M=73.21$). Thus, these results were in line with H3 that 'those who have had more contact with homosexuals will have more positive attitude towards them compared to those with no contact with homosexuals.'

Table 4

t-test results comparing people with contact and no contact with homosexuals on attitudes towards homosexuality

Gender	M	N	df	t	P
People having no prior contact with homosexuals	73.2125	80	158	-3.89	0.000143
People having prior contact with homosexuals	79.25	80			

Discussion

The aim of the study was to analyze the effects of religion, gender, and contact with homosexuals on college going students' attitudes towards the homosexual community. A modified version of the Attitude towards homosexuality Scale for Indians (Ahuja, 2017) was used to measure the attitudes towards homosexuals. A higher score represented a more positive attitude while a lower score represented a more negative attitude towards homosexuals. The findings have been discussed with reference to each independent variable of interest: religion, gender and exposure to homosexuals.

Religion

After the analysis of the scores using ANOVA, it was found that though the average score for Hindus (77.33) was greater than for Christians and Muslims (71.73 and 72.97 respectively), the difference was not large enough for it to be statistically significant ($p > 0.05$), which highlights that all three groups had similar attitudes towards homosexuals. This result is contrary to many studies done in the past which show that Muslims and Christians tend to have a more conservative and negative attitude towards homosexuals compared to Hindus. For example, a study by Roggemans et al. (2015) in a religiously heterogeneous area of Flanders shows that Christian and Muslim believers have a more negative attitude towards homosexuality, even after controlling for authoritarianism and a more traditional view on gender roles.

There could be multiples reasons for the findings of the present study. One of them is the level of religiosity of the sample of students, i.e., how much they believe in and follow their religion. On the basis of the responses to the questions included in the demographic sheet (How often do you attend a place of worship or participate in religious/spiritual ceremony? How often do you practice or follow what your church, temple, synagogue, or mosque preaches or advises? How religious is your family?), it was clear that most of them were not very attached to their religion. Most of them responded "rarely" to how often they follow religious practices, and "sometimes" to how often they attend their place of worship and how religious their family is. Chadee, Joseph, Peters, Sankar, Nair, and Philip (2013) conducted a study on religiosity and attitude towards homosexuals, which showed that even in a multi religious environment, the highly religious were most likely to be intolerant of homosexuality.

The lack of religiosity in the current sample could be the reason why the results are more or less the same for all three religious groups. Since the attachment and loyalty towards one's religion is lesser in the students now-a-days, it dampens the effect religion has on attitude towards homosexuality.

Another important reason could be the level of education of the participants of the study. The sample consisted of students pursuing undergraduate courses from various prestigious institutes of India such as University of Delhi, Jamia Millia, Indian Institute of Technology. The exposure and experiences these students got being a part of these institutes could have played a role in dispelling the prejudice, negative attitudes and religious dogma they may have harbored against homosexuals. Ohlander, Batalova, and Treas (2005) too found that education has a liberalizing effect on attitudes towards homosexual relations. They pointed out two major reasons for why it may be so. First, educational may develop support of homosexual sex by teaching support of nonconformity and support for civil liberties. Second, it may promote greater cognitive sophistication and complex reasoning, thus enabling individuals to better evaluate new idea. The observation that higher education has liberalizing effects and leads to more open-minded, empathic, and tolerant individuals, was also found in another study by Lambert, Ventura, Hall, and Cluse-Tolar (2006). The results of their study suggested that among college students, higher education has a positive impact on attitude towards gays and lesbians.

Lastly, media and the prevailing societal conditions have a great impact on an individual's attitude towards any socially relevant issue. Very recently, on the 6th of September, 2018, Section 377 of the Indian Penal Code was scrapped off, thus decriminalization homosexual encounters in India. This created a liberal and positive environment in the country, with people speaking up in support of homosexuality all around. TV advertisements, radio shows, and social media websites were filled with articles voicing positive views about homosexuality. Homosexuals themselves found a greater voice and spoke up about their feelings and experiences. This could have had an impact on the youth in bringing about a more positive change in their attitudes through conformity, and bringing to the forefront various angles to the story of homosexuals. This is supported by

Ayoub and Garretson (2017), who showed that more liberal attitudes among younger people are related to the pervasiveness of a nation's mass media and to the presence of press freedom.

Gender

Males had a mean score of 72.725 while females had a mean score of 76.112 on AHSI (Ahuja, 2017). This suggests that females have a relatively more positive attitude towards homosexuals as compared to males, but t-test analysis showed that the results weren't significantly different ($p > 0.05$). Most past researches point out that females tend to be more tolerant of homosexuals as compared to males (Herek, 2002; Lim, 2002; Lehman and Thornwall, 2010), but a few, such as Sullivan (1997) show no gender differences in attitudes towards homosexuals.

One reason that has been suggested for the differences between males and females is that questions about homosexuality activate mainly value expressive, social-expressive, or experiential functions in women, while they activate considerations of sexuality, gender identity, and personal threat in men, which are likely to evoke a defensive function (Herek & Capitanio, 1999). The results obtained in the current study can be explained by the changing society that we live in, where the line between what's "masculine" and what's "feminine" is blurring, and the perceived differences between the genders in terms of emotional expression, sexuality, sensitivity, etc. is reducing, and both males and females are being increasingly seen to possess both the "hard" and "soft" characteristics. This may have led to the reduction in the stark differences in cognition in men and women that occur when they are asked a question about homosexuality, thus leading to more equitable attitudes in them towards homosexuals.

Other reasons for why no significant differences between male and females have been found may relate to the sample, design and the environmental context in which the study has been conducted. Some reasons cited for the abovementioned variable, i.e., religion, may also be used here. High level of education in prestigious institutions, changing societal conditions due to decriminalization and scrapping off of section 377, and media influence may have led to constructive changes in males' attitudes towards the positive.

The questionnaire was circulated through use of technology like e-mail and WhatsApp, and so only the students residing in well-developed cosmopolitan cities of the country could be targeted. This homogeneity in the population may also account for the lack of differences between males and females.

Contact with homosexuals

The third variable analyzed in the study, i.e., contact with homosexuals, yielded a significant difference using t-test to compare the two groups- the contact group (those who have

had close contact with homosexuals) and the non-contact group (those who have had no contact with homosexuals). The mean score of the contact group was 78.401, while that of the non-contact group was 73.928. The difference was significant, with $p < 0.05$.

These results are highly supported by previous research conducted on the same issue. Rampullo, Castiglione, Licciardello and Scolla (2013) found that cross-group friendship, in general, has a positive and significant impact on sexual prejudice and apprehension of contact with homosexuals, but not so when it implies sexual attraction. A study conducted in India by Sahni et al. (2016) showed that non-contact groups held a relatively more negative attitude towards homosexuals than the contact group. The contact hypothesis is used to explain why being in contact with a group leads to more positive attitudes towards its group members. Given by Allport in 1954, it states that under appropriate conditions, interpersonal contact is one of the most effective ways to reduce prejudice between minority and majority group members. It has been used to explain various inter-group phenomena such as racial attitudes (Ellison & Powers, 1994) and ethnic relations (Amir, 1969). The contact hypothesis also helps explain the attitudes of people towards the homosexual community. Herek and Capitanio (1996) showed that people who have more relationships, direct relationships, and receive more disclosure about another's homosexuality, have more positive views. This conclusion can also be found in the current study. Students who indicated that they know multiple individuals who are homosexuals generally got a higher score (mean score- 81.137) on the AHSI (Ahuja, 2017) compared to those who indicated that they only know one homosexual (mean score- 76.224).

Hence, it can be seen that contact with homosexuals is one of the most important and major factors that influences one's attitude towards homosexuals, and increasing contact with people of the homosexual community can help bring about a change in people's perceptions about them. The effect of gender and religion on attitudes towards homosexuality is decreasing among the younger educated youth, but contact with homosexuals continues to be a key element in determining our position and perspective with regard to this crucial issue.

Limitations and Directions for Future Research

The results of the study are less generalizable because the sample was small, collected through convenience sampling, and thus was unrepresentative. The sample selected was majorly from cosmopolitan cities and thus was not able to reach the attitudes of college going students from less developed cities. A modified version of Attitudes Towards Homosexuality Scale for Indians (Ahuja, 2017) was used, thus, the norms could not be used to find the polarity of attitudes. Therefore, the results of attitudes of different groups need further validation.

Further research may be suggested to explore the effects of socio-economic background on the attitudes towards homosexuality. Another area where research can be pursued is development of a scale which measures the comfort levels of proximity with homosexuals in young adults. Research must also be undertaken to explore the differences in attitudes towards homosexuality between various age-groups in India. A similar research can be undertaken understanding the effects of gender in attitudes towards homosexuals in Indian school students.

Conclusion

The study aimed at understanding attitudes of people towards homosexuality as affected by external factors like religion, gender and especially by contact or proximity of homosexual people. Previous researches (Rampullo et al., 2013) have strongly approved the finding that found that cross-group friendship, in general, had a positive and significant impact on sexual prejudice and apprehension of contact with homosexuals. The current study also found that the attitudes of the college going students who are in contact with homosexuals were more positive than those who had no contact. As a result of this study, it is hoped that proximity will be recognized as an important factor in formation of people's attitudes towards homosexuals. With the recent decriminalization of homosexuality in India, there has been a renewed space for debates on the topic. There is a need for research which looks into the factors that may cause the distinctions between peoples' attitudes.

References

- Ahuja, K. K. (2017). Development of Attitudes Toward Homosexuality Scale for Indians (AHSI). *Journal of Homosexuality*, 64, 1978-1992.
- Allport, G. W. (1954). *The nature of prejudice*. Cambridge, MA: Perseus Books
- American Psychological Association. (2015). Guidelines for Psychological Practice with Transgender and Gender Nonconforming People. *American Psychologist*, 70(9), 832-864.
- Amir, Y. (1969). Contact hypothesis in ethnic relations. *Psychological Bulletin*, 71(5), 319-342.
- Ayoub, P. M., & Garretson, J. (2017). Getting the Message Out: Media Context and Global Changes in Attitudes Toward Homosexuality. *Comparative Political Studies*, 50(8), 1055-1085.
- Chadee, D., Joseph, C., Peters, C., Sankar, V., Nair, N., & Philip, J. (2013). Religiosity, and Attitudes Towards Homosexuals in a Caribbean Environment. *Social and Economic Studies*, 62(1/2), 1-28.
- Ellison, C. G., & Powers, D. A. (1994). The contact hypothesis and racial attitudes among Black Americans. *Social Science Quarterly*, 75(2), 385-400.
- Finke, R., & Adamczyk, A. 2008. Explaining Morality: Using International Data to Reestablish the Macro/Micro Link. *Sociological Quarterly*, 49, 615-50.
- Herek, G. M., (2002). Sexual Prejudice and Gender: Do Heterosexuals' Attitudes Toward Lesbians and Gay Men Differ? *Journal of Social Issues*, 56(2), 251-266.
- Herek, G. M. (2010). Sexual Orientation Differences as Deficits: Science and Stigma in the History of American Psychology. *Perspectives on Psychological Science*, 5(6), 693-699.
- Herek, G. M., & Capitanio, J. P. (1996). "Some of my best friends": Intergroup contact, concealable stigma, and heterosexuals' attitudes toward gay men and lesbians. *Personality and Social Psychology Bulletin*, 22(4), 412-424.
- Kite, M. E., & Whitley, B. E. (1996). Sex Differences in Attitudes Toward Homosexual Persons, Behaviors, and Civil Rights A Meta-Analysis. *Personality and Social Psychology Bulletin*, 22(4), 336-353.
- Lambert, E. G., Ventura, L. A., Hall, D. E., & Tolar, T. (2006). College Students' Views on Gay and Lesbian Issues: Does Education Make a Difference? *Journal of Homosexuality*, 50(4), 1-30.
- Lehman, M. & Thornwall, M. (2010). College Student's Attitudes towards Homosexuality. *Journal of Student Research*, 118-137.
- Lim, Vivien. (2002). Gender Differences and Attitudes Towards Homosexuality. *Journal of Homosexuality*, 43, 85-97.
- Roggemans, L., Spruyt, B., Droogenbroeck, F. V., & Keppens, G. (2015). Religion and Negative Attitudes towards Homosexuals An Analysis of Urban Young People and their Attitudes towards Homosexuality. *Young*, 23(3), 254-276
- Sahni, S., Gupta, B., Nodiyal, K., & Pant, V. (2016). Attitude of Indian Youth towards Homosexuality. *The International Journal of Indian Psychology*, 4(1), 59-69.
- Sakalli, N., & Ugurlu, O. (2003). The Effects of Social Contact with a Lesbian Person on the Attitude Change Toward Homosexuality in Turkey. *Journal of Homosexuality*, 44(1), 111-119.
- Sinha, B. (September 7, 2018). 'I am what I am': SC's verdict on gay sex paves way for a more equal India. *The Hindustan Times*. Retrieved from <https://www.hindustantimes.com/india-news/supreme-court-strikes-down-section-377-as-it-violates-right-to-equality/story-09whedPdizUC2Ndf7S25I.html>
- Yuchtman-Yaar, E., & Alkalay, Y. (2007). Religious zones, economic development and modern value orientations: Individual versus contextual effects. *Social Science Research*, 36 (2), pp 789-807.