The Journal of

ANTHROPOLOGICAL DISCOURSE

VOL. 1
NO. 1

JULY, 2023

Department of Anthropology
Dr. Harisingh Gour Vishwavidyalaya
(A Central University)
Sagar, M.P., India

The Journal of Anthropological Discourse

Original Article, Review Article, Book Review, Short Communication and Short Report for publication in the Journal of Anthropological Discourse should be sent to the email address – anthropologicaldiscourse23@gmail.com

Email - anthropologicaldiscourse23@gmail.com

Phone : +91 7582297137

The Journal of Anthropological Discourse
Volume 1, Issue 1, 2023

Dear Readers,

With great pleasure and pride I present to you the inaugural issue of **The Journal of Anthropological Discourse**, published by the Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya (A Central University) at Sagar, Madhya Pradesh, India. As the Editor-in-Chief of this esteemed journal, I am delighted to witness the culmination of our collective efforts in bringing forth a platform that celebrates the diverse and intellectually stimulating world of Anthropology.

Anthropology, as a field, has always been at the forefront of understanding human evolution, biology, cultures, societies, and behaviors across time and space. It delves deep into the complexities of human existence, shedding light on the intricacies of our past, the dynamics of our present, and the potential trajectories of our future. As scholars and researchers, we are driven by the curiosity to explore the rich tapestry of human life and its interaction with the ever-changing world.

With The Journal of Anthropological Discourse, our goal is to create a space where innovative research, critical analysis, and insightful discussions can thrive. Our journal serves as a platform for anthropologists and social scientists from all over the world to contribute their original research, theoretical explorations, and methodological advancements. By promoting a diverse array of perspectives and approaches, we aim to foster a comprehensive understanding of human societies and cultures.

The Department of Anthropology at Dr. Harisingh Gour Vishwavidyalaya (A Central University) has a long-standing legacy of scholarly excellence, and this journal reflects the culmination of our institutional commitment to advancing anthropological knowledge. We are grateful for the unwavering support and dedication of our faculty members, researchers, editorial board, and reviewers who have contributed their expertise and time to maintain the highest standards of academic rigor and integrity.

In this first issue, you will find a range of thought-provoking articles encompassing various subfields of anthropology, including cultural anthropology, biological anthropology, linguistic anthropology, and applied anthropology. Each of these contributions embodies the spirit of rigorous inquiry, promoting intellectual discourse and offering novel insights into the complexities of the human experience.

As we embark on this journey together, we welcome submissions from anthropologists and interdisciplinary scholars worldwide. We encourage contributions that push the boundaries of conventional wisdom, embrace diversity, and embrace the spirit of intellectual curiosity.

Lastly, I extend my sincere gratitude to all the authors who have entrusted us with their valuable research and ideas, and to our readers who are integral to the dissemination of knowledge. It is our collective endeavor to contribute to the growth and enrichment of anthropological discourse, thus making a meaningful impact on the wider society.

Thank you for being a part of this momentous beginning. We hope you find The Journal of Anthropological Discourse to be an inspiring and intellectually enriching resource.

Prof. Rajesh K. Gautam
Editor-in-Chief
The Journal of Anthropological Discourse

About The Journal

The Journal of Anthropological Discourse is a double blinded peer reviewed journal. That publishes original articles, Review Article, Book Review, Short Communication and Short Report on current issues in the field of anthropology in particular and social science. All papers and articles are sent to reviewers for evaluation. The views expressed by author(s) or entirely and necessarily theirs, and not that of the editor. All communications concerning editorial matters such as, manuscript and illustration(s) for publications, and books for reviewing in the Journal of Anthropological Discourse should be addressed to the editor department of anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar, M.P., India, 47003 or at the e-mail address - anthropologicaldiscourse23@gmail.com

Aim & Scope

The Journal of Anthropological Discourse aims to publish high quality research to discover new knowledge relevant to humankind. It is a growing international platform for showcasing the new ideas and knowledge of budding enthusiasts. It holistically covers all the aspects of human lives from the beginning era of human evolution to the intricate modernity. This journal will enrich the global perspective and bring a positive impact on the society by highlighting the major breakthrough and widely connects the researchers, policymakers, media outlets and the wider public.

Type of manuscripts to be published

The journal accepts all the kinds of articles in well written and properly documented forms. Following types of manuscript will be accepted-

1. Original Article

The original article should contain new findings and provide significant knowledge. It should explain the novelty of the findings. The paper must be concise and well written with a word limit of 5000 to 7000.

The manuscript is structured into following sections

Abstract: abstract should not contain any undefined abbreviations and unspecified references. It should contain 150 to 250 words and medium English will only be accepted.

Keywords: 6-7 keywords required for indexing purposes.

Introduction: It should highlight the purpose of investigation and research gap.

Materials and Methods: It should include descriptive and clear information related to sampling procedures & design; sample characteristics; qualitative or quantitative description and hypothesis test if applied. Study area/lab based details should be broadly elaborated.

Result and Discussion: The provided data with tables, graphs, maps, figures or charts should be presentable and the outcomes of the study are clearly explained. The discussion of the findings must be well interpreted and significant with reference to the work by others.

Conclusion: Highlight the major, firm discoveries, and state what the added values of the main finding is, without literature references.

References: The journal strictly uses the APA style.

2. Review Article

Title: Title should justify the entire work and abbreviations and punctuation should be avoided.

Abstract: It should concisely introduce the main theme of the article. It should contain minimal specialist details, no references and no display items.

Introduction: Vital background information and significance of the study should be properly highlighted. Review of literature should be properly elaborated.

Main Body: Organize the literature according to common theme. Provide insight into the relation between your chosen topic and the wider subject area. Move from a general wider view of the literature being reviewed to the specific of your research.

Conclusion: Summarize the important aspects and evaluate the current state of the literature reviewed. Include a discussion of the implication of the latest work and possible future research directions.

References: The journal strictly uses the APA style.

3. Short Communication

- The paper should contain an abstract, main body and reference. It should contain no more than 6 figures or tables, combined.

- Word limit should be 4000 words and not sub-divided.
- The abstract is limited to 100 words and clearly justify the entire work.

A guide for estimating paper length as follows:

Estimate equivalent number of words for figure/tables/equation as:

- One column wide (7.5 cm) fig/table: 20 words per cm height
- Two column wide (15 cm) fig/tables: 40 words per cm height
- Equation: 20 words for each equation.

4. Short Report

Report should be written in sections with headings and sub-headings, which are usually numbered.

Title page: It should include the title, author name and the name of the organization. Logo of the organization should also be printed.

Acknowledgements: A list of contributors and organizations who have helped in the compilation of report and other related work should be mentioned.

Content Page: A clear well-formatted list of all the sections and sub-sections of the report. Page numbers should be marked correctly.

Abstract: A summary of major points, conclusions and recommendations should be written to give a general overview of report (200 words).

Introduction: Clearly explain the problem and show the reader why the report is being made.

Body: It should include-

- Review of literature
- Materials and Methods
- Results

Conclusion: It should draw out the implications of the findings, with deductions based on the facts described in the main body. The significance and relevance of study should be discussed in this section.

References: The journal strictly uses the APA style.

The contributors are encouraged to send their manuscript on email. Our preferred disk formats are MS Word only. Proffered fonts are Times New Roman and Font Size of title in 16-pt, heading and sub-heading in 14-pt and main body size in 12-pt in black color, bold and italic could be used where required. Abbreviations and punctuation should be avoided.

All tables should have a short title; and all cells must have an entry. All abbreviations should be defined. Schematics will be redrawn but all elements should be labeled; figures containing data such as graphs should be provided in PDF, jpg, jpeg format. Photographs should have a resolution of ≥300 dpi. Reference should be listed at the end and arranged according to APA Style.

The authors should confirm their responsibility for the following: ideas, study conception and design; data collection if done; analysis and interpretation of results and manuscript framing.

The title of the paper, author's name and affiliation, with mailing address should appear on the first page of the research article.

Statement about Ownership and other Particulars of the Journal

The Journal of Anthropological Discourse

Title of the Journal	The Journal of Anthropological Discourse
Publisher's Name	Department of Anthropology
Nationality	Indian
Address	Department of Anthropology, Sagar, M.P.
Place of Publication	Sagar, M.P.
Printer's Name	Department of Anthropology
Editor's Name	Department of Anthropology

The Journal of Anthropological Discourse

Volume 01 Number 1 (July 2022-June 2023)

CONTENTS

The Journal of Anthropological Discourse

Original Article

Body Composition and Limbs Asymmetry among Elite Indian male Boxers

Anurag Chaurasia[1*] , Yumnam Momo Singh[2], Sukhdeep Singh Kang[3]

[123]SAI NS NIS, Department of Sports Anthropometry, Patiala

Article Info

Received 29 December 2022
Revised 3 January 2023
Accepted 6 April 2023

Keyword

Fat mass, fat-free mass, limbs asymmetry, span-stature index

Abstract

Despite the worldwide popularity of boxing, research focussed on body composition and limb asymmetry among elite Indian male boxers is limited. The body composition and limbs asymmetric profile of light (LWB), middle (MWB) and heavyweight boxers (HWB) are presented. Body composition was analysed in 58 male boxers. The results were analysed using SPSS and one-way ANOVA and a post hoc test was used for analysis. LWB was found to have the least FM (fat mass) and FFM (fat-free mass), whereas HWB had the maximum FM and FFM. HWB was found taller and had more arm span and sitting height. MWB was found more symmetric as compared to LWB and HWB. and a longer span-stature index was also found in LWB.

Introduction

Boxing is physical combat and a non-symmetrical sport, which requires great coordination to score while avoiding the attacks of the opponent. The right and left sides can have a role of attack or defence according to the action punch performance can be seen as the ability to deliver a fast, strong attack while maintaining balance and accuracy and there are two standard boxing footwork; orthodox and southpaw; an orthodox stance means to stand with the left foot in the front and the right foot in the back. And southpaw stance means to stand with the right foot in the front and the left foot in the back hence, Symmetry in boxing plays a crucial role. Unilateral load is required in boxing, if one side of the body dominates over the other because of the requirement of movements, a different form of symmetry may appear due to tissue adaptation. The symmetry of limbs has also been linked with physical performance in sports (Manning & Pickup, 1998a, 1998b; Tomkinson et al., 2003a) This relationship may be the result of bilateral asymmetry that directly influences performance (i-e. functional) or

*Corresponding author email: chaurasiaanurag@gmail.com

asymmetry that signals inherent qualities that are linked to reduced performance (i.e. non-functional).In Boxing there is a need to seek some action to achieve the highest result, especially in elite-level boxers another factor like training method modification, body compartment plays an important role in physical performance(Petersen et al., 2006). Generally, the body composition of athletes is considered in terms of whole body composition, but research shows that regional fat mass and lean mass are equally important in training and performance as well (Bell et al., 2005). Many researchers proved that morphological bilateral asymmetry exists in sports (Alvarenga et al., 2019; Bezuglov et al., 2021; Maloney, 2019; Tomkinson et al., 2003b; Trivers et al., 2014; Vaisman et al., 2017).

The primary aim of this study was to identify and compare anthropometric, body composition, and morphological asymmetry parameters. and to explore the differences in asymmetry that exist in Indian elite male boxers.

Research Method

A sample of 58 elite Indian boxers who participated in the national camp at Patiala included in this study, having three different categories light (<60 kg), middle (61-74kg), and heavy (>75 kg).

Height was measured by Seca digital BMI machine (model 284) with a precision of 0.1 cm, sitting height was measured by a sitting height table (Holtain), arm span was measured using an Anthropometric rod, and fat mass, fat-free mass, skeletal muscle mass, segmental fat and lean mass, the waist-hip ratio was assessed using body composition analyser (Accuniq; BC 720) with the standard protocol (Smith & Norton, 2002). Descriptive statistics for the measured Anthropometric parameters and bilateral traits for each individual were calculated. Descriptive statistics for several derived anthropometric variables - body mass index and waist-hip ratio were also estimated. The body mass index (kg/m^2) was calculated by dividing the mass (kg) by the square of height (m).

Statistical analyses were performed using IBM SPSS v. 23.0 (SPSS, Chicago, USA). Data were expressed as mean and standard deviations of the mean (SD). Student's t-test for dependent samples was used to test, whether the mean values for the symmetric trait like fat and lean mass differed significantly when estimated using the right versus the left side. One-way analysis of variance (ANOVA) with a subsequent Bonferroni post hoc test (if a difference among the weight categories was revealed) was used to examine the difference in anthropometric and body composition parameters among the three weight categories. A significant level of 0.01 was adopted to assess the difference between the mean.

The differences between the right and left limbs were estimated by the right minus left (R-L) side, in some individuals may be biased by injury or technical factors such as measurement error. Therefore, scatter plots of right versus left side measurements for each trait were visually inspected for aberrant individuals in terms of asymmetry.

Result

The descriptive statistics of 58 male Boxers' basic anthropometric measurement were presented using mean, standard deviation, ANOVA and post hoc test keeping weight category as an independent variable and decimal age, Body weight, stature, body mass index, waist-hip ratio, sitting height, arm span, fat mass, fat-free mass and skeletal muscle mass as a dependent variable. The difference in an anthropometric variable and body composition among the different weight categories can be seen in table 1. MWB (24.22±2.48 years) are older than HWB (23.79±3.018 years) and LWB (23.18±2.57 years). The mean weight of LWB was 56.6±4.44 kgs, MWB was 69.8±3.00 kgs, and HWB was 84.94± 11.04. HWB was taller as compared to MWB and LWB and as height and weight both revealed significant differences ($F_{65.339}$ =59.70, < p 0.01, ηp^2 = 0.685 and $F_{100.011}$ =76.102, < p 0.01, ηp^2 = 0.735 respectively) BMI was also found a significant difference ($F_{66.313}$=54.952, < p 0.01, ηp^2 = 0.666). Bonferroni's post hoc test indicated a significant difference between all the three-weight categories for weight, height and BMI (p<0.01). Conversely, a significant difference in the waist-to-hip ratio between the LWB and HWB ($F_{5.503}$ =6.133, p=0.01, ηp^2 = 0.182) was found. We also found sitting height and arm span among all-weight category boxers' significant difference ($F_{62.593}$=56.802, p<0.01, ηp^2 = 0.674; $F_{42.138}$=39.212, p<0.01, ηp^2 = 0.588 respectively). Apart from that significant difference was also found for the fat mass and fat-free mass ($F_{24.486}$=21.786, p<0.01, ηp^2 = 0.442; $F_{42.856}$ =47.805 p<0.01, ηp^2 = 0.635 respectively) among all weight categories. Span stature index was estimated which was found largest among the LWB (105.03 ± 1.84) followed by MWB (104.69 ± 2.06) and HWB (104.40 ± 2.74), the visible difference was found, but no statistically significant difference was found among all weight categories.

Table 2 reveals the comparison of paired differences between limbs (right and left) standard deviation, and standard error of the mean difference. Fat mass and lean mass of the right limbs were found higher than left limbs for the majority of the segmental fat mad lean mass; except for arm fat mass of HWB where the left arm was dominant as compared to the right arm. And no difference was found for the leg fat mass of LWB. when the t-test was executed only a significant difference in arm lean and fat mass among LWB and all segmental

variables for HWB (< p 0.01) was reported. Conversely, no significant difference was found for MWB. HWB was found more asymmetric to their limbs as compared to LWB and MWB, this may be due to their heavy weight.

Table 1. Basic anthropometric parameters of the Elite Indian Boxers

Weight categories	Light Weight		Middle Weight		Heavy Weight		ANOVA		*Post-hoc*
N	20		14		24				
	Mean	SD	Mean	SD	Mean	SD	*F*	ηp^2	
Decimal Age (Years)	23.18	2.57	24.22	2.48	23.79	3.18	0.728	0.026	-
Weight (kg)	56.6	4.44	69.58	3	84.94	11.04	76.102	0.735	LW vs. MW, HW MW vs. LW, HW
Height (cm)	167.99	4.81	176.13	4.37	185.38	6.24	59.700	0.685	LW vs. MW, HW MW vs. LW, HW
BMI	20.06	1.39	22.44	0.91	25.18	2.11	54.952	0.666	LW vs. MW, HW MW vs. LW, HW
WHR	0.75	0.04	0.77	0.06	0.80	0.05	6.133	0.182	LW vs. HW
Sit. Ht. (cm)	85.98	2.34	90.06	2.25	94.65	3.25	56.802	0.674	LW vs. MW, HW MW vs. LW, HW
Arm Span (cm)	176.42	5.54	184.39	5.72	193.4	7.52	39.212	0.588	LW vs. MW, HW MW vs. LW, HW
Fat Mass (kg)	7.83	1.57	11.04	3.96	16.4	5.85	21.786	0.442	LW vs. MW, HW MW vs. LW, HW
FFM (kg)	48.78	4.51	56.46	10.15	70.78	7.87	47.805	0.635	LW vs. MW, HW MW vs. LW, HW
Span-stature index	105.03	1.84	104.69	2.06	104.40	2.74	0.27	0.001	-

Table 3 reveals the contribution of lean and fat mass of upper and lower limbs of the body, where we recorded a significant difference for the upper limbs lean mass (F76,411 =66,832 < p 0.01, ηp2 = 0.708) lower limbs lean mass (F71,142 =63,435 < p 0.01, ηp2 = 0.0.698) trunk fat (F31,651 =28,270 < p 0.01, ηp2 = 0.507) along with trunk lean mass (F83,781 =71.473 < p 0.01, ηp2 = 0.722). Although significant difference for

the upper (F12,343=11.054 < p 0.01, ηp2 = 0.287) and lower limbs fat mass (F18.093 =15.905 < p 0.01, ηp2 = 0.366) from HW vs. LW and HW vs. MW.

Table 2. Paired differences between the right and left limbs.

Weight categories (kg)		Right	Left	Paired Differences					t	df	Sig. (2-tailed)
				Mean	SD	SE Mean	95% Confidence Interval of the Difference				
							Lower	Upper			
Light Weight	**Arms lean mass**	2.61	2.57	0.046	0.041	0.009	.027	.066	5.079	19	0.000*
	Leg lean mass	7.32	7.34	0.017	0.039	0.009	-.035	.001	1.926		0.069
	Arms fat mass	0.26	0.27	0.011	0.015	0.003	-.018	-.003	3.123		0.006*
	Leg fat mass	1.31	1.31	0.007	0.030	0.007	-.020	.007	0.982		0.339
Middle Weight	**Arms lean mass**	3.31	3.30	0.009	0.189	0.051	-.100	.119	0.183	13	0.857
	Leg lean mass	8.86	8.84	0.025	0.063	0.017	-.011	.061	1.494		0.159
	Arms fat mass	0.45	0.44	0.009	0.074	0.020	-.034	.051	0.436		0.670
	Leg fat mass	1.65	1.59	0.061	0.135	0.036	-.017	.139	1.677		0.117
Heavy Weight	**Arms lean mass**	4.19	4.12	0.068	0.053	0.011	.045	.091	6.221	23	0.000*
	Leg lean mass	10.73	10.68	0.058	0.061	0.012	.032	.084	4.656		0.000*
	Arms fat mass	0.76	0.78	0.028	0.015	0.003	-.035	-.022	9.478		0.000*
	Leg fat mass	2.20	2.15	0.051	0.043	0.009	.033	.069	5.871		0.000*

**Significance level at 0.01*

Discussion

The present study was an endeavour to provide an overview of the body composition of an Indian Elite boxer. We found that LWB showed the least fat mass and HWB had the maximum. Different weight categories boxers exhibit differences in height, weight, BMI, sitting height, arm span, fat mass and fat-free mass which is in the agreement with previous studies (Davis et al., 2013) and findings are contradicting with studies (Khanna & Manna, 2006) which show that anthropometric parameters not increased with the weight categories. The result of this study shows that

there is a significant difference in the body composition parameters between the LWB, MWB and HWB because of different motor qualities, training programs and diet since boxing is a mixed aerobic and anaerobic sport. Furthermore, the finding of this study may be used for the selection of the boxers striving toward a high level of competition.

Table 3 Difference between the portions of upper and lower limb fat and lean Mass

Variables	Light Weight		Middle Weight		Heavy Weight		ANOVA		*Post hoc*
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	***F***	***ηp2***	
Upper limbs lean mass	5.19	0.68	6.60	0.68	8.30	1.13	66.832	0.708	LW vs. MW, HW MW vs. LW, HW
Upper limbs fat mass	0.54	0.28	0.88	0.66	1.54	0.96	11.054	0.287	HW vs. LW, MW
Lower limbs lean mass	14.66	1.44	17.70	1.65	21.41	2.50	63.435	0.698	LW vs. MW, HW MW vs. LW, HW
Lower limbs fat mass	2.62	0.36	3.24	0.91	4.35	1.40	15.905	0.366	HW vs. LW, MW
Trunk lean mass	21.95	1.83	25.93	1.77	30.96	3.23	71.473	0.722	LW vs. MW, HW MW vs. LW, HW
Trunk fat mass	4.05	0.85	6.07	2.11	9.20	3.07	28.270	0.507	LW vs. MW, HW MW vs. LW, HW

Recommendation: This study considered only the male age group between 18- 28. however, a similar line of study has been planned for females in the future.

Acknowledgement: We would like to thank athletes for participating and coaches for their corporation in this study

References

1. Alvarenga, B., Botelho, M., Lara, J., João, F., & Veloso, A. (2019). Preliminary Feasibility Study to Measure the Immediate Changes of Bilateral Asymmetry After Lumbar Spinal Manipulative Therapy in Asymptomatic Athletes. *Journal of Chiropractic Medicine*, 18(3), 205–212.
2. Bell, W., Evans, W. D., Cobner, D. M., & Eston, R. G. (2005). The regional placement of bone mineral mass, fat mass, and lean soft tissue mass in young adult Rugby Union players. *Ergonomics*, 48(11–14), 1462–1472.
3. Bezuglov, E., Khaitin, V., Lazarev, A., Brodskaia, A., Lyubushkina, A., Kubacheva, K., Waśkiewicz, Z., Petrov, A., & Maffulli, N. (2021). Asymptomatic Foot and Ankle Abnormalities in Elite Professional Soccer Players. *Orthopaedic Journal of Sports Medicine*, 9(1).
4. Davis, P., Wittekind, A., & Beneke, R. (2013). Amateur boxing: Activity profile of winners and losers. *International Journal of Sports Physiology and Performance*, 8(1), 84–91.
5. Khanna, G. L., & Manna, I. (2006). Study of physiological profile of Indian boxers. *Journal of Sports Science and Medicine*, 5(CSSI-1), 90–98.
6. Maloney, S. J. (2019). The Relationship Between Asymmetry and Athletic Performance: A Critical Review. *Journal of Strength and Conditioning Research*, 33(9), 2579–2593.
7. Manning, J. T., & Pickup, L. J. (1998a). Symmetry and performance in middle distance runners. *International Journal of Sports Medicine*, 19(3), 205–209.
8. Petersen, H. L., Peterson, C. T., Reddy, M. B., Hanson, K. B., Swain, J. H., Sharp, R. L., & Alekel, D. L. (2006). Body composition, dietary intake, and iron status of female collegiate swimmers and divers. *International Journal of Sport Nutrition and Exercise Metabolism*, 16(3), 281–295.
9. Smith, S., & Norton, L. (2002). Kinanthropometry and exercise physiology laboratory manual: tests, procedures and data (2nd Edition). *In Applied Ergonomics* (Vol. 33, Issue 4).
10. Tomkinson, G. R., Popović, N., & Martin, M. (2003a). Bilateral symmetry and the competitive standard attained in elite and sub-elite sport. *Journal of Sports Sciences*, 21(3), 201–211.

11. Trivers, R., Fink, B., Russell, M., McCarty, K., James, B., & Palestis, B. G. (2014). Lower body symmetry and running performance in elite Jamaican track and field athletes. *PLoS ONE*, 9(11).
12. Vaisman, A., Guiloff, R., Rojas, J., Delgado, I., Figueroa, D., & Calvo, R. (2017). Lower Limb Symmetry: Comparison of Muscular Power Between Dominant and Nondominant Legs in Healthy Young Adults Associated with Single-Leg-Dominant Sports. *Orthopaedic Journal of Sports Medicine*, 5(12).

The Journal of Anthropological Discourse

Original Article

Assessment of Nutritional Status among Sonowal Kachari pre-school children of North Lakhimpur district of Assam

Nitamoni Bharali[1*] & Nitish Mondal[2]

[1]*Research Scholar, Department of Anthropology, Assam University (Diphu Campus), Karbi Anglong-782462, Assam, India. Email: <nmbharali@gmail.com>*

[2]*Assistant Professor, Associate Professor, Department of Anthropology, Sikkim University, Gangtok -737102, Sikkim, India. E-mail: nitishanth@gmail.com*

Article Info

Received 14 December 2022
Revised 3 February 2023
Accepted 6 March 2023

Keyword

Anthropometry; Double burden, Malnutrition, Thinness, Body Mass Index, Overweight, Obesity, Children

Abstract

Many developing countries now are facing the problem of double burden of malnutrition, defined as the coexistence of undernutrition and overweight/obesity within the same household/population. Malnutrition among under-five children is an important public health problem causes premature morbidity and mortality in developing countries including India. ***Objectives:*** *The present investigation assesses the prevalence of thinness and at risk of overweight, overweight and obesity among tribal pre-school children (<5 years) of Assam, Northeast, India.* ***Material and Methods:*** *This cross-sectional investigation was conducted among 360 (170 boy and 190 girls) Sonowal Kachari tribal pre-school children aged <5 years of North Lakhimpur district of Assam, India. Anthropometric measurements of length/height and weight were recorded using standard procedures and age-sex specific BMI-for-agez-score (BMIAZ) were calculated using WHO Anthro Software. A child found to be <–2.00 BMIAZ was classified as thinness and BMIAZ >+1.00, >+2.00, >+3.00 are used to define at risk of overweight, overweight and obese, respectively.* ***Results:*** *The overall prevalence of thinness, risk of overweight, overweight, and obese were found to be 11.66%, 12.22%, 6.66% and 3.00%, respectively. However, sex-specific prevalence was found7.05%, 10.58%, 8.23% and 1.76% (in boys) and 23.07, 11.57%, 5.26% and 4.21% (in girls).* ***Conclusion:*** *This investigation confirms a coexistence of under- and over-nutrition among the Sonowal Kachari population. There is a need for an urgent target-specific intervention program for improvements of nutritional status, contributing to reduce the burden of child undernutrition and planned strategies to overcome the double risk factor of overweight and obesity in the population.*

*Corresponding author email: nmbharali@gmail.com

Introduction

Many developing countries are now facing the nutritional problem of the double burden of malnutrition (DBM) which is defined as the coexistence of both undernutrition and overnutrition (e.g., overweight/obesity) within the same individual/household/community (Kennedy et al., 2006; Ravishankar, 2012; Ene-Obong et al., 2012; Mondal et al., 2015; Kulkarni et al., 2017; Yang et al., 2019). Several researchers have reported that this phenomenon within the same country and/or population (Sengupta et al., 2014; Mondal et al., 2015; Kulkarni et al., 2017). The research findings of these investigations have highlighted the importance of considering the co-existence of undernutrition and overweight/obesity when implementing any nutrition intervention and treatment programmes in the population (e.g., Mondal et al., 2015; Sahoo et al., 2015; Ranjani et al., 2016). India is known for the existence of a high prevalence of undernourishment (Pathak and Shing, 2011; Bhutta et al. 2017; Kulkarni et al., 2017), but a significant proportion of the population is now suffering from the overweight-obesity and DBM both in children and adult population (Subramanian et al., 2009; Sengupta et al., 2014; Mondal et al., 2015; Kulkarni et al., 2017; Varghese and Stein, 2019).

The anthropometry is a single most used non-invasive, inexpensive and easy-to-use technique to assess the physical growth and nutritional status assessment utilise in epidemiological, clinical and field investigations (WHO, 1995, 2007; Hall et al., 2007). The high prevalence of undernutrition is considered being the major cause of morbidity and mortality in Indian children (Nandy et al., 2005; Mondal, 2014; Mondal et al., 2015; Bhutta et al., 2017). The prevalence of undernutrition and over-nutrition (Ranjani et al., 2016; Bhutta et al., 2017; Kunwar et al., 2018) among under-five children is an important public health problem in developing countries including India. The prevalence of non-communicable disease risk factor collaboration reported that today one in three persons are suffering from at least one form of malnutrition: wasting, stunting, thinness, vitamin and mineral deficiency, overweight or obesity and diet-related disorders (Development Initiatives, 2018). Therefore, the identification of overall magnitude of DBM is considered being the important concern to reflect the nutritional problem (e.g., non-communicable diseases) because it's showing the negative sides of energy balance and increase the economic burden in the individual/population. Therefore, the aim and objective of the present research investigation is to assess the prevalence of DBM of thinness, overweight and obesity among Sonowal Kachari pre-school (< 5 years) children of Assam, Northeast India.

Research Method

The present research investigation was carried out among the Sonowal Kachari an indigenous Assamese community of Assam North East, India which belongs to Tibeto-Mongoloid population and Tibeto Burman linguistic group (Das et al., 2008). The Sonowal Kachariis an endogamous group of Kachari tribe practiced gold washing and agriculture as their traditional occupation in Assam. This community-based cross-sectional investigation was carried out among 360 (170boys; 190 girls) tribal pre-school children (<5 years) of Lakhimpur district of Assam, Northeast India. Sonowal Kacharies is mainly situated in districts of North Assam, India. The Sonowal Kacharies are one of the sub-groups of the great Kachari groups of Assam. The studied area is Lakhimpur District of North Assam and its total area covered 2,277 km² and having a population of 1,042,137 (Male- 512,463, Female-529,674) and Literacy Rate of 77.20% (Male- 83.52%, Female- 70.62%). A total of seven Sonowal Kachari dominated villages situated near the river Subansiri of Lakhimpur, Assam Northeast India were covered during the present investigation. The households of those individuals belonging to the Sonowal Kachari population were identified based on the surnames and cultural features. The ethnicity of the children was verified from official documents issued by the government. Each informant (e.g., parents or guardians) and subject was interviewed for the collection of data and children belonging to age group of 0-5years were measured in the respective household. Permission to conduct the research was taken from the village headmen and informed consent was obtained from the parents before conducting this investigation. This research investigation was conducted in accordance with the ethical guidelines for human experimental research as laid down in the Helsinki Declaration (Portaluppi et al., 2010).

Assessment of nutritional Status

Anthropometric measurements of weight and length/height were taken using the standard anthropometric procedures (Hall et al., 2007). The age-sex specific Body Mass Index (BMI=weight/height^2, kg/m^2) was calculated. The age-sex specific z-score value of BMI-for-age (BMIAZ) was calculated by using WHO-Anthro (v3.2.2). A child having the BMIAZ value <−2.00is categorised as thinness and BMIAZ value between +1.00to +2.00were categorized as at risk of overweight, BMIAZ value between+2SD to +3.00 were categorized overweight and BMIAZ more than+3SD were categorized as obese (WHO, 2007; Anderson et al., 2017). The statistical analysis was done using the Statistical Package for Social Sciences (SPSS) for Windows (Version 16.0). The anthropometric variable was depicted in descriptive statistics

(mean± standard deviation) and age-sex specific mean differences were done using one-way analysis of variance (ANOVA). The chi-square (χ^2) analysis was done to assess the age-sex specific prevalence in different nutritional categories. A p-value of <0.05 and <0.01were considered to be statistically significant.

Result

Age-sex specific subject distribution, descriptive statistics and prevalence of thinness, overweight and obesity among Sonowal Kachari preschool children is presented in Table 1. The age-sex specific overall mean BMI z-score value was observed to be higher among boys than the girls (−0.06 vs. −0.29; p>0.05). The result of age-sex specific mean BMI-for-age z-score were found to be greater among the age group of 1year,3 years and 4years(in boys),whereas it was found to be higher in 2 years and 5 years (in girls).The age-specific mean BMIAZ in boys ranged from −0.76±1.42(in 2 years) to 0.82±1.52(in1 year) and ranged from -0.54±2.16 (in 2years) to0.13±1.16 (in 5 years) in girls. The age specific mean differences were found to be statistically significant in boys (F=2.56, df=4, 169, p<0.05) and in girls (F=3.299, df=4, 189, p<0.05) using ANOVA. However, the sex-specific mean differences were found to be statistically not significant among boys and girls (F=1.624, df=1, 359, p>0.05). The overall prevalence of thinness, risk of overweight, overweight, and obese were found to be 11.66%, 12.22%, 6.66% and 3.00%. The sex-specific prevalence of thinness (23.07% vs. 7.05%), at risk of overweight (11.57% vs. 10.58%) and obese (4.21% vs. 1.76%) was observed to be higher among girls than among boys, except in overweight category (5.26% vs. 8.23%). Using chi-square analysis, the sex-specific difference in overall prevalence of thinness was observed to be statistically significant (χ^2=5.281; p<0.05) but not significant in at risk overweight, overweight and obesity groups (p>0.05). However, the age-specific differences were found to be statistically significant in 1 year (χ^2=4.573; p<0.05) (in thinness) and 3 years (χ^2=4.603; p<0.05) (Table 1).

Table 1: Age-sex specific subject distribution, descriptive statistics (mean ±SD) and prevalence of thinness, overweight and obesity among SonowalKachari preschool children of North Lakhimpur district of Assam

Age group	N		BMIAZ		Thinness (<-2SD)			At risk overweight (<+1SD to +2SD)			Overweight (> +2SD)			Obesity (>+3SD)		
	Boys	Girls	Boys	Girls	Boys	Girls	χ^2	Boys	Girls	χ^2	Boys	Girls	χ^2	Boys	Girls	χ^2
1 year	37 (21.76)	46 (24.21)	0.82 ±1.52	-0.03 ±2.30	2 (5.40)	12 (26.08)	4.573*	4 (10.81)	10 (21.73)	1.258	5 (13.51)	4 (8.69)	0.394	0 (0.00)	4 (8.69)	3.103
2 years	36 (21.17)	41 (21.57)	-0.76 ±1.42	-0.54 ±2.16	6 (16.66)	13 (31.70)	1.426	2 (5.55)	4 (9.75)	0.404	3 (8.33)	4 (11.11)	0.039	0 (0.00)	2 (9.52)	1.718
3 years	24 (14.11)	30 (15.78)	0.46 ±2.63	-1.19 ±0.72	2 (8.33)	3 (10.0)	0.037	1 (4.16)	0 (0.00)	1.222	4 (16.66)	0 (0.00)	4.603*	2 (8.33)	0 (0.00)	2.393
4 years	21 (12.35)	27 (14.21)	0.10 ±1.70	-0.08 ±1.47	0 (0.00)	0 (0.00)	25.5	2 (9.52)	0 (0.00)	2.446	0 (0.00)	2 (9.52)	1.509	1 (4.16)	2 (9.52)	0.125
5 years	52 (30.58)	46 (24.21)	-0.06 ±1.15	0.13 ±1.16	2 (8.33)	2 (4.34)	0.014	9 (17.30)	12 (26.08)	0.721	2 (3.84)	0 (0.00)	1.738	0 (0.00)	0 (0.00)	49.73
Total	170 (47.22)	190 (52.77)	-0.06 ±1.65	-0.29 ±1.77	12 (7.05)	30 (23.07	5.281*	18 (10.58)	22 (11.57)	0.071	14 (8.23)	10 (5.88)	1.113	3 (1.76)	8 (4.21)	1.707

Values are in parenthesis indicate percentage; *p<0.05

Discussion

The present research investigation is the first to directly compare the magnitude of thinness and at risk of overweight, overweight and obesity to determine the DBM among Sonowal Kachari tribal pre-school children (<5 years) of Assam, Northeast India. The results of the present investigation showed that overall malnutrition is high in children belonging to<5 years. The four different categories of malnutrition include preschool children in the category of at risk of overweight, overweight, and obese as 12.22%, 6.66% and 3.00%, respectively whereas the prevalence of thinness (low BMI-for-age) was found to be as low as 11.66% (Table 1). The prevalence of overweight (including at risk of overweight, obesity) in the present investigation was found quite high compared to global average reported by de Onis et al., (2010). Accordingly, overweight including obesity globally was 8.50% in Africa, 4.90% in Asia and 6.90% in America in 2010 and it is slightly getting higher yearly. This is lower than that reported by Anderson et al. (2017) in Toronto, Canada as 13.8% in the category of at risk of overweight3.40% (in overweight) and 1.00 % (in obese) categories. Whereas, the prevalence of overweight-obesity (i.e., 9.66%) was also found to be significantly lower in present investigation than earlier reported studies in Indian (19.3%) (Ranjani et al., 2016) and Northeast Indian (overweight-10.98%, obese-14.19%) (Kunwar et al., 2018).The prevalence of thinness was found to be lower than that reported in Nigeria as 15.5% (Ene-Obong et al. (2012)and in North-East India as 49.10% (Mondal, 2014).It has been noted that thinness prevalence was less frequent than overweight including obesity and at risk of overweight among Sonowal Kachari pre-school children(Table1). It seems that the prevalence of thinness is already, exiting nutritional issue; however, the prevalence of overweight and obesity are getting introduced as a new trend of health or nutritional misfortune in preschool children. The prevalence of overweight and obesity in the present Sonowal Kachari tribal population could be attributed to higher socio-economic background (Sengupta et al., 2014; Ranjani et al.,2016; Mondal et al.,2015), changing dietary habits (Sahoo et al.,2015; Chudasama et al.,2017) and genetic factors (Anderson and Butcher, 2006).

Conclusion

The findings of the present investigation, however, are important for the effective implementation of any public health programme (e.g., maternal and child health programme or nutritional intervention programme). The assessment of nutritional status (e.g., DBM) will have potential to enhance the efficacy of the various ongoing nutritional intervention

programmes. The results indicate the existence of DBM (e. g., thinness and overweight-obesity) among Sonowal Kachari tribal preschool children. The implementation of appropriate nutritional intervention programs in order to maintain the nutritional status by declining in undernutrition(thinness) by proper food and nutrient intake and improve in health condition and overweight/obesity by controlled food habits, maintain balanced diet intake and lifestyle to reduce the relative mortality and morbidities (i.e., non-communicable diseases).

Acknowledgement: Authors acknowledged the help and co-operation of the people of the study area, parents of all the subjects, local level community leaders and village headman during the fieldwork. The extended help and co-operation of the Department of Anthropology, Assam University (Diphu Campus) is also acknowledged.

References

1. Anderson, L. N., Carsley, S., Lebovic, G., Borkhoff, C., Maguire, J. L., Parkin, P.C., Birken, C. S. (2017). Misclassification of child body mass index from cut-points defined by rounded percentiles instead of Z-scores. *BMC Res Notes,* 10, 639. doi 10.1186/s13104-017-2983-0.
2. Anderson, P. M., Butcher, K. E. (2006). Childhood obesity: Trends and potential causes. *Future Child,* 16, 19–45.
3. Bhutta, Z. A., Berkley, J. A., Bandsma, R. H. J., Kerac, M., Trehan, I., Briend, A. (2017). Severe childhood malnutrition. *Nat Rev Dis Primers,* 3, 17067. doi: 10.1038/nrdp.2017.67.
4. Chudasama, R. K., Eshwar, T., Thakrar, D., Eshwar, S.T. (2017). Prevalence and comparison of obesity, overweight, and thinness by different growth standards among affluent school children (8–18 years) in Rajkot. *J Mahatma Gandhi Inst Med Sci,* 22, 99-104.
5. Das, F. A., Barua I., Das, D. D. (2008). Ethno-Medicinal Practices: A Case Study among the Sonowal Kacharis of Dibrugarh, Assam. *Ethno-Med,* 2, 33-37.
6. De Onis, M., Blo¨ssner, M., Borghi, E. (2010). Global prevalence and trends of overweight and obesity among preschool children. *Am J Clin Nutr,* 92, 1257–1264.
7. Ene-Obong, H., Ibeanu, V., Onuoha, N., Ejekwu, A. (2012). Prevalence of overweight, obesity, and thinness among urban school-aged children and adolescents in southern Nigeria. *Food Nutr Bull,* 33, 242-250. doi:10.1177/156482651203300404.

8. Development Initiatives. (2018). Global Nutritional Report: Shining a light to spur action on nutrition. *Bristol, UK: Dev Initiatives Poverty Res Ltd.*
9. Hall, J. G., Allanson, J. E., Gripp, K. W., Slavotinek, A. M. (2007). Handbook of Physical Measurements. Oxford, UK, Oxford University Press.
10. Kennedy, G., Nantel, G., Shetty, P. (2006). Assessment of the double burden of malnutrition in six case study countries. In: The double burden of malnutrition. Food and Nutrition Paper 84. Rome, Italy. *Food Agric Organ United Nations,* 84, 1–18.
11. Kulkarni, V. S., Kulkarni, V. S., Gaiha, R. (2017). Double Burden of Malnutrition: Re-examining the Coexistence of Undernutrition and Overweight among Women in India. *International J Health Services,* 47, 108–133. doi:10.1177/0020731416664666.
12. Kunwar, R., Minhas, S., Mangla, V. (2018). Is obesity a problem among school children? *Indian J Public Health,* 62, 153-155.
13. Mondal, N., Basumatary, B., Kropi, J., Kaushik, Bose. (2015). Prevalence of double burden of malnutrition among urban school going Bodo children aged 5-11 years of Assam, Northeast India. *Epidemiol Biostat Public Health,* 12 (4). doi: 10.2427/11497.
14. Mondal, N. (2014). Thinness as Major Underlying Problem among Adolescents of Northeast India. *J Nepal Paediatr Soc,* 34, 39-47. doi: http://dx.doi.org/10.3126/jnps.v34i1.8922.
15. Nandy, S., Irving, M., Gordon, D., Subramanian, S. V., Smith, G. D. (2005). Poverty, child undernutrition and morbidity: new evidence from India. *Bull World Health Organ,* 3, 210-216.
16. Pathak, P. K., Singh, A. (2011). Trends in malnutrition among children in India: Growing inequalities across different economic groups. *Soc Sci Med,* 73, 576-585. doi.org/10.1016/j.socscimed.2011.06.024.
17. Portaluppi, F., Smolensky, M. H., Touitou, Y. (2010). Ethics and methods for biological rhythm research on animals and human beings. *Chronobiol Int,* 27, 1911-1929. doi: 10.3109/07420528.2010.516381.
18. Ranjani, H., Mehreen, T. S., Pradeepa, R., Anjana, R. M., Garg, R., Anand, K. (2016). Epidemiology of childhood overweight and obesity in India: A systematic review. *Indian J Med Res,* 143, 160-174.
19. Ravishankar, A. K. (2012). Is India Shouldering a Double Burden of Malnutrition? *J Health Manag,* 14, 313–328. doi.org/10.1177/0972063412457513.

20. Sahoo, K., Sahoo, B., Choudhury, A., Sofi, N. Y., Kumar, R., Bhadoria, A. S. (2015). Childhood obesity: causes and consequences. *J Family Med Prim Care,* 4, 187–192. doi: 10.4103/2249-4863.154628.
21. Sengupta, A., Angeli, F., Syamala, T. S., Van Schayck, C. P., Dagnelie, P. (2014). State-wise dynamics of the double burden of malnutrition among 15-49 year-old women in India: how much does the scenario change considering Asian population-specific BMI cut-off values? *Ecol Food Nutr,* 53, 618-638. doi: 10.1080/03670244.2014.891994.
22. Subramanian, S. V., Perkins, J. M., Khan, K. T. (2009). Do burdens of underweight and overweight coexist among lower socioeconomic groups in India? *Am J Clin Nutr,* 90, 369-376. doi: 10.3945/ajcn.2009.27487.
23. Varghese, J. S., Stein, A. D. (2019). Malnutrition among women and children in India: limited evidence of clustering of underweight, anemia, overweight, and stunting within individuals and households at both state and district levels. *Am J Clin Nutr,* 109, 1207–1215. doi: 10.1093/ajcn/nqy374.
24. World Health Organization. (1995). Physical status: The use and interpretation of Anthropometry. Report of a WHO expert committee. World Health Organization Geneva.
25. World Health Organization. (2007). Growth reference data for 5-19 years. Accessed on 10th Feb, 2010, http://www.who.int/growthref/en/.
26. Yang, L., Bovet, P., Ma, C., Zhao, M., Liang, Y., Xi, B. (2019). Prevalence of underweight and overweight among young adolescents aged 12–15 years in 58 low-income and middle-income countries. *Pediatr Obes* 14, e12468. doi: 10.1111/ijpo.12468.

The Journal of Anthropological Discourse

Original Article

Nehru's 'Scientific Temper' and its Socio-Cultural Relevance in the 21st Century

Shweta Amrawanshi[1] and Poonam Ahirwar[2]

[1]*Shweta Amrawanshi, Assistant Professor, Government Law College Seoni*
[2]*Dr. Poonam Ahirwar, Assistant Professor, Government P.G. College, Seoni*

Article Info

Received 12 November 2022
Revised 10 January 2023
Accepted 20 March 2023

Abstract

The concept of 'scientific temper was articulated by Pandit Jawahar Lal Nehru in 1946. Little do we know about what it really means and in what context it was developed in Indian history and culture. Nehru's vision of scientific temper should be seen in the context of his understanding of science and religion for a better appreciation. Most people have understood it wrong in today's world, the reason being, the tendency of society to submit to every belief and viewpoint without integrating it to rational thinking, without testing its feasibility or its relevance in the changing times. Educating the young may have a positive impact on the development of scientific temperament in society. In this paper the authors would investigate 1) what is meant by 'scientific temper' 2) Nehru's approach of scientific temper and its relevance in today's time 3) Scientific temper in India: Indigenous Philosophy or Western Import? 4) scientific temper as enshrined under the Constitution of India 5) scientific temper for development of the nation: Inculcating Rational Thought Among Children.

Introduction

Jawaharlal Nehru coined the term 'scientific temper'; he defines it as an attitude of logical and rational thinking. An individual is considered to have a scientific temper if she employs the scientific method when making decisions. Science and technology as we know them became popular in India in the mid-20th century, precipitating socio-economic changes in turn. Researchers and philosophers had anticipated these changes during the independence struggle. Nehru had said: India must break with much of her past and not allow it to dominate the present. Our lives are encumbered with the deadwood of this past, all that is dead and has served its purpose has to go. But it does not mean a break with, or a forgetting of, the vital and life-giving in that past.

We can never forget the ideals that have moved our race, the dreams of the Indian people through the ages., the wisdom of the ancients, the buoyant energy and love of life and nature of our forefathers, their spirit of curiosity and mental adventure. … There is in fact essential incompatibility of all dogmas with science. Scientific temper cannot be nurtured by ignoring the fact that there are major differences between the scientific attitude and the theological and metaphysical attitude.

Eminent scientists like C.V. Raman, Satyendra Nath Bose, Meghnad Saha, and others were also at the frontline of this social revolution. In those days, the Indian Science Congress was an excellent platform for dialogues between the political and the scientific classes, both of which believed that science and its application could affect economic advancement as well as in the national social outlook.

The science-policy resolution that Parliament passed in 1958 reflected these sentiments. In 1976, the Government of India reemphasized its commitment to cultivating scientific temper through a constitutional amendment (Article 51A) and set up a nodal agency called the National Council of Science and Technology Communication (NCSTC). But despite these efforts, scientific temper did not permeate through society and didn't much alter the national psyche.

Scientific Temper vis-à-vis Secularism

There is a deep relationship between scientific temper and the idea of secularism, another celebrated facet of our Constitution. The practice of secularism derives strength and support from the ideas of science while science can best motivate change in a society that appreciates secularism. So, the role of scientific temper cannot be overemphasized in a tradition-bound country like India, where dogma and superstitions rule the roost.

Today, religious extremists question the relevance of science as a force that guides our spirit and culture. In the late 1990s, Murli Manohar Joshi, the then minister of human resources, sought to have astrology taught in universities as a branch of science. More recently, since 2014, the government has supported the idea that ancient Hindus achieved many feats that Western scientists are achieving only today, especially in physics and medicine.

Even today, there are people discussing scientific theories purportedly secreted in the Bhagavad Gita and how they outstrip general relativity and quantum mechanics in their ability to faithfully describe nature. Political leaders dispute the theory of evolution and declare cow urine can cure cancer. Even others have advanced a majoritarian lie that the Vedic civilization originated in India.

Many of the world's cultures were born when humans had little exact knowledge of the natural world and looked to religious doctrine for answers. The advent of modern science knocked back against this tendency. The progress of science is punctuated by conflicts with religious beliefs. Galileo Galilei's support for heliocentrism was controversial during his lifetime as well as for him personally. In 1615, the Roman Inquisition concluded heliocentrism "explicitly contradicts in many places the sense of Holy Scripture." After Galileo reasserted his views, the inquisition forced him to recant and spend the rest of his life in house arrest.

Religion and scientific consciousness are two parallel streams. They don't converge. As religious beliefs can't be tested or challenged through experiments, it is difficult to explore the religious texts that motivate these beliefs using the methods of reason.

Nehru's Scientific Temper

The In many parts of the world, the raging Covid-19 pandemic has created a new collaborative urgency to manage disease control: scientists have been working with social scientists, public health officials, and politicians. Of course, the idea of inculcating "scientific temper" is not new. In 1946, Jawaharlal Nehru invoked the "temper of science" almost as a meta concept – in the realm beyond reason and the application of science. "There appears to be a definite stopping place beyond which reason ... cannot go," he wrote in Discovery of India. "Realising these limitations of reason and the scientific method, we have still to hold on to them with all our strength." In this he suggested that scientific temper is the attitude to:

a) search for new bodies of knowledge,
b) not to accept anything without a proof or a test,
c) could change one's stand in light of new evidence and
d) not to rely on pre -conceived notions in lieu of observational evidence.

Nehru elaborated: "The applications of science are inevitable and unavoidable...But something more than its application is necessary. It is the scientific approach, the adventurous yet critical temper of science, the search for truth and new knowledge, the refusal to accept anything without testing and trial, the capacity to change previous conclusions in the face of new evidence, the reliance on observed fact and not pre-conceived theory...[This] should be, a way of life, a process of thinking, a method of acting and associating with our fellowmen...It is the temper of a free man. We live in the scientific age, so we are told, but there is little evidence of this temper in the people anywhere or even in their leaders." However, the term scientific temper has tended to be used in a limited sense, as being able to think rationally and scientifically or to not subscribe to pseudoscience or superstition. Its relationship with

humanism is not fully explored. Nehru's humanistic search was grounded in trying to understand the purposes of life and being informed by the limitations of science, in the destruction wreaked by war or the exploitation of nature. He reflected on how philosophy and science both used reason and logic, but in different ways. Philosophy encouraged inquiry and concentrated on questions of ultimate purposes of life, but from its "ivory towers of the mind," it failed to connect with fact and life's everyday problems. On the other hand, "science ignored the ultimate purposes and looked at fact alone." Nehru explained: "There was no knowledge of ultimate purposes and not even an understanding of the immediate purpose, for science has told us nothing about any purpose in life. Nor did man, so powerful in his control of nature, have the power to control himself, and the monster he had created ran amok. Perhaps new developments in biology, psychology and similar sciences... may help man to understand and control himself... [or else] man may destroy the civilisation he has built."

Scientific Temper in India: Indigenous Philosophy or Western Import?

The Science is based on experiments. But who invented the experimental method? Most Western histories attribute it to Francis Bacon in the 17th century. Bacon occupied many high positions in Britain but none of them involved any scientific activities, and Bacon performed no memorable scientific experiment. However, 2,000 years before Bacon, a little-known Indian man called Payasi did perform a series of memorable scientific experiments. We learn this from an impeccable source: the Payasi sutta of the Digha Nikaya, or the Long Discourses (of the Buddha). The sutta recounts a dialogue between King Payasi, a skeptic, and Kumar Kassapa, a young Buddhist monk. As Kassapa was passing through Payasi's kingdom, Payasi sent word requesting him to tarry a while. Payasi doubted the belief in rewards and punishments in an after-life. He wanted to debate these issues with Kassapa, who agreed. Payasi recounted a comprehensive series of experiments he had performed to test the theory of an afterlife. Payasi knew many people who had lived bad lives – killing, stealing, lying – and approached them on their deathbed with a proposition. If, after death, they went to a place full of woe (hell), then they should come and tell him, or send a message. They agreed, but none of the dead ever returned. Payasi repeated the experiment with 'good people, with the same result, the dead never returned. Payasi went on to wonder, why these good men for whom the rewards of heaven await, did not kill themselves right away. In contrast, Francis Bacon, or his contemporaries, never once dared raise such empirical questions about church beliefs in heaven and hell. One may object, that Payasi designed the wrong experiments, which refuted only a popular-level notion of the soul. But the immediate question is about the origin of the experimental method.

Clear proof of the experimental method is found in India, from 2,000 years before Bacon, but never acknowledged by the votaries of scientific temper, who ignore the evidence, and just peddle the myth of the Western origin of science.

Scientific Temper as Enshrined Under the Constitution of India

It is this great gift of scientific temper and spirit of inquisitiveness for which we should thank our great leaders and the same was later incorporated within the Constitution of India under clause (h) of Article 51A, inserted in 1976 through the 42nd amendment, which has cast upon every citizen a duty "to develop scientific temper, humanism and the spirit of inquiry and reform." As evident from the phraseology, the fundamental duty envisioned here is not just pedantic or technical terminology but is meant as an all-encompassing solution to all the problems that may timely arise owing to the dynamic character of society. Therefore, the scientific temper, humanism, and the spirit of inquiry and reform are not merely for the privileged and the enlightened but are rather meant to ensure enlightenment for all. Scientific temper and spirit of inquiry are aimed at shattering thresholds, pre-defined notions of antiquity and to test everything by reason and rationality rather than by the mere fact that it is uttered by or with authority. This is further strengthened by clause (j) of Article 51-A that also casts a duty upon every citizen "to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement". Unlike the fundamental rights under Part III of our Constitution, the fundamental duties are not enforceable through writs but are meant to be a guiding light for the growth of the nation at both the individualistic and collective levels. Nevertheless, our courts have time and again stressed the importance of these duties to bring about excellence, surpassing merit, virtue, honest performance, dignity, and eminence. In the present time, when we are coping with a pandemic that requires awareness at the individual levels to protect the collective, these duties have become ever more important to be observed and practiced. From the initial days of the pandemic till the present there have been umpteen examples reflecting the hold of tradition, superstition, and irrational beliefs spread through fake news and propagated by means of another scientific advance of the modern age – social media.

Scientific Temper for Development of Nation: Inculcating Rational thought among Children

People are highly influenced by mythologies and fables foretold by the elderly of the family and passed from generations to generations through word of mouth, at an early age. This

not only supplants fake ideas like earth being balanced on the horns of bulls, Flat earth theory, at an early age but also nurtures such line of thinking. Such people grow up believing in presence of supernatural forces that govern the planet. Many a time use of symbolism in religious texts or old sagas is taken up in literal sense by the readers and preachers. Lord Ganesha and his elephant like appearance is a symbolism for calm demeanour and might. It is saddening that the fables around it are being misinterpreted by Prime Minister at public pulpits as the evidence of first ever plastic surgery. At times such old texts have outrageous implications that are not true like the 'Pushpak Viman' and existence of beasts like Rahu and Ketu that cause the eclipses.

The authoritative attitude of religious leaders and the population, towards these texts means that people are discouraged from having a healthy logical discussion about it at an early age. It is considered a moral crime to question what is being preached or written just because it has been written in a book. Scientific Temper itself is the tendency to not accept anything new until its proved or tested. This phenomenon is true even in our regular classroom parlance; Students are expected to accept what is given in the textbooks and not question the basis or the implications it has. Even most science teachers decimate a student if he tries to doubt what's given in book as untrue. "Do you know more than the book?" is the usual jibe given by teachers. Overdependence on texts and its atonement as a supreme body of knowledge, which is unquestionable is the greatest threat to Scientific Temper.

The next major source that people rely on except the traditional texts are the television and the print media. Thought it is a hallmark of a good media agency to give good and unbiased information. But sensational and eye-catching content has become a clear choice for the crony capitalist that run them. News channels whom people rely on accurate information run astrology shows and conspiracy theories when the viewership is slack. It is sort of an endorsement that not all things need to have a scientific approach. Broadcasting astrology on the TV and print media keeps people from developing a scientific temper as it becomes ever difficult to shun unscientific problems as they have the backing of the key influencers in the nation.

The other major challenge of developing scientific temper comes from the sphere of traditional education and the systems employed to test and fish out the best among all. Many a times these systems are themselves designed in a very rigid way that makes no room for correction in light of the newer and better evidence or does not allow for a contradictory view to exist. Many a times the objective of the process is to teach science by enforcement and not by a method in lines with what a person with scientific temper would have followed.

Here too the basic problem is overt reliance on standard texts as the supreme body of knowledge. Any deviation form it is right away dismissed as false by the teachers in many cases by exercising the authority. The systems rely on delivering a fixed body of knowledge to the students who are bound to accept it if they want to succeed and progress in the system. The students are graded for their compliance with the system and not their development in taking a scientific approach. Most professors and teachers have forgotten that their job is not to enforce the given subject on its pupil in return for lollypops called marks but to convince the pupil that the given things are true. Many a times pupils are unconvinced of the veracity of the facts presented before them and yet they are forced to endorse them in their examinations as it is the sole means to pass. This forces a pupil to discard a scientific approach and oblige to accept whatever presented to them is true as their future is being held as ransom.

The examination pattern and evaluation also make it impossible for most times for a pupil to follow a scientific approach in answering. It has become a norm in India that answers are adjudged by drawing comparisons between what is given in teaching material and what is answered by the examinee. This takes away the freedom of innovation or to expose oneself to more than one perspective. As reflection of scientific approaches and attitudes are severely punished in examinations and grades deducted as the examiner was expecting a fixed body of text. The fact that most educators often use this line 'This is too little for the marks' and 'if I am to give this many marks, I certainly want this derivation to be included even if it is not explicitly stated'. Such attitude is largely seen in people who buy Parley-G biscuits as they expect 150 gm quantity for Rs 5 and certainly is not desirable nor acceptable in educators.

A scientific temper means to only accept the facts after based on a self-test or through investigation. Such temper can only be developed if a hand on approach is used to educate students about the key concepts. It is also important that practical and laboratory sessions are given greater importance over theory sessions.

The ground zero level situation is totally different. Students are not exposed to any practical or hands on approach to learning till they reach the university. Mostly such approaches are condemned as being too much time and resource intensive and leading only to the expected results that were evident based on theory. Here the main objective is to inculcate the habit of following a scientific approach in the children at young age. When they are advised against this, they lose their scientific temper. The entire process from teaching to examination has not embraced scientific temper and yet the same process in entrusted the job of developing scientific temper in the country. A major challenge is to align the functioning and the objectives

of the education system in the country. The system needs to be revamped so that it does not come into crosshairs with scientific temperamental tendencies of the pupils. Also, such systems should never choose an easy cost-effective approach over a scientific one, Else they educate students to believe that scientific approach is not always the best one.

Curiosity is the prime reason that science has made such rapid advancements. People are born curious. but their tendency to remain curious has been reduced or suppressed by the education system when it is seldom proclaimed that the knowledge you are seeking is far beyond your mental faculties or abilities to understand now. Rather an attitude to suggest small steps in right direction no matter how insignificant they seem must be inculcated. If professors keep on saying that General Relativity is so difficult that it requires Tensor Algebra, which in turn is so difficult that it is not even part of your M.Sc syllabus, the country loses a great future relativist who might have unified gravity with other forces. Such statements do certainly kill scientific temper among undergraduates.

The onus lies on the people in science to not only make decisions based on a rational and scientific approach in their professional life but also in their daily and public life. One must stand for what is right and not fear from becoming socially awkward. Also, one must constantly try to convince their peers how making rational decisions in day-to-day activities is the right thing to do.

People who understand science must develop themselves as the role model's general society looks forward to.

Most sections of this article have been directly copied from the existing published articles and citations are not given. Besides, the texts copied are mostly in big paragraphs or full page, therefore this amounts to plagiarism in spite of giving citations at the end of few sentences.

It is highly recommended that this paper must be re-written in the authors' own words and if there is any case of copying a full sentence for example, then it should be kept under quotation and should give proper citation at the end of the sentence.

References

1. Narayana, R. (2021). The Scientific Temper that India Requires for Inclusive Growth. LIVEMINT. Available at: https://www.livemint.com/opinion/columns/the-scientific-temper-that-india-requires-for-inclusive-growth-11579538457976.html (last visited on July 27, 2021).

2. A Curtain Raiser on National Science Day. (2018). Press Information Bureau. Available at: https://pib.gov.in/PressReleseDetail.aspx?PRID=1521847 (last visited on July 23, 2021).
3. DeRise, G. (2021). The Trial of Gallileo-Revisited william & mary community college. Available at: https://www.wm.edu/offices/auxiliary/osher/course-info/classnotes/derisetrialofgalileorevisited.pdf (last visited on July 20, 2021).
4. Rampal, A. (2021). Scientific Temper and Humanism: Rereading Nehru during COVID-19 Pandemic. SCROLL. Available at: https://scroll.in/article/978477/scientific-temper-and-humanism-rereading-nehru-during-the-covid-19-pandemic (last visited on July 23, 2021).
5. Tan, P. (2021). The Sutta Discourse. Available at: https://scdd.sfo2.cdn.digitaloceanspaces.com/uploads/original/3X/7/a/7a103fc0308fe1530ddb4f196b26810caee87f1f.pdf (last visited on July 24, 2021).
6. Ayyubi, F. A. (2021). Constitution Day: India Needs to Develop Scientific Temper, Spirit of Inquiry and Humanism. The Leaflet. Available at: https://www.theleaflet.in/constitution-day-india-needs-to-develop-scientific-temper-spirit-of-inquiry-and-humanism/ (visited on July 23, 2021).

The Journal of Anthropological Discourse

Original Article

Euphemisms and the art of concealing the truth with everyday verbiage to stunt the development of scepticism and critical thinking

Shadab Anwar[1] & Bushra Iram[2]

[1,2]*Government Girls PG College Sagar MP*

Article Info

Received 27 December 2022
Revised 3 March 2023
Accepted 13 May 2023

Keyword

Euphemism, language, scientific temper, political correctness, critical thinking

Abstract

Since the end of World War I, there has been a deliberate attempt of using a particular type of language that is an attempt to render public towards disinformation. Euphemism has become an immensely important tool to disguise people into a false sense of security and moral superiority. This collective deluding of the masses has been eerily similar to the religious deception that was prevalent a couple of millennia ago. Euphemism has given us the tool of impact minimisation and made us less sensitive towards falsehood. This widespread acceptance of fabricated "knowledge" in the name of political correctness, cultural heritage, and censorship of truth leads to abandonment of scientific rigor and critical thinking and aggravates the acceptance of the status quo and cultural dogma. Language (in its artificially decorative form) has proven to be a great barrier for people to cast aside superstition and fanaticism. This kind of superstitious and dogmatic verbiage has been a cause of vagueness as was seen in the case of rhetoric between scientists like Einstein and Niels Bohr and their use of the word "God". Several studies have shown that foreign language stimulates critical and empirical thinking, contrastingly native language plays role of a hurdle in achieving the same.[1] In this work, a comprehensive analysis of impact of this euphemistic and traditional language is given on the ability of a person to be discernable and rational.

Introduction

Euphemism in English language is defined as 'an indirect word substituted for an offensive or blunt word that is considered to be unpleasant or embarrassing' according to the Oxford languages [2]. But its actual usage has been to conceal the truth and hamper the ability of the masses to think clearly and critically. This delusion becomes a root cause of apathy towards fact, logic, and scientific hardships. English has been influenced enormously by the deft use of such words that lessen the impact of the true act. There have been numerous studies done on the impact of language on the ability of a person to think clearly and negate the

tendency to delve into superstitious customs [3-8]. Consequently, it has been found that native language is a major barrier in developing critical and rational thinking since a person subconsciously inherits cultural and religious terminology and develops a fantastical worldview that doesn't need to have any semblance with the reality. Interacting in a foreign language always has an impact on your behaviour, you have many interesting psychological effects of it for example you would be able to stick to embarrassing topics or swear for longer periods in a foreign language compared to the instant when you converse in your native tongue [9]. We all have experienced it in our life. Thinking in foreign language also makes you less cognitively biased; a logical explanation behind this behaviour can be attributed to the following.

When a person is required to think in a different language (non-native) the emotional intensity of the thought process is decreased and the person acquires a more rational approach in a situation of uncertainty and fear. This explanation has its detractors but as of now, it seems to be most plausible along with the additional possible factors being cognitive fluency and load (effort of speaking in your 2nd language) and the results seem to comply with it. [10]

Impact of words on the public perception

One of the greatest stand-up comedians of 20th century George Carlin has had a fair few nice things to say on the topic of Euphemisms and their influence on the popular narrative [11]. His opinion on this can't be just ignored on the ground of facetiousness. His incitation on this subject reflects our social irony, where we think that using less harmful verbiage will also lessen the consequences of some of the most heinous transgressions. Poor are uplifted these days by just comforting words and the realisation that they are not in a very bad condition after all. Words like economically disadvantaged, less fiscally fortunate may help people feel less of their plight but they don't do anything to alleviate those people from their dire conditions. Words that have been the major culprit in this cause include collateral damage for civilian deaths as we witnessed in a recent altercation between Israel and Hamas, another perverse euphemism prevalent in 'the developed world' is unchurched for Atheists or Agnostics. Calling 'recession – slowdown, maid – room attendant, salesman – product manager, Bad loans – nonperforming assets, Gangs – organized criminals, Genocide – Ethnic cleansing, Illegal Immigrant – Guest worker, Fat – Big boned' doesn't change the reality. It just changes the perspective and makes it acceptable to live in a lie. Not all euphemisms mentioned above are

lies or devious but they represent a culture of turning a blind eye towards the problems rather than facing them with logic, reason, and empiricism.

Another example of perverse use of this indirect language is about how we address the menstrual cycle of a woman; there are approximately 5000 words, terms, or phrases for period [12]. This tradition has been in vogue since biblical times because in those days a menstruating woman was seen as a symbol of profanity hence this act was needed to be masked by the inventive language such as *"her fruit departs from her" Exodus 21:22.* This shame of vaginal blood has carried on to present times and terms like "ladies' days, red wedding, that time of the month" only turn a very common bodily function of half of the world's population into a taboo about which everyone seems to be ashamed of. Menstruating women are still ostracized based on the phoney cultural beliefs which still pervade society. Euphemisms are a reflection of our historical stigmas about things that cause emotional tension. One thing that all of us using this fancy language should understand is that merely changing the name isn't going to solve all the problems, we have to pledge to somehow change the whole system and that is one monumental task. This language purports unscientific behaviour, a big role has been played by our everyday wording which has been in prominence since the dawn of time and remains a huge part of our vocabulary. Wonder, magic, sun rises, sun sets, full moon, astrology, creation of human beings, omen (good or bad), auspicious, are just a few examples that show how much unscientific vernacular is rooted in our language.

Problem of unscientific sensibilities in India

Similarly, there has been a deliberate attempt by the elitist authorities to hamper the public's curiosity and promote the acceptance of mediocrity. The keenness of authority or ruling class to make masses receptive of nonsensical, superstitious jargon; India has been at the crossroads regarding this problem since its independence in 1947. The Development of Scientific temper is explicitly encouraged in the constitution of India. India's first Prime Minister Pandit Jawaharlal Nehru wrote in his book Discovery of India "*the impact of science and the modern world have brought a greater appreciation of facts, a more critical faculty, a weighing of evidence, a refusal to accept tradition merely because it is tradition"*[13] most of India's leaders were calling for emphasis to be given on the spirit of scientific inquiry. In present times India has seen great derision of scientific way from the ruling party (and other rival parties as well) and this neglect of science and intellect has come back to bite us, especially during this pandemic Covid-19. Widespread ridicule of medical personnel's advice and

indulgence into the superstitious cure, ignoring masks, social distancing protocols reflects the ignorance of science and naivety of India that has been instilled by our leaders [14].

There have been many instances that signify the distancing of Indian leadership from reason and growth of dogmatic beliefs and practices. There is a domino effect at work here, leadership has extensively tried to put the general public in darkness which makes it easy to make public vote for them. So when the public is in ignorance and lives in propagandist or fantasized reality they resultantly choose a government that caters to their preconceived viewpoints. That's why there has been a crusade against science, reason, and logic in India on a very big scale. Indian Prime Minister himself said that Lord Ganesha was the first example of plastic surgery in the world, signifying the blurred boundary between myth and reality. There were claims that peacocks reproduce by sharing tears instead of sexual intercourse, these are strategically made statements that are designed to be repetitive to instil them in the mindset of public [15]. This kind of falsehood is repeated so long that it in itself becomes an accepted fact for the public and that's how you can have your version of reality. And acceptance of these false facts is defended unabashedly and unapologetically in the name of culture, heritage, and freedom of expression. There is one thing that we need to understand, we have the right to keep any belief we choose to but we have no right to spread our false and illogical beliefs in society and when the policymakers themselves commit these mistakes, the whole society falls in the abyss of imbecility. With these declarations of policymakers, all the funding agencies are encouraged to focus on myths and superficial institutions and, science and technology projects take the back seat. Resultantly, the young generation is less motivated to indulge in science because incentives lie elsewhere. This proliferation of unscientific narration for society is very harmful.

It is almost impossible to stress on the amount of harm such conduct can cause, a greater number of riots, lynchings, terrorist attacks, and a media which is hell-bent on portraying science and scientific rationality as a foreign notion along with the ideas like secularism, pluralism, and modernism [16]. There have been hideous results of this widespread neglect of scientific temper including the lynching of Gauri lankesh (a journalist who was against this fundamentalism) and killing of Narendra Dabholkar (another activist against superstition) where these acts were celebrated. Those are the signs of a disintegrating democracy resulting from the abandonment of reason and embracement of veneration where everyone wants to be a believer of a cult of personality rather than being an empiricist and finding things out for oneself. A rhetorical attack on science and reason has transformed into physical violence and

it's not limited to a particular religion. These situations can be found in many countries around the world including the US, UK, Italy, etc., and are crying out for intervention from those who know better.

Responsibility of Intellectuals across the globe

There is a greater responsibility that must be shared by the intellectuals of our times as eluded by eminent intellectual Noam Chomsky in his 1967 work [17]. He called upon the intellectuals to insist on the truth rather than focus on decorative language. He further argued that elite language has been structured to justify oppression and superstition is a very important tool for that. He iterated that mass media presents the elitist policies in such a manner that those policies are the only rational options which certainly isn't the case. According to Prof. Chomsky intellectuals are in a position to call the government on its drivel and analyze their hidden motives. Especially in the first world (developed countries), intellectuals have more freedom thanks to the freedom of expression due to well-established institutions. But the lack of courage from their part has rendered them to provide pseudo-scientific explanations for the unjust done by those who are in power.[18] The reason intellectuals must bear more accountability is that they are usually in a position of privilege. But the intellectuals seem to be quite happy to lie on the behalf of government and their propagandas. One historical example is of John Stuart Mill one of the greatest philosophers and public intellectuals in English language worked for East India Company a hideously criminal organisation, and provided justifications for its action while even addressing Indian natives as barbarians.[19]

The resurgence of religious fundamentalism can be attributed to the fall of the USSR and a collective failure of the left to capture the imagination of the public. But science has suffered from it the most despite of it not having played any role in the demise of these political policies. Being a sceptic, a contrarian or even secular is considered as frivolous and sacrilegious in today's India. Liberal and Intellectual have become insults which are thrown at people (who are courageous enough to point out the hypocrisy of the ruling class) to denounce them and their credentials. Contrarianism displaying scepticism is not an act against the country instead it is one of the most patriotic things a person can do. Scepticism is a cognitive component that stems from an independent, curious and healthy mind; it forms an integral part of the scientific method.[20] But the propensity to euphemize and sugarcoat the truth puts the general public in darkness.

Study about building scientific temper with foreign language

In an experiment 400 native German speakers (who were proficient English speakers as well) were asked to imagine different scenarios described in German or English text, about an important day, like the day of a job application deadline. Each of the scenarios involved an interruption in the routine such as - spotting an aeroplane in the sky or having a superstitious connotation like breaking of glass or spotting a falling star[21]. Participants were asked to rate how positive or negative they would feel in such situations, responding in the same language as the text. People when responding in their native language (German in this particular instant) had more superstitious connotations compared to when they responded in English. Subjects opined that they felt less uncomfortable in inauspicious occasions and less positive in auspicious events. If the results are to be followed then people can build a habit of thinking in their non-native language to be a bit more rational subconsciously. In a similar study participants were asked to be present in the scenarios which are associated with bad luck and answer how bad or good they'll feel. The results came out that the participants had less negative feelings in foreign language as compared to their native language.

The development of the human brain is determined by the archetypes and anecdotes it has been exposed to from the start. This stimulation of human brain with superstitions can be suppressed with the use of foreign language since the experiences of a human are encoded in brain with lingual context which is inadvertently in the native tongue. Therefore, the use of foreign language elicits those emotions less forcefully. But there might be a little bit of a limit to the attenuation of superstitions by a foreign language because when you become too acclimatized with it you might develop some superstitions of its own.[22] But there have also been multiple studies that provide evidence that the use of foreign language can hinder performance in abstract reasoning and learning.[23]

This "foreign language effect" depends upon the variables such as associative memory[24] and cognitive load[25]. Since the foreign language elicits memories less forcefully than native language associative memory and reasoning there is a negative effect on the learning abilities in foreign language. Van dillen et al. have discussed the effect cognitive load and its proliferation can diminish people's ability to respond to emotional stimuli. Hence, we can finally say that foreign language helps to suppress primordial intuitions which can have positive effects on combating biased intuitions. But, this use of foreign language might prove disadvantageous in case of positive intuitions and rational thoughts. Moreover, multilingualism plays a vital role in the development of cognitive ability. Multilingual and multicultural

education has great impact on the cultural and social awareness and stimulates critical thinking.[26] Cummins[27] and Nieto[28] talk about the basic skills, knowledge and thinking abilities development that are accentuated with multilingual education. The lack of multilingual skills can limit their ability to engage with their peers internationally. Multilingual students find it easier to comprehend and retain focus on essential facts. They generally have more experience in paying attention to the environment and prioritize useful facts while neglecting irrelevant knowledge. This is an imperative ability that is crucial to learn and the thing that makes multilingual students more competitive than monolingual.[29]

Conclusion

The masterful deception of the masses using less impactful words and inconclusive language has led to the disintegration of scientific thinking. The art of concealing the truth with deceitful language has undermined science and reason. Psychology of thought is a part of cognitive psychology that impacts a person's ability to reason, decide, problem-solve, and believe. Language is an important part of a person's cognitive functioning and its manipulation is a key to manipulate that person's thoughts. India has been a victim of this deliberate attempt to compromise critical thinking in its population. This kind of attack against rationality must face retaliation from the intellectual for they must stand for the truth and the basic right to education. The use of fancy words does not help in realizing the plight of the sufferer and instigates superstition. There have been many examples in recent times where scientific reasoning has been put on the shelf based on the dogmatic narrative set by the ruling power and resultantly the funding agencies have been quite reluctant to fund new scientific ideas. Meanwhile, the taxpayer's money continues to be squandered on the religious and nostalgic causes.

References

1. Hadjichristidis, C., Geipel, J., & Surian, L. (2019). Breaking magic: Foreign language suppresses superstition. *Quarterly Journal of Experimental Psychology*, *72*(1), 18–28.
2. Muda, R., Niszczota, P., Białek, M., & Conway, P. (2018). Reading dilemmas in a foreign language reduces both deontological and utilitarian response tendencies. *Journal of experimental psychology. Learning, memory, and cognition*, *44*(2), 321–326.

3. Caldwell-Harris C. L. (2014). Emotionality differences between a native and foreign language: theoretical implications. *Frontiers in psychology*, *5*, 1055.
4. Cipolletti, H., McFarlane, S., Weissglass, C. (2015). The moral foreign-language effect. Philosophical Psychology. PloS one. 10. e0131529. 10.1371/journal.pone.0131529.
5. Costa, A., Foucart, A., Hayakawa, S., Aparici, M., Apesteguia, J., Heafner, J., & Keysar, B. (2014). Your morals depend on language. *PloS one*, *9*(4), e94842.
6. Geipel, J., Hadjichristidis, C., & Surian, L. (2015). How foreign language shapes moral judgment. Journal of Experimental Social Psychology. 59. 10.1016/j.jesp.2015.02.001.
7. Takano, Y., & Noda, A. (1995). Inter-language dissimilarity enhances the decline of thinking ability during foreign language processing. Language Learning,45.
8. Costa, A., Foucart, A., Arnon, I., Aparici, M., & Apesteguia, J. (2014). "Piensa" twice: on the foreign language effect in decision making. *Cognition*, *130*(2), 236–254. https://doi.org/10.1016/j.cognition.2013.11.010
9. Keysar, B., Hayakawa, S. L., & An, S. (2012). The foreign-language effect: Thinking in a foreign tongue reduces decision biases.Psychological Science. 15(2), 23-29.
10. When Will Jesus Bring the Pork Chops (2005). EUPHEMISMS: by George Carlin
11. Aayyubi, F. A. (2020). Constitution-day-india-needs-to-develop-scientific-temper-spirit-of-inquiry-and-humanism. The Leaflet. 10 (6), 218-222.
12. Bedi, R. (2017). Indian judge claims peacocks reproduce from tears and that cow urine prevents ageing. *The Telegraph*, 6(1).
13. Raza, G., & Singh, S. (2018). Politics, Religion, Science and Scientific Temper. *Cultures of Science*, *1*(1), 39–51.
14. Noam, C. (1967). The Responsibility of Intellectuals. *The New York Review of Books*. 5(3).
15. Achen, C. & Larry, B. (2016). Democracy for realists: Holding up a mirror to the electorate. 9(5).
16. Alterman, E. (2011). The professors, the press, the think tanks – and their problems. *Bulletin of the American Association of University Professors.* 12(5).
17. O'Neill, S. J., & Boykoff, M. (2010). Climate denier, skeptic, or contrarian? *Proceedings of the National Academy of Sciences of the United States of America*, *107*(39), 151–152.
18. Harry, P. (2017). Thinking in a foreign language was less prone to superstition. Mail online. 22.
19. Vyse, S. (2014). Believing in magic: The psychology of superstition. New York. 12(3).

20. Takano, Y., & Noda, A. (1993). A temporary decline of thinking ability during foreign language processing. *Journal of Cross-Cultural Psychology.5 (2). 18-24.*
21. Viorica, M. & Ulric, N. (2002). Language-Dependent Recall of Autobiographical Memories. Journal of Experimental Psychology. 129(3). 361-368.
22. Hasegawa, M., Carpenter, P. A., & Just, M. A. (2002). An fMRI study of bilingual sentence comprehension and workload. *NeuroImage*, *15*(3), 647–660.
23. Chibaka, E.F. (2018). Advantages of Bilingualism and Multilingualism: Multidimensional Research Findings. *Multilingualism and Bilingualism*. 25(3):405-412.
24. Cummins, J. (2000). Language, Power, and Pedagogy: Bilingual Children in the Crossfire. *Multilingual Matters*. *5*(1), 237–246.
25. Nieto, S. (1989) The Light in their Eyes: Creating Multicultural Learning Communities. New York: Teachers College Press. Creating and Digitizing Language Corporation. 3(9), 111-18.
26. Mahzoun, P. (2022). The Effect of Bilingualism and Multilingualism on Academic Behavior. *IntechOpen.* 8(6).

The Journal of Anthropological Discourse

Original Article

Occultism among the tribes of Jharkhand: A study in search of Scientific Temper

Vivek Kumar Bhagat[1*] , Dr. Mayank Prakash[2], Dr. S.M. Abbas[3]

[1]*Research Fellow, University Department of Anthropology, Dr. Shyama Prasad Mukherjee University, (DSPMU), Ranchi, Jharkhand, vivek.kumar5583@gmail.com*

[2]*Assistant Professor, Dept. of Anthropology, Bangabasi Evening College, Kolkata (Affiliated to the University of Calcutta) West Bengal, roshanmayankprakash.559@gmail.com*

[3]*Associate Professor & Head, University Department of Anthropology, Dr. Shyama Prasad Mukherjee University, (DSPMU), Ranchi, Jharkhand, abbas_mobarak@yahoo.com*

Article Info

Received 15 November 2022
Revised 17 February 2023
Accepted 6 June 2023

Keywords

Occultism, Spirits, Witchcraft, Tribes, Jharkhand, Belief System, Scientific Temper

Abstract

Jharkhand is considered as the land of tribal. The state was earlier part of the erstwhile state of Bihar and was carved outas Jharkhand in year 2000. There are thirty-two schedule tribe inhabiting Jharkhand since times immemorial and the region is a custodian of tribal culture. Out of thirty-two schedule tribes, eight are enlisted as Particularly Vulnerable Tribal Groups (PVTGs) living in a hilly forested region in relative isolation. The Santhal, Oraon, Munda, Ho, Kharia etc. are the major tribal groups and Maler, Mal Paharia, Savar, Parhaiyya, Asur, Birjia, Birhor and Korwa are under the category of PVTGs. The tribes of Jharkhand are still strongly connected with their deep-rooted animistic belief system and worship various spirits at their villages to propitiate them. The tribes of Jharkhand connect all fortunes and misfortunes with various benevolent and malevolent spirits. Witchcraft and belief in witches, black magic and in 'Ojha' (Guni) are prevalent. As a result, they still rely on their traditional medical system as well as in their magico-religious practices of healing and curing rather than the bio-medical system. This paper describes the belief system of the tribes of Jharkhand as it relates to spirits, witchcraft practices and in magic and sorcery in order to examine the role of traditional culture and belief system as a hurdle in the overall development of the tribes of Jharkhand. These folk beliefs and practices also act as a hurdle in the achievement of scientific temper. This research paper is partially an outcome of field experiences of the researcher and partially based on the analysis of available secondary sources.

*Corresponding author email: vivek.kumar5583@gmail.com

Introduction

Jharkhand is known as land of tribal and forests. Various ethnic groups, including both *Adivasi* (aborigines) and *Moolvasi*(original inhabitant) have inhabited this region for hundreds of years. Jharkhand state came into existence on 15th November 2000 as 28th state of India after it was carved out of the state of Bihar. Earlier it was part of southern Bihar. The state Jharkhand comprises thirty-two schedule tribes at present, out of which eight are identified as PVTGs (Particularly Vulnerable Tribal Groups). Although in Jharkhand, the tribal population constitutes role. 26.20% of the total population (3,29,88,134) of the state according to 2011 census, it is in public understanding mainly known as a state where tribal are in a dominant position in view of their numerical strength in the population. Santhals are the largest tribal group of Jharkhand followed by Oraon, Munda, Ho and Kharia whereas Parhaiyya is the smallest tribal group of Jharkhand in terms of numbers. Tribal populations are scattered in the entire region of Jharkhand. A majority of the tribes resides in the remote and isolated parts of Jharkhand.Majority of the tribes of Jharkhand are mainly found intwo geographical regions of Jharkhand namely Chhotanagpur Region and Santhal Pargana Region. Chhotanagpur comprises majority of tribal population mainly in the districts of Ranchi, Hazaribag, Gumla, Simdega, Khunti, Palamau, Latehar and Santhal Pargana is a tribal dominated region and comprises the districts of Dumka, Sahebgunj, Pakur, Jamtara, Deoghar, Godda and Giridih. As far as ecological base is concerning both the major geographical region of Jharkhand i.e., Chhotanagpur and Santhal Pargana comprise thick hilly forest tracts to a great extent where the tribes reside.

The tribes of Jharkhand largely belong to Proto-Australoid morphological stocks and speaks *Nagpuri*and*Sadri* dialect (lingua fracas, made with mixture of phonetical sounds of few ethnic dialects such as *Mundari, Kurukh, Kharia, Panchpargania, Kurmali*, and *Khortha*etc.) of Austro-Asiatic or Nishad Linguistic family except Oraon and Maler as they speak *Kurukh*and*Malto* dialects respectively which are of the Dravidian linguistic family. Tribes of Bihar (Now Jharkhand) have been categorised in various economic grades depending on their occupation viz. Santhal, Munda,Oraon, Ho, Kharia, Gond,Baiga etc. are categorised into Settled Agriculturist group; Birhor, Maler, Savar are categorised into Shifting Cultivator group; Birhor, Korwa, Parhaiyya, Birjia and so on categorised as hunter and forest gatherer group; Asur, Mahli, ChikBaraik, Karmali, Lohra etc. are categorised into Artisan groups *(Vidyarthi,1976)*. Tribes of Jharkhand follow their age-old Sarna Religion to a great extent and have been demanding a separate religious code.At the same time tribes of Jharkhand have

converted to Christianity, especially in the remote villages of Gumla, Simdega, Khunti, Singhbhum and in the districts of Santhal Pargana. Presently these tribes in many pockets are governed with a combination of modern Panchayati Raj system and their still-extant traditional political system viz. *Munda-Manki System*, *Parha-Panchayat*, *Manjhi-Parganait System*, *Doklo-Sohor System* etc. The traditional political arrangements still play a vital role in village development and dispute resolution. A wide range of belief systems, art, culture and customs are seen among the tribes of Jharkhand in different economic and ecological regions of Jharkhand. Overall, the tribes of Jharkhand are patriarchal and segmented into various totemic clans.

It is important to describe the meaning, definition, anthropological perspectives and studies conducted on occultism and witchcraft. The occult, broadly, is a category of supernatural beliefs and practices that generally falls outside the scope of religion and science. Andsuch activities as mysticism, spirituality and magic. It can also be termed like extra-sensory perception and parapsychology (reference). The word *witch* is derived from the old English *wicca*, meaning, 'a female magician or sorceress' although the terms wizard and warlock are available for male magicians, witch and witchcraft are generally applied to both sexes and their magical activities. Among many societies' accident, sickness, death and other untoward events have been thought to be caused by witches that had magical powers, which they used for evil purpose (*Becon,1955:83*)**.**

Witch and *Witchcraft* are very central to social anthropology as far as its focus on religion and magic are concerned. Here it will be pertinent to define *Witch* and *Witchcraft*, *A witch can be described as —a person with an incorrigible, conscious tendency to kill or disable others by magical means, or as someone —who secretly uses supernatural power for corrupt purposes*. However, *witchcraft is an explanation of events based on the belief that certain individuals possess an innate psychic power capable of causing harm, including sickness and death. (Haviland et.al.,2008 pp. 330).* Witchcraft is the supernatural action of witches, a term commonly used to describe people, and usually women, supposed to have dealings with the evil spirits. Witches are commonly said to use their power to attack the fertility of humans, their domestic animals, or crops, to fly through night, to engage in cannibalism and incestuous acts, to assume animal form or have animal companions, and to be often quite unconscious of their night time activities during daytime. Witchcraft fantasies are most commonly associated with agrarian societies, whose conflict cannot be resolved by distance, and accusation of practicing witchcraft are more prevalent than the small number of people who claim to practice it *(Barfield, 1977)*. In fact, belief in witchcraft is much more widely distributed in time and

space. It is encountered throughout history, in virtually all continents – in Africa, Asia, native North America, and in the Pacific and continues to feature in contemporary times. Anthropologists have noted that the feelings of uncertainty, insecurity, and anxiety deriving from the dangerous volatility, disorder, and opaqueness of the market are frequently articulated through the medium of popular religion, shamanism, witchcraft, and spirit possession. Due to its widespread distribution and importance in many traditional societies, witchcraft became a staple topic in anthropological enquiry. *Evans-Pritchard (1937)* demonstrates how witchcraft formed an 'ideational system' amongst the Azande. He argues that from the point of view of the individual, in particular situations, the beliefs presented a logical explanation of unfortunate events. Evans-Pritchard insists that the theory of witchcraft did not exclude empirical knowledge about cause and effect, but supplemented theories of natural causation, and answered questions about the particularity of misfortunes. He cites the famous example of a granary that collapsed, injuring those sitting beneath it. The Azande explained this event in empirical terms that termites had eaten the supports. But they resorted to witchcraft to explain why particular individuals set beneath the granary at the precise moment when it collapsed. *Kluckhohn (1944***)** elaborates a psychological theory of witchcraft. He argues that among the Navajo witchcraft served as a channel for projecting emotions of guilt, desire and aggression. By investing the witch with responsibility for misfortune, Navajo absolved themselves from blame. Their forbidden desires, such as incest, also found an outlet in fantasies of witchcraft. Moreover, under stressful conditions, witches were scapegoats for hostile impulses. Through accusations of witchcraft the Navajo could directly express their hostile feelings, against those to whom they would otherwise be unable to show anger.

Practicing and believing in witchcraft has been deeply associated with tribal and simpler societies in India too. In middle India, it has been very often reported to be a social problem under which women, especially, old, childless, widow and infirm are accused and killed as witches. In the central part of India, witchcraft constitutes an inseparable part of religious beliefs of the tribal and simpler societies. Several Indian anthropologists have contributed towards the investigation of this concept. For instance, *Roy (1984)* reported that witchcraft as an art is rare among the Birhors. Such wizards or witches as exist amongst them are believed to harm a person by throwing some rice in the direction of that person's house and inciting their familiar spirit to move in that direction and afflict the person with some disease or other troubles **(***Sinha and Banerjee, 2004***)**. The method of magic and witchcraft in Chhotanagpur and its adjoining areas inhabited by Korwas, appear to be common among Kharias as well. Even among aboriginal tribes such as the Oraon, the Santhal, the Ho, and the

Korwa witchcraft belief is intrinsically embedded in their worldview. Witchcraft in these societies is considered one of the main causes of sickness and death. The treatment of such diseases is made accordingly *(P.C.Joshi et.al., 2006 pp. 145-149).Prof. V.S.Sahay (2020)* made an emphasis on the witchcraft practices and role of witch doctors among the Nicobarese people. He narrated that the Chowra Island is considered the land of the Wizard and the Chowrians have the power to change the direction of the waves and winds by their magic. He said thatChowra women were frequently blamed as witches whenever any misfortune, harm or death took place on the island.

Spiritism refers to 'spirit worship' which is quite prevalent among the tribes of Jharkhand. The term 'spirits' is a particularly broad one used to refer to a wide variety of ostensible non-physical entities, ranging from the spirits of the dead. The spirits are of nature, ancestors, angels and deities amongst numerous other varieties, types and forms. E.B.Tylor's theory of 'animism' is usually a good starting point in discussions about scholarly approaches to spirits. Tylor argued that animism, which he defined as 'the belief in spiritual beings,' represents the core feature of religion in general (*Tylor, 1930: 87-89*). For Tylor, spirits are a theoretical postulate devised by 'primitive philosophers first of all to explain the difference between life and death, secondly to explain apparent encounters with people in dreams and thirdly to explain the seemingly conscious activities of natural phenomena, such as the wind, rivers, lighting etc. All of which, so Tylor reasoned, could be suitably explained by positing a non-physical spirits or soul (anima) that animates the physical body (or indeed any other natural phenomenon), but that is not dependent upon it, so that in trances, dreams or death the soul may leave the physical body behind and continue to exist independently.

Similarly, among the tribes of Jharkhand, witchcraft continues to be a controversial practice and a burning issue. Very often the news of witchcraft, witch accusation and witch-hunting appear in the local newspaper and news. The tribal women especially the childless, widows and the elderly are the most common victims of this practice and belief in Jharkhand. This is because *daains* (women witches) are often blamed when there are diseases outbreaks that adversely affect humans or animals. In fact, crimes against tribal women in Jharkhand are increasing as far as witchcraft, witch hunting and witch accusation is concerned, even after the enactment of a strong law i.e. The Prevention of Witch (*DAAIN*) Practices Act, 2001, Jharkhand. Here in this research paper, the authors have tried to present the ground realities of Spiritism and Witchcraft practices and belief prevailing among the tribes of Jharkhand.

Aims & Objectives

The followings are the prime objectives of this research paper –

1. To describe the ground reality of witchcraft and spirit worship among the tribes of Jharkhand.
2. To examine the changes in traditional belief system and spiritism among the tribes of Jharkhand in order to understand their perception towards modern medical system and scientific beliefs.

Research Method

This research paper is an outcome of field work conducted by the authors in the various tribal areas of Jharkhand at the undergraduate, masters and M.Phil level at different point intime. This research paper is an exploration of field work and few case studies related to witchcraft prevalent amidst the tribes of Jharkhand, thus it is based on empirical experiences and on primary data to a great extent but at the same time secondary data in terms of the already available anthropological literature on witchcraft, spiritualism and allied studies were also incorporated. This research paper was confined to the field areas of tribal Jharkhand especially Santhal and Maler dominated Sahebgunj, Godda, Pakurand Dumka districts of Santhal Pargana and Oraon, Munda, Kharia, Ho, Birhor dominated Simdega, Khunti,Gumla, Hazaribag, and Singhbhum districts of Chhotanagpur region.

All the major tribal groups of Jharkhand namely Santhal, Oraon, Munda, Ho, Kharia and such communities were studied for this purpose along with the PVTGs namely

SauriyaPaharia (Maler), Birhor, Savar, Asur, Korwa and Birjia. The present research paper is purely qualitative in nature. In addition to secondary data some anthropological techniques of collecting primary data were also utilized such as observation, interview and questionnaire. Case study method is also included for this research work. In this paper the field area and universe are so large therefore tribes of entire Jharkhand have been studied by using both purposive and random sampling. Thus, conclusions drawn for this study are broadly applicable to the tribes of Jharkhand.

Findings and Discussion

Occultism and Witchcraft in Tribal Jharkhand: The Case of Munda and Oraon

All tribes of Jharkhand have a firm belief in witches, witchcraft and sorcery. These are ritual means of harming the enemy. Witchcraft may be distinguished from sorcery in that it is generally believed to be a potent power, albeit more for evil than for good, lodged in an individual. Witchcraft may be inborn or acquired by undergoing special training.

Among the Oraon tribes of Chhotanagpur,witchcraft is women's business while sorcery is associated with men. Witches kill or harm the victim by spirit abstraction while sorcerers specialise in causing disease and death by spells on personal belongings of the victim. Men admit their profession women do not. Generally, the sorcerers are a bit bolder than the witches. Witches work at night while the day time is for sorcerers. She has a power of doing harm to any person but she generally exercises her power on the villagers and not on the outsiders. They believe that there are certain persons who are born with evil eve and evil mouth. A witch is hated and feared due to the powers acquired by her to inflict bodily harm. Being in league with evil spirits, she brings a train of misfortune. She destroys the standing crops, killsactive men, and brings misery to the cattle.

The Oraons are traditional believers in the efficacy ofmagical rites and consider that everything that is harmful to human beings is due to evil eye and witchcraft. They believethat diseases, unnatural deaths (e.g. deaths due to cholera, small pox, drowning, fall from trees), thunder and lightning, ill health, destruction of domestic animals and crops are the result of witches, wizard and sorcerers who inflict damage by performing elaborate magical rites. It is because of the fear of the witches or wizards that the Oraon bury the placenta and the dried-up umbilical cord in the courtyard of their house. It is believed that if the placenta or umbilical cord is exposed the witches may cause harm to the mother and the new baby.

The Oraon witches are known as *daains* who undergo systematic training for acquiring or developing this occult power. Regarding the training of the witches in Chhotanagpur, S.C.Roy says *"witches in general have to acquire their art by a course of training in secret. At dead of night, especially in new moon nights, the witches of several neighbouring villages assemble under some tree at a secluded spot at some distance from human habitation"*(1928:257). There they put off their clothing and hang an old broom around their waist and conduct witches' dance. The trainees learn the incantations and other techniques of the witches art. For the major part of the night they dance completely nude during the training period at mid-night they sacrifice a black chicken. All traces of footsteps of the witch dance are said to be wiped off through magic. The training in the art of witchcraft is held every year in the month of *Kartik* (October) in the night of the new moon preceding their *Sohrai*(Diwali)festival. The novices make a promise to not disclose the mysteries to anyone. If outsiders dare to see them dance they would be killed by witchcraft. Before she leaves her house for taking part in the witches' dance at night, the witch puts a wooden dummy on her cot so that people may feel that she is actually sleeping in her bed. Generally, no one dares to touch the witch's bed at night when she is sleeping or supposed to be sleeping.

The Oraon witch-doctor is called *Deonara.* His main business is to find out the evil spirit that has caused the harm and he further suggests the offerings and sacrifices needed for the purpose. His role is diagnostic—that ishe who determines whether the case belongs to the domain of witchcraft or not. If it is so he directs the client to take the help of *Sokha.* It is the *Sokha* who declares without any fear the name of the wizard or witch who has caused the harm. His incantations are unintelligible to others. *Sokhas* are the only persons who can counteract the evil effects of witchcraft because they are believed to be endowed with supernatural powers. For this reason, they are greatly respected. The Sokha's power is said to be generally greater than that of the witch; so he can inflict injuries on the witch. However, if a witch possesses greater power than the Sokhaand the others will suffer as a result. So, a *Sokha*has to be very accurate and careful in the performance of his art.

The tribal belief in witchcraft is so deep rooted that sometimes even the Sokhahas to perform certain rites in order to save their children who are suspected to be victims of the evil eye of the witches. Generally, witches direct their witchcraft to persons who are antagonistic and hostile to them. Witchcraft usually operates where there is stress and strain between individuals. Even imaginary tensions and the resulting hostility may also trigger witchcraft against the presumed offender. Witches are considered as social enemies and when the witch becomes very troublesome; the villagers take a drastic action of beating her, confiscating her

property or in extreme cases killing her. A number of cases of murder due to witchcraft have been analysed by the Prof. A.B.Saran in his book "Murder and Suicide among the Munda and Oraon" (1974). By analysing the murders due to witchcraft, the following basic facts have emerged: -

1. *All the murders due to witchcraft are closely interlinked with the basic emotional pattern of human beings, to take revenge when aggrieved. They need a scapegoat to give vent to their wrath and thereby to satisfy their ego-self. The Munda and the Oraon cultures provide such a scapegoat in the form of witches and wizards.* (Saran, 1974)
2. *A witchcraft murder in most cases needs the participation and knowledge of more than one person. When it is known to more than one person it is carefully planned to avoid detection and identification of the perpetrators by the police.* (Saran, 1974)
3. *The Sokhais culpable because it is, he who points out the scapegoat.* (Saran, 1974)
4. *Sometimes for taking revenge all the members of the family including the women unite and take part in the murderous designs*. (Saran, 1974)
5. *The presence of a witch or wizard in a village is a danger to the village as a whole and the people want to get rid of such anti-social elements. It is due to this they feel a sense of relief when such undesirable persons are killed and they would not disclose the names of the culprits even if they knew them.* (Saran, 1974)
6. *When a witch is killed, the villagers do not like the matter to be reported to the police but try to cover up the incident.* (Saran,1974)
7. *Usually a witch is killed because she is considered to be extremely harmful to the killer's kinsmen. Others just give their moral support to the killer or when one does not have enough courage to kill a man, he employs another man to do the job for him. Killing a witch is not only considered non-culpable but also desirable and justifiable. The general tribal feeling is that killing a witch is a good act.* (Saran, 1974)
8. *In the non-tribal villages of Jharkhand mostly old women and widows are considered witches. But among the Mundaand the Oraon we find that men are also endowed with the powers of evil spirits. Even young unmarred girl below 25 years of age may be considered witches.* (Saran, 1974)
9. *When witches and sorcerers become confirmed by their repeated evil acts, the village and the community as a whole socially boycott them and no one is prepared marry his son or daughter in their family.* (Saran, 1974)

10. *Sometimes the panchayats intervene and impose fines on the witches and sorcerers and instruct them not to persist in their evil ways but they are not bound tocarry out the orders.* (Saran, 1974)
11. *If a witch is murdered, the dead body is not allowed to be buried in the Sasan (burial place) but very far away from it so that it may not contaminate the other dead bodies.* (Saran,1974)

The essence of the Munda-Oraon's belief in witchcraft is the quest to understand the cause of personal misfortunes, especially those related to the health of people and animals, and ignorance of the knowledge of bacteria and germs that cause various diseases. This engenders feelings of pessimism; people develop a fear complex for everything that is new to them. Due to the power of socialization and the unquestioning devotion to tradition, the tribal take some postulates for granted and accordingly think that inferences and actions based on them are sound. For example, they take it for granted that witchcraft causes death. Therefore, death is evidence of witchcraft and the *Sokha* confirm that witchcraft causes them. Similarly, old men and women are considered to be sorcerers and witches. It is natural for old men and women to see many deaths in their lives and the mere fact that they have seen many deaths in their lives is enough to attribute to them the capacity of a witch or sorcerer. Thus, each bit of belief fits in with every other bit in a general mosaic of mythical thought. It provides the deeply traditional tribal person with a philosophy of events that is intellectually satisfying and forms a comprehensible system of thought which provides a coherent explanation of social activities, social structure and the life of individuals.

Witchcraft among the Santhal and Sauriya Paharia of Santhal Pargana

The tribes of Santhal Pargana have a firm belief in occultism and witchcraft. They associate every fortunes and misfortune with magical rites. This is the reason P.O. Bodding defined the religion of santhal as “Spiritism”. P.O. Bodding opined “the goodness of a person, village and family of a santhal depends upon their spirits like “*bonga guru*” and “*hapramko*” (Ancestral deities).

Recently, the first author of this paper witnessed a case of a witchcraft accusation againsta santhal woman that occurred at *Binjhamara* village near Hiranpur block of Pakur district. In this case, a santhal lady named Phool Soren (aged-42years) was killed by his nephew named LakhiramHansda (Aged-25 years) by hitting on her head with a sharp axe. It was revealed that his nephew was suspected that his prolonged illness was due to her aunt’s magical acts of witchcraft. It was the suspicion of witchcraft that led to the woman’s murder.

In another case collected from a santhal village named Bokna of Ramgarh Block of Dumka district, a santhal boy, aged 13 years, suddenly fell down into earth while he was dancing in a group during marriage ceremony. The reason of this accident was again witchcraft acts of a santhal womanas stated by the santhal eye witnesses present during this marriage ceremony. According to the villagers that santhal woman with her magical power and evil eye broke the thigh bone (femur) of that santhal boy. This witchcraft act is locally termed as "*Pathri*". After this incident the villagers especially village headman "*Manjhiharam*" and "*Gudet*" (Assistant of Headman) brought that boy to a *Ojha (witch doctor)* where the *ojha* by using his supernatural power held the santhal woman responsible for thewit chcraft that had injured the boy. Following this, the traditional court called at the village met and that santhal woman was punished by the village headman (*majhiharam*). As a punishment that santhal woman was excommunicated from the village and society—a practice locally known as *Bitlaha*. This incident took place in January 2017. It was reported that due to the prevailing santhali belief in occultism and witchcraft, medical doctors are very rarely consulted in cases of illness.

The Maler (Sauriya Paharia), a particularly vulnerable tribal group (PVTG)) of Rajmahal hills of Santhal Pargana of Jharkhand, also have a firm belief in occultism and witchcraft. They worship various malevolent and benevolent spirits and sacrifice animals to their deities from time to time to propitiate them. This is done because of their belief that if the spirits are happy then they will live happily, but if the spirits are irate they may cause damage and bring misfortune. Sauriya also blame women always for any kind of witch acts and magical acts. Prof. Vidyarthi (1963) classified their three powerful spirits in such a way: -

a) *Jive Urekya* (Ancestor Spirit)

b) *Alchi or Bhute* (Evil Spirit)

c) *Chergani* (Diann)

Bongaism among the Ho tribe of Singhbhum (Jharkhand)

Ho tribe of Chaibasa of West Singhbhum district of Jharkhand has a deep-rooted belief in various *bongas* (Spirits). They still largely believein magic and sorcery and associate all kinds of fortunes and misfortunes with various bongas. In the Ho society it is common to blame women as *diaan*, and witch accusation is very common among the ho villages of Singhbhum. The tribe also used to worship various spirits and by keeping them happy, tried to ingratiate themselves with them. Based on these findings, Prof. D.N. Majumdar (1950) presented the concept of "Bongaism," which was derived from his study of Ho society of Kolhan of

Jharkhand. The second author in his study and during field work at *Dara village* near Chaibasa of West Singhbhum found that generally the Ho women were blamed for witchcraft and having an evil eye. It is generally considered that Ho women can possess evil spirits and can harm others. Such evil spirits (*Bongas*) are categorised into four types namely:

a) *Churdu Bonga* (responsible for Diann Act)

b) *GaraKachuli* (one who victimise others beside river)

c) *Baram Buri* (considered a lady spirit who harms animals and birds)

d) *Marang Bonga* (considered a lady bonga who is responsible for diseases and illness)

Conclusion

On the basis of this study it is evident that tribes of Jharkhand are generally involved in practicing occultism and witchcraft. Even in the present era of science and technology, witchcraft, witch accusations and magical practices are a part and parcel of the tribal societies in rural Jharkhand. Generally, tribal women become victims of heinous practices, such as ostracism and murder based on accusations by the members of their community. Often these accusations serve as a cover for inter-personal disputes related to property and enmity arising out of personality clashes. The belief in witchcraft and related practices is not limited to illiterate rural dwellers—in fact even the literate tribal people of Jharkhand firmly believe in occultism and witchcraft to explain misfortunes, diseases and damage arising from chance or natural events.

The tribal people of Jharkhand do belief strongly on witchcraft and spirits due to their habitation in isolation, marginalization and poverty. The frequent incident of witchcraft accusations in the tribal villages of Jharkhand is also seen due to their poverty and marginalisation. The state policy largely failing in bringing them in main stream even their policies and interventions hardly matches their cultures. As a result, innocent tribes of Jharkhand becoming marginalised. And due to such poverty and marginalisation, the tribal people of Jharkhand prefer to consult with their local witch doctors or traditional medicine man and very rarely they visit to medical doctors and to the hospitals for treatment. This also provokes tribesman of Jharkhand towards belief on occult practices and witchcraft. The ground reality is that the state has no any strong will power to eradicate poverty from the tribal societies of Jharkhand and to bring them in main stream by educating. Even politicians of their region used them as vote bank only which ultimately keeps them in margin. These political-economic factors are no doubt responsible for persisting of their age-old superstition, occult practices and witchcraft. On the whole it is apparent that scientific temper cannot be expected to exist and

thrive in tribal communities of Jharkhand that are being mercilessly exploited by the state and outsiders and have high level of poverty and low access to healthcare.

It is clear that the tribal societies of Jharkhand have not embraced a scientific temperament, as reflected in the avoidance of doctors and frequent consultation with witch doctors. Why do the tribal communities continue to rely upon witches, magic and other related notions? Why is it mostly women who are accused of being witches? It is also women who bear the brunt of violence targeted at the so-called witches. The gendered nature of this violence calls for an analysis of how these accusations might be a reflection of the subordinate status of women in these societies. Gupta (2020) has pointed out that accusations of witchcraft are often aimed at eliminating women and their claims to family property. Similarly, the persistence of witchcraft has to be understood in relation to marginalization of tribal communities in relation to the mainstream society and culture. Deeply besieged communities when faced with constant persecution and victimization by outsiders can develop feelings of insecurity and a deeply defensive mind set. Furthermore, the feelings of helplessness may get channelled into violence and victimisation of people within the community. Sinha (2020) has linked these practices to a skewed "politics of development" and has called for a multi-layered and integrative" response to the prevalence of witches and violence related to alleged witchcraft.

Presently, several government and non-government are engaged in efforts to raise awareness about the irrationality of practices related to witchcraft and in spreading scientific temper among the tribes of Jharkhand through different plans, policies such as *Garima Pariyojna* and through organising drama and play (*nukkarnatak*) in the rural villages of Jharkhand but still desired result are far away. In fact, witchcraft and the violence related to it, which is mostly targeted at women, is a symptom of a deep underlying social problem, which is that of powerlessness and poverty of the tribal communities. If this is not addressed it will not be feasible to promote scientific temper in this region. Last but not the least, it can be suggested that anthropologists, sociologists, social workers and activists of rural-tribal development may be consulted and employed to instil scientific temper in the populations of Jharkhand.

References

1. Barfield, T. (1997). *The Dictionary of Anthropology*. Oxford, U.K; Blackwell Publishers Ltd.
2. Becon, E. E. (1955). *"Witchcraft"*. The Encyclopedia Americana. Ed. Dudley, Lavinia. P. Vol. 29, pp. 83.

3. Evans-Pritchard, E. E., & Seligman, C. G. (1937). Witchcraft, Oracle and Magic among Azande, Oxford; Clarendan Press.
4. Foster, G. M. & Anderson, G. A. (1978). *Medical Anthropology.* New York; John Willey and Sons.
5. Gupta, B. (2020). Interrogating gender, property rights and witch-hunting in Jharkhand, India. In Gender, Space and Agency in India: Exploring Regional Genderscapes. Anindita Dutta (ed). Routledge. Pp. 48-63.
6. Haviland, W. A., Prins, H. E. L., Mc-Bride B., Walrath D. (2008). Cultural Anthropology: The Human Challenges. Davis Drive Belmont, USA; Wadsworth Cengage Learning, pp. 330-332, 20
7. Joshi, P. C., Kaushal, S., Katewa, S. & Devi, O. H. (2006). Witch Beliefs and Practices among Oraons. *Studies of Tribes and Tribals.* 4 (2), 145-149, Gurugram, Haryana; Kamla-Raj Enterprises.
8. Kluckhohn, C. (1944). Navaho Witchcraft. *Papers. Peabody museum, Harvard University.*
9. Majumdar, D. N. (1950). The Affiars of a Tribe: A study in Tribal Dynamics. *Ethnographic and Folk Culture Society*; Lucknow
10. Roy, S.C. (1984). Magic and Witchcraft on the Chhotanagpur platue – a study in the Philosophy of Primitive life. *Man in India*, 64(1), pp. 91-129.
11. Saran, A, B. (1974). *Murder and Suicide among the Mundaand the Oraon*. The University of Michigan; National Publishing House.
12. Sahay, V. S. (2020). *Experiencing Anthropology in the Nicobar Archipelago*. London; Routledge.
13. Singh, P.K.2010. Ecology, Economy and Religion in Tribal Jharkhand: A search into congruent –Typology. *The Oriental Anthropologist*, vol.10 (2), pp. 139-154.
14. Sinha, A. K. & Banerjee, B. G. (2004). Tribal Witchcraft and Personalistic Theory: Concepts and Issues. *Tribal Health and Medicine*, Eds. A. K. Kalla and P. C. Joshi, pp. 179- 201, New Delhi; Concept Publishing Company.
15. Tylor, E. B. (1930). Anthropology: The Study of Mankind. London: C.A. Watts & Co.
16. Vidyarthi, L. P. (1963). The Maler: A study in Nature-Man-Spirit Complex of a Hill Tribe of Bihar. Calcutta; Bookland private limited.
17. Vidyarthi, L.P, & Rai, B.K. (1976). The Tribal Culture of India, New Delhi; Concept Publishing Company

18. https://www.dw.com/en/indias-witches-victims-of-superstition-and-poverty/a-49757742

The Journal of Anthropological Discourse

Original Article

Communicating Science in Society through Media

Dr. Shivajyoti Das Baruah[1*] & Dr. Sudeshna Bhattacharya[2]

[1,2]*Department of Mass Communication, Nagaland University, Lumami, Nagaland-798627*
omshivam001@gmail.com, sbmgu2010@gmail.com

Article Info

Received 22 December 2022
Revised 10 March 2023
Accepted 20 May 2023

Keyword

Science, Communication, Media, Scientific Temperament

Abstract

The relationship between developments of human society and science is inseparable. Understanding science in a society is very important as in every walk of life people are using products which come from the science. Equally important is the scientific temperament which enables us to think logically, take rational decision. But how one can develop scientific temperament? What is the possible role media can play to spread scientific understanding?
The paper explores the concept of science communication in delivering scientific understanding to the mass. The paper is purely based on review of literature which is conceptual in nature and tries to seek answers discussing the concepts of science communication and the role that can be played by media along with its different issues.

Introduction

The development of society depends on the ability of human being to garner scientific thoughts and understanding. Modern society owes a lot to scientific development which are taking human civilization to another level. Science is an integral part of human life. But the question is how far common people are informed on scientific knowledge, concepts which can lead to development of scientific temperament.

Scientific temper basically means the ability to have a rational set of thought process which enables one to analyze any given situation in a logical manner. It provides human being the ability to clearly distinguish facts regarding our surrounding. The first Prime Minister of independent India, Jawaharlal Nehru says about the importance of scientific temper, scientific approach in lives and also makes a point for the scientists for not communicating science, as he says in his book "The Discovery of India"-

"...But something more than its application is necessary. It is the scientific approach, the adventurous and yet critical temper of science, the search for truth and new knowledge, the refusal to accept anything without testing and trial, the capacity to change previous

*Corresponding author email: omshivam001@gmail.com

conclusions in the face of new evidence, the reliance on observed fact and not on pre-conceived theory, the hard discipline of the mind—all this is necessary, not merely for the application of science but for life itself and the solution of its many problems. Too many scientists to-day, who swear by science, forget all about it outside their particular spheres."

- (Nehru, 1994)

With advent of new technology and high penetration of media in society, today mass media is pivotal force in shaping public opinion of any country. As there is growing arena of media with whom people interact in every sphere of life, it is an undeniable fact that media has a strong influence on the life of mass. The growing number of different media like newspapers, magazines, TV channels, online platforms and social media also indicate the strong popularity and impact it has among the masses.

Media influences the opinion of the mass. The high penetration of media makes information easily accessible to public. Media has a pivotal role in shaping public understanding of science and imparting scientific knowledge which can lead to development of scientific attitude.

Though media has a significant role to play, question arises what are the issues as well as challenges behind presenting science to the common mass as we generally do not see much science content in media.

Research Method

The paper is based on secondary sources which comprise of books, journals, different websites, reports etc. The researcher has done extensive review of literature from different sources, journals and explores the importance of science communication as a process for society and role of media in it. The researcher has selected the literature which tries to explore the science communication and issues concerning the role of media as well as approach of media along with challenges in imparting scientific knowledge for the masses.

Concept of Science Communication

Science communication is defined as the use of appropriate skills, media, activities and dialogues to produce awareness, interest, opinion and understanding of science, its content, processes and social factors (Burns, O'Connor, & Stocklmayer, 2003). Modern scholars (Bubela, et al., 2009) view science communication as a complex and contentious topic that encompasses a spectrum of issues from the factual dissemination of scientific research to new

models of public engagement whereby lay persons are encouraged to participate in science debates and policy.

When we talk about science communication as process, diffusion model where knowledge deficit among the masses is mitigated through communication is an important model. Despite the criticism of being one sided approach, deficit model where communication is from top to bottom, i.e. from information 'have' (source) to information 'have not', does play a necessary, though not sufficient role in science communication. There are three key points essential in this respect (Suldovsky, 2016)

a) Purpose of science communication, the goal within this context is to transfer scientific knowledge from one individual or group to another;
b) Processes of communication i.e. communication as diffusion defines communication as a process by which new ideas, knowledge, beliefs, social norms, products, services, technological advancements, and culture are communicated across a social group, i.e. within science communication, the diffusion model conceptualizes communication as a means of disseminating scientific information including ideas, knowledge, technologies, or processes; and
c) How science and scientific knowledge are defined- science in general is conceptualized as a process that takes place outside of society and provides us with new information, particularly information that can be utilized by nonscientific audiences, the public deficit will remain an essential component of science communication research and practice.

So long as science communication research and practice is based on the desire to resolve a problematic gap through the use of one-directional communication, the public deficit model will have an integral role within that process (ibid).

Issues & Challenges

Press can accelerate our speed of progress towards a scientific, homogeneous living. Because of easy accessibility and strong influence, media is a strong platform to deliver a message effectively to the people. But media's content and approach to present science among the masses is not up to the mark as reflected by different researches (Peters, 2013). Citing the lack of communication, many scholars has defined the relationship between science and society, or science and media with different metaphors and terms like "distance" (Hartz & Chappell, 1997), "gap" (Maillé, Saint-Charles &Lucotte, 2010), "barrier" (Dunwoody & Ryan,

1985), "fence" (Schneider, 1986), "oil and water" (McCall, 1988), and "creative tension" (Nelkin, 1989), as cited by Peters, 2013.

For better science communication, the information has to be authentic and from varied sources. In communicating science, “only such science messages should be communicated which are confirmed, genuine, well tested, verified and true” (Dutta & Ray, 2011) since delivery of wrong scientific messages has serious negative consequences. There should be proper way of communicating science messages keeping in view of cultural context of common people and understanding as non compatible science may lead to cultural conflict (ibid). There are also other problems in communicating science in term of different problems on mass of accessibility and in different fronts like cultural, social, religious and linguistic (ibid).

The presentation is very important in communicating any science message. Since the target people are the common mass who are mostly from non science background, proper presentation has to be made using appropriate tools like proper diagrams, graphs etc (Goh, Pomsagun, Tissier, Dennison, Kremer, &Weichselgartner, 2008). The factors like synthesis, visualization and context are important for effective science communication to make science relevant to a wide audience, from school going children and the general public to top decision makers of the country (ibid). Information in science communication should be provided with exploratory bent of mind in clear, eye catching manner without any technological jargon so that common man can understand (Dutta & Ray, 2011). Also, it should be written in such a way to make people understandable about different scientific concepts in simple language. It should address three basic questions- what to write, for whom to write, why to write (Sarma, 2008) with a presence of variety and attractions to proliferate scientific thoughts and philosophy.

In democracies, citizens face complex decision making whether to accept the potential hazards associated with proposed policies to reap their potential benefits (Baruah, 2019). There is seriousness of matters related with decision making on complex issues like climate change mitigation, vaccinations, genetically modified food, nanotechnology, geo-engineering, and so on. We rely on science communication to inform us about the facts we need to know to make decisions (Dietz, 2013) and an effective science communication as the answer where it acts as two way communication between the science and the people (Fischhoff & Scheufele, 2013). But unfortunately, existing communications sometimes fail when scientific experts lack information about what people need to know to make more informed decisions or what wording people use to describe relevant concepts (Bruin and Bostrom, 2013). Therefore, it is very important to understand the knowledge level of people before communicating science. The

Mental Model by Bruin and Bostrom, 2013 identifies 4 steps which are essential in this case: 1. Identify what people need to know to make more informed decisions (expert decision model), 2. Identify what people already know and how they make their decisions (lay decision model), 3. Design communication content (addressing the missing gap after comparing the above two models), 4. Test effectiveness of communication content.

The willingness on the part of scientists to communicate scientific knowledge from the laboratory to the public domain is not encouraging. About 750,000 original papers appear annually, of which only about one third are abstracted and the total volume of scientific literature increases by about 5% per year (Hewitt, 1951). But when it comes in terms of flow of information, it is really a matter of concern as scientists are "non-social" (ibid). Another concern is that unless citizens do not know or appreciate what is being done in research institutes and laboratories, it is unlikely that science will find the support and talents it needs to continue to develop (Carrada, 2006).Research from journals are not reaching community members via local newspapers, so there is a greater need for translation and dissemination of research (Caburnay, et al., 2003). This is where the importance of public engagement model of science communication comes whereby lay persons are encouraged to participate in science debates and policy (Nisbet & Scheufele, 2009).

The way people react to the messages of science is also important as it exemplifies how effective science message can be constructed. There are basically two hypotheses in this case: 'public irrationality thesis (PIT)' and 'cultural cognition thesis (CCT)' (Kahan, 2015). In PIT the members of the public overestimate dramatic or sensational risks like terrorism and discount more remote but more consequential ones—like climate change. In CCT, it is seen that members of the public endorses opinion on science disputes based on their common moral values, political outlooks, and social norm. Thus it leads to form sometimes opposing, differing views on the same topic. This is why Kahan here calls for a 'disentanglement principle' where those different views will be separated while communicating science to people.

The stiff challenges that science communication faces are the blurring of boundaries between public and private science and the fragmentation of audiences (Bubela, Nisbet, Borchelt, Brunger, Critchley, & Einsiedel, 2009). Addressing the multitude of variables that impact public attitudes toward science is more complex than a one-size-fits-all approach that targets public knowledge levels, which makes the deficit model particularly appealing from a policy formation standpoint (Simis, Madden, Cacciatore, & Yeo, 2016).

The online media has become very popular with the proliferation of media technology. However, the accuracy of the information provided by the website is a cause of concern. It is found that the factors that influence the readers' perceptions of credibility are the same as that of the newspapers (Treise, Childers, Weigold, & Friedman, 2003). If judgments about a newspaper's reputation for accuracy and objectivity influence story credibility perceptions, then reader's beliefs about the online information will be based on the beliefs about the probable accuracy of the website.

The growing use of internet with increasing emphasis on information also brings challenges of misinformation. Since now-a-day anyone can post anything, it is also a challenge for the readers to decide which information is accurate, especially when internet is also misleading in the time of fake news and misinformation. For that, one should have awareness in regard to the authentic sources where information is trust worthy.

Conclusion

Science communication is very important to develop scientific temperament among people. Science communication means proliferation of scientific ideas, concept to people in a way that people can understand. It is a process where scientific understanding is transferred to common man through mass media.

The growing access of media enhances its capability to influence public opinion of any country. Media influences in the decision making of people. Media thus play a pivotal role in imparting scientific knowledge.

Communicating science brings certain important aspects to be understood. Apart from the information coming from verified source, it also needs good presentation with proper illustrations, language without jargon. While communicating cultural aspects should also to be taken consideration so that it does not hurt any sentiments. Only authentic information should be delivered since any wrong scientific message has serious negative consequences.

The gap between scientists and the media is also another area of concern. Scientists are generally not so familiar with media culture which creates a barrier between knowledge have and have not. Now it is time that scientists, knowledge bearers should come out for science communication. Communicating information from the science community and articulating areas on prevalent issues presents an inordinate responsibility for scientists and those who translate their messages for a diverse public.

For effective science communication, there is need to sensitize the reporters, journalists so that media give due coverage to science issues. With increased and quality science content there will be more awareness among the masses which will lead to development of scientific understanding.

The increasing use of internet for information also brings challenges for netizens. With fake news, misinformation circulating in the social media platforms, people should be aware about different tools to verify any misleading news. For science related deliberations, they should scrutinize the news first before accepting as real from authentic websites.

References

1. Aggarwal, V.B. & Gupta, V. (2002). Handbook of Journalism & Mass Communication. New Delhi: Concept Publishing Company.
2. Barns, I., (1989), Interpreting media images of science and technology, *Media Information Australia.*
3. Baruah, S. D. (2011), Reflection of Science to the Common Mass (With Special Reference to the Assamese Newspapers of Assam), In M. K. Patairiya, & A. Dutta, *Science Meets Communication,* 242-257.
4. Baruah, S. D. (2019), Communicating science through newspapers: A comparative study between national & regional newspapers of Nagaland. *Journal of Scientific Temeper*, 38-61.
5. Barns, I. (1989), Interpreting media images of science and technology. *Media Informalion Australia.*
6. Bruin, W. B., & Bostrom, A., (2013), Assessing What to Address in Science Communication. *PNAS*, 14062-14068.
7. Bubela, T., Nisbet, M. C., Borchelt, R., Brunger, F., Critchley, C. &Einsiedel, E. (2009), Science Communication Reconsidered. *Nature Biotechnology*, 514-518.
8. Bucchi, M. & Trench, B. (2008) *Handbook of Public Communication of Science &Technology,* Newyork: Routledge.
9. Burns, T. W., O'Connor, D. J., & Stocklmayer, S. M. (2003) Science Communication: A Contemporary Definition. *Public Understanding of Science*. 183-202.
10. Caburnay, C. A., Kreuter, M. W., Luke, D. A., Logan, R. A., Jacobsen, H. A., Reddy, V. C., et al. (2003). The News on Health Behavior: Coverage of Diet, Activity, and Tobacco in Local Newspapers. *Health Education & Behavior*, 709-724.

11. Carrada, G. (2006). *Communicating Science-"A Scientist's Survival Kit"*. Belgium: European Communities.
12. Dietz, T. (2013). *Bringing Values and Deliberation to Science Communication*. PNAS. 14081-14087.
13. Durrant, R., Wakefield, M., McLeod, K., Clegg-Smith, K., & Chapman, S. (2003). Tobacco in the news: An Analysis of Newspaper Coverage of Tobacco Issues in Australia, 2001. *Tobacco Control*. 75-81.
14. Dutta, A., & Ray, A. (2011). Science Communication-the Concept. In A. Dutta, & A. Ray (ed.), *Science Communication in Assam*. Guwahati: DVS Publishers. 1-8.
15. Fischhoff, B., & Scheufele, D. A. (2013). The Science of Science Communication. *PNAS*, 14031-14032.
16. Goh, B., Pomsagun, A., Tissier, M. L., Dennison, W., Kremer, H., &Weichselgartner, J. (2008). *Science Communication in Theory and Practice.* Germany: LOICZ International Project Office.
17. Hewitt, W. F. (1951). Comments & Communications. *Science, 114* (2953), 134-135.
18. Kahan, D. M. 2015. What is the "science of science communication"? *Journal of Science Communication*
19. Kitsinelis, S. (2012). *The Art of Science Communication.* Athens: Nightlab Publications.
20. Ko, H. (2016). In science communication, why does the idea of a public deficit always return? How do the shifting information flows in healthcare affect the deficit model of science communication? *Public Understanding of Science*, 427-432.
21. Labinger, J. A. & Collins, H. M. (2001). *The one culture? A conversation about scie*
22. Lopera, E. & Moreno, C. (2014). The uncertainties of climate change in Spanish daily newspapers: content analysis of press coverage from 2000 to 2010. *Journal of Science Communication*. 13(01), 2.
23. Nehru, J. (1994). *The Discovery of India.* New Delhi: Oxford University Press.
24. Nelkin, D. (1990). Selling Science. *Physics Today*, 41-42
25. Nisbet, M. C., & Scheufele, D. A. (2009). What's Next for Science Communication? Promising Directions & Lingering Distractions. *American Journal of Botany*, 1767-1778.
26. Peters, H. P. (2013). Gap between science and media revisited: Scientists as public communicators. *PNAS, The Science of Science Communication*, 14102-14109.

27. Sarma, V. D. (2008). Vigyan Lekhar Kala. In B. K. Sarma, A. K. Bhagawati, & H. K. Chaudhury, *Vigyan Lekha (Kar Babe, KenekoiLikhibo)*, 33-37.
28. Simis, M. J., Madden, H., Cacciatore, M. A., & Yeo, S. K. (2016). The lure of rationality: Why does the deficit model persists in science communication? *Public Understanding of Science*, 400-414.
29. Simon, A. F. (1997). Television news and international earthquake relief. *Journal of Communication*, 47(3), 82-93.
30. Suldovsky, B. (2016). In science communication, why does the idea of the public deficit always return? Exploring key influences. *Public Understanding of Science*, 415-426.
31. Treise, D., Childers, K. W., Weigold, M. F., & Friedman, M. (2003). Cultivating the Science Internet Audience: Impact of Brand and Domain on Source Credibility for Science Information. *Science Communication*, 309-332
32. Valenti, J. M. (2002). Communication challenges for science and religion, Public Understanding of Science, 57-63.

The Journal of Anthropological Discourse

Review Article

Indian Traditional Medicine for Mental Health Issuses of COVID-19 Pandemic

Sara Huq[1] & Dr. Udai Pratap Singh[2]

[1,2]*Department of Anthropology, University of Lucknow, Lucknow, Uttar Pradesh, India*

Article Info

Received 29 December 2022
Revised 19 April 2021
Accepted 7 April 2023

Keyword

Covid-19 pandemic, lockdown mental health, Indian traditional medicine

Abstract

The COVID-19 pandemic has impacted the economy, occupations, and physical and mental health of people around the globe. This paper is aimed at reviewing various articles related to mental-health challenges during the COVID-19 pandemic and lockdown to prevent further spread of infection. PubMed, Science-direct, and Google Scholar, Academia.edu, and Web of Science, were used to search for electronic data related to physical and mental health, the COVID-19 Pandemic, and the Indian system of medicine used keywords like "COVID-19 effects on people", "effects on students of lockdown," "psychological effects of COVID-19," "human resources for mental health care," etc. The results of these studies show that the nature and extent of this impact depend on several susceptibility factors, such as developmental age, educational status, and mental health status, being economically poor, or being quarantined due to fear of infection. Studies show that students have more disturbed sleep, poor hunger, carelessness, and significant separation problems. People who receive training, therapy, and other treatments are at high risk of being derailed from therapy and special education. Poor children are particularly prone to exploitation and abuse. People quarantined are at high risk of developing higher mental health-related challenges. The present paper clearly explains that the Indian system medicine is very well developed for treating most of the mental health related disorders.

Introduction

The COVID-19 pandemic has presented many challenges to students, educators, and parents. Children already coping with mental health conditions have been especially vulnerable to the changes, and now we are learning about the broad impacts on students as a result of schools being closed, physically distancing guidelines and isolation, and other unexpected changes to their lives. The World Health Organization (WHO) declared COVID-19 as a Public Health Emergency of International Concern (PHEIC) on 30 January 2020 (Coronavirus) events as they happen, (2020) COVID-19 Pandemic has reached a level of a humanitarian crisis with

over 6 million confirmed cases and 350,000 deaths reported globally to date (Up to 31st May 2020). PHEICs can pose a significant mental health risk to communities (Davis et al., 2010) especially in developing countries, where the risk is further precipitated by suboptimal socio-economic determinants (COVID-19: impact could cause equivalent of 195 million job losses, says ILO chief UN News, 2020). The consequences of COVID-19 impact not only the physical health and wellbeing but also the mental health, which can have a disastrous effect on the health system.

The sudden and drastic changes in the day to day routine can be extremely confusing and difficult to cope with the children, geriatric, and quarantined individuals. Closure of schools, recreational outdoor activities, not meeting their peers could take a toll on the mental health of the children. The old population in India has been identified as a vulnerable group to COVID-19. Over 50% of those more than 60 years have at least 1 comorbidity putting them at a much higher risk. The psychological impacts of these populations can include anxiety and feel stressed or angry. Mental health impact can be particularly difficult for older people who are already experiencing cognitive decline, dementia, social isolation, and loneliness. Also, the progression of the disease tends to be more severe in the case of elderlies resulting in higher mortality (MOHFW, 2020).

Mood disturbances represent only some of the prevalent mental health issues experienced by college students. Others include serious problems like suicide, eating disorders, and addiction. Mental health professionals stress the importance of talking about such issues, but students tend to consider these stress a normal part of college life. In other cases, they may lack the time, energy, will, and/or money to seek the support they need. This guide contains information to help students identify potential mental health issues and locate valuable community resources.

Aims & Objectives

- To understand the mental health issues during the COVID-19 pandemic with special reference to the Indian context.
- To propose intervention strategies and policies for mental health issues.
- To understand how Indian traditional medicine manages mental health.

Research Method

The strategy used for this study is secondary data. Several published journals, sites, and newspapers, articles, official webpages, and independent websites of various institutions and non-government organizations, as well as verified social media portals, were referred to for the study. A search of the PubMed electronic database and Google scholar were undertaken using the search terms COVID-19, mental health, traditional treatments, anxiety, depression, and stress in various permutations and combinations. The conclusions drawn from this study are mainly based on the theoretical analysis of the research articles.

Mental Health Issues during Covid-19 Pandemic

The major mental health issues that have been reported to have been associated with the COVID-19 pandemic are stress, anxiety, depressive symptoms, insomnia, denial, anger and fear globally. (Torales et al., 2020). Stress, anxiety, and depression go hand in hand with the COVID-19 pandemic. Results from studies done globally have shown the increasing prevalence of mental health disorders among various population groups (Ji et al., 2017; Mohindra et al., 2020; Xiao et al., 2020b). Historically, disease pandemics have been associated with grave psychological consequences. A recent article published in JAMA Psychiatry suggests that COVID-19 may lead to an increased risk of suicide (Xiang et al., 2020). A recent study done in China reported 16.5% of moderate to severe depressive symptoms; 28.8% of moderate to severe anxiety symptoms; and 8.1% of moderate to severe stress due to COVID-19 (Wang et al., 2020). Similar impacts of COVID-19 on mental health have also been seen in other countries like Japan, Singapore, and Iran (Rajkumar, 2020). An Indian newspaper article published in May 2020 revealed that suicide was the leading cause of over 300 "non-corona virus deaths" reported in India due to distress triggered by the nationwide lockdown ("Suicides due to lockdown: Suicide is the leading cause of over 300 lockdown deaths in India, says study," 2020).

Indian Context

The mental health issues in the context of the COVID-19 pandemic in India are more complex due to the large proportion of socially and economically vulnerable population (children, geriatrics, migrant laborers, etc.), the high burden of pre-existing mental illness

(Murthy, 2017), constrained mental health services infrastructure (Cullen et al., 2020), low penetration of digital mental health solutions, and, most importantly, the fear created by massive misinformation on the virus. Thus, interventions should also be specific and relevant to the circumstances in India. The MOHFW-GOI has issued a toll-free helpline number for "Behavioral Health". The Psycho-Social toll-free helpline number (08046110007) can be used by anyone needing mental health assistance during the COVID-19 pandemic. A list of videos, advisories and resource materials on coping stress during COVID, yoga and meditation advice, taking care of the mental health of vulnerable groups, etc. have been provided in the MOHFW-GOI web portal (MoHFW, 2020).

Reasons for Mental Health Problems during the Covid-19 Pandemic

- Changes in the daily routine
- Closure of schools and restriction of outdoor recreational activities
- Not get-together their friends.
- The elderly have underlying comorbid conditions causing fear and anxiety of the consequences of getting infected
- Difficulty in day to day activities for those living alone
- Due to the lockdown, there is a sense of social isolation.
- Due to difficulties in managing cellphones or computers, they have difficulty accessing online or telemedicine services for healthcare, which has hampered their normal treatment.
- The elderly have underlying comorbid conditions causing fear and anxiety of the consequences of getting infected
- Difficulty in day to day activities for those living alone
- Sense of social isolation due to lockdown
- Difficulty in availing online or telemedicine services for healthcare due to challenges in handling smartphones or computers, thus hampering their routine healthcare
- Chances of contracting the disease while caring for the people.
- Fear of transmitting the disease to their family members.
- Extensive working hours while the healthcare system's burden increases.
- Complete isolation from near and dear ones.
- The feeling of being the cause of transmitting the disease to others Discrimination causing emotional trauma.
- Isolation, quarantine, and confinement at home are all triggers.

- Tele-counseling sessions may not be as successful as face-to-face sessions, affecting the continuity of therapy.
- Factors that aren't available for enjoyment
- A change in the daily routine of people with pre-existing mental illness

Reasons for Mental Health Problems during the Covid-19 Pandemic

- Reducing screen-time to avoid negative news but providing clear information
- Engaging in creative and mentally stimulating indoor activities
- Managing a child's anxiety by identifying their emotional needs
- Making ways to keep in touch with their friends
- Making a home learning routine
- Giving out clear, concise and necessary information in a respectful way.
- Assurance and assistance to the more vulnerable.
- Engage family members and support workers carefully deal with mental health issues
- Connecting with loved ones living away Engaging in recreational activities.
- Spending time off the news
- Ensuring enough medications for those in need to address any insecurity.
- Treating every migrant worker with dignity, respect, empathy and compassion individually without generalisation Emphasising the need to stay away from their families and providing assurance of mental and physical support
- Ensuring respectful economic assistance and assurance
- Constant systematic assurance, effective counseling and providing the basic needs
- Providing suitable and adequate protection gear to provide an ergonomic environment
- Providing them and their families with incentives for risking their lives to help others
- Identifying and resolving their position of moral harm.
- Ensure respect and safety in the workplace
- Recognizing and adequately recognizing their unselfish efforts
- Addressing the grief and trauma faced by people with COVID19 and their family Creating self-help platforms
- Helping them cope with emotional loss if they have lost a family or friend to the grave pandemic
- Recognizing the survivors and providing them the mental and physical comfort at their isolation sites or hospitals

- Providing telemedicine and video consultations as a method of obtaining access to therapy.
- Adapting their counseling sessions appropriately to assist them cope with the epidemic as well as their pre-existing disease.
- Family members should be involved in their care and attention.

The health system and policy makers

The following suggestions may be beneficial in directing the health-care system's operation and policymaking in the area of mental health treatment for children and adolescents.

- To address the general population's mental health requirements, the health care syste m's focus should be on prevention, promotion, and treatment in accordance with the public mental health system.
- There is no way that a single umbrella policy could account for all the mental health problems that children and adolescents face in their diverse contexts. As a result, the health system and policies should be based on contextual criteria that vary depending on the degree of infection and the stage of infection for each country or area.
- In most developing nations, there is a shortage of mental health care personnel. There is a requirement for inclusiveness.
- It is critically important to develop flexible strategies that can be revised and adapted to school and throughout the community and done with close communication with state and local public health authorities.
- Policies should be formulated taking into account the developmental stage of the child e.g. preschoolers, school age, adolescents.
- There is a need for full translation dominant therapy approaches to telehealth compatibility, but clear rules and regulations regarding the same are mandatory.
- School re-entry procedures should be developed with the strict application of essential social distance and hygiene concepts in mind. This should be done with the importance of in-person learning for school-aged children in mind.
- Ascertain sufficient funding allocation, as well as proper monitoring and usage of funds for policy execution.

Managing Mental Health by the Indian Traditional Medicine

Mental wellbeing was the centerpiece of the Indian system of medicine. Many healthcare issues are resolved by the peace of mind and brain stimulating processes. Of late, Government of India adopted many systems of medicines that are complementary to the modern allopathic medicines and named it AYUSH system of medicine. In this Ayurveda, Yoga, Homoeopathy, Siddha, Unani, Sowa-rigpa, and additional healing systems are represented. There is also a great need for psychological wellbeing due to the rapid increase in stressful life situations. The current modern medical care is not adequate to provide mental health services in the society. At the same time, many indigenous and AYUSH system have come into action and solve the problem the best way it possible. The chapter focuses on the role of AYUSH system in catering to mental wellbeing in India. The policies of the government of India are to promote mental health and wellbeing in society. The specialties of various systems of medicine in curing the mental health conditions have been elaborated.

Traditional community resources, including temple healing practices, are widely used in managing mental illnesses in India. This research shows that a brief stay at one healing temple in South India improved objective measures of clinical psychopathology. In the absence of any specific healing rituals, the observed benefits appeared to result from a supportive non-threatening environment. This may indicate the value of a culturally valued refuge for people with severe mental illness. Moreover, existing traditional resources may have a role in providing community mental health care.

Traditional healers - There is evidence that the psychosocial role of traditional healers informal counseling and support in improving family, community or work relationships can help to relieve distress and mild symptoms of common mental disorders like depression and anxiety.

Ayurvedic Plants Mainly Used for Mental Disorders

Currently, the world is looking to traditional medicine's brain healing prescriptions, including Ayurveda, for a reasonable solution for brain diseases with no or little side effects. Indian medical systems are well-developed in terms of treating brain problems. Ayurveda, the most significant of the Indian medical traditions, outlines the use of hundreds of herbs, either separately or in combination, to cure brain problems. The description of each plant is beyond the scope of this study and has been explored independently. However, Table 1. Shows the

Ayurvedic prescriptions that include these herbs. The majority of Indian plants that have been used in the treatment of mental illnesses and are today part of routine Ayurvedic medicines are listed in this table. The plants range from wild and cultivated herbs to shrubs and forest trees, and they belong to several plant Families. The synergistic approach of most Ayurvedic drugs is supported by the fact that most prescriptions include more than one plant component. Ayurvedic herbs, with the exception of genetically based brain problems, have the ability to heal the majority of mental diseases, as shown in Table 1.

Table 1. Ayurvedic Plants Mainly Used for Mental Disorders

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
1	Achyranthes aspera	Amaranthaceae	Chichdha, Chirchita, Latjira, Onga chichri Bach, Ghoda bach	Prickly chaff flower	Oleanolic acid glycosides, amino acids	When inhaled the powder of the seeds, it gives relief from stiffness and headache of migraine.
2	Acorus calamus	Araceae	Adusa, Adusi, Safed vasa, Vakas, Visotta Siris, Siras	Sweet flag root	β-Asarone, α-asarone	Bark powder enhances memory and cures forgetfulness. It is beneficial in anxiety and epilepsy when its powder is taken with honey. Equal weights of its powder and *shunthi* powder (ginger) are recommended to cure facial paralysis.
3	Adhatoda zeylanica	Acanthaceae	-	Malabar nut	Vasicine, vasicinone	Its powder with honey cures old epilepsy disorder.
4	Albizzia lebbek	Mimosaceae	Pyaz, Kanda	Siris tree	Budmunchia mine alkaloids, saponins	Its seeds and black pepper powder when applied near eyes, cures unconsciousness.

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
						Its seed powder is one of the constituents for treating psychosis, insanity, anxiety, hysteria.
5	Allium cepa	Liliaceae		Onion	Dialkenyl sulfides	Tea from its seeds is beneficial in sleeplessness.
6	Anacyclus pyrethrum	Asteraceae	Akarkara, Karkara	Pellitory, pyrethrum	Pyrethrin	When ground with vinegar and licked with honey, it controls the intensity of hysteria. When a decoction with *brahmi* is given, it controls the epilepsy. This mixture also improves in mental retardation. Massaging its root powder in *mahua* oil, heals paralysis. If the powder is mixed with honey and licked regularly morning and evening, effect of paralysis is checked.
7	Bacopa monnieri	Plantaginaceae	Brahmi, Jalneem	Thyme leaved gratiola, Indian pennywort	Bacosides A, B, C	Its juice is taken with *kuth* (Costus speciosus root) powder in honey to help in hysteria. It is also recommended by adding *kuth* and *shankhapushpi* to cure epilepsy and hysteria. It is very useful in the recovery of memory power.
8	Benincasa hispida	Cucurbitaceae	Kushmanda, Petha	Wintermelon, Wax gourd	Multiflorenol and its acetate	Its juice is given with *kuth* powder and honey to cure hysteria. Its juice when given with *mulethi,* helps in epilepsy.

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
9	Brassica nigra	Brassicaceae	Raee	Black mustard	Gallic acid, quercetin	Its seeds and pigeon's droppings after grinding, are applied on forehead. It helps relieve migraine. Its fresh oil when massaged, reduces fatigue and laziness.
10	Caesalpinia bonduc	Caesalpiniaceae	Kat Karanj	Fever nut	Hematoxylol, stereochenol A Ursane triterpenoids	Seeds in combinations when given as *nasya,* cures headache. Juice of leaves is beneficial in epilepsy.
11	Calotropis procera	Asclepiadaceae	Madar, Aak, Akwan	Swallow wort, Madar	Tetrahydro cannabinoids	Flowers and its milk have been described to be useful in epilepsy. Yellowish dried leaves are used as *nasya* for migraine. When the mixture of its shade dried leaves with cardamom, peppermint and camphor is inhaled, it relieves migraine pain. Its roots, in a complex herbal combination, are recommended for relief in paralysis.
12	Cannabis sativa Linn.	Cannabinaceae	Bhang	Marijuana	Flavonoid glycosides	Its leaves along with asafoetida have been used for epilepsy type problem in women. It is also useful in treating sleeplessness.
13	Cassia occidentalis	Caesalpiniaceae	Kasaundi	Negro coffee	Cassiside, toralactone	Decoction of whole plant or its roots, are useful in relieving the epilepsy and hysteria. Inhaling the flowers or their decoction is beneficial in hysteria.

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
14	Cassia tora	Caesalpiniaceae	Panvad, Chakravada	Foetid carria, Ringworm plant	Celapanin, Celapanigin triglycerides	The seeds are ground in "kanji" (gruel of beans) and applied on forehead to get relief from migraine attack.
15	Celastrus paniculatus	Celastraceae	Malkangani, jyotishmati	Black oil plant, staff tree, intellect tree	Asiaticosides	Its seed powder is used in combination of almond, pepper and cardamom powder to improve memory.
16	Centella asiatica	Apiaceae	Brahmi, Gotu Kola	Indian penny wort		Dry plant when taken in preparations of combinations, improves memory power. Its powder when mixed with unboiled cow milk and taken, shows relief in insomnia. Its powder is mixed with honey or pepper or cow's "ghee" (purified butter) and taken to ease in anxiety.
17	Citrullus colosynthis	Brassicaceae	Indrayan	Colocynth, Bitter apple	Cucurbitacins colosynthosides	Fruit juice or oil cooked root bark when applied on head, cures migraine and ear pain. *Nasya* of its root powder cures epilepsy.
18	Citrus aurantifolia	Rutaceae	Neembu, Kagaji nimbu	Lemon	Bergamottin, bergapten	Seeds and juice are beneficial in insanity related disorder. Lemon juice is given to the patient of anxiety to regularize the heartbeat.

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
19	Clitorea ternatea	Papilionaceae	Aparajita, Koel	Winged leaved clitoria, Butterfly pea	Inositol, hirsutene	The paste of seeds and roots when taken in equal amount and applied as *nasya,* it relieves from the migraine pain.
20	Convolvulus microphyllus	Convolvulaceae	Shankhapus hpi, Shankahuli	Shankhapushpi	Convoline, convolamine	Its powder is mixed with milk or *bach* (Acorus calamus roots) or honey and "ghee" and taken to improve the memory power. Its juice with honey cures the epilepsy, psychosis and insanity. Shade dried powder alone or with *bach* or Indian pennywort strengthens the mind.
21	Coriandrum sativum	Apiaceae	Dhania	Corriander	Linalool, geranyl acetate	When its extract is regularly taken, the vertigo and headache is relieved.
22	Cuscuta reflexa	Cuscutaceae	Amarbail, Akashbail	Dodder plant	Cuscutoside A and B	Its juice is taken in water for improvement in brain disorders.
23	Cynodon dactylon	Poaceae	Doob, Doorba	Conch grass, Doob grass	Flavonoids, β-sitosterol	Extract of whole plant helps cure madness and epilepsy.
24	Cyperus scariosus	Cyperaceae	Nagarmotha	Nutgrass	Cyperene, Patchouli alcohol	It cures epilepsy when given with cow milk.
25	Datura metel	Solanaceae	Dhatura	Thorn apple	Hyoscine, hyocyamine	Its seeds are ground with black pepper and given for treating psychosis.
26	Daucus carota	Apiaceae	Gajar	Carrot	Carotenoids, α-Pinene, sabinene	Leaves are extracted with warm *ghee* and drops given in nose and ears to cure migraine through sneezing.

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
27	Eclipta alba	Asteraceae	Bhangra, Bhangraiya	Trailing eclipta	Widelolactone and glycoside	After mixing black pepper powder in its juice, it is applied on forehead for relief in migraine.
28	Ficus benghalensis	Moraceae	Bargad, Badha	Banyan tree	Bengalenosides, Leucopelargonidin glycoside	Its root bark powder when taken in sugar and cow's milk, improves memory power.
29	Ficus religiosa	Moraceae	Peepal	Peepal tree, Sacred	Kaempferol, sterols	Extract of branches cures madness.
30	Glycyrrhiza glabra	Papilionaceae	Mulethi	Fig, Liquorice root	Phenolics, glabridin	Root powder in ghee brings improvements in epilepsy.
31	Helianthus	Asteraceae Malvaceae Solanaceae Juglandaceae	Surajmukhi,	Sunflower	Diterpenoids,	Its leaves' juice and seeds are
32	Hibiscus rosasinensis	Lythraceae	Gudahal	Shoe flower, China rose	Cyanidin, quercetin	Dried leaves and flowers are powdered together and given in sweet milk for improving memory power.
33	Hyoscyamus niger		Khurasani ajawayan	Henbane	Hyoscine, coumarinolignans	Taking few drops of henbane oil in water at frequent intervals, controls hysteria in women.
34	Juglans regia	Moringaceae	Akhrot	Walnut	Fatty acids, linoleic acid	Walnut seeds are ground in *nirgundi* (Vitex negundo) juice and given as nasal drop for hysteria.
35	Lawsonia inermis		Mehendi	Henna	α- and β-ionones, lawsone	Seeds in honey or decoction of flowers are given to cure giddiness.
36	Moringa oleifera	Fabaceae	Sahijan, Munga	Drum stick plant	Moringine, Moringinine	(i) After grinding the bark, the liquid is squeezed and put into the nostrils or given orally as drink to cure meningitis. (ii) Decoction of its

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
						roots is given for epilepsy and hysteria in women.
37	Mucuna pruriens	Valerianaceae	Kapikachhu, Kewanch	Velvet bean	L-DOPA, amines, alkaloids	In Ayurveda, it has been described for use in several illnesses and overall body strength. Scientifically it has also been found to be effective in Parkinson's disease.
38	Nardostachys jatamansi	-	Jatamansi, Balchhad	Spikenard	Jatamansone and terpenoids	It is useful in hysteria, epilepsy when taken with *ghee*. *Jatamansi, bach* and *brahmi* juice are mixed in honey and given in mental problem.
39	Papaver somniferous	Papaveraceae	Posta, Post, Afeem	Poppy, Opium	Morphine, codeine, thebaine, papaverine	Poppy is beneficial in delirium, sleeplessness, convulsion, etc.
40	Piper longum	Piperaceae	Peepal	Long pepper	Piperine, Piperlongumine	Its roots in jaggery are given to overcome sleeplessness. Mixture of *peepal* and *bach* are given in milk to cure migraine pain.
41	Piper nigrum	Piperaceae	Kali mirch	Black pepper	Piperine and related alkaloids	On empty stomach, pepper powder and *bach* are given to treat hysteria.
42	Psidium guajava	Myrtaceae	Amrud, Safari	Guava	Oleanolic acid, ursolic acid	Decoction of leaves is given to cure mental and physical deformities. Tincture of leaves is massaged on the backbone of children for convulsions.
43	Punica granatum	Punicaceae	Anar	Pomegranate	1-(2-propenyl)-piperidine in leaves, anthocyanins in fruit	Leaves after boiling with water and concentrating, the extract is given in warm milk to cure fatigue, tiredness and insomnia.

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
						Leaves and rose flowers are cooked in water and concentrated. It is given in ghee to cure madness.
44	Sapindus mukorossi	Sapindaceae	Reetha	Soapnut tree	Triterpenoid, sesquiterpenoid, saponin, glycosides	Its fruits are ground with black pepper and few drops are poured in the nostrils to get relief from migraine pain. Its seeds along with kernel and peel are ground and to be inhaled regularly to cure epilepsy, completely.
45	Sesbania grandiflora	Fabaceae	Agastiya, Agust	Sesbane	Leucocyanidin, cyanidin, triterpenoids	Sesbane leaves and black pepper are ground in cow urine and made to inhale. It brings immediate relief from epilepsy. Few drops of leaf or flower extract are put in the opposite nostril of migraine pain giving immediate relief.
46	Sida cordifolia	Malvaceae	Jangli methi, Bariyar, Khrainti	Country mallow	Sidasterone A and B	Its powder after cooking in milk, is given to the patient or massaged, giving relief in facial paralysis. To control the excessive anxiety, the plant and *apamarg*(Achyranthes aspera) are boiled in milk until concentration and given.
47	Solanum surratense	Solanaceae	Bhatkataiya, Kantakari, Laghukai	Yellow berried night shade	Solasodine, solasonine	Its roots and poppy seeds are grinded in child's urine and put in

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
						the nose to be relieved from epilepsy.
48	Sphaeranthus indicus	Asteraceae	Mundi, Gorakhmundi	East Indian globe thistle	Sterols, sesquiterpenoids	It and clove powders are given in honey to cure Parkinson's disease.
49	Syzygium aromaticum	Myrtaceae	Lavang, Laung	Clove	Carvacrol, thymol, eugenol	Cloves are grinded in water and the paste is applied on the earlobes to cure migraine.
50	Terminalia chebula	Combretaceae	Harad	The chebulic or black myrobalan	Ethyl gallate, luteolin	Seeds are grinded in warm water and applied on forehead for relief in migraine.
51	Valeriana jatamansi	Valerianaceae	Tagar	Valerian	Patchouli alcohol	Its juice is useful in epilepsy. When taken in honey, it helps in hysteria. ***tagar*** when taken in combination of other plants, helps controlling the delirium.
52	Vitex negundo	Verbenaceae	Samhalu, Meudi	Five leaved chaste	Negundoside	The powder of its fruits is given in mental disorder.
53	Vitis vinifera	Vitaceae	Munakka, Angur, Dakh	Grapesvine, Raisins	Glycosides of pelargonidin, cyanidin	Grapes and *amla* (Phyllanthus emblica) are boiled together and crushed and Ginger powder is added. When given in unconsciousness due to fever, it helps. *Munakka,* pomegranate bark, khus khus are grinded together and soaked in water overnight. Strained and given for faintness. *Munakka* is roasted and given for dizziness.

S.NO	BOTANICAL NAME	FAMILY	HINDI NAME	ENGLISH NAME	MAJOR CHEMICAL CONSTITUENTS	AYURVEDIC RECOMMENDATIONS
54	Withania	Solanaceae somnifera	Ashwagand ha, Asagandha	Winter cherry, Poisonous gooseberry	Withaferin A, withanolide A	In Ayurveda, this plant has been described for use in several illnesses and overall body strength. Scientifically, it has also been found to be effective in ischemia.
55	Xeromphis spinosa	Rubiaceae	Main phal	Emetic nut	Oleanolic acid glycoside	Its fruits and sugar are grinded in cow milk and given as *nasya* to treat migraine headache.
56	Zizyphus mauritiana	Rhamnaceae	Ber	Jujube	Peptide and cyclopeptide alkaloids, sanjoinenine	Although not prescribed in Ayurveda, its fruit is used in mental healing as scientifically proved for epilepsy.

Conclusion

While the health system struggles to save millions of lives daily, there is probably a risk of a looming pandemic of hidden mental health issues which has a huge potential to shatter the existing mental health infrastructure. To deal with the aftermath of the COVID-19 pandemic, there is a need to take care of people's mental health hand-in-hand and give equal importance along with other strategies for the management and control of disease and epidemics.

Much cross-sectional research has been carried out to investigate the impact of COVID-19 on children and young people. The findings of these studies show that the nature and extent of this impact are influenced by a number of risk factors, including developmental age, educational status, mental health conditions, being economically disadvantaged, or being quarantined due to infection or fear of infection. According to studies, young children exhibit higher clinginess, disrupted sleep, poor appetite, inattentiveness than older children. Various studies have shown that the prevalence of mental disorders is high in females, the elderly, children, adolescents, and those with chronic medical conditions. There is a need to

enhance student access to mental health services by using both face to face as well as digital platforms. We need to have better living conditions, political commitment, primary health care system and policy making, prevention, promotion, and interventions corresponding to the public mental health system. Currently, the world is rightly looking towards the brain-healing properties of traditional medicines, including Ayurveda, for a reliable cure with no or minimal side effects. The present review clearly explains that the Indian system of medicine is very well developed for treating most of the brain related disorders.

References

1. Ahmad A. R., & Murad H. R. (2020). The impact of social media on panic during the COVID-19 pandemic in Iraqi Kurdistan: Online questionnaire study. *Journal of Medical Internet Research*, 22 (5), e19556.
2. Banerjee S. K. (2020). Dealing with immunisation during the COVID-19 pandemic: India's experience. *European Pharmaceutical Review*. https://www.europeanpharmaceuticalreview.com/article/119520/dealing-with-immunisation-during-the-covid-19-pandemic-indias-experience/
3. Lavretsky, H (2009). Complementary and alternative medicine use for treatment and prevention of late-life mood and cognitive disorders. *Aging Health*, 5, 61-78.
4. Mukherjee, Bailay R, & Shrivastava J. (2020). Impact of coronavirus on consumer products: Consumer goods fly off the shelves as coronavirus spreads in India. The economic times. Retrieved on May 8, 2020.
5. Sandhya S, Vinod KR, & Sravan K (2010). Herbs used for brain disorders. *Hygeia J D Med,* 2, 38-45.
6. Younus M, Younus A, & Shahbaz I (2015). *Value of Ayurvedic medicinal plants as psychotherapeutic agents-A review. International Journal of Innovative Science Engineering and Technology*, 2, 144-148.
7. Govt to use 108 helplines for mental health counselling. The New Indian Express. (2020). Retrieved May 8, 2020, from https://www.newindianexpress.com/states/telangana/2020/apr/12/govt-to-use-108-helpline-for-mental-health-counselling-2129009.html
8. UNICEF. (2020a). Children with autism and COVID-19. https://www.unicef.org/serbia/en/children-autism-and-covid-19.

9. WHO. (2020b). WHO | COVID-19: resources for adolescents and youth. WHO; World Health Organ. http://www.who.int/maternal_child_adolescent/links/covid-19-mncah-resources-adolescents-and-youth/en/.

The Journal of Anthropological Discourse

Original Article

Impact of Lockdown on Gonds: Few Reflections from Barkhera Mahent Village of Sagar, Madhya Pradesh

Karan Mohan Thakur[1] & Dr. Sarvendra Yadav[2*]

[1]*Post Graduate Student, Department of Anthropology, University of Delhi, New Delhi-110007*

[2]*Assistant Professor, Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar-470003 (M.P.)*

Article Info

Received 25 November 2022
Revised 10 January 2023
Accepted 10 April 2023

Keyword

Lockdown, Pandemic, Gond

Abstract

The COVID-19 pandemic was a unique and challenging event that had significant impacts on individuals and communities around the world. The devastating scenario of the pandemic can be observed in almost all the regions of the world but here we are going to mention about an indigenous community 'Gonds' of Madhya Pradesh, India. The study aims to investigate the effects of the lockdown on these indigenous people of Barkhera Mahent village in Sagar district, Madhya Pradesh. These communities often face challenges, including isolation from modern healthcare and educational systems, which can make them particularly vulnerable during a crisis like a pandemic. To gather our data, we conducted a survey among 100 respondents from the village using a questionnaire and a random sampling technique. Our findings suggest that the indigenous people of Barkhera Mahent village were negatively impacted by the COVID-19 lockdown, particularly in terms of access to livelihood, healthcare and education. However, they were able to rely on government schemes, such as the Pradhan Mantri Gareeb Kalyan Yojna (PMGKY) and the Public Distribution System (PDS), to help them survive the pandemic in form of aid from the government during the crisis.

Introduction

The tribal communities of India have long been an integral part of the country's social fabric, with their presence spanning across various regions, including urban, rural, and tribal societies. As one of the nations with a significant tribal population, India is home to a diverse array of indigenous communities, commonly referred to as Adivasis in Hindi, meaning "original inhabitants." These communities are typically located in isolated areas, remote from other societies, and are often considered to be socioeconomically disadvantaged and primitive.

*Corresponding author email: sarvendra2u@gmail.com

According to the 'The People of India Project,' a comprehensive study of India's ethnic and cultural diversity, 4635 communities have been identified, of which 461 are classified as Scheduled Tribes. The 2011 Census data reveal that the Scheduled Tribes of India constitute 8.6 percent of the country's overall population, with a sex ratio of 990 females per 1000 males, higher than the national average of 940 females per 1000 males. (Scheduled Tribe Population - Census 2011, 2011)

The Bhils, a community that primarily inhabits the western Indian states of Rajasthan, Gujarat, and Madhya Pradesh, form the largest tribal group in India. The state of Madhya Pradesh has the highest concentration of tribal population in the country, accounting for 14.69% of India's tribal population, while the Union Territory of Lakshadweep has the highest proportion of Scheduled Tribes among all union territories, with 94.8% of its population belonging to this category.

The Scheduled Tribes, also known as STs, are a distinct group of people who have been historically marginalized and disadvantaged in terms of social, economic, and political status. In 1935, they were referred to as "backward tribes," but following India's independence, the term "backward" was replaced with "Scheduled Tribe" in the Constitution. Despite this, there remains a lack of a clear and definitive definition of a Scheduled Tribe.

Article 366(25) of the Indian Constitution states that those groups listed under Article 342 are considered to be Scheduled Tribes. Article 342 further stipulates that the President of India, in consultation with the Governors of the respective states, can specify tribes or tribal groups as Scheduled Tribes through public notification.

To address the welfare and development of Scheduled Tribes, the Government of India has appointed several committees, such as the U.N. Dhebar Commission in 1959 and the Lokur Committee in 1965, to identify specific criteria for the specification of Scheduled Tribes. These committees have played a vital role in ensuring that the rights and needs of Scheduled Tribes are protected and promoted.

Particularly Vulnerable Tribal Groups (PVTGs) and Denotified, Nomadic, and Semi-Nomadic Tribes constitute a significant proportion of the tribal population in India. With over 705 tribal groups, the PVTGs are amongst the most economically backward and vulnerable among the Scheduled Tribes. These groups can be found in 18 states and the Andaman & Nicobar Islands, with a total of 75 PVTGs. Due to their vulnerability, some of these groups have an endangered population and face the threat of extinction. The primary activities of these communities include hunting, food gathering, fishing, pastoralism, and Jhoom cultivation. Odisha has the highest number of PVTGs, with the Muria Gonds and Saura tribes of Orissa

having the highest population among PVTGs. In contrast, the Great Andamanese of Andaman and Nicobar Islands and Sentinelese have the lowest population.

Arrival of COVID-19 in India and Its Effect on Indigenous Communities

The first case of COVID-19 was reported in the city of Wuhan, China in 2019. Due to its highly contagious nature, the World Health Organization declared the virus a global pandemic on March 11, 2020. To curb the spread of the virus, governments worldwide implemented lockdown measures and advised citizens to practice proper hygiene and social distancing protocols.

In India, the first case of COVID-19 was reported on January 30, 2020. The Government of India subsequently imposed a nationwide lockdown from March 25, 2020 for a duration of three weeks, in an effort to contain the pandemic. At that time, the country reported 536 active cases and ten deaths.

The lockdown was subsequently extended until May 31, 2020, resulting in a complete lockdown of the nation for 66 days. The lockdown had severe implications for the economy, healthcare system, and education sectors. Many individuals lost their jobs during the pandemic as companies struggled to stay afloat financially. Additionally, the lockdown caused shortages of food and grocery items due to transportation and agricultural supply chain disruptions.

Furthermore, the lockdown resulted in large numbers of individuals migrating back to their home states, which further exacerbated the spread of the virus as they were not able to follow proper guidelines. Many of these individuals were forced to travel long distances on foot or by bicycle in order to reach their homes, causing widespread chaos.

Overall, the pandemic situation has created a havoc in the nation and it has a severe impact on all the major sectors of the country. The loss of jobs and the difficulty in reaching homes has created a challenging situation for people.

The lockdown imposed in response to the COVID-19 pandemic had a significant impact on the education sector, as schools and colleges were forced to close their doors. This resulted in the disruption of traditional classroom instruction, leading to increased mental stress among students. In an effort to mitigate this disruption, many educational institutions transitioned to online learning. However, it is worth noting that this format of instruction lacked the dynamic engagement and interaction that is inherent in in-person instruction.

The healthcare sector was particularly affected by the COVID-19 pandemic, as the number of active cases reached unprecedented levels. The sudden emergence of this corona virus caught many healthcare systems off guard, resulting in inadequate preparedness. This lack of readiness

was reflected in the shortage of beds, medications, and oxygen cylinders needed to treat patients. However, with the development and distribution of vaccines, there has been a decrease in the number of active cases of COVID-19. As of March 21, 2022, over 181.21 crore vaccines have been successfully administered in India. (PTI, 2021)

The indigenous population of Barkhera Mahent village has been relatively insulated from the COVID-19 pandemic due to their geographic isolation. However, the impact of the epidemic on this community has been severe despite the low infection rates. The lack of record-keeping and medical facilities in these areas makes it difficult to determine the true extent of the pandemic's impact on the tribal communities.

One of the primary concerns for these communities is the lack of access to modern medical and technological resources. This vulnerability has been exacerbated by the COVID-19 pandemic, which has resulted in a range of problems for the tribal communities, including loss of livelihood, disruption to crop cycles, and negative impacts on health and migrant labor.

This study aims to gain an understanding of the ways in which the COVID-19 lockdown has affected the lives of the indigenous population in Barkhera Mahent village. Overall, it appears that the pandemic has presented significant challenges for this isolated community, highlighting the need for further research and support in addressing the unique needs and vulnerabilities of tribal populations during public health crises.

Research Method

A sample of 58 elite Indian boxers who participated in the national camp at Patiala included in this study, having three different categories light (<60 kg), middle (61-74kg), and heavy (>75 kg).

Height was measured by Seca digital BMI machine (model 284) with a precision of 0.1 cm, sitting height was measured by a sitting height table (Holtain), arm span was measured using an Anthropometric rod, and fat mass, fat-free mass, skeletal muscle mass, segmental fat and lean mass, the waist-hip ratio was assessed using body composition analyser (Accuniq; BC 720) with the standard protocol (Smith & Norton, 2002). Descriptive statistics for the measured Anthropometric parameters and bilateral traits for each individual were calculated. Descriptive statistics for several derived anthropometric variables - body mass index and waist-hip ratio were also estimated. The body mass index (kg/m^2) was calculated by dividing the mass (kg) by the square of height (m).

Statistical analyses were performed using IBM SPSS v. 23.0 (SPSS, Chicago, USA). Data were expressed as mean and standard deviations of the mean (SD). Student's t-test for

dependent samples was used to test, whether the mean values for the symmetric trait like fat and lean mass differed significantly when estimated using the right versus the left side. One-way analysis of variance (ANOVA) with a subsequent Bonferroni post hoc test (if a difference among the weight categories was revealed) was used to examine the difference in anthropometric and body composition parameters among the three weight categories. A significant level of 0.01 was adopted to assess the difference between the mean.

The differences between the right and left limbs were estimated by the right minus left (R-L) side, in some individuals may be biased by injury or technical factors such as measurement error. Therefore, scatter plots of right versus left side measurements for each trait were visually inspected for aberrant individuals in terms of asymmetry.

Result

Impact of Lockdown on Livelihood

The Covid-19 pandemic has resulted in a truly unprecedented situation that has affected individuals and sectors across the globe. Despite socio-economic distinctions, all individuals, regardless of wealth or class, have experienced significant difficulties during the lockdown period. Governments around the world implemented stringent measures, including lockdowns and strict guidelines for social distancing and hygiene, in an effort to curb the spread of the virus. As a result, individuals were confined to their homes and forced to adapt to remote working and extended periods of domesticity. This sudden shift in lifestyle was hitherto unimaginable. For students, the pandemic has resulted in an extended holiday, but this experience is not one of leisure, but rather one of uncertainty and unease. The reality of the situation is far from the fantasy of a holiday, as it is a life-altering event.

The COVID-19 pandemic and subsequent lockdowns have resulted in significant economic upheaval, particularly for those individuals and families that are dependent on the informal sector for their livelihood. According to the United Nations Development Programme, (UNDP, 2021) a large proportion of the Indian population is engaged in this sector, which is characterized by a lack of formal employment protections and benefits. As such, the impact of the lockdown on this segment of the population has been disproportionately severe, as highlighted by the International Labour Organization (Impact of lockdown measures on the informal economy, 2020).

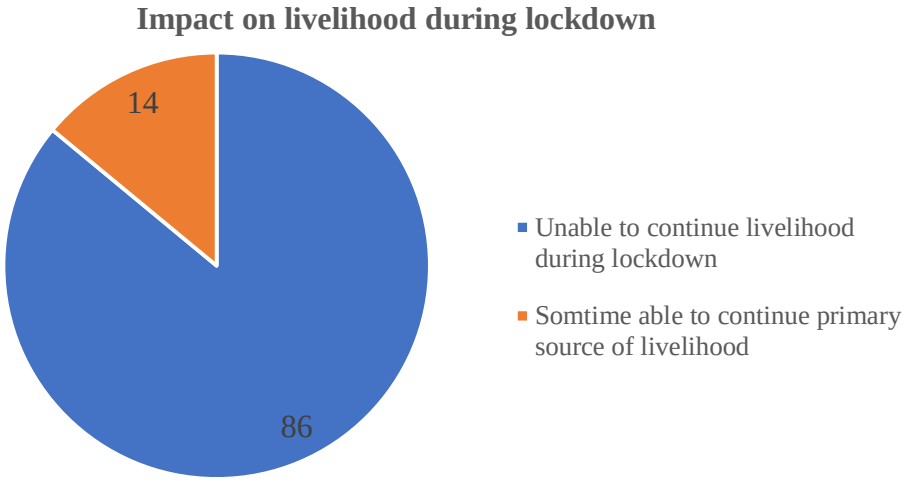
In conclusion, the Covid-19 pandemic has presented a challenging and uncertain situation for individuals and communities globally, with the effects of the pandemic being felt

across all socioeconomic groups. The closure of workplaces and offices has resulted in significant economic impacts, particularly for those in the informal sector. Additionally, the Indian Ministry of Labour and Employment reported that in April 2020 alone, nearly 91 million people lost their jobs as a result of the lockdown.

A recent study conducted in the Barkhera Mahent village of Sagar, India, sheds further light on the extent of economic disruption experienced by informal sector workers.

Figure 1 shows that a staggering 86% of respondents reported being unable to continue their primary source of livelihood during the lockdown, while only 14% reported being able to do so for varying periods of time. The informal sector and its workers have been disproportionately affected by the lockdown measures implemented to combat the spread of COVID-19. The results of the study in the Barkhera Mahent village of Sagar are indicative of the wider economic disruption experienced by this segment of the population.

Figure 1: Impact of Livelihood During Lockdown



The main reason behind this unemployment was because the livelihood of these villagers was mainly based on the informal sector and it was found that they were unable to continue their primary source of livelihood and because of lockdown they were unable to get other job for their livelihood.

Impact on Agricultural Production

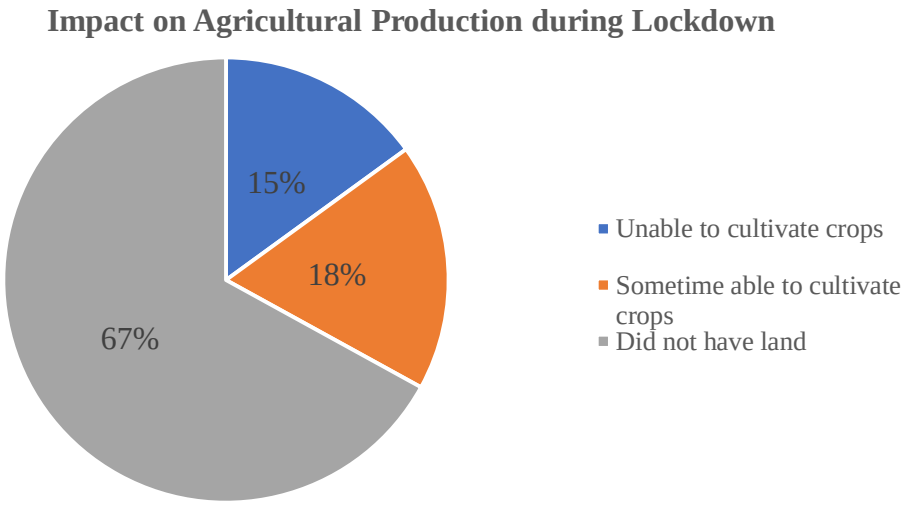
The COVID-19 pandemic has had a significant impact on agricultural production globally, as the imposition of lockdowns, restrictions on movement, and lack of transportation have severely disrupted the production and transportation of agricultural products, thereby disrupted the food supply chain and led to an increase in food prices. In India, factors such as labor shortages in states such as Punjab, Haryana, and Tamil Nadu, as well as the migration of

laborers and fear of COVID-19, have further compounded the challenges facing agricultural production.

Despite these challenges, the Ministry of Agriculture, Government of India, has stated that the agriculture sector in India remained fully functional and operational during the lockdown period, as farming-related activities were deemed essential and thus allowed to continue. Agriculture-related items such as seeds, fertilizer, pesticides, and equipment such as harvesters were also facilitated. Ministry of Agriculture further provided data indicating that the agriculture and allied sectors registered a growth of 3.4% during 2020-2021, as per data from the Central Statistics Office, Ministry of Statistics and Program Implementation. (PIB, 2021)

However, figure 2 that 15% of respondents reported that there were no agricultural facilities available during the lockdown, due to which they were unable to cultivate crops on their lands while 18% reported that they sometimes they were able to cultivate crops on their lands, and 67% reported that they did not have land for crop cultivation. These findings underscore the complex and diverse nature of the challenges facing agricultural production in these areas, and the need for targeted and effective interventions to support farmers and the agricultural sector as a whole.

Figure 2: Impact on Agricultural Production during Lockdown



Food Shortage During Lockdown

The lockdown period had a profound impact on all aspects of human life, including food availability. Due to various restrictions, the lack of transportation services, and the

disruption of food supply chains, a deficit of food products was observed across the market, resulting in an increase in food prices.

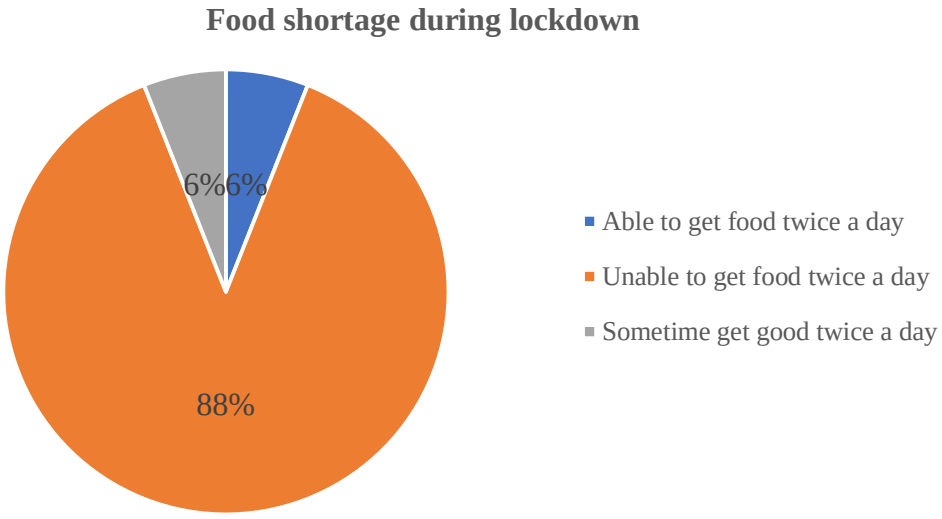
India, with a ranking of 94th out of 107 countries in the Global Hunger Index 2020 (WEF, 2021), was particularly affected by the lockdown. Not only was it a health crisis, but it also served as a catalyst for hunger and malnutrition (WEF, 2021). Furthermore, according to a report by the World Food Programme, over 130 million people in India were at risk of food insecurity (WEF, 2021)

To address this issue, the Government of India implemented various schemes such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and the Pradhan Mantri Gareeb Kalyan Yojna (PMGKY), in addition to the Public Distribution System (PDS), to mitigate food insecurity among marginalized and lower-class populations. (india.gov.in, 2021) (Kumar, 2021) (AG Adeeth Cariappa, 2021) (Angeline Jeyakumar, 2022) (Prajjval Pratap Singh, 2022)

However, the effectiveness of these measures is questionable. Figure 3 shows that 88% of respondents reported being unable to obtain proper meals twice a day during the lockdown, while 6% reported occasionally being able to access proper meals, and only 6% reported being able to consistently access two meals per day.

The main reason behind this was unavailability of source of livelihood due to which most of the people of the village were unable to get enough money to buy food items for themselves.

Figure 3: Food Shortage During Lockdown



Primary Healthcare Facilities and Vaccination During Lockdown

The pandemic served as a stark reminder of the fragility of our global public health systems and underscored the need for enhanced preparedness and response measures. The COVID-19 pandemic overwhelmed healthcare facilities, resulting in a shortage of essential resources such as oxygen cylinders and proper medications. This led to a significant number of daily deaths, particularly during the imposition of strict lockdowns. In India, between January 3, 2020 and March 21, 2022, over 43 million confirmed cases of COVID-19 were reported, resulting in over 516,000 deaths.

Governments around the world implemented strict lockdowns as a means of controlling the spread of the virus and subsequently, widespread vaccination campaigns were launched to curb the pandemic. As of MoHFW data, 181.21 crore doses of vaccines have been administered in India. (PTI, 2021)

However, it was found that in the village of Barkhera Mahent, there was a lack of primary healthcare facilities, and residents were required to travel to nearby cities for medical treatment. Despite this, the government has implemented a successful vaccination program, with 96% of respondents having received both doses and 4% having received only the first dose with the help of anganwadi workers.

This was a remarkable achievement for the government as the village was at a very remote location from the nearest settlement but the government with the help of anganwadi workers they came together and encouraged people to take vaccine against COVID and provided them proper knowledge about this disease due to which the vaccination program in the Barkhera Mahent village was successful.

Government Response

The COVID-19 pandemic has had a severe impact on the Indian economy, particularly on the informal sector. Millions of people lost their jobs as a result of the lockdown, leading to significant migration back to home states. This has resulted in severe hardship for these workers, who have been left without means to sustain their livelihoods. In response, the Government of India launched the Pradhan Mantri Gareeb Kalyan Yojna (PMGKY) from April to June 2020. However, due to the continued economic impact of the pandemic, the scheme was extended until November 2020.

In light of the second wave of COVID-19, the PMGKY was relaunched in May 2021 in order to ensure food security for the vulnerable population. Under the scheme, 5 kg of food

grains were provided to eligible individuals from May 2021 to November 2021, at a cost of INR 2,27,841 crores (PIB, 2021).

Empirical research conducted in the Barkhera Mahent village indicates that all respondents benefited from the PMGKY. The scheme has been effective in providing aid to those in need, particularly during a time of severe economic hardship.

The main reason behind this was as the COVID lockdowns were started government spotted that the indigenous people as well as people having lower income will suffer mostly due to shortage of food due to which the government launched schemes like Pradhan Mantri Gareeb Kalyan Yojna (PMGKY) due to which most of the indigenous people as well as people having lower income got benefitted in the form of food grains from the government.

The COVID-19 pandemic was unprecedented in its rapidly spreading nature and the unprecedented measures implemented by governments across the globe to curb its spread, including complete lockdowns. These lockdowns had a significant impact on various aspects of human life, particularly in the areas of the economy, education, and healthcare. The informal sector, in particular, was severely affected, with many individuals losing their livelihoods and falling into extreme poverty. Additionally, the lockdown led to mass migration, particularly among laborers in states such as Maharashtra, Punjab, and Haryana, as they sought to return to their hometowns in search of work and to escape the threat of COVID-19. The unavailability of transportation during the lockdown made this migration difficult and dangerous, with many individuals walking hundreds of kilometers without proper precautions, thereby increasing the risk of COVID infection. Furthermore, the lockdown led to a lack of transportation services, which in turn led to food scarcity and price inflation. Agricultural practices were also affected, with a shortage of seeds, pesticides, fertilizers, and agricultural equipment such as harvesters. In the education sector, the closure of schools and colleges had a detrimental impact on students, not only academically, but also mentally. However, with the implementation of online classes, students were able to continue their education. The lockdown also had a psychological toll on individuals, with increased reports of anxiety and depression. The healthcare sector was particularly affected by the pandemic, as hospitals were overwhelmed with COVID patients, leading to a shortage of medication and oxygen cylinders and an increase in casualties. It is evident that the COVID-19 pandemic has had a profound and far-reaching impact on society, and it is crucial for government policies to address these issues and provide support for affected individuals and sectors.

Conclusion

The present study aimed to explore the impact of the lockdown on the lives of the indigenous population of Barkhera Mahent village through the conduct of primary research utilizing a structured questionnaire. A random sampling technique was employed to collect data from the inhabitants of the village. The questionnaire primarily comprised of quantitative research questions. The findings of the study indicate that the indigenous population of Barkhera Mahent village faced numerous challenges during the pandemic, particularly in terms of loss of primary livelihoods. Moreover, the absence of a healthcare facility in the village exacerbated the difficulties faced by the population, as they were required to travel to the city for medical treatment. However, it is worth noting that the Government did initiate vaccination of the village inhabitants through the Anganwadi workers. Additionally, the population did benefit from various Government-provided schemes such as the provision of grains during the pandemic period.

It is imperative to acknowledge that this pandemic serves as a wake-up call for the Government and citizens alike to be better prepared for similar crises in the future. The Government must implement robust policies to address such pandemics, especially considering the possibility of future outbreaks with a greater impact.

In conclusion, the current pandemic has highlighted the shortcomings in terms of technology, preparedness and policy-making and implementation in our society. It serves as a reminder of the harsh reality of our perceived strengths and capabilities compared to the actual state of affairs.

References

1. Population Census. (n.d.). *Barkhera Population—Sagar, Madhya Pradesh*. Retrieved from https://www.census2011.co.in/data/village/461094-barkhera-madhya-pradesh.html
2. Cariappa, A. A. (2021). Impact of COVID-19 on the Indian agricultural system: A 10-point strategy for post-pandemic recovery. *Outlook on Agriculture*, 26–33.
3. *COVID-19 is creating a hunger catastrophe in India – here's an opportunity to break the cycle*. (2021). WEF. https://www.weforum.org/agenda/2021/06/covid-19-pandemic-hunger-catastrophe-india-poverty-food-insecurity-relief/
4. Das, D. (2020). Impact of Covid-19 pandemic on Indian rural livelihood. *Journal of Entomology and Zoology Studies*, 1847–1850.

5. PIB. (2022). *Finance Minister Smt. Nirmala Sitharaman announces relief package of Rs 6,28,993 crore to support Indian economy in fight against COVID-19 pandemic*. https://pib.gov.in/PressReleasePage.aspx?PRID=1730963
6. PIB DELHI. (2021). *Impact of Covid-19 on Agriculture*. https://www.pib.gov.in/PressReleaseIframePage.aspx?PRID=1697512
7. ILO. (2020). *Impact of lockdown measures on the informal economy*. https://www.ilo.org/global/topics/employment-promotion/informal-economy/publications/WCMS_743523/lang--en/index.htm
8. Jeyakumar, A. (2022). Loss of Livelihood, Wages, and Employment During the COVID-19 Pandemic in Selected Districts of Chhattisgarh in India, and Its Impact on Food Insecurity and Hunger. *Frontiers in Public Health*, 1–9.
9. Kumar, R. K. (2021). Impact of COVID- 19 on the Economic Activities among the Tribal People of Jharkhand. *AGPE The Royal Gondwana Research Journal of History, Science, Economic, Political and Social Science*, 67–75.
10. *Census.* (2011). *Scheduled Tribe Population*. https://www.census2011.co.in/scheduled-tribes.php
11. Singh, P. P. (2022). COVID-19: Impact on linguistic and genetic isolates of India. *SPRINGER NATURE*, 47–50.
12. UNDP. (2021). *The COVID-19 pandemic confirms the vulnerability of informal jobs, according to a UNDP study*. https://www.undp.org/moldova/press-releases/covid-19-pandemic-confirms-vulnerability-informal-jobs-according-undp-study
13. Tripathy, A. K. (2020). COVID-19 and Lockdown in India: Challenges for the Tribal Economy of Odisha. *Journal of Humanities and Social Sciences Research*, 185–191.
14. Yadav, S. (2020). Amid coronavirus lockdown, Gond tribals survive on roti with salt in Panna. *The Hindu.* https://www.thehindu.com/news/national/amid-coronavirus-lockdown-gond-tribals-survive-on-roti-with-salt-in-panna/article31199200.ece

The Journal of Anthropological Discourse

Original Article

Analysis of the Obstacles of attaining scientific temper on the basis of some popular concepts of mythological TV shows and films

Rekha Garg Solanki[1] & Arvind Solanki[2]

Article Info

Received 16 November 2022
Revised 22 March 2023
Accepted 6 May 2023

Keyword

Scientific temper, Decision making, Hypothesis, Mythological concepts etc.

Abstract

Scientific temper refers to an attitude of logical, rational and scientific thinking. An individual is considered to have a scientific temper if he/she employs a scientific method of decision-making in everyday life. This involves repeatedly observing and verifying a fact before forming a hypothesis. Most of the people are thinking that the scientific thinking process is far away from reality, it is only suitable to the scientific community and only for the technological developments. In present scenario a flood of mythological TV shows is running on telemedia. Various channels and platforms are showing different mythological shows. In the present work we are trying to search the effect of some popular mythological concepts to the human scientific temper. For this work we were chosen survey method for collection of primary data. The analysis of the collected data in terms of getting the effect of the mythological concept to the society on the basis of different parameters such as age groups, education, profession and chosen responses.

Introduction

Many Most of the people are wrongly understood the meaning of 'scientific temper'. They thought that it is only for the scientific community and applicable onlyfor the technological developments not for the acceptance of scientific temper at thinking and behavioural level. People also thought that the rational belief system is not for society it is only for the advancement in technology. Though huge efforts have been made to implant the scientific temper and rational thinking among public by government and various societies as well but still it is an unsuccessful attempt [1]. There are many factors responsible for deterioration of scientific temper and rational thinking few of them are the tendency of society to follow the faiths and beliefs blindly, accept the viewpoints of ancestors without ever testing its feasibility, strong and blind belief in cast system, cast and community wise superior and non-superior thoughts, blind beliefs on mythological stories, gender, cast, community, religion, complexion, customs, rituals, and professions based differences among human beings. But the

major reason among all the above listed reasons is the mythological beliefs and our TV shows and films based on mythological stories play a major role in spread of these stories to each and every house of our country. The flood of mythological shows on every channel and day night spoon feeding of supernatural powers of mythological heros; make them popular in society. The creative representation of the director and excellent acting of actors make these stories popular and playing an important role in spreading blind faith and believes among people.

The mythological beliefs are flowing in the Indian society just like blood in human body. For example, according to one of the beliefs of Indian society; the Indian husbands have longer life because of one day Nirjala fasting of Indian wives named as “karva chouth vrat”. Though we all see many examples in our society as wives blindly followed the karwa chouth vrat rituals throughout their life; still many husbands die; but according to story of this vrat the died husbands alive after one year, and another belief is that the husbands may alive ling (hundreds & hundreds of years). When we have discussed many people about the reason of popularity of Karwa chouth ritual; most of the responders told a movie name “Kuch-Kuch Hota Hai” directed by Karan Johar and released on 16th October 1998. Before the release of this movie this vrat was a custom of Punjab and some regions of UP and MP. But after released of above movie it became popular in all parts of India. It is also celebrated by foreign Indian residents.

Kumar (2014), said A nation where people (rulers) believe in miracles and supernatural beings and powers will not understand and the development of modern science neither will it be able to progress based upon innovations of science. Sofor understanding the growth of a nation in terms of social, political and technological development it is compulsory to search about the temper of a country resident. In our present work we were trying to search the temper of the residents of and CG. It is done by the survey about some of the popular mythological concepts and beliefs on human mind. We were also trying to find out the role of mythological TV shows and films in spreading of myth beliefs in our society. A survey was made for collecting primary data of responders about some of the popular mythological beliefs. The questionnaire was shared in different age groups, collected their responses, analyzed and reported here.

Result and Discussion

Age-sex Our present study included some popular mythological conceptslisted here in the form of questions as follows;

1. According to you the mythological stories are…..True/False/ partially true/none / I don't know.
2. What you think about the mythological concept; the Hanuman swallowed the Sun as shown in TV shows Jai Hanuman, Mahawali Hanuman etc. are……. possible/impossible/ partially true/none / I don't know.
3. A human boy has maximum 5 liters of blood in this context what do you think the Kali Devi drunk whole blood of all Raktbijadanavas (the rektbeezhas tendency to multiply whenever his blood dropson the ground) as written in mythological story of Raktbijavadh……...possible/impossible/ partially true/none / I don't know.
4. Can mythological characters be half human and half animal just like the Hanuman, Narsingh, Varah, Matsyaavtarand Garuna as shown in popular TV shows named Jay hanuman, Vishnu puran, garuna etc……. possible/impossible/ partially true/none / I don't know.
5. Where mentioned that men and women are equal……. / in Hindu Religion/ Indian Constitution/ All religions/ none

A discussion was made on the above five concepts with different age groups, professionals and education levels. Our responders are young college/university students, college/University professors, research scholars, doctors and house helpers.

Table 1. Responders' details in terms of their Age group

S No.	Age groups	Responders (%)
1	< 20 years	16%
2	20-30 years	38%
3	30-40 years	20%
4	> 40 years	26%
Total		**100%**

The collected data were analyzed for getting information about the responders in terms of their age, education and profession. Table 1 shows the age wise distribution of responders. The table 1 shows that the 16 percent responders of age below 20 years, 38 percent of age group 20-30 years, 20 percent of age group 30-40 years and remaining 26% responders of age 40 or more than 40 years. The table 2 shows the education level of responders. It is clear from table 2 that our responders belong to various education levels such as 18 percent responders having PhD degree, 30 & 20 percent having PG and UG degree respectively. The responders pursuing their UG degree are 16 percent, 8 percent having 12th and diplomas in different

streams such as ITI, nursing, pathology etc. We are having 4 percent responders of MBBS/BAMS degree and they are medical practitioners. Only 4 percent responders having 10th or less education and generally they are house helpers.

Table 2. Education level of responders

S No.	Education	Responders (%)
1	PhD	18%
2	PG degree	30%
3	MBBS/BAMS	4%
4	UG degree	20%
5	Pursuing UG	16%
6	12^{th} +diploma	8%
7	10th or less	4%
Total		**100%**

Table 3. Professional details of responders

S No.	Professional Details	Percentage of responders
1	Professors /teachers	14%
2	Doctors/nurses	8%
3	Students	36%
4	Others	42%
Total		**100%**

The professional details of the responders were fetched by analyzing the collected data and shown in table 3. Among all responder's 14 percent are professors/teachers in school, colleges and universities, 8 percent are medical practitioners and 36 percent belongs to students' group, those are either having their UG degree or pursuing, 42 percent responders are belonging to the other group which includes house wives, house helpers, strugglers, and many more. The responder data shows that the survey includes youngsters, highly qualified professors, students, house helpers, medical practitioners etc.

The analysis of response given by the responders was tabulated in table 4 and 5. Table 4 includes the responses of question number 1 to 4 and table 5 includes the response of question number 5. In this work we are trying to search some important facts as;

- The analysis responses of mythological concepts through responses.
- The analysis of thinking of responders; logical or influenced by their beliefs and faiths.
- The analysis of responder's views about the mythological TV shows.
- Scientific facts about mentioned concepts with educators and doctors.

The responses are represented in the form of percentage. In response of the question number 1 which was asked for knowing the faiths and beliefs of responders about the

mythological stories. Among all responder's 30 percent having strong belief (or blind faiths) as the mythological stories are true or real. In this group of responders are generally house helpers, students and persons involve in other professions. Then 24 percent responses are of professors/teachers and medical practitioners; who were not having blind faith about the above concepts. The deep questioning about the sun swallowed by Hanuman and Raktbijvadh story the real believers reduced to 24 and 20 percent and again increases till 36 % for half human and half animal concept of various mythological characters of Question 4. The response increases 24 to 52 and 62 percent for questions 1-4; and the people said mythological stories are false and based imaginations and in response of question 3 & 4 were chosen impossible. The further deep discussion about the question 2 to 4 only 6 percent responders were partially believing on them. On an average 10 percent responders were not saying anything and 10percent saying I don't know.

Now for searching the scientific facts of the concepts of question 2 to 4, our target responders were the professors/ teachers and medical practitioners. For the shown contents in TV shows about the sun swallowed by Bal Hanuman, discussion were made and found that it was totally false concept. Because we all know very well the fact about the sun is a fire ball and the fire (energy) is produced by nuclear fusion reactions. Its outer layer has 6000 K temperature, so the hanuman swallowed the sun is an imaginary concept and not possible the sun was swallowed by someone. The discussion about the way it is predicted in TV shows is just the creative representation of director with the help of technology. The technology is the resultant of the scientific developments because of scientific temper. So, the above discussion is the representation of practical use of scientific temper in technological developments which is necessary for representation of mythological stories.

Now the scientific fact of the question 3 which is about Raktbijvadh, is that if Kaliwas having woman body then she can intake only few liter of liquid (blood at one time). But according to the story the Raktbij duplicate himself, then how Kali were intake the blood of all Raktbijdanvas. The discussion about the shown content in TV shows the Kaushiki cuts the head and kali collects blood in her khappar. The logic is that only head has blood while the body not; so how Raktbij not able to duplicate as his whole blood of body on ground. The picturization of the story is not suitably done. The story is imaginary and its representation in mythological TV shows dumps human mind. The audiences were not able to think, as it is possible or not. They are watching and blindly belief on the shown contents. They followed the process as shown, in practice to please the goddess, Kali; news regarding the blind faiths was observed in newspapers.

For knowing the scientific facts about the fourth questions; can mythological character be half human and half animal? We were discussed to the doctors for getting answer of this question. They said that naturally interspecific pregnancy is not possible. When we were discussed about IVF, then they told that only possible when sperms of animals fertilized by the eggs of human or vice versa and then injected in a female uterus either human or animal. The doctors said that it is only possible in similar species and not for human and animals. Generally, in such cases embryos are not formed, if embryos formed and injected to the female body; then the body ejected out the unexpected injected objects. It means the survival of embryos not possible in such case. Now come to our mythological characters like Hanuman (half man and half monkey), Narsingh (half lion and half man), Varah (half pig and half man), matsyaavtar (half man and half fish) and Garun (half man and half eagle) as predicted in mythological stories or as shown in TV shows and films are completely imaginary characters.

Table 4. shows the analysis of responses given by responders of question numbers 1 to 4

Response	**Analysis of responses in (%)**			
	Q.1	**Q.2**	**Q3**	**Q4**
True/real/possible	30%	24%	20%	36%
False/imaginary/impossible	24%	52%	62%	52%
Partially true	32%	4%	6%	-
None	4%	10%	2%	10%
I Don't Know	10%	10%	10%	2%
Total	100%			

During the discussion of some people about the scientific facts of the initially responded questions; and the shown contents in TV shows. Most of the people said that we know it, but these are our religious and mythological thoughts; hence we believe on them. With the discussion of professors some are showing strong faith about mythological facts while very few are strongly opposed all mythological facts and says these are only imaginary stories. They said that in spread of mythology TV shows and movies plays a major role. Though the stories were modified by director and according to his/her direction the actors acted, and earned money. But the shown content creates fictitious thoughts in human mind and frequently watching such TV shows enhances the faith and belief towards them.

In last question we were discussed about the equality of men and women; then around 76 percent responders said that in our Indian constitution and only 12 percent said in Hindu dharma and 10 percent go with all religions; and 2 percents go with none of them. Actually, the last question is included for checking their logical ability. We found that around 22 percent responders know the mythological facts are not true still they have fully blind faith on them.

The remaining 76 percent responders are aware about rights and duties and a part of this 76 percent responder's population used the mythological facts for their own benefit according to the situations. In this group generally; religious speakers or representators, pujari/maulana/ padri, politicians, professors etc. The remaining 2 percent responders are neither believing nor refusing the mythological facts. They are neutral and not affected much by their surrounding environments. But the 22 percent those are not educated much; easily influenced by the environment or influencers.

Table 5. Responses of responders of question 5

S. No	Responses	Responders (%)
1	Religion Hindu	12
2	Constitution of India	76
3	All religions	10
4	None of them	2
Total		**100 %**

A quote of renowned rationalist Sanal Edamaruku published in Times of India August 25, 2013, that "we want our kinds to have top marks in maths and science but we don't ask them to lead scientific lives" the quote itself represent the importance of scientific temper.

Conclusion

In conclusion of the present study, the mentioned mythological concepts are not having any scientific relevance and not true. The shown contents in TV shows about the mythological stories and their continuous and repetitive telecast mold the low education level or illiterate minds towards having bind faith on them. On an average of our total responders about 50 % have strong belief and faith towards them. They spent a part of their total earning on such believes.

The scientific temper is a primary requirement of our country for social, political or economic development. The rural population gets affected much more than urban and cosmopolitan population. They have strong faiths on mythology and the shown TV contents. So, it's our primary duty to spread scientific temper among rural population and create awareness among them by giving the actual facts about the myth stories. It can be done by giving rational thinking from early school levels, encourage them for asking questions. Only the ways to enhance rational thinking that ask questions and try to search answers of questions.

References

1. https://en.wikipedia.org/wiki/Scientific_temper (Visited on April 10, 2022).
2. Kumar, A. & Mishra, B.P. (2014). Standardization scale for measuring the scientific temperament of farmers. *Indian Res. J. Ext. Edu*. 14(1), 48-55.
3. Saxsena, A. (2014). Understanding scientific temperament and assessing its social relevance. *Journal of Scientific Temper.* 2 (1), 121-140.
4. Sunil, S. (2009). A scientific temper. (available at balancing life.blogspot.in /2009/03/scientific-temper.html.) (Visited on April 10, 2013).
5. https://en.wikipedia.org/wiki/Interspecific_pregnancy. (Visited on April 10, 2022).

The Journal of Anthropological Discourse

Original Article

Issues and Problems of Adolescent Tribal Girls: A study among Paroja Tribe of Koraput District, Odisha.

Kabita Swain[1]

[1]*Research Scholar, P.G. Department of Anthropology, Utkal University, Vani Vihar, Bhubaneswar-04.*

Article Info

Received 29 December 2022
Revised 3 February 2023
Accepted 6 April 2023

Keyword

Adolescence, Behavioural, Health, Paroja, Odisha

Abstract

Introduction: *Adolescence is a phase of life accomplished by physical and psychological developments from puberty to adulthood. Physical changes take place due to maturation. Psychosocial and behavioural manifestations are determined by the meaning given to these changes within a cultural system. Adolescent girls constitute a vulnerable group particularly in India where a female child is always neglected. There is paucity of information regarding the prevalence of behavioural and physical problems among the in tribal adolescents girls, who form a different set from the mainstream section.*

Objectives: *The present study aims to investigate spectrum of various psychosocial, emotional and health issues related to adolescent girls of Paroja tribe of Manabar village of Koraput District, Odisha.*

Methods: *Sample for the study comprised of 280 tribal adolescent girls randomly selected from the age group 10-19 years in the study area. Data were collected on predesigned, semi-structured questionnaire method. Study was undertaken by conducting personal interviews of selected study population, direct observation and focused group discussion.*

Results: *Data revealed various physical and psychosocial problems were found to be significantly higher. Lack of parental attitude towards female education was a major problem for which adolescents girls greatly lack information related to proper age of marriage and childbirth which is an important factor responsible for maternal and child mortality. Menstruation related problems were found to be most prevalent among the study participants. Sexual abuse by male teachers was also reported. Lack of awareness to participate in skill development programs in society was also seen.*

Conclusions: *Knowledge about family life, proper health practices and education are to be basic needs for the adolescent tribal girls. This gives an insight to implement adolescent friendly effective awareness programme to screen routine adolescent health problems.*

Introduction

Adolescents are the precious human resources of every nation. The word adolescence is derived from the Latin word, 'adolescence', meaning 'to grow or mature'. Adolescent girl constitute a vulnerable group. Particularly in India where female child is neglected one. As per World Health Organization, adolescence is the period between 10 to 19 years of age and they are contributing to nearly $1/5^{th}$ of the world's population. Most adolescents are presumed to be healthy but an estimated 2.6 million young people aged 10 to 24 year die each year (WHO,2014) and a much greater number of young people suffer from illness hindering their ability to grow and develop to their fullest potential.

Adolescent girls are facing various problems of physical as well as psychological problems (Sharma, 1996). Adolescence is a phase of life that begins in biology and ends in society. It means that both physical and biological changes are universal take place due to maturation but the psychosocial and behavioural reflection are determined the changes within a cultural system.

Tribal adolescents are more vulnerable due to ignorance, lack of awareness, poverty, poor medical attention, sociocultural taboos, and lack of education (Jena et al., 2017).
Menarche, the first menstrual period, which indicates the maturity of reproductive potential and physiological growth (Jena et al., 2017).The reaction to menstruation depends upon awareness & knowledge. Menstruation is a natural process, it is linked with several misconceptions & practices, which sometimes directly affects towards their health outcome. Hygiene-related practices of girls during menstruation period are the considerable importance, as it has a health impact due to increased vulnerability to reproductive tract infections (RTI).

Adolescence is divided into four periods i.e., pre-adolescence (9-12 years), early adolescence (11-14 years), adolescence proper (14-17 years), & late adolescence (17-20 years. As physical problems like; delayed growth, acne, sexual maturity, nutritional problems of adolescent girls. As behavioural, psychological emotional problems Like; criminal activity, child marriage, teen age pregnancy and abortion child, adolescence sex workers, suicidal tendency, violence, lack of awareness about female education (Das et al., 2016). They also feel shy to talk about the menstruation and are afraid of seeing doctors. Due to the appropriate advice and guidance, which generally get from their peer groups and mother.
According To Mishra and Sharma. (2001).in their study on "Behavioural and emotional problems in school going adolescence".

Sunita & Gopalkrishna (2014), they reported that "Health behaviours and problems among young people in India: cause for concern &call for action" explained that the major health problems among the young people included under nutrition and over nutrition. In 2012 a study conducted at Jiwaji University, Madhya Pradesh (Kumar. A.;2012).He explained that for a large number of adolescent girls belonging to joint families are influenced as the uncontrolled media are the major sources of spreading marital sex in the general population. The adolescents girls are nuclear famillie, felt that communication gap between the parents and their children results are use of sex children results the use of sex as a stress.

This study lies in the well documented findings in the social science literature about adolescence's issues. Further, studies undertaken under adolescent's issues have highlighted one or two specific issues.

Objectives

To know the

1. Spectrum of problems and issuesof daily life faced by tribal adolescent girls.
2. Various menstrual problems and symptoms in the adolescent girls.
3. Health awareness behaviour and hygiene practices

Materials and Methods

The current research study was based on anthropological technique. The study was undertaken among the paroja adolescent girls of Manabar village in Koraput Block, Koraput District, Odisha. In the first phase of sampling, the schools were selected. This was done by preparing a list of girls Hostel and schools located within the Block and selecting two hostels, &village adolescent girls. These are (1) Hundred seated ST girls hostel, Manabar village, (2) Hundred Seated ST girls hostel, Umri village.(3) Government Upgraded High School The next step I have used simple random sampling & out of 300 adolescent girls, I have selected 280 adolescent girls at the age of 9-20 years, who are attained menarche.

According to their accommodation arrangement in girl's hostel and villages ,they are further divided into 3 groups (9-12 years,13-16 years & 17-20 years) as their ages, they classify into pre-adolescent, early, middle, late-adolescent.

Then I have used schedule method and interviewmethod for data collection. A lady Head mistress (also lady superintendent of the hostel) was assigned for the smooth focus group discussion with the adolescent girls for the study.

After collects the data, these data were recorded in MS excel using for percentages and proportions**.**

Results

Table 1: Age at Menarche

Age	Group (n=280)	
	No.	**%**
9 to 10	3	1.071
10 to 11	8	2.857
11 to 12	61	21.786
12 to 13	172	61.429
13 to 14	24	8.571
14 to 15	2	0.714
15 to 16	1	0.357
16 to 17	1	0.357
17 to 18	4	1.429
18 to 19	3	1.071
19 to 20	1	0.357
20 to 21	0	0.000
Total	280	100.000

The above table shows that, the number of adolescent girls, who belongs to at the age of first menstrual period. The highest number of females is observed in the age group of 12-13. The lowest number of female is located in the group of 19-20.The maximum number of adolescent girls are 172(61.429%) and 1(0.357%)the minimum number of girls comes under menarche.

Cycle length		
Days	**No.**	**%**
<25	5	1.79
25-35	271	96.79
>35	4	1.43
Total	280	100

The table shows that the gap between menstrual cycle length. There are majority of girls could not recall their Length of Menstruation Period (LMP) .96.79% reported menstrual cycle length within 25-35 days is the normal gap for adolescent girls.

Table 3: Rhythm of Menstrual Flow

Duration of bleeding		
Days	**No.**	**%**
<=2	5	1.79
3-5	94	33.57
5-7	176	62.86
Others	5	1.79
Total	280	100.00

The above table indicated that the duration of blood flow was 5 to 7 days in 62.86% is the maximum days in adolescent girls. Less than 2 days flow is the minimum ratio .Those girls who come under the maximum percentages; they suffered many menstrual disorder among them.

No. of pads used		
No. of pads	**No. of individuals**	**%**
1-2(scanty bleeding)	221	78.93
2-3(average bleeding)	12	16.79
3 (heavy bleeding)	47	4.29
Total	280	100.00

From this above table majority of girls used 1 or 2 pads within 7 days .But in severe cases 47 number of girls are used 3 pads for menstrual period.

Girls habitation	**Cloths materials**		**Sanitary napkin**	
	No.	%	No.	**%**
Hostel (222)	26	11.71	196	88.29
Village (58)	37	63.8	21	36.2

There are the 26 cloths material used by hostel girls. Whereas 37 village girls are used cloth material for menstrual period time. But in the case of utilization of sanitary napkin hostel girls are more used that napkin in comparison to village girls.

Table: 4 Associated symptoms

Symptoms	**Adolescent girls (%)**
Fatigue	12
Abdominal bloating	20
Back pain	43
Abdominal pain	37
Change in bowel habits	13

Breast tenderness	10
Pruritus	35
Anxiety	26
Dizziness	14
Headache	18
Vomiting	4
Leg pain	22
Body ache	19
Dysmenorrheal	47

The table shows that, Back pain is the most common symptoms over the menstrual period. Vomiting is the rare symptoms of over all the hostel and village adolescent girls.

Source of knowledge		
Source	**No.**	**%**
Mother	100	35.71
Friends	78	27.86
Other family members	13	4.64
School education	8	2.86
Others	8	2.86

Number of tribal girls remaining symptoms in menstrual period might be due to lack of health awareness and ignorance. In that cases Mother make a very important role, that source of knowledge is the prime source for an adolescent girl.

Discussion

Adolescence is the period of rapid physical change. I have focused on adolescent girl's problem on that area. Hygiene-related practices of girls during menstruation are the major problem in this village. I have measure two comparisons in between hostel adolescent girls/school adolescent girls and village adolescent girls. I Have found that hostel girls are used sanitary napkins by the support of Govt. of odisha in free of cost. They dispose their used napkins by using the dustbin. Within the menstrual periods, the adolescent girls suffer from many diseases like abdominal pain, leg pain, back pain, breast tenderness etc.

In village girls and women are not to use any sanitary napkins in their menstrual period, due to lack of unawareness, ignorance and socioeconomic condition. They used only cloth material, after use they washing it and after it able to reuse again also used it.This process is the only cause of vaginal irritation, pruritus, unhygienic atmosphere etc. They cannot practices menstrual hygiene among themselves.

There were found to be unaware about the proper age to marriage and to become a mother, they have lack of knowledge about contraception. That is also another problem of adolescent girls.

Teenage marriage and earlier pregnancy is the major physical problem in their society. The menstrual associated symptoms also a major cause in that village adolescent girls as well as hostel girls also.

The occupation of the adolescent girls as well as the parents as wage labor, they are worked at brick kiln. But the contractor of the brick kiln has misbehaved among the girl workers.

Generally, the adolescent girls are felt ashamed to discuss about the above psychological matters from anyone. They suppressed and forced not to open their mouth any public circumstances. That is the major emotional problem in that area.

Another problem has lack of female education in Manabar village. Their dropout rate in school is the major cause of teen-age marriage and wage labor work in early period. Due to Lack of family support and low socio-economic condition is the cause of dropt out female adolescent girls.

Conclusion

On the basis of data available, it was concluded that psychosocial problems and various physical problems were remarkably higher in tribal adolescent's female population. Observe that there is need for better counselling program me for adolescent girls and planning of health programmes, also create health awareness which should generated in that area.

Menstrual problems are a significant source of morbidity in adolescents. The major cause of suffering in adolescent girls is lack of knowledge and insufficient health knowledge about menstrual problems. That reason to reach further suffering due to delay in diagnosis and its treatment. For adolescent girls, counselling needs to be done on the avoidance of alcoholic drinks, which were practices more in age of ado0lescents girls.

References

1. Das, S., Mishra, S., Mohanty, A. K., & Sahoo, S. S. (2017). Assessment of adolescent problems in tribal adolescent girls: a cross sectional study. *International Journal of Community Medicine and Public Health*, *3*(5), 1014–1019. https://doi.org/10.18203/2394-6040.ijcmph20160991.

2. Jena, P., Agasti, N., Andalib, S., & Khandelwal, K. (2017). Menstrual problems and health awareness of tribal adolescent school girls of Odisha- a sectional study. 6(51), 3917-3921.
3. Naik, Y., & Das, P. (2018). Adolescents' Issues: A case study of Jashipur Block of Mayurbhanj District of Odisha. JETIR, 5 (11). 602-612.
4. World health organization. (2002). Adolescent friendly health services- an agenda for change. *Geneva: World Health Organization*. 2002, 5.
5. Sharma, P., Malhotra, C, Taneja, D. K., Saha, R. (2008). Problems related to menstruation amongst adolescent girls. *Indian J Pediatr*, 75(2), 125-9.
6. Gupta, S., & Sinha, A. (2006). Awareness about reproduction and adolescents changes school girls of different socio economic status, journal of Obstetrics and Gynecology of India. 56(4), 324-328.
7. Dube, S., & Sharma, K. (2012). Knowledge, Attitude and practices Regarding Reproductive Health among Urban and Rural Girls:A Comparative Study. *Ethno Med*, 6(2), 85-94.
8. Dasgupta, A., & Sarkar, M. (2008). Menstrual Hygiene: How Hygienic is the Adolescent Girl? *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, *33*(2), 77–80. https://doi.org/10.4103/0970-0218.40872
9. Sumpter, C., & Torondel, B. (2013). A Systematic Review of the Health and Social Effects of Menstrual Hygiene Management**.** *PloS one*, 8(4), e62004. doi:10.1371/journal.pone.0062004
10. UNICEF. (2012). Progress for children: A report card on adolescents. Socio-Demographic profile of adolescents. *UNICEF*, 10.

The Journal of Anthropological Discourse

Short Communication

Non-communicable diseases (NCDs) in India: Epidemiological transition, prevention, control and economic burden

Partha Sarathi Datta[1*] & Rajesh K. Gautam[2]

[1]Research Scholar [2]Professor; Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya (Central University), Sagar, Madhya Pradesh, India

Article Info

Received 26 November 2022
Revised 10 January 2023
Accepted 20 March 2023

Keyword

Chronic conditions, morbidity, mortality, DALY, tobacco, life style, GDP

Abstract

Non-communicable diseases (NCDs) including cardiovascular disease, stroke, cancer, diabetes and lung diseases are jointly responsible for about 70% of all global deaths. In India, earlier the leading cause of death was communicable diseases, which declined with the advent of antibiotics and vaccines, but now with the increasing prevalence of NCDs, morbidity and mortality are increasing again. In 1990, NCDs contributed 35.87% to deaths in India, which was lower than communicable, maternal, neonatal and nutritional diseases combined, which accounted for 55.28%. But, in 2019, the percentage of deaths due to NCDs increased to 64.93%, while the percentage of deaths due to communicable, maternal, neonatal and nutritional diseases combined decreased to 25.02%. The reasons behind the increasing incidence of NCDs in India are rapid urbanization, unhealthy diet, sedentary lifestyle, tobacco consumption, obesity etc. Studies estimated that NCDs in India account for an economic burden of between 5-10% of GDP, hampering the country's development. The most effective preventive strategies are lifestyle modification, healthy diet, physical activity, smoking cessation and control of metabolic disorders.

Introduction

Non-Communicable Diseases (NCDs) are a major threat to public health that requires effective action for prevention and control worldwide. According to World Health organization (WHO), NCDs alone are responsible for 41 million global deaths each year, which is approximately 71% of all deaths (WHO, 2014). It is also expected that the number of deaths related to NCDs will increase to 52 million by 2030, and most of these deaths by NCDs will occur in low and middle income countries (LMICs) (NCD Countdown, 2018). In LMICs, more than 15 million people aged 30 to 69 years die from NCDs, with a high prevalence of premature death (Abegunde et al., 2007). Since the beginning of the last decade, NCD mortality has

*Corresponding Author: dattaps.biomed@gmail.com

increased globally. According to WHO, NCD related deaths increased in South-East Asia and Western Pacific during 2000 to 2012 (WHO, 2014).

Prevalence of risk factors and escalating burden of NCDs in India

With a population of more than 1.3 billion (more than 17% of world's population), India, a country in South Asia, is the second-most populous country in the world. India has witnessed an increase in NCDs over the past decade (Upadhyay, 2012). Various factors are involved in the fast growth of NCDs in India. Rapid urbanization, unhealthy diet, sedentary lifestyle, tobacco consumption and excessive alcohol consumption are the main reasons behind the increasing incidence of NCDs in India (Sinha & Kumar, 2010). In India, the most common NCDs are cardiovascular diseases, diabetes, cancer, respiratory diseases etc. (Nethan et al., 2005). These four NCDs are major threats to public health and economic growth and development of the country (Menon et al., 2022).

According to the WHO global status report on noncommunicable diseases 2014, 60% of all deaths, which are around 5.87 million, are caused by NCDs in India and mainly occur in mid and late adult ages (WHO, 2014). Chronic non-communicable diseases have reversed the trend of mortality. Earlier major cause of death was communicable diseases, which was declined with the advent of antibiotics and vaccines; but now with increasing prevalence of NCDs again the mortality and morbidity is increasing. The table 1 shows year-wise contribution of NCDs and communicable diseases to global and Indian deaths (GBD Compare, 2022). NCDs contributed 56.75% to global deaths in 1990, much higher than communicable, maternal, neonatal and nutritional diseases combined, which accounted for 34.29%. In global perspective, the percentage of deaths due to NCDs reached 74.37% in 2019, whereas, the percentage of deaths due to communicable, maternal, neonatal and nutritional diseases combined reached 18.03%. On the other hand, in 1990, NCDs contributed 35.87% to deaths in India, which was less than communicable, maternal, neonatal and nutritional diseases combined, which accounted for 55.28%. In the Indian context, the percentage of deaths due to NCDs increased to 64.93% in 2019, whereas, the percentage of deaths due to communicable, maternal, neonatal and nutritional diseases combined decreased to 25.02% (GBD Compare, 2022). Figure 1 & 2 show the graphical representation comparing the percentage of global deaths due to NCDs and communicable, maternal, neonatal and nutritional diseases combined in global and Indian perspective by year respectively (GBD Compare, 2022).

Table 1: Year wise contribution of NCD and communicable diseases in total death: Global and Indian scenario

Years	Non-communicable Diseases %		Communicable, maternal, neonatal and nutritional diseases %	
	Global	India	Global	India
1990	56.75	35.87	34.29	55.28
1991	57.00	36.49	33.91	54.61
1992	57.64	36.92	33.57	54.15
1993	58.32	37.92	32.81	52.90
1994	58.20	39.02	31.97	51.74
1995	59.00	39.63	32.11	51.04
1996	59.41	40.93	31.77	49.70
1997	59.76	42.39	31.46	48.13
1998	60.03	43.00	31.13	47.28
1999	60.45	43.14	30.63	46.87
2000	61.05	43.91	30.19	46.13
2001	61.66	44.93	29.71	44.92
2002	62.33	46.00	29.12	44.14
2003	62.95	46.60	28.48	43.63
2004	63.16	46.51	27.88	43.33
2005	63.99	47.69	27.33	42.15
2006	64.58	49.15	26.88	40.71
2007	65.27	50.48	26.24	39.41
2008	65.80	51.72	25.37	38.15
2009	66.84	52.50	24.76	37.27
2010	67.32	53.46	23.95	36.17
2011	68.32	54.73	23.41	34.89
2012	69.09	56.25	22.66	33.43
2013	69.83	57.75	21.99	32.10
2014	70.50	59.20	21.34	30.94
2015	71.29	60.53	20.64	29.66
2016	72.11	62.16	19.93	28.03
2017	72.83	63.15	19.30	27.02
2018	73.63	64.05	18.60	25.96
2019	74.37	64.93	18.03	25.02

Figure 1: Compare the percentage of global deaths due to NCDs and communicable diseases by year

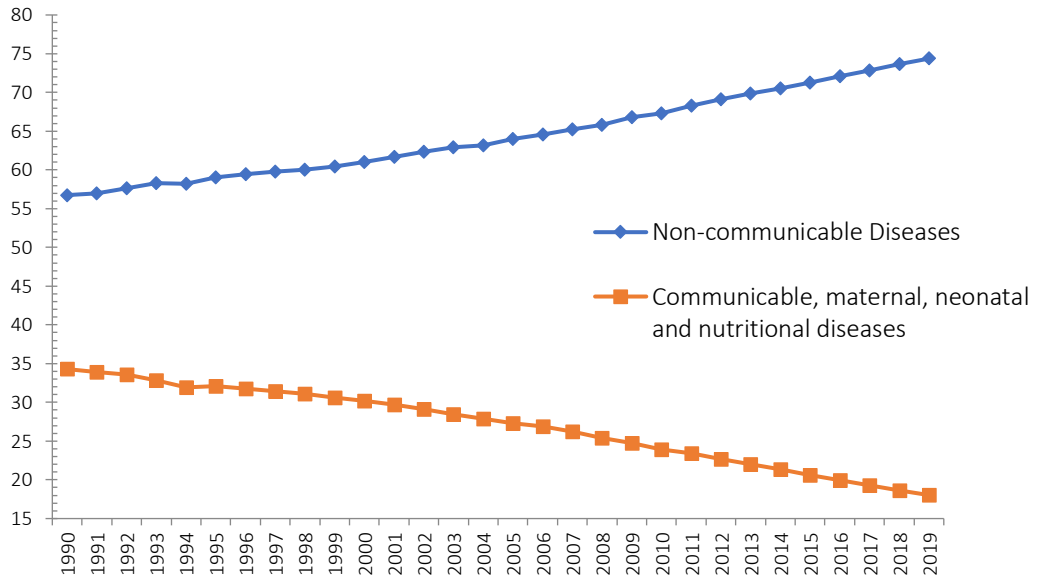
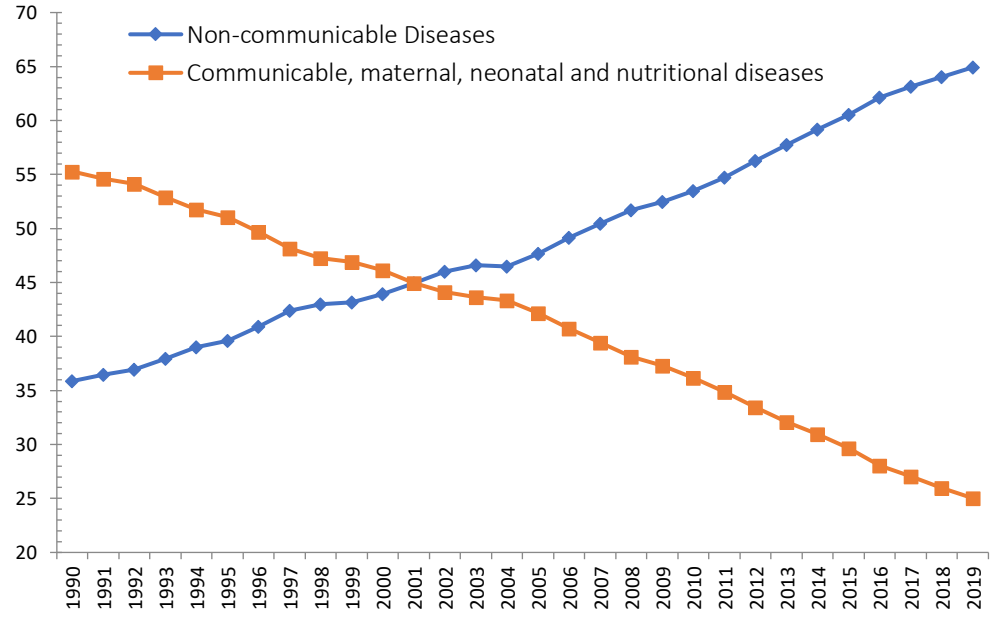


Figure 2: Compare the percentage of Indian deaths due to NCDs and communicable diseases by year



The National Health Policy 2017 by Ministry of Health & Family Welfare, Government of India, calls for additional focus on the increasing burden of NCDs and the rising incidence of unsustainable expenditure on health (MoHFW, 2017). In 2017, it was calculated that NCDs caused about 4.7 million deaths in India comprising 49% of all deaths. Cardiovascular diseases (CVDs) contribute to around 23% of all NCD related deaths followed by chronic respiratory disease (9%), cancers (6%) and diabetes (2.4%) (Menon et al., 2019). Further, 65% of these deaths occurred under age 70 years that could have been prevented, and Disability-Adjusted Life Year (DALYs) for NCDs accounted for 47% of all cause DALYs in India (Menon et al., 2022). In WHO South-East Asia region, India alone accounts for more than two-thirds of the total NCD related deaths. CVD is also responsible for 45% of deaths among 40-69 year olds. Individuals at risk for CVD may have elevated blood pressure, high blood glucose, and dyslipidemia as well as overweight/obesity (WHO, 2014).

According to the WHO global status report on noncommunicable diseases 2014, the prevalence of tobacco smoking (23.6%) in India is higher than the global prevalence (22%). The report also revealed that the prevalence of overweight and obesity in India is increasing rapidly across all sex and age groups (WHO, 2014). According to WHO standards, more than two-thirds of adolescents aged 11 to 17 years and around 13% of adults across the country are physically inactive in India. In addition, high blood pressure is also common among Indians due to faulty diet and sedentary lifestyle. According to this report, the prevalence of hypertension in India increased by 10% in just four year period from 2010 to 2014. One in ten people over 18 years of age in India also have hyperglycemia due to lifestyle changes. Apart from this, the report also estimated that the per capita alcohol consumption in India is 5.2 liters, which is significantly higher than the average consumption of alcohol in the WHO South-East Asia Region (WHO, 2014).

The prevalence of major risk factors for common NCDs by the National Family Health Survey (NFHS-5, 2019-21) is given in the table 2 (NFHS-5 Fact Sheet).

Table 2: Prevalence of risk factors of NCDs by NFHS-5

Risk factors	Prevalence (%) [Aged ≥15 years]	
	Men	Women
Use any kind of tobacco	38.0	8.9
Consume alcohol	18.7	1.3
Hypertension [SBP >=140 mmHg or DBP ≥90 mmHg]	24.0	21.3
Hyperglycemia [>141 mg/dl]	14.4	12.4
Overweight/Obesity [BMI ≥25 kg/m^2]	22.9	24.0

High Waist Circumference [>94 cm for men and >80 cm for women]	12.4	39.9
High Waist-to-Hip Ratio (WHR) [≥0.90 for men and ≥0.85 for women]	47.7	56.6

In 2017, the Indian Council of Medical Research (ICMR) estimated that the proportion of deaths due to NCDs in India increased from 37.9% in 1990 to 61.8% in 2016. The detailed proportions of changes in DALYs number for causes of these NCDs among women from 1990 to 2016 are given in the table 3 (ICMR, 2017).

Table 3: Proportions of changes in DALYs number among women from 1990-2016

NCD category	Proportion of changes in DALYs number	
	1990	2016
Cardiovascular disease (CVD)	2.9	6.6
Chronic respiratory disease (CRDs)	2.7	4.4
Diabetes	0.7	2.2
Cancer (Breast Cancer)	0.7	0.9

Economic burden of NCDs in India

NCDs directly and indirectly affect the country's economy and health system as well as the affected people and their families. NCDs are long term conditions that hamper many productive years of the life of the affected individuals; it is a major cause of premature death and disability. Further, any premature death lead to adverse socio-economic impact, as victims may be the main bread-earner of the family (Engelgau et al., 2012; Barik & Arokiasamy, 2016). A number of studies have shown that families in which at least one member has one or more NCDs have higher health care costs than those with any other disease, as NCDs require long-term treatment (Li et al., 2012; Saito et al., 2014; Weraphong et al., 2013). In 2004, a national survey in India found that expenditure on NCDs accounted for 5.17% of total household expenditure (Kundu et al., 2018). In India, the share of out-of-pocket expenditure (OOPE) in total health expenditure stand almost unaltered from 2004 (71%) to 2014 (69%) (Garg & Karan, 2009). Kastor & Mohanty, calculated a mean OOPE of INR 40,947 and INR 57,232 for heart diseases and cancer respectively. Cancer accounted for 79% *current health expenditure* in families in this study. The OOPE related with the acute and long-term effects of NCDs result in catastrophic health expenditure for the family (Kastor & Mohanty, 2018). A study in India found that about 25% of families with a CVD patient and 50% of families of cancer patient have to incur catastrophic health expenditure. A study using multivariate regression analysis

found that catastrophic hospitalization expenditure almost 160% more for a patient with cancer than hospitalizations for communicable diseases. In comparison, the odds of incurring catastrophic hospital expenditure due to CVD were approximately 30% higher than those with communicable conditions resulting from a hospital stay (Kundu et al., 2018).

According to Popkin et al. (2001), urban and high income rural Indians have a higher prevalence of overweight due to higher consumption of dairy products and added sugar in their diet. Because of this, adult-onset diabetes is high in India. The study measured economically and projects the costs of undernutrition and diet-related noncommunicable diseases in 1995 and 2025. In India, the expense of undernutrition will continue to decline but as because the NCDs are increasing at a faster pace, the costs project to be similar economic expenses of undernutrition and overnutrition by 2025 (Popkin et al., 2001). In India, various state Governments spend about 80% on NCDs while the Ministry of Health and Family Welfare of Government of India (GOI) accounts for about 65% of the total central expenditure (Gupta & Ranjan, 2019). In India, an estimate shows that NCDs account for an economic burden of 5-10% of Gross Domestic Product (GDP), significantly hampering economic development (Thakur et al., 2011). World Economic Forum (WEF) estimated that economic loss between 2012 and 2030 due to CVD, Cancer and Diabetes would be 2.17, 0.25 and 0.15 trillions of 2010 dollars respectively (Kundu et al., 2018), shown in table 4.

Table 4: Economic burdens of NCDs in India, 2012-2030

NCD category	**Economic loss between 2012 and 2030** [trillions of 2010 dollars]
Cardiovascular disease (CVD)	2.17
Mental health conditions	1.03
Chronic respiratory disease (CRDs)	0.98
Cancer	0.25
Diabetes	0.15
Total NCDs	**4.58**

Strategies for prevention and control

The Department of Health & Family Welfare, Government of India (GOI) adopts various programmes to prevent and control NCDs. The National Program for Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) was launched in India in 2010 with the aim of improving the infrastructure of healthcare institutions, awareness creation for health promotion and prevention, human resource development, early detection and managing various levels of treatment of NCDs (MoHFW 2017a). Under NPCDCS, the Department of Health & Family

Welfare, GOI, provides technical and financial assistance to the States/Union Territories (UT), as part of National Health Mission (NHM). More than five thousand NCD clinics at Community Health Centre (CHC) level have been set up all over India to conduct the treatment and screening of NCDs under NPCDCS where people over the age of 30 years are targeted for their screening for common NCDs, with a special focus on screening for cervical cancer and breast cancer in women (ICMR, 2017).

Other notable NCD control programs undertaken by GOI are National Multisectoral Action Plan (NMAP) for Prevention and Control of Common *Noncommunicable Diseases*, National Mental Health Programme (NMHP), National Tobacco Control Programme (NTCP), National Oral Health Programme (NOHP), National Programme for Control of Blindness & Visual Impairment (NPCBVI), National Programme for the Prevention & Control of Deafness (NPPCD) etc. Beside this, the Department of Health & Family Welfare, GOI observes various health days and uses mass media to promote of healthy lifestyles and raise awareness about NCDs. The Food Safety and Standards Authority of India (FSSAI) promote healthy eating throughout the year. The Ministry of Youth Affairs and Sports implemented the Fit India movement and the Ministry of AYUSH conducted various yoga related activities. Also, NPCDCS provides financial assistance for creating awareness for NCDs undertaken by the States/UTs.

In addition, several non-governmental organizations (NGOs) are working to promote healthy lifestyles and early detection of NCDs in India.

Conclusion

In India, the Government expenses huge revenue for healthcare mainly for NCDs which may spend in other developmental sectors. On the other hand, in case of family level, the expenditure for medication for NCDs may uses in reduction of poverty which is directly involved to the economy of the country. Now, since high blood pressure, high blood glucose, dyslipidemia and other related conditions start in middle and late adult life, prevention should begin early in life, when a modification in lifestyle can reduce the incidence of NCDs. Therefore, we need an effective preventive strategy and health awareness programs to improve the unhealthy lifestyle of the residents of this country, so that we can contribute to economic development by reducing the burden of noncommunicable diseases in India.

References

1. Abegunde, D., Mathers, C., Adam, T., Ortegon, M., & Strong, K. (2007). The burden and costs of chronic diseases in low-income and middle-income countries. The Lancet, 370, 1929-38.
2. Barik, D., & Arokiasamy, P. (2016). Rising Health Expenditure Due to Non-Communicable Diseases in India: An Outlook. Front. Public Health, 4, 268.
3. Engelgau, M. M., Karan, A., & Mahal, A. (2012). The Economic impact of Non-communicable Diseases on households in India. Globalization and Health, 8, 9.
4. Garg, C. C., & Karan, A. K. (2009). Reducing out-of-pocket expenditures to reduce poverty: A disaggregated analysis at rural-urban and state level in India. *Health Policy and Planning, 24*(2), 116–128.
5. Gupta, I., & Ranjan, A. (2019). Public expenditure on non-communicable diseases and injuries in India: A budget-based analysis. *PLoS One, 14*(9).
6. Indian Council of Medical Research (ICMR), Public Health Foundation of India (PHFI), and Institute for Health Metrics and Evaluation (IHME). (2017). *India: Health of the Nation's States - The India State-level Disease Burden Initiative.* New Delhi, India.
7. Institute for Health Metrics and Evaluation (IHME). GBD Compare Data Visualization**.** Seattle, WA: IHME, University of Washington, 2020. Available from http://vizhub.healthdata.org/gbd-compare. (Accessed September 11, 2022)
8. International Institute for Population Sciences (IIPS) and ICF. (2020). National Family Health Survey (NFHS)-5, India and State Factsheet Compendium.
9. Jain, Vageesh. (2016). Medical research in India and the rise of non-communicable disease. BMJ. 353. i3371. 10.1136/bmj.i3371.
10. Kastor, A., & Mohanty, S. K. (2018). Disease-specific out-of-pocket and catastrophic health expenditure on hospitalization in India: Do Indian households face distress health financing? *PLoS One, 13*(5).
11. Kundu, M. K., Hazra, S., Pal, D., & Bhattacharya, M. (2018). A review on Noncommunicable Diseases (NCDs) burden, its socioeconomic impact and the strategies for prevention and control of NCDs in India. Indian Journal of Public Health, 62:302-4.

12. Li, Y., Wu, Q., Xu, L., et al. (2012). Factors affecting catastrophic health expenditure and impoverishment from medical expenses in China: Policy implications of universal health insurance. *Bulletin of the World Health Organization, 90*, 664–671.
13. Menon, G. R., Singh, L., Sharma, P., et al. (2019). National burden estimates of healthy life lost in India, 2017: An analysis using direct mortality data and indirect disability data. *Lancet Global Health, 7*(12), e1675–e1684.
14. Menon, G. R., Yadav, J., & Denny, J. (2022). Burden of Non-Communicable Diseases and Its Associated Economic Costs in India. *Social Sciences & Humanities Open*, 5. http://dx.doi.org/10.2139/ssrn.3899118
15. Ministry of Health & Family Welfare. (2017). *National multisectoral action plan for prevention and control of common non-communicable diseases (2017-2022)*. New Delhi: Ministry of Health & Family Welfare, Government of India.
16. Ministry of Health & Family Welfare. (2017a). *National program for prevention and control of cancer, diabetes, CVD and stroke (NPCDCS)*.
17. NCD Countdown 2030 collaborators (2018). NCD Countdown 2030: worldwide trends in non-communicable disease mortality and progress towards Sustainable Development Goal target 3.4. *Lancet (London, England)*, *392*(10152), 1072–1088. https://doi.org/10.1016/S0140-6736(18)31992-5
18. Nethan, S., Sinha, D., & Mehrotra, R. (2005). Non-Communicable Disease Risk Factors and their Trends in India. Asian Pac J Cancer Prev, 18(7), 2005-2010.
19. Popkin, B., Horton, S., Kim, S., Mahal, A., & Shuigao, J. (2001). Trends in diet, nutritional status, and diet-related non-communicable diseases in China and India: The economic costs of the nutrition transition. Nutrition Reviews, 59, 379-90.
20. Saito, E., Gilmour, S., Rahman, M. M., Gautam, G. S., Shrestha, P. K., & Shibuya, K. (2014). Catastrophic household expenditure on health in Nepal: A cross-sectional survey. *Bulletin of the World Health Organization, 92*, 760–767.
21. Sinha, R., & Kumar, K. A. (2010). Cultural practices and nutritional status among premenopausal women of urban setup in India. *The Open Anthropology Journal, 3*(1).
22. Srivastava, R. K., & Bachani, D. (2011). Burden of NCDs, Policies and Programme for Prevention and Control of NCDs in India. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, *36*(Suppl 1), S7–S12. https://doi.org/10.4103/0970-0218.94703

23. Thakur, J., Prinja, S., Garg, C. C., Mendis, S., Menabde, N. (2011). Social and economic implications of noncommunicable diseases in India. Indian Journal of Community Medicine, 36:S13-22.
24. Upadhyay, R.P. (2012). An Overview of the Burden of Noncommunicable Diseases in India. Iranian Journal of Public Health, 41(3), 1-8.
25. Weraphong, J., Pannarunothai, S., Luxananun, T., Junsri, N., & Deesawatsripetch, S. (2013). Catastrophic health expenditure in an urban city: Seven years after universal coverage policy in Thailand. *Southeast Asian Journal of Tropical Medicine and Public Health, 44*(1), 124–136.
26. World Health Organization. (2014). *Global status report on noncommunicable diseases 2014* (No. WHO/NMH/NVI/15.1). World Health Organization.

The Journal of Anthropological Discourse

Book Review

An Anthropologist among the Marxists and Other Essays – A Review

Rohit Rai[1*]

[1]*Research Scholar, Department of Anthropology, Dr.Harisingh Gour Viswavidyalaya Sagar (M.P.)*

In this book the writer tries to compile the history of India's democracy from 50s to till now.In the first chapter 'Comrades and Companions' he is talking about some personal experiences with some of the great Indian personalities like M. N. Srinivas, C. V. Subbarao and C. S. Venkatachar.. 'After three years of the Communist Party of India Marxist (CPIM) had come in to power in the state of Bengal, the writer came to Calcutta in 1980 to pursue the doctoral degree in Sociology and there he got the opportunity to conduct the fieldwork among some Marxist and the Anthropologists. Among those names Mr. Guha is specially taking about great Indian Anthropologist M. N. Srinivas, who is explaining the concept of thrice born of a good anthropologist or ethnographer. An anthropologist is first born when he or she initially goes to the field and adjust himself according to the surroundings. After living to that environment if the anthropologist will able to see the things from the native point of view, then he / she would be twice born. All anthropologists go to the first stage, a good many through the second stage but, after returning from the field if he/she reflect his experiences and work on them, then they would be considered as thrice born. By relating with the M. N. Srinivas, writer also claims to become thrice born as first time he was born as Bengali Brahman and secondly when he able to see the world from his tribal worldview and in last after completing the fieldwork and moving out of Bengal he claims as thrice born because of working on Gandhian philosophy and right reactionary. After Srinivas, the writer wrote about C. V. Subbarao, a brilliant student of Andhra University who secured the first rank in university even he was carried to the department in chains when he was jailed during the emergency for his involvement in radical politics.

In praise of Sachin Tendulkar, the writer has written in this book that he is the greatest batsman ever produced by the city of Mumbai and also imagine the playing eleven cricket team against the Mars and in that team, he placed the Tendulkar's name in the first.

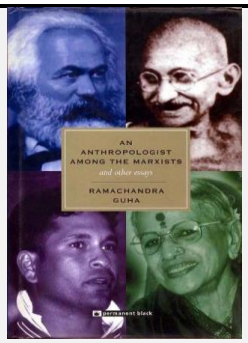
* Corresponding Author: rohitanthro.99@gmail.com

In next he is talking about C. S. Venkatachar, who was an outstanding civil servant best known for to challenging the quit India movement and said it as maladroit move that means it was a unskilled movements that greatly contributed to the partition of India. He also said history, categorically, does not show Jinnah as a tragic figure nor geographical partition as a tragedy.In Guha's word he was my grandfather's friend before he become mine.

In next chapter what Gandhi was not: Vinoba Bhave, Guha is talking about the emergency when an honest British socialist E. P. Thompson visited to India during emergency and get shocked to see that the Nehru who was always talking about the socialism but her daughter is killing the democratic rights of the citizens of India. When Thompson ask about 'how could Nehru's daughter do this' (The Nehru Tradition) then there are several voices in the favor of the emergency and one of them is Vinoba Bhave who was called as Sarkari Saint. Here Guha also praises the Bhoodan movement as the strongest non-violence movement.

In praise of Dr. Ambedkar and to oppose the Arun Shourie book 'Worshiping False Gods' Guha tried to explain the debate on untouchability between Dr. Ambedkar and Gandhi and/or others in which Gandhi wished to save Hinduism by abolishing untouchability whereas Ambedkar do not want to be a part of the dominant religion.

If a man is great then behind his greatness there are several persons who collect, translate, annotate or otherwise facilitate their greatness to make him accessible to a larger public domain. So, in the next chapter 'The use and abuse of Gandhi', Guha tries to focus on the remarkable professor of literature K. Swaminathan who was the pioneer and chief editor of the collected works and writings of Mahatma Gandhi. For this work there was a memorial fund was made, known as 'Gandhi Smarak Nidhi' that was established in 1949. The first person to be appointed Chief Editor of the Collected Works was Bharatan Kumarappa. Bharatan was a scholar of philosophy and religion, who, after taking doctoral degrees from Edinburgh and London Universities, spent many years working with Gandhi on rural reconstruction.



An Anthropologist among the Marxists and Other Essays

by Ramachandra Guha, Permanent Black, ISBN – 81-7824-001-7, Pages - 267

The Journal of Anthropological Discourse

Book Review

The Journey of Third Gender

Ayantika Bhattacherjee[1*]

[1]*Research Scholar, Department of Anthropology, Dr.Harisingh Gour Viswavidyalaya Sagar (M.P.)*

"Neither Man Nor Woman - The Hijras of India" is an ethnographic account of a particular marginalized community of Indian society. Serena Nanda the author of this book is well known American author and cultural-anthropologist. She received the Ruth Benedict Prize in 1990 for this book, her most of the work is based on gender diversity. This book is another signature writing on gender narration. The concept of 'Hijra' is like a status which is absolutely based on the gender identity of that person. Biological orientation helps to instigate to build up that identity in a deeper manner with the construction of our cognatic response. The author painted the whole sketch of 'Hijra-hood' through this book in a holistic way with the special reference of religious perspective. From the beginning to the end of a third gender identity survives in our society written here precisely. Author tried to express detailed narrative about her subjects with sincere compassion. During the field work Nanda faced the riots between Hindu and Muslim in India, that gave another perspective about the Hijra community. But, the status of 'Hijra' is more prominent than their religious identity. Nanda discussed the roles of 'Hijras' in Indian religious life, mostly they perform song and dance during the birth of a baby boy in a family. This alternative gender represents androgynous quality which gives the special power to blessing others. For this reason, the artistic quality also flourishes with them more aptly. Sometimes they also perform in marriage ceremonies which symbolized as blessings for the newly married couple. But the newly married bride is not allowed to see the Hijras because the elderly people of the family belief that the impotent nature of 'Hijras' will pass on by seeing their faces. In the early life of 'Hijras' most of them faces confusion regarding their sexual orientation after the stage of puberty they came to know that they are not socially accepted gender identity, and they come into the community of 'Hijras' and join under a guru with the

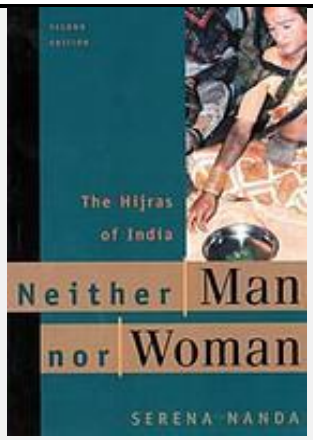
* Corresponding Author: ayantikabhattacherjee@gmail.com

blessing of their goddess 'Bahuchara'. After that most of them initiates for the emasculation process to become much closer to the status of 'Hijra'.

In this book author projected four biographies of 'Hijras' - Kamladevi, Meera, Sushila and Salima. Which represents the actual social structure of the community which was hidden before for the religious taboos. As an anthropologist author explored all the economic, religious and sexual dimension of 'eunuchs' life. The emasculation process is the key factor that helps to determine the real or fake 'Hijra'. If the genitals have not removed that means he is not eligible to perform religious performances as a representative of 'Hijra'. They termed emasculation ritual as "rebirth". From the four life stories we came to know about the process of income apart from traditional religious performances. Most of them are involved in the work of prostitution for maintaining their life style. During this work they always try to maintain the mystery of sexual intercourse with their customer. Another way of earning is collecting money from the public transports. But from that kind of income, they have to share a huge portion to their respected 'Guru'. The 'Guru-Chela' relationship plays an important role in Hijra community. When the whole society rejects the affiliation of this alternative gender identity. This 'Guru' rescues them from the marginalized condition and give them a new life with the respect and status as religious performer. So, the 'Chela' always give respect to 'Guru' as their parents and obeys all the instruction of the community. From the experience of Salima we came to know about the relationship of 'Guru-Chela'. She said that, "My guru used to say 'Child, I've left everything to you; I've written it your name'. I told the guru, "After you die, I will treat these people exactly as you've treated me". In the initial days most of them born as boy, even their parents treat them as a male child. But gradually they conceive the idea of womanhood in their mind and cultivate those gestures which are performed by the woman in our traditional society. From the point of view of a woman their liking towards men increased during the transition period of their life. Some of them lead married life with their male partners and sometimes with there in laws also. From Meera's experience she shared that, "I tell him, 'Now you have married me, why do you have eyes for someone else?'. Sometimes we have hand-to-hand fist fights, but then we make up". In this way Nanda throw the light on every possible corner of the Hijra's life and questioned our society about the consciousness of the third gender identity. It is just not a book about a specific community rather it is an exploration of mix thoughts, identities and behavioural nature of our so called 'structured civilized society', where we are not allowed to express ourselves with our enigmatic mind set up. Nanda focused on the ritual and personal experience but author missed other quantitative section of hijras life. This documentation presents us a clear picture about third gender identity in the context of

Indian society. Author's detailed description helps to build up the theoretical assumption about the third gender role and how the society accommodate this identity through the rituals of structured religion.

This book is a collage of emotions which is a reflection of our social structure, and the powerful writings of Nanda gives additional wings to the readers mind. "Neither Man Nor Woman - The Hijras of India" will survive in the history of gender writings vault for its holistic articulation and compassionate nature towards minor gender identity. This is a highly recommend book for those who are the devotee of equality.



Neither Man Nor Woman - The Hijras of India

by Serena Nanda, Wadsworth Publishing Company, 1990.


The Journal of Anthropological Discourse
Department of Anthropology, Sasar