DEPARTMENT OF ECONOMICS

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ST. XAVIER'S COLLEGE JAIPUR

ILLUMINATUS

RADIANCE OF KNOWLEDGE

ILLUMINATUS 22'

Transforming India's Future Development

Volume VIII

Department of Economics

St Xavier's college - Jaipur

Preface Message

It is a matter of immense pleasure and pride that the Department of Economics, St Xavier's College, Jaipur is releasing its 8th edition of ILLUMINATUS - Radiance of Knowledge. The department feels extremely overwhelmed to present this journal which is a live combination of students' initiative to discover and explore new avenues and challenges gets in the field of research and ethics. This initiative marks a departure from the legacy of just bookish knowledge which continues to shape our system and causes a gap between theory and practice.

We would take the opportunity to thank the management of the college, Rev Fr Dr Arokya Swami SJ (Rector and Manager), Rev Fr Dr A Rex Angelo SJ (Principal), Rev Fr Dr Raymond Cherubin SJ (Vice Principal and Administrator), for their enormous support for the journal. We would like to express our gratitude to our colleagues Ms. Poorvi Medatwal, Head of the department, Mr. Yashwardhan Singh, Ms. Maharshi Sharma, and Ms. Shiromi Chaturvedi for their support and inspiration towards the promotion and completion of this initiative. Our heartfelt gratitude to the editorial team who has set an example of coordination and cooperation in front of all. We would like to appreciate further all the students who have contributed papers to the journal.

To provide students with an accurate examination of the topic in all of its fine detail, the editorial team made an effort to welcome research papers from all of the economics sub-disciplines. After another academic year, we'd like to wish the students luck in their future pursuits and encourage researchers to contribute papers in the future actively. Many congratulations to the editorial team for the successful compilation of ILLUMINATUS.

Happy Reading!

Ms. Nupur Chauhan, Ms. Sunita Choudhary,and Dr. Boola Choudhary
Faculty Coordinator's
Illuminatus'22

Editor's Desk

'Research is to see what everybody else has seen, and to think what nobody else has thought.' - Albert Szent-Gyorgyi

Dear authors, reviewers, and readers, it gives me immense pleasure and great privilege to introduce to you all, another exclusive edition of the department's annual academic journal 'ILLUMINATUS'.

We aim to provide an intellectual platform to address issues in humanities and social sciences comprehensively. Through the columns of this scholarly journal, we seek to promote interdisciplinary research which meets rigorous standards and represents a broad range of significant topics, theoretical orientations, and empirical methods.

The present year's journal moves along the theme of "Transforming India's Development", inviting papers that touch upon varied topics like Education and Human Development, Energies, and Environmental Protection and Information, Society, and Culture among others. Such expert peer-reviewed research will serve to create innovative information and continue to help everyone explore different fields of knowledge.

The successful compilation of this journal that we hold so dear to our hearts could not have been achieved without the unwavering support of a multitude of people - most importantly, the Economics and Psychology Department of St Xavier's College, Jaipur. The faculty and students of the department have been the backbone of ILLUMINATUS throughout the process of its creation. The response to our call for submissions for the current issue has been so overwhelming. Thus, we have the highest regard for the writers for their excellent contributions. Finally, we express our deepest appreciation to all of you dear readers, to whom this journal belongs.

Happy Reading!!

Kanishka Jain, Niranjan Kanwar Rathore, Devansh Saxena, Pauravi Mittal

Associate Editors

Messages

Fr Dr Arokya Swamy SJ, Manager

I'm proud of the student's contributions to the eighth edition of Illuminatus. Students conduct research when they are unsure about what they are doing. It pleases me that, as in previous years, this volume covers a wide range of topics. Books aren't the only way to learn, and projects like this allow students to delve deeper into a topic and learn more about it. I'd like to congratulate the editorial team as well as all of the students who wrote their papers, and I wish them all the best in their future endeavors.

Fr Dr A Rex Angelo SJ, Principal

As our body needs food for sustenance, our mind too requires its own fuel which is nothing but a response to quench our never-ending curiosity. Research is the optimal way to achieve this. ILLUMINATUS is the best platform our college has arranged for students to develop themselves under the guidance of our staff. Along with enhancing one's research skills, students can improve their technical and communicative skills too. I am extremely proud of the core team and those students who have given their hearts and souls for their papers and put them together so beautifully. Hearty congratulations to all! All the best for your future endeavors!

Fr Dr Raymond Cherubin SJ, Vice Principal

The function of education is to teach one to think intensively and to think critically. Intelligence plus character – that is the goal of true education. The Department of Economics and Psychology with its creativity and resourcefulness has promoted students in the field of research. We are sure Illuminatus will help to acquire knowledge and skills andbuild the character of our young talented students to become globally competent. The research of the students and the dedication of the team has made the 8th edition of Illuminatus possible, and like every year it has a wide range of topics. I congratulate all the paper presenters for their research on such wide areas of subjects and the team of Illuminatus for their hard work. I wish everyone all the best for their future.

Ms. Poorvi Medatwal, Head and Assistant Professor

Illuminatus is not just ajournal, it's a journal full of new ideas from young and astonishing minds. I truly appreciate the work of the team and congratulate all the paper contributors for their effort. I wish them luck in their future.

Mr. Yashwardhan Singh, Assistant Professor

I am ecstatic to see the 8th edition of Illuminatus; the students have worked tirelessly to make it happen, and they deserve praise for their efforts. I congratulate all the authors for their effort and wish them the best of luck in the future, and I would like to commend the editorial team's dedication and hard work.

Dr. Boola Choudhary, Assistant Professor

Research is an integral part of student life. Knowing by exploring is not just important but also necessary to achieve a fuller and better understanding of things. This is exactly what Illuminatus stands for. The research of students and the dedication of the team have made the 8th edition of Illuminatus possible, and like every year it has a wide range of topics spanning from Psychology to Economics and much more. I commend the editorial staff for their tireless efforts on behalf of this publication. I'm honored to be a part of such a beautiful project that has required so much learning and progress.

Ms. Sunita Choudhary, Assistant Professor

Illuminatus, our department journal, encourages our students to be creative in their research and I congratulate our young researchers on their successful endeavors. Since everything starts with an idea, we may be confident that we will learn as long as our ideas and thoughts are shared. Every student who expressed enthusiasm for submitting to Illuminatus is greatly supported.

Ms. Nupur Chauhan, Assistant Professor (Psychology)

As I greet you through the columns of ILLUMINATUS, a profound sense of gratitude, appreciation, and delight surges through my heart. It is a scholarly publication that plays a significant role in encouraging young minds to develop creative and analytical thinking skills as well as in fostering a research culture at the undergraduate level. It makes me ecstatic to witness students' research prowess that reflects appropriate scope and complexity."

Ms. Shiromi Chaturvedi, Assistant Professor (Psychology)

"Illuminatus is an eloquent expression of the progress and outstanding achievements that the college has to its credit. It intends to propagate, promote and disseminate research, innovation, and the latest trends across several academic disciplines. My heart brims with great joy and happiness on seeing that the Department of Economics and Psychology has released the 8th edition of the journal entitled "ILLUMINATUS'22". In the true spirit of the term, it offers great inspiration to the students who have a great urge to express their views and innovations. It is a platform for the students to explore their talent and broaden their mental, psychological, and intellectual horizons."

Ms. Maharshi Sharma, Assistant Professor

I am extremely delighted to have availed the opportunity of writing this message and would like to share my views with all those who go through this journal. It is always a proud moment to come up with a new edition of ILLUMINATUS. This journal is a great opportunity and platform for students to showcase their research skills and creative efforts across various fields. I feel really happy to see students work hard and demonstrate their interests and abilities. I would like to congratulate and applaud the paper contributors and wish them success in the future.

Editorial Team Messages

Gaining experience helps in building a professional network. Working with different editors and teachers gave me a good and enlightening experience and I learned a lot of new things while editing the journal I found a new way of looking at things, and the papers which were submitted were enlightening. I would like to thank all of my peers and teachers for this wonderful experience.

Devansh Saxena

Working for 'Illuminatus' has been a journey of great pride and enthusiasm. I hold an immense appreciation for the positive environment in which I got to work and learn. An enormous amount of effort has gone into the development of this journal. Its accomplishment would not have been possible without the divine guidance of our mentors and hence I would like to express my heartfelt gratitude to them. I look forward to seeing this journal reach greater heights.

Muskan Malkani

It was a wonderful working experience with Illuminatus, not only because of the amazing team but also because of the excellent mentorship of the teachers. The skills and experience that I have gained will never be forgotten and will be always cherished.

Karishma Malhotra

It was great working with Illuminatus this year. My overall experience has been wonderful. The finest aspect of being a journal editor is being exposed to all of these diverse authors' thought processes. The experience improved my intellectual capacity and gave me the chance to build leadership skills and a problem-solving mindset mentality. I want to express my gratitude to all authors, teachers, committee members, and everyone who contributed to the creation of Illuminatus in its current form.

Kanishka Jain

The person who wrote badly did better than a person who does not write at all. This is what we do in Illuminatus. It was a wonderful experience being a part of the Illuminatus journal. From the beginning, we have been learning through proper guidance and involvement. The lesson I have acquired about teamwork and dedication will always remain intact within me. I am grateful to all the team members and teachers who with their proper guidance not just made it a skillful journey but cherishable too.

Prachi Khandelwal

The research seeks to comprehend the unknown, to see what others have seen, and to think what others have not thought. I am glad to work with Illuminatus, and working on the journal committee was a wonderful experience. I am also appreciative of my teachers and team members for their guidance and encouragement. The experience improved my cognitive abilities and gave me the chance to enhance my management skills and develop a focus on finding solutions.

Niranjan Kanwar Rathore

Research is an activity that leads us to find new facts, and information, assisting us in verifying the available knowledge and in making us question things that are difficult to understand as per existing data. It was a wonderful experience being a part of the Illuminatus journal as an editor. The creation of this journal has required a great deal of work. This has been one of my best learning experiences to date. I am grateful to all the team members and teachers who ensured that the experience was educational and memorable.

Akanksha Batra

With great joy, I announce the release of the Department of Economics 8th edition of Illuminatus. Illuminatus is a platform to validate research and build curiosity alongside other skills such as critical thinking and academic writing. The experience improves my intellectual capacity while also giving me the chance to hone my leadership skills and adopt a problem-solving approach. I would like to express my gratitude to all authors, educators, committee members, and others who made Illuminatus possible in its current form.

Pauravi Mittal

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Social Media as a Trade Gimmick: A Comparative Study of China and India's Social Media Impact on Consumer Theory

Yashovardhan Tiwary, Vasudha Sharma

(B.A. Economics Honors II, B.A. English Honors II)

Abstract

LinkedIn, Facebook, Instagram, Twitter, and Tumblr are currently the world's leading social media platforms. While 3/4th of the world's recognized countries, including India, use these platforms, China stands on a new divergence where it houses independent state governed social media platforms like Weibo, WeChat, Zhihu, etc. While social media is best known for its entertainment and information circulation, it is also a source of product promotion, consumer influence, and active business marketing. Thus, this social interface is used by brands and companies to influence the budget constraint and individual psychology of the consumers in an act of promoting their products to be bought. This impact of social media on consumer theory, based on a comparative study of two Asian economic giants, India and China, will be the core of this research paper.

Secondary research methods will be used for writing the paper, that is, data collection through published sources and government surveys. With this study, we aim to analyze the impact of social media as a trade and marketing gimmick that influences the consumer theory of both countries. The political control on the media platforms, their effect on the country's economic development, and policy framing overview of this stature will be highlighted through this research.

Keywords : Social media, Consumer theory, China, India, Globalization, Trade economy models.

Introduction

Social media is a medium of electronic communication that allows individuals to engage with others through platforms where they can share pictures and videos, circulate information and

news, facilitate businesses and services, and engage in entertainment. India has a foreign social media model where its population majorly uses and invests in social media companies of foreign countries. YouTube, Facebook, WhatsApp, Instagram, Twitter, LinkedIn, Pinterest, Reddit, and Tumblr are India's most common social networking sites (SNS). China, on the other hand, has state governed and domestically developed social media apps like Weibo, WeChat, and Zhihu. Although people can use Facebook and Instagram through VPN, the majority prefer using China's domestic social media. With a growing social media penetration in India and China, the world's most populated countries and biggest economies, social media have become a new medium of marketing and advertising.

Consumer theory is determining the optimum bundle of goods a consumer can buy given the constraint of scarcity or budget. Consumer behavior is understanding the factors like purchase, marketing, shipping, laws, market need, and wants, demand, and supply, and inflation and deflation that influence the purchase behavior of a consumer. Social media as a trade gimmick has a direct relationship with consumer behavior. Repetitive advertising, feedback, brand surveys, promotional collaborations and shout-outs, influencer marketing, geofencing, and personalized automated search suggestions are some of the basic techniques used by companies to market their products and services on social media.

As a comparative study, this research paper aims to understand the differences in the influence of social media on India and China's consumer behaviors given their different social media models. This paper highlights the importance of social media as a major character impacting the economy, with the case study of India and China. The political control over social media, their working, marketing strategies, first-hand demand production, online businesses, and social-economic development due to this scenario will formulate a base understanding of digital, economic, psychological, and political studies.

Objectives

The scope of this research paper tries to focus on the following objectives:

1. To analyze the impact of social media on consumer theory and behavior of the countries: India and China.

2. Comparative Study of the state-run social media companies (case subject: China) and the individual social media companies (case subject: India) and their impact on the macroeconomy of both countries.

Methodology

This paper uses secondary quantitative and qualitative research methods. The quantitative study includes an analysis of published surveys and SLRs, whereas the qualitative study is a product of published journals, research papers, and articles. No new surveys or primary research is conducted for this research matter.

Review of Literature

In 2003, Chen applied the purchase decision model based on the consumer-perceived model and found out that consumer-perceived values are influenced by internal factors related to physical and mental factors as well as external and environmental factors that are social, political, and cultural background (Chen, 2003). Social media has become an essential platform for people to interact and communicate with each other and significantly impacts consumer buying behavior and decision-making (Cheung and Lee, 2010).

What is Consumer Theory?

Consumer theory is determining what will be the optimum bundle of goods a consumer can buy given the constraint of scarcity. It's a branch of microeconomics that shows how the choices are made by individuals with subject to the amount of income available to spend and the prices of goods and services.

Here, budget constraint means the limit on what a consumer can buy due to the limited resources they have. And preferences, refer to the way that a consumer decides to satisfy their desires. Consumer theory facilitates a proper understanding of how income levels and buyers' desires influence the demand curve. It's based on many assumptions about human behavior.

Consumer behavior is the study of consumers and the processes they use to choose, consume, and dispose off products and services, including consumers' emotional, mental, and behavioral

responses. It's important because it helps firms to understand what influences consumers' buying decisions, which in turn helps them to identify what products are needed and what products are obsolete. A consumer behavior analysis reveals the thinking of the consumer and their views about the various alternatives. The influences that lead to their choices. And how their environment influences their behavior.

There are four types of consumer behavior: habitual buying behavior, variety-seeking behavior, dissonance-reducing buying behavior, and complex buying behavior. Consumer behavior types are determined by what products a consumer needs, their level of involvement, and the differences between brands.

1. **Working of Consumer Theory -** A rational consumer chooses the commodity that brings the most satisfaction, even when they have a variety of items to select from. Consumer theory tries to predict their purchasing patterns by making some basic assumptions about human behavior:
2. **Utility maximization -** Individuals are said to make calculated decisions while purchasing products that bring them the greatest satisfaction, known as a maximum utility in economic terms.
3. **Non-satiation -** The assumption that a consumer will always benefit from additional consumption.
4. **Decreasing marginal utility -** Consumers lose satisfaction in a commodity with each additional unit.

Advantages of Consumer Theory

It helps to build a better understanding of the tastes of the individuals and their incomes, as they have a big impact on the demand curve. Also helps to understand the relationship between the price of a good or service and the quantity demanded for a given period.

Shortcomings of Consumer Theory

Irrationality is a major issue with consumer theory, as people don't always make the best choices in life. emotional decisions, hard time making decisions, or fear of products by first-time users, are the major are other factors that limit the ability of this theory.

Country-Wise Social Media Background (India and China)

1. India

With the entry of the internet into Indian borders and the introduction of liberalization and globalization in the 1990s, digitalization has taken a new route. India has a foreign-based social media model wherein it uses non-domestic social networking. While Digital India Initiative encourages social media in India, Section 66A of the IT Act 2000 regulates all of its legal issues. According to the recent amendment of rules by the Indian Government, "social media companies are required to acknowledge takedown requests of unlawful, misleading, and violent content within 24 hours and deliver a complete redressal within 15 days. Insensitive cases such as those surrounding explicit sexual content, firms will be required to take down the content within 24 hours". India's social media is free to bloom in whichever way they want but any negligence or insensitivity will be handled at a government level.

India's Social Media Platforms -

- **Facebook, Instagram, WhatsApp**

  Facebook, now Meta, is a social media platform where people share their thoughts, ideas, pictures, jokes, memes, and videos, and sometimes it broadcasts events and functions. It also provides the facility of Direct Messenger. Facebook opened its office in India in the year 2010, by that time around 15 million Indians were already using it. Presently, there are nearly 329.65 million Facebook users in India which leads to it being the first in the race of people engaged on a social media site.

  Instagram was first officially launched on the release ofthe App Store in October 2010 but it gained popularity in 2012 when it was launched on the Android operating system. Facilitates sharing of pictures, videos, and short videos known as reels. Previously introduced by Tik Tok and now a major product of Instagram, Reels pull in most of the audience previously engaged with TikTok, which was banned by the Government of India. Facebook acquired Instagram in 2012 for a billion dollars in cash and stock.

- Today, Instagram has 230.25 million users from India. Because it is a photo and video-sharing platform, it is the most appropriate social media platform available in India for selling Cosmetics and fashion products. The main audience of Instagram is the youth and an average person spends 13 hours on Instagram. It provides professional tools to the business accounts to analyze, reach and target the kind of users the business would like to reach out to.

WhatsApp was founded by Jan Koum and Brian Acton who had previously spent 20 years combined at Yahoo. It joined Facebook in 2014 but continues to operate as a separate app with a laser focus on building a messaging service that works fast and is reliable.

- It was traditionally just a messenger app, but over time it has become the lifeline of most Indians. It has become a medium of exchange of personal and official information, via text, GIFs, videos, and pictures. The video and voice call quality of WhatsApp sets it higher than Facebook and Instagram in-call features. The Business app feature allows people to make business accounts that can be both automated and manual.
- WhatsApp has 390.1 million users in India. Making India one of the biggest markets for WhatsApp has recently added the 'sending and receiving' money feature, using UPI.

- **Twitter**

  Twitter was originally founded in March 2006. It is a micro-blogging platform that allows its users to write texts (called Tweets) with up to 280 words, share pictures along with texts, and hold deep discussions even via the audio medium. Today almost 24.45 million Indians use Twitter, and a lot of brands use Twitter to sell their products.

- **YouTube**

  YouTube is a video-sharing site and a social media platform, where individuals of all kinds, among various other entertainment or infotainment creators, upload their content. Delivering information and entertainment is the virtue of most of the videos available on the platform. It is the most eye-catching and engaging social media.

  - All over the world, including India, YouTube has attracted billions of viewers, because of the versatility of its content. In India alone, there are 255 million active users of YouTube.

- It is a great platform to market cosmetics and fashion products, as they can be demonstrated and displayed properly, making it a crucial platform for sellers to market their products.

2. China

China is a technologically superior country. Yet, western social media like Facebook and Twitter is banned and the country has its own version of world-renowned SNS. Even Chinese people living in other countries devote half of their social screen time to Chinese SNS. Chinese social media is a completely different social ecosystem. It is difficult for international brands to enter this ecosystem namely because of -

- Lack of understanding
- High barriers to entry
- Lack of individual control
- Censorship

The Great Firewall of China is the People's Republic of China's legislative actions and technologies that regulate and censor the Internet domestically. It blocks several foreign websites and slows down cross-border internet traffic. China is very sensitive to anti-Communist Party keywords, websites, videos, or general content. It uses various techniques to scan URLs and web page content for blacklisted keywords like "Tiananmen" and block such traffic. With Western SNS like Twitter and Instagram blocked in China, the citizens are given the alternatives like Sina Weibo and WeChat, which in turn allows China to control social media. Although the Great Firewall manages to restrict most of the anti-policy content, some people can budge it through unofficial terms, speaking in a code, and VPNs.

China's Social Media Platforms -

- **WeChat -**

  As one of the world's topmost social messaging and networking apps, WeChat has more than a billion monthly users. But in China, it serves as the supreme social media. WeChat was launched in China in 2011 by the Chinese tech giant Tencent? It is a social media hybrid of Facebook, Instagram, and WhatsApp, news apps like The Times and The Hindu, online money transfer apps like Paytm and PayPal, and ridesharing apps like Ola

and Uber. This compound nature of WeChat with several features and its unique sign-in method makes it a one-stop-shop of social media with utmost privacy and security. With a total of 1.24 billion monthly active users in China, WeChat is mostly used by 16-64-year-olds. An average user spends 82 minutes each day on WeChat.

Some features of WeChat -

1. Sign up and become friends with others using QR codes with extra security and verification.
2. Pay phone bills and credit card bills.
3. Book taxis.
4. Purchase movie tickets.
5. Send money to people and even Red Packet on Chinese New Year.
6. Voice chatting, picture messaging, video calling, text messaging.
7. News subscriptions.
8. Find services like food deliveries
9. Play mini-games with people
10. Share real-time location.
11. Post to an Instagram Story-like feature called “Moments”.
12. Call international landlines at a low rate.

- **Weibo -**

  Launched in 2009 by Sina Corporation, Weibo is a microblogging application like Twitter. As of Q$ 2019, Weibo has over 516 million monthly active users, making it the second-largest social media platform in China after WeChat. Weibo’s user gender distribution is 43.7% females and 56.3% males. Most of its users are between the age group of 23-30 years, are educated, and engage in conversation and discussions concerning a plethora of topics.

- **Bilibili -**

  Bilibili (also known as ‘B Site’ or ‘B Station’) is a 2009 launched video-sharing website based in China. Users can submit, view and add overlaid commentary on videos. Most of these videos revolve around animation, comics, and games but brand-based advertising and live streaming also take place. Entertainment and information-based videos also form

a part of its vast inventory. 2020 recorded an average of 202 million monthly active users of Bilibili and most of them belong to Gen Z.

Comparative Study of Social Media Platforms and Strategies in the Luxury Goods Industry

India and China have different models of social media, as discussed above. To procure a relative understanding, one type of industry, the luxury goods industry has been taken into account to form the same level of comparative basis. Consumer packaged goods, electronics, technology, defense, private equity, healthcare, and education are the major subjects for research on China,but the limitations of this research paper allow us to only consider luxury brands for the comparative study.

Luxury goods are a choice that only the ones with compatible incomes make. Buying luxury goods is a statement of one's wealth, social gratification, sense of achievement, and distinction from its peers. A digital route to market luxury goods is a go-to trade gimmick. Brands target Tier 2 and 3 cities where the population holds disposable money. The social anxiety to go up in economic status makes middle-class people take the risk of investing in luxury goods with any extra income. Upper rich class, however, remains the only consistent buyer of these products.

Figure 1: Comparative Social Media Platforms for the luxury goods industry

Type of Social Media	India's SNS Platform	China's SNS Platform
Instant messaging, social media, news, ridesharing, money transaction	Facebook, Instagram, WhatsApp, Ola, Paytm or other money transaction apps and platforms	WeChat
Microblogging	Twitter	Weibo
Online video sharing	YouTube	Bilibili

I. Facebook, Instagram, WhatsApp VS WeChat

Making business accounts of luxury brands on Facebook and Instagram is creating a face on the internet. Professionals from these brands have their own personal accounts wherein they

broadcast behind-the-scenes, short conversations, sneak-peaks, announcements of the release of product lines, etc. along with the business account. As almost all of India's current social media users surf Facebook and Instagram, they become the most viewership and influence-generating mediums.

Facebook Strategies

Luxury brands in India use Facebook as it is the biggest consumer, following, and interest-generating social media. Audience study, application development, live streaming, influencer marketing, and other social media redirection are the current trends in using Facebook to market and advertise luxury goods in India.

1. The Leafy Affair and Audience Study -

   An online handmade resin and flower specializedjewelry store, The Leafy Affair, use Facebook's mechanism of scrutinizing related searches, brands, and customer interests and then shows advertisements, product images, and posts of this brand to viewers. It also specifically targets Tier 2 and 3 cities users which is efficient in targeting the ultra-specific groups that luxury brands desire.

2. L'Occitane and Application Development -

   L'Occitane International is a beauty retailer and manufacturer of brands like L'Occitane en Provence, Melvita, Erborian and Elemis. L'Occitane is one of the first brands to use Facebook's application development feature to gain engagement from possible buyers. In 2012, L'Occitane launched their Angelica skincare range in India using Facebook's application development to design a contest.

   Similarly, Condé Nast India launched their GQ BlackBerry application the same year which provided Indian men with luxury lifestyle information.

3. Fashion shows and Live Streaming -

   Indian fashion shows are a recent addition to the fashion industry and majorly incorporate celebrities and actors as models. The COVID-19 pandemic made fashion shows go online. Various other industry professionals, influencers, social media, and esteemed personalities gather as the audience for on-ground shows and often live telecast them on Facebook, Instagram, and YouTube. This indirect live streaming and direct live

streaming by the brands themselves lead to the buzz among followers and motivate them to pick luxury fashion quickly.

Instagram Strategies

Instagram is the Gen Z and Millennials' go-to social media. Luxury brands often partner with influencers and models to showcase or use their products using the tagline asking the viewers to buy them. They make themselves known. They aim to create a value-added customer experience via brand storytelling rather than just selling items.

Posting stories and Instagram Reels is highly effective for grabbing attention and showcasing the lifestyle your brand offers. Instagram Shopping feature lets the users/viewers buy a product seen in a post without leaving the app they're on. This increases the flexibility of shopping.

WhatsApp Strategies

WhatsApp is generally used for social media marketing by localized and comparatively smaller brands. Brands use geofencing to connect with in-city customers and establish a better connection with them. They also personally inform them about offers and discounts.

WeChat Strategies

WeChat's wide array of features makes it a versatile social media to market products and services. Influencer Marketing or KOLs are the most used strategy in China. WeChat's a live stream and short videos encourage influencer marketing which builds trust among the viewers when they see their own nation's people trying and reviewing foreign or new products. Text review discussions also influence customers and spread awareness about the pros and cons of different luxury products. Louis Vuitton, Burberry, Prada, and Piaget have established their WeChat channels in China and communicate with customers through the platform.

Like Facebook, WeChat allows businesses to set up their online shops. WeChat also offers a large toolbox for boosting customer loyalty. Although it imposes certain rules on sellers, it has built a reputation for being more free-trade compared to conventional e-commerce companies, like it doesn't take commissions from e-commerce transactions as online marketplaces normally do. WeChat's e-wallet WeChat Pay benefits from processing transactions happening inside the chat app.

II. Twitter vs Weibo

Twitter Strategies

People on Twitter tend to be well-educated, more affluent, and more open to discovering new products and brands. It happens to be a great platform for brands to communicate with one another and with customers. The relevance of the platform, especially for luxury brands, is evidenced by research from Nielsen and Bain & Company, which found that campaigns launched on Twitter saw a meaningful uplift in key metrics like brand awareness, brand favorability, and purchase intent, compared to brands that didn't use Twitter as a launch platform.

1. Taj Hotels, Resorts & Palaces and Customer Service -

   Most of the brands and companies on Twitter use the platform for customer service, keeping a tab on reviews and answering queries. Taj Hotels, Resorts & Palaces' internet marketing team regularly scans through the comments of customers and links their CRM and loyalty database to address the service demands.

Weibo Strategies

Like China's Twitter, Weibo is the best platform for luxury brand promotion. Luxury goods are mostly purchased byrich-income people who are mostly expected to be educated. Both Twitter and Weibo host such an educated user population. With Weibo's edge in social listening and data tracking, the social media giant has explored social interaction opportunities for its luxury partners connecting brands with celebrities and their fans. Weibo plays a crucial role in understanding social followers, optimizing marketing tactics, and branding. Weibo owns the strongest celebrity and KOL networks of all social platforms in China. Like Twitter, Weibo is also used by brands for customer service.

III. YouTube VS Bilibili

YouTube Strategies

YouTube is a video-sharing social networking site. Thus, its main marketing tactic is using videos. YouTube Shorts and Live are also strong features of this SNS. Influencer Marketing, short ads before videos, and product and brand surveys are the major strategies used by luxury

brands in India for YouTube. Many luxury brands work with influencers or an in-house video team, either organic content for their own channel or scrapping their own channel entirely and producing content entirely through influencer channels.

Bilibili Strategies

Bilibili's main genres of videos are gaming and anime. Due to high interest in these genres, luxury brands collaborate with online games, like Gucci outfits for your online game avatar. This is a great method of virtual shopping. Its core capabilities include live streaming, advertising, mobile gaming, and e-commerce. In 2019, Louis Vuitton collaborated with Bilibili to launch an AR feature that transformed users in the online game League of Legends with a look for the character.

The most popular videos when searching for luxury brand names in Bilibili are those about unboxing new products or complaints. According to Bilibili insiders, in the platform's fashion section, content related to beauty and cosmetics is the most produced and consumed. Tutorials for makeup, car reviews, etc. also form part of Bilibili's humongous video database.

Analysis

Social media's influence on consumer behavior can be divided into 3 categories (Galan et al, 2015):

1. The behaviors that influence consumption include using positive and negative communication and social media opinion, leaders.
2. Consumer behaviors are influenced by others, including searching for product information and searching for the opinions of others.
3. Consumers use social media as a communication medium to share their post-buy experiences.

Compact understanding of the influence of SNS on Consumer Behavior

- **India**

India's stand-in using social media as a trade gimmick is strong and productive but there are some strategies that India needs to learn from China's model and incorporate for a better

upcoming digital world. Enhancing WhatsApp to the level of WeChat with the same security and privacy, and Bilibili's advanced tactics of using the game industry to market luxury goods will be a boon to the country's economy.

KOL marketing is important on all social media platforms, with KOLs & KOCs on the rise, brands need to choose the right influencers and collaborations with them to generate engaging content, which is a useful strategy.

For early-stage brands, it is not necessary to be present on all platforms. A B2C e-commerce platform could be a better choice for them because brands can leverage consistent performance-based marketing to grow sales incrementally.

Censorship Policy -

The Constitution of India allows censorship in a few situations, because of the global nature of the Internet, it's tough to monitor and regulate the content being uploaded in foreign countries and being viewed in India. Over the years the laws for censorship of Social Media have tightened due to various factors including communal, defamatory, violent content, etc. But this has also led to manipulation of the censorship laws by the incumbent government to such views contrasting or contradicting them, leading to the oppression of freedom of speech.

- **China**

Chinese digital landscape is much more fragmented and competitive than the Western one. Therefore, there is not a single platform that guarantees immediate success, multichannel strategy is the best choice. Brands need to keep learning and understanding how each of these Chinese social media sites works and appeal to digital-savvy Chinese consumers. Facebook's audience study and segmentation strategies are something that China can take up to boost its luxury goods industry or any industry for that matter.

By far, China is leading ahead of India in this social media game, but it is China's rigid censorship policies, trade barriers, and distinct social media model which make it both lucrative and unprofitable. Complying with these rules might result in future isolation from the outer world and foreign customers.

China has one of the world's most restrictive media environments, all the social media platforms in China are state-backed, so everything that's uploaded on these platforms is thoroughly monitored and eliminated if it is found to be opposing the ruling regime. No written law

prohibits the freedom of expression, but the platforms still eliminate anything that might incite an opposing thought toward the government.

Conclusion

'Social Media as a Trade Gimmick: A comparative study of China and India's social media impact on consumer theory' aimed to understand the differences in the influence of social media on India and China's consumer behaviors given their different social media models. Indians mostly use social media sites that are foreign-made in contrast to the state-backed Social Media platforms used by the Chinese. In this paper, we have taken the example of Luxury products(to narrow our area) that are sold/ on social media platforms of both countries and the various strategies used by them, along with their impact on the consumers.

It was found that Luxury products are present on Social Media platforms with a bigger purpose to create a presence rather than selling their products.It was found that it's easier for luxury brands to promote their products in India as compared to China due to less restrictive policies and better analytics to understand what the consumer wants and what is considered obsolete.

Chinese Social Media apps are well-developed and equipped but it's mostly difficult for luxury brands, mostly originating from Western countries, to promote their products if they don't possess extravagant resources. Still, China is the biggest consumer of luxury products in the world and that is because of the increase in the spendable income of the Chinese population.

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Examining the Existence of Environmental Kuznets Curve of Rajasthan in The Context of Air Pollution

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(M.A. Economics)

Abstract

The idea of economic growth is incomplete without inputs from the environment and natural resources. The debate on the relationship between economic growth and environmental degradation began with early work by Grossman & Krueger, Shafik Bandyopadhyay, and T Panayotou. These researchers did some fundamental work on the growth-environment relationship and examined the relationship. Their work concluded an inverted-U shaped relation between environmental degradation and per capita income. Hence it was termed as the Environmental Kuznets Curve (EKC). This paper aims to examine whether an Environmental Kuznets Curve (EKC) exists in the state of Rajasthan with the trade-off between air pollution and the growth of the economy of Rajasthan over the past few years.

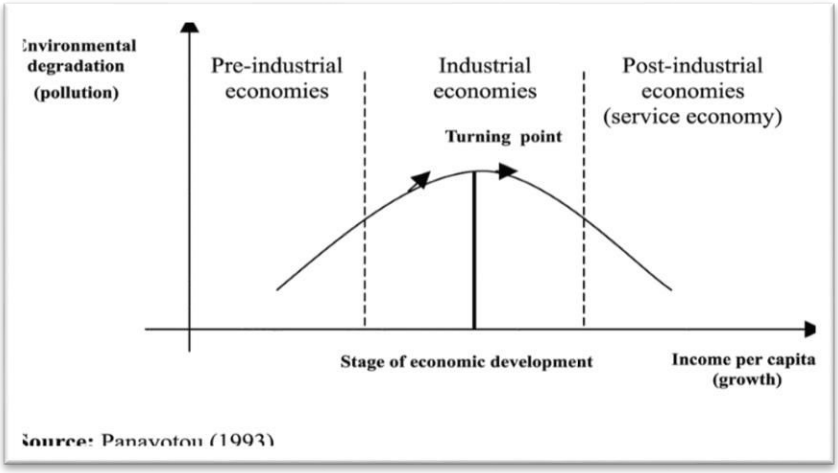
Key Words: Environmental Kuznets Curve, Air Pollution, Rajasthan, Per Capita Income

Introduction

Developing countries that have registered rapid growth in the last decade and a half have been facing enormous pressure on their environmental resources. India is one among them which is specifically facing a problem on the air pollution front. To strike a balance between development and environment is an uphill task and there are hardly any studies that give substantial inputs to the planners for the right kind of development path along which the country could move forward which is consistent with the sustainable development objective. A particular debate that drew the attention of many researchers in the early 1990s is the growth-environment debate based on the so-called Environmental Kuznets Curve (EKC). Several empirical studies found an inverted U-shaped relationship between income and some local pollutants, which came to be known as Environmental Kuznets Curve (EKC). This implies that the environmental quality suffers during the early stages of economic development but improves in the later stages. The turning points of

the EKC curve can provide crucial policy inputs. EKC will indicate the growth trajectory a country should follow to achieve the desired target in environment quality. In this background, this study aims to determine the relationship between the economic growth and air pollution level of Rajasthan state in India.

Figure 1: Stages of Economic Development



The Environmental Kuznets Curve (EKC) hypothesis posits an inverted U-shaped relationship between economic growth and environmental pollution. Within this framework, studies have estimated turning point incomes for various pollutants within Rajasthan. In this paper, we examine the relationship between economic growth and air pollution in Rajasthan and compare the results. When the air is contaminated with unwanted substances which hurt both the living and nonliving it is called air pollution. The substances which contaminate the air are called air pollutants. Major air pollutants are PM2.5, PM10, NO2, SO2, C0, O3.

The substances which contaminate the air are called air pollutants. Major air pollutants are:

1. Carbon Monoxide (CO)

It is a colorless, odorless toxic gas. The gas is produced by the incomplete combustion of carbon–rich fuels when they burn with insufficient Oxygen. The gas is produced by the incomplete combustion of coal and from internal combustion engines. Furnaces, thermal power plants, and factories release a lot of Carbon Monoxide into the atmosphere. It is reported that

Carbon Monoxide is converted to Carbon di-oxide in the lower stratosphere by the reaction ($OH + CO \rightarrow CO_2 + H$). Carbon Monoxide can combine with Hemoglobin to form Carboxyhemoglobin and reduce its Oxygen carrying capacity. Since Carbon Monoxide has a greater affinity than Oxygen to occupy the coordination position of oxyhemoglobin. It can remove Oxygen from Oxyhemoglobin even at low partial pressure. $HbO_2 + CO \rightarrow HbCO + O_2$.

2. Sulphur di-oxide (SO_2)

It is a colorless gas with a pungent and suffocating odor. The gas is produced by the combustion of fossil fuels. In the atmosphere, Sulphur di-oxide may combine Oxygen and Water to form Sulphuric Acid (H_2SO_4) leading to Acid Rain. Oxidation of Hydrogen Sulphide, which is given off decaying organic matter, also produces Sulphur dioxide. Exposure to Sulphur di-oxide can down the ciliary's movement of the respiratory tract of man and other animals. Continuous inhalation of this gas causes acute respiratory problems and headaches. This gas can easily get into plants through their stomata. Continuous exposure of plants to this gas causes leaf blotching, necrosis, and loss of yield. Sulfurdioxide reduces the mechanical strength of paper. In humid conditions, it hydrolyses the cellulose in the paper. Limestone and Marble are affected by this gas when the relative humidity is high. This gas leads to the corrosion of Iron, Steel, and other metals. It also hydrolyses the leather protein in humid conditions.

3. Particulate matter (PM2.5, PM10)

Particulate matter includes air pollutants which may be in the form of solid particles and liquid droplets called Aerosol. Natural dust forms about 50% of the total mass of Particulate matter in the air. Diesel automobiles produce none of these Particulate matters as petrol vehicles. Asbestos mining, foundries, stone crushers, glass manufacturing units, cement factories, forest fires, and volcanic eruptions increase the concentration of Particulate matter in the air. Fine Particulate matter is more harmful to human health than coarse Particulate matter. Particulate matter (PM2.5 and PM10) in the atmosphere is produced as a result of chemical reactions involving particulate matter forming (precursor) gases: SO_2, NO_x, NH_3, and non-methane volatile organic compounds. Airborne particulate matter represents a complex mixture of organic and inorganic substances. PM10 poses the greatest risk, as it penetrates sensitive parts of the respiratory system and can lead to health problems and premature mortality (Krzyzanowski and Cohen, 2008).

4. Carbon di-oxide (CO2)

Green plants use Carbon dioxide for the synthesis of Carbohydrates. In recent years, the concentration of this gas is increasing in the atmosphere because of heavy industrialization and the burning of natural fuels. Carbon dioxide was not considered an air pollutant, since it is a useful gas and its concentration was constant in the atmosphere. But since the concentration of this gas is constantly increasing, it is also considered an air pollutant in recent times. Deforestation, along with heavy industrialization is the reason for the increase in the concentration of this gas in the air. Forests, with lots of plants in them, are responsible for the removal of Carbon dioxide from the atmosphere due to Photosynthesis. As the forest cover is being depleted due to deforestation, the Carbon dioxide concentration is gradually increasing in the atmosphere. Because of an increase in the Carbon dioxide load in the atmosphere, the heat radiated from the surface of the earth is absorbed by the Carbon dioxide molecules and thus leads to global warming. This is called the Greenhouse Effect.

5. Oxides of Nitrogen (NO2)

The chief source of Nitrogen Oxides, which are also major primary air pollutants, is automobile exhausts. Both Nitric Oxide (NO) and Nitrogen dioxide (NO2) are harmful to plants at low concentrations and to animals at higher concentration. Nitric Oxide can combine with Atmospheric Oxygen to form Nitrogen di-oxide ($2NO + O2 \rightarrow 2NO2$). Nitrogen dioxide can dissociate with NO and Atomic Oxygen by ultraviolet radiation. Nitrogen dioxide can readily combine with water to form Nitric Acid which forms a part of Acid Rain.

Table1: Concentration Range of various Pollutants

AQI Category	AQI	Concentration range*							
		PM_{10}	$PM_{2.5}$	NO_2	O_3	CO	SO_2	NH_3	Pb
Good	0-50	0-50	0-30	0-40	0-50	0-1.0	0 -40	0 - 200	0 - 0.5
Satisfactory	51-100	51-100	31-60	41-80	51-100	1.1-2.0	41 - 80	201 - 400	0.5 - 1.0
Moderately polluted	101-200	101-250	61-90	81-180	101-168	2.1-10	81 - 380	401 - 800	1.1 - 2.0
Poor	201-300	251-350	91-120	181-280	169-208	Nov-17	381 - 800	801 - 1200	2.1 - 3.0
Very Poor	301-400	351-430	121-250	281-400	209-748*	17 - 34	801 - 1600	1200 - 1800	3.1 - 3.5
Severe	401-500	430+	250+	400+	748+*	34+	1600+	1800+	3.5+

* CO in mg/m^3 and other pollutants in ug/m^3 ; 2h- hourly average values for PM_{10}, $Pm_{2.5}$,NO2,SO2,NH3 and Pb , and 8-hourly values for CO and O3.

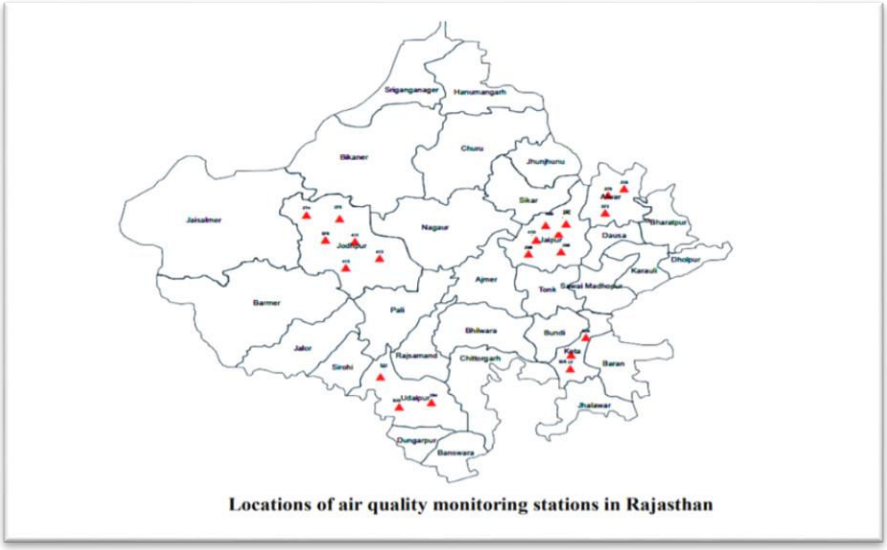
Source: National AQI, Central Pollution Control Board

Review of literature

The empirical literature on EKC, starting from Grossman and Krueger (1992), attempts to explain the observed pattern using various arguments ranging from scale, composition, income elasticity of demand for environmental goods, trade openness, and hence increasing export/import of more pollution-intensive goods, etc. Some studies focus more on the econometric methodology and problems such as heteroscedasticity in the cross-section models and non-stationarity in the time series models (e.g., Seldon and Song 1994). Seldon and Song emphasize the importance of distinguishing between the variables that are endogenous consequences of growth and the exogenous variables. Past studies have examined EKC relations by using different data points with varying specification and methodology. There has been some evidence from these studies that the critical income level for air pollution is higher than other pollution.

According to IQAS 2019 World Air Quality Report, India is home to 21 of the 30 most polluted cities in the world. This report uses the case of Rajasthan to illustrate. According to the Global Burden of Disease Study 2019, Rajasthan is amongst the six Indian states having the highest per capita economic loss due to air pollution.In the last two years, the state recorded the highest death rate per 100,000 population due to air pollution. The deteriorating air quality in the state is not only putting tremendous pressure on its fragile healthcare system but also impairing the productivity of the population. Per-capita economic loss due to air pollution in Rajasthan is at $28.5; in Delhi, where per-capita economic loss is highest, it is $62. Economic loss attributable to air pollution as a percentage of state GDP is 1.70 percent. Economic loss due to lost output from premature deaths and morbidity attributable to household air pollution as a percentage of state GDP in Rajasthan is 0.79 percent. Economic loss due to premature deaths and morbidity as a percentage of state GDP in 2019 for Rajasthan was highest for ambient particulate pollution, followed by household air pollution, and ambient ozone pollution.

Figure 2: Locations of air quality monitoring stations in Rajasthan



Source: Rajasthan State Pollution Control Board Dep

Data and Methods

Secondary data was collected from the Central Pollution Control Board (CPCB) and Rajasthan State Pollution Control Board (RSPCB) for the collection of air pollution data.For the Income per capita and Gross Domestic Product of Rajasthan, the secondary data was collected from the Directorate of Economics and Statistics, Rajasthan.Majorly these air pollutants are responsible for air pollution in Rajasthan:

- Carbon Monoxide (CO)-Vehicle exhaust and burning of fossil fuels
- Sulphur Dioxides (SO2)- Petroleum refineries and thermal power plants
- Particulate Matter (PM2.5, PM10)- solids in the air in the form of dust, smoke, and vapor
- The particulate matter PM2.5 in Rajasthan state was found very unhealthy in November 2017 & March 2018 which was 146 and 299 respectively.
- The Net Per Capita income of Rajasthan was constantly increasing from 2011-2020 but due to covid 19 situation it faced a fall of 7.77%.
- 'N' shaped curve for Sulphur Dioxide (SO2) was found which means that the curve has two turning points. The reason is, at high-income levels, the scale of economic activity

becomes so large that its negative impact on the environment could not be counterbalanced by the positive impact of the composition and technology effects.

Table 2: List of Air Quality Monitoring Stations in Rajasthan

S.No	City	Station Code	Location	Type Of Area
1	Alwar	219	RIICO Pump House , MIA, Alwar	Industrial
2		372	Regional Office Alwar	Residential
3		373	Gaurav Solvex, Alwar	Industrial
4	Jodhpur	273	Sojati Gate , Jodhpur	Residential
5		274	RIICO Office , Industrial Area, Jodhpur	Industrial
6		376	Maha Mandir , Jodhpur	Residential
7		411	Housing Board , Jodhpur	Residential
8		412	Shastri Nagar Thana , Jodhpur	Residential
9		413	DIC Office , Jodhpur	Industrial
10	Udaipur	294	Townhall, Udaipur	Residential
11		320	Ambamate , Udaipur	Residential
12		321	Regional Office, Udaipur	Industrial
13	Kota	17	Regional Office, Kota	Industrial
14		325	Samcore Glass Ltd, Kota	Industrial
15		326	Municipal Corporation , Kota	Residential
16	Jaipur	296	Ajmeri Gate, Jaipur	Residential
17		297	V K I A, Jaipur	Industrial
18		298	Boards Office , Jhalana Dungri ,Jaipur	Residential
19		408	Chandpole , Jaipur	Residential
20		409	RO Jaipur(N), Vidyadhar Nagar, Jaipur	Residential
21		410	MIA , RIICO Office, Jaipur	Industrial

Source: Rajasthan State Pollution Control Board Dep

Table 3:Net Per capita Income of Rajasthan (₹ Crore)

Year	At Constant (2011-12) Prices		At Current Prices	
	Per Capita Income	Variation Over Previous Year (%)	Per Capita Income	Variation Over Previous Year (%)
2011-12	57192		57192	
2012-13	58441	2.19	63658	11.31
2013-14	61053	4.47	69480	9.15
2014-15	64496	5.64	76429	10
2015-16	68565	6.31	83426	9.16
2016-17	71324	4.02	91924	10.19
2017-18	73109	2.5	98188	6.82
2018-19	75555	3.35	107890	9.88
2019-20	78390	3.75	115492	7.05
2020-21	72297	-7.77	109386	-5.29
For the Year 2018-19-Revised Estimate-II,2019-20-Revised Estimate -I,2020-21 Advance Estimate(AE)				

Source: plan.rajasthan.gov.in, Directorate of Economics and Statistics Rajasthan

Table 4: National Ambient Air Quality Standards (2009)

Pollutants	Time Weighted Average	Concentration in Ambient Air	
		Indusrtrial ,Residential ,Rural And Other areas	Ecologically sensitive Area (Notified by
SO2	Annual	50	20
	24 Hours	80	80
NO2	Annual	40	30
	24 Hours	80	80
PM10	Annual	60	60
	24 Hours	100	100
PM2.5	Annual	40	40
	24 Hours	60	60

Source: National AQI, Central Pollution Control Board

Table 5: Average values of air pollutants in Rajasthan state at different air monitoring stations

S. No.	Station Name	Station Code	AveragePM10 (2005-2017)	Average NO2 (2005-2017)	Average SO2 (2005-2017)	Average PM2.5 (2005-2015)
1	Ajmeri Gate, Jaipur	296	132.3519	39.1439	6.6463	291.7058
2	Ambamate, Udaipur	320	91.3665	27.4918	5.5141	293.1346
3	Boards Office, Jhalana Dungri, Jaipur	298	97.8641	29.6385	5.8227	212.6901
4	Chandpole, Jaipur	408	174.5595	40.9152	6.8158	387.2879
5	DIC Office, Jodhpur	413	133.2861	23.5607	6.2662	302.2690
6	Gaurav Solvex, Alwar	373	185.9210	23.9101	9.6507	350.8988
7	Housing Board, Jodhpur	411	136.2780	21.8843	5.6768	311.7615
8	Maha Mandir, Jodhpur	376	167.7463	21.7782	5.6989	377.9504
9	Municipal Corporation Building, Kota	326	115.4234	27.6393	7.2100	230.8724
10	MIA, RIICO Office, Jaipur	410	98.0940	30.9063	5.9823	209.8413
11	Regional Office, Alwar	372	168.4138	23.0317	7.7934	352.7917
12	Regional Office, Anantpura, Kota	17	142.5932	30.4379	8.3568	285.5090
13	Regional Office, Udaipur	321	161.8575	38.0286	7.4529	431.4314
14	RIICO Office, Industrial Area, Jodhpur	274	178.1130	23.3902	6.5636	367.3829
15	RIICO Pump House, M I A, Alwar	219	154.5717	22.8976	9.0321	293.7383
16	RO Jaipur (N), Vidyadhar Nagar, Jaipur	409	187.4408	35.3822	6.9213	358.3518
17	Samcore Glass Ltd., Kota	325	118.8703	27.4074	7.1537	225.6750
18	Shastri Nagar Thana, Jodhpur	412	154.4703	24.3094	6.4345	364.8964
19	Sojati Gate, Jodhpur	273	188.0843	24.9787	6.5596	399.3730
20	Townhall , Udaipur	294	102.6411	34.2318	6.5248	304.8913
21	V K I A, Jaipur	297	241.9989	38.2292	8.7443	440.9583

Source: Rajasthan State Pollution Control Board

The present work reports the distribution of air pollutants in the Rajasthan State from 21 monitoring stations from 2005 to 2017. The data include the annual average concentrations of Sulphur di-oxides (SO2), Nitrogen di-oxides (NO2), Particulate matter PM10 and PM2.5, collected in Rajasthan, which is the largest state in India, and its air quality has not been studied

sufficiently. An extensive study of the trend of air pollutants has been done and with this, appropriate statistical models have been developed for projection till the year 2025 for all four pollutants under consideration. A comparison has been done with NAAQS (National Ambient Air Quality Standards). Trend analysis reveals the information that seasonal variability and increasing trend are visible for three pollutants NO2, PM10, and PM2.5, but in SO2, only seasonal variations are present. It is observed that the SO2 level in the air during the post-monsoon season started to increase and reached a maximum level during the winter season then decreased during pre-monsoon (summer) and achieved a minimum level during monsoon. It is also observed that NO2 values were higher in the winter season and started decreasing in pre-monsoon (summer) to monsoon season (March to September) and again started increasing in the post-monsoon season. The maximum value of NO2 has been observed between October and February every year. It is seen that PM2.5 values were higher in summer and start decreasing in the monsoon season and again increases during post-monsoon and reached a maximum during the winter or summer season. The maximum value of PM2.5 has been observed between April and June every year. It is also observed that PM10 values have higher values in winter and pre monsoon (summer) seasons and least values during monsoon and post-monsoonseasons. The maximum value of PM10 has been observed either between October -February or March–May every year. Cross-validation of the developed models for projection has been performed with the actual recorded values of 2016 and 2017 and models have been found to perform adequately. Simultaneously, a mapping of the distribution of these four pollutants was done, in order to reveal the relationship between them. The multivariate analysis employing correlation analysis, principal component analysis (PCA), and Hierarchical cluster analysis (HCA) resulted in establishing a correlation between different pollutants. The results obtained allowed the classification of different monitoring stations on the basis of each of the four pollutants, revealing information about their sources and mechanisms.

Conclusion

This paper sought linkages between environmental conditions and economic conditions in Rajasthan. It portrays the past, present, and future scenarios of emissions of some important pollutants, such as CO2, SO2, NO2, and PM10. CO2 and PM10 are continuing to increase over

time and require both policy attention and stringent regulation. Rajasthan is emitting huge amounts of CO2, and these emissions are not declining over time. CO2 emissions are a matter of concern today and tomorrow, as well as for future generations. The key environmental challenges that Rajasthan faces are related to the nexus of environmental degradation with poverty in its many dimensions as well as economic growth. These challenges are intrinsically connected to the state of environmental resources, and air. The Indian economy is a brown economy that creates environmental damage. Therefore, it is time to adopt a green economy. Public participation is an essential ingredient of environment management along with other components, such as regulation and the use of economic instruments. The EKC curve obtained from the available data in Rajasthan was found to be an N-shaped curve obtained for SO2 through a Cubic Form Regression Equation.

Figure 3: N- shaped EKC Curve

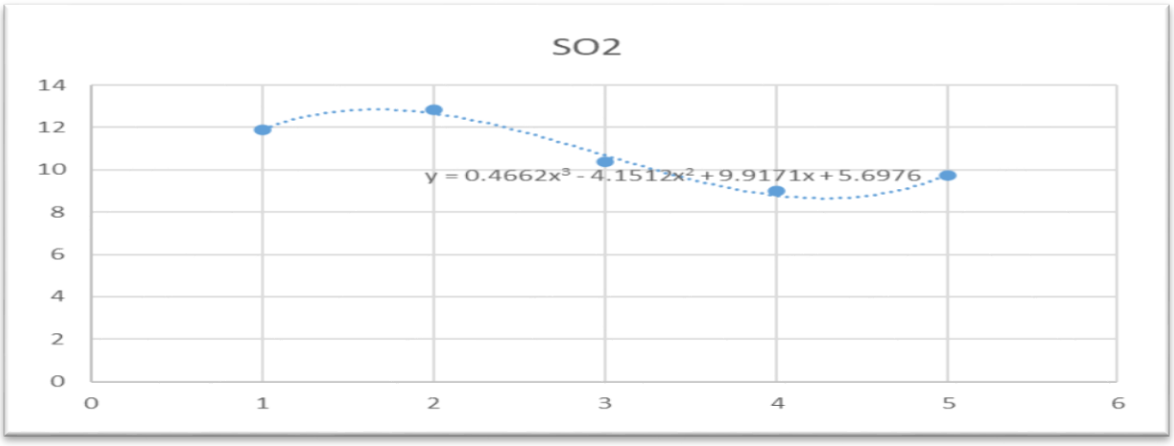
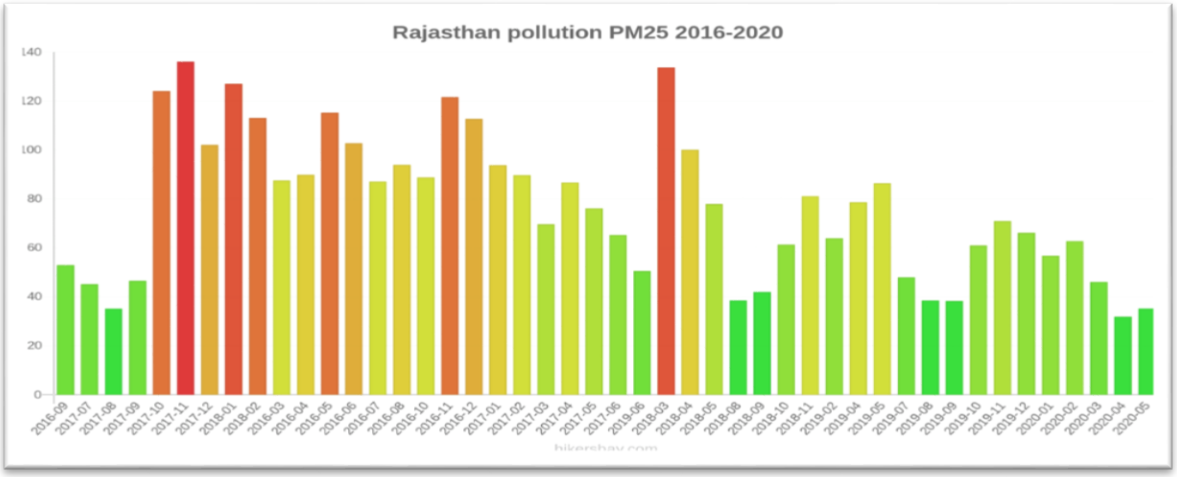


Figure 4: Rajasthan Pollution PM25 2016-2020



Source: Rajasthan State Pollution Control Board

Managi, S., & Jena, P. R. (2008). Environmental productivity and Kuznets curve in India. Ecological Economics, 65(2), 432–440.Majorly these air pollutants are responsible for air pollution in Rajasthan:

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- The Net Per Capita income of Rajasthan was constantly increasing from 2011-2020 but due to covid 19 situation it faced a fall of 7.77%.

While searching, we could find very few research papers and reports on the detailed study of air pollution in Rajasthan state. For research in the field of environment for developing countries, the basic constraint is the availability of data and their reliability, and this research also faced this limitation. So there is a need to extensively study the air pollution of Rajasthan to produce the most reliable and fruitful statistical results for the organizations and researchers working in the field of pollution and forecasting.

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INFLUENCE OF INSTAGRAM ON SOCIAL MEDIA DURING COVID-19

Nandini Sharma

(B.A. Economics Honors I)

Abstract

With more than 3.8 billion people using social media around the world, it is not surprising how the significant amount of information received through these platforms affects how we perceive and cope with the current COVID-19 pandemic. Even before the outbreak, patients, clinicians, and scientists were frequently obtaining health and science-related information from Twitter, Facebook, or other social media channels.

Social media is now more than ever part of a big extent of our lives—for example, how we use it to cope with social distancing—and although it can give opportunities for better communication, it can certainly have its shortcomings and dangers. The objective of this research paper will be to study the impact of Instagram influencers in the prevention and spread of covid 19. To carry out this study, an online questionnaire will be prepared and conducted, and a total of around 100 social media users will be sampled.

Keywords: social media, Covid 19, Instagram, Technology, Healthcare Professionals, Communications

Introduction

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the resultant COVID-19 are significant international public health problems. As of January 18, 2021, it was estimated that 95 million people worldwide had been infected with the virus, with around 2 million dead.As a result of the pandemic, social media becomes the platform of choice for public opinions, perceptions, and attitudes about various events or public health policies around COVID-19.Social media has become an essential communication tool for governments, organizations, and universities to communicate crucial information to the public.

Numerous studies have already used social media data to assist in the identification and detection of infectious disease outbreaks and to interpret public attitudes, behaviors, and perceptions. Social media, particularly Instagram, can be used to explore multiple facets of public health research.

Social media can also be an effective tool for communicating health information to the general public during a pandemic. Emerging infectious diseases, such as COVID-19, almost always lead to an increase in media use and consumption in all forms by the general public for information purposes. As a result, social media plays a vital role in people's perception of disease exposure, resulting in decision-making, and risk behaviors. Given that information on social media is generated by users, this information may be subjective or inaccurate and often includes disinformation and conspiracy theories.

It is therefore imperative that accurate and timely information on emerging threats, such as SARS-CoV-2, be made available to the public at large. Before the outbreak of COVID-19, people already relied on social media to gather information and news and since the outbreak in December 2019, people in many countries have relied on social media to obtain information about the virus. In addition, people in India, depend on social media. Internet use is highly associated with health information behaviors; users write about their health on a variety of social media platforms. Internet data, including data from social media platforms such as Instagram, have been used extensively in the past 10years to study health patterns and better understand infectious disease outbreaks, a field known as infodemiology or (if used as a surveillance tool) Infoveillance.

Objective

- The main purpose of this study is to briefly review the role of social media in the current wave of information and misinformation.
- To study how social media affects self-reported mental health and the spread of COVID-19.
- To study how people react to the information available on social media, and whether, they rely on the same or not.

Review of Literature

The first study on social media during a pandemic dates back to the 2009 H1N1 pandemic, tracking the prevalence of misinformation, terminology use, public sentiments and fear, and relationships between case incidence and public concern. Previous studies used the internet to collect data related to diseases, such as the search frequency of hand washing, hand sanitizer, and antiseptic topics.

The WHO declared that they are currently fighting not only an international epidemic but also a social media infodemic, with some media claiming that the coronavirus is the first true social media infodemic because it has accelerated information and misinformation worldwide and is fueling panic and fear among people.The coronavirus is the first true social-media infodemic. 2020. This is an unproven but testable hypothesis because users of social media use the platforms to express their emotions, feelings, and thoughts, which can be a valuable source of data for researching mental health ABC News reported a poll claiming that in the age of social media, anxiety about the coronavirus spreads faster than the virus itself, resulting in public panic worldwide.

The coronavirus pandemic going viral in the age of social media, sparkling anxiety posits that hearing a lot of information and news about COVID-19 has affected the public and created panic, causing people to live with anxiety. Similarly, Rothschild and Fischer claimed that social media is spreading fear and panic among social media users. Correspondingly, in the discussion on social media, Cellan-Jones stated that people depend on social media to gain information and facts about COVID-19, as some countries use filters, which is why social media gives some information but not all the facts. After COVID-19 appeared and was transmitted to other countries outside of Mainland China, people turned to social media to know more about the virus. According to Molla in just 24 hours, there were 19 million mentions of COVID-19 across

social media and news sites worldwide. The mass media has been called on to take responsibility for providing correct information and aiding comprehension among citizens.

Frenkel et al report that after the WHO claimed that social media companies were fueling misinformation on COVID-19 worldwide, some social media companies tried to remove false information from their platforms. Victor claims that in today's digital age, Chinese citizens could Not get enough facts about COVID-19, which is why they depended on social media and widely shared their information, photos, and videos, sometimes inaccurately.

Likewise, in India, the government has asked top social media companies like Facebook, YouTube, Instagram, Snapchat, and Twitter to stop publishing misinformation, as it creates panic among people. Similarly, Emmott noted that, according to a European Union document, Russian media has published a "significant disinformation campaign" about the COVID-19 outbreak to create panic among the public in Western countries.

In a contemporary discussion on the effects of media, one researcher stated that in some countries, social media impacted the buying crisis, when many people tried to buy toilet paper and other items because of the spreading fear of COVID-19 on social media. According to the newspaper "The Star" social media is responsible for much of the panic surrounding COVID-19, internationally leading to a situation where social media companies tried to eradicate posts about COVID-19 from their platforms. Furthermore, Devlin stated that people saw posts of empty shops on social media, which created panic related to food shortages. Additionally, Kent noted that social media gave everyone the chance to share information with everyone else, which is why people posted on social media as soon as they heard something about COVID-19.

In addition, it is noted that publishing inaccurate information on social media networks about the spread of diseases will hurt public health and people's mental health. The public sphere in the 21st century has undergone a transformation generated by the adoption of online communication technologies.

New media has become an important source of health information and a platform for discussing personal experiences, opinions, and concerns regarding health, illnesses, and treatment. Similarly, Dillon noted that people spend a lot of time on social media and may see cases of panic buying in various countries during the COVID-19 pandemic, which can spread panic further.

In addition, Eltek showed that nowadays everyone is an expert because everyone tries to have a voice and send a message about COVID-19. Correspondingly, Garrett explained that we gave power to social media to create fear about COVID-19, as we all publish panic-inducing information and it circulates. Merchant and Lurie found that at present, due to the development of social media, many methods of communicating and disseminating information and news are available to the public.

These are fast and effective and can spread true information as well as misinformation. In addition, La et al said that many countries did not circulate information to the public about the COVID-19 outbreak or were unable to provide the public with the information they needed; thus, people relied on the information they could find on social media. The Vietnamese case is a successful example of dealing with social media in the right way. The country's Ministry of Health created accounts on social media networks, and through those accounts, they published information about COVID-19 to the public.

Some argue that there has been a worldwide increase in the spread of fake news and misinformation about COVID-19, with misinformation such as the lab theory on the origin of the virus allegedly "originating" on social media. Correspondingly, Patrick, and others fake news, and racism.

The Lancet 2020 February, believes that “media coverage has highlighted COVID-19 as a unique threat, rather than one of many, which has added to panic, and stress.” The pandemic of social media panic travels faster than COVID-19, which determined that social media has played three main roles in the COVID-19 outbreak in most countries.

First, facts about the outbreak were published on social media. Second, misinformation, fake news, and inaccurate information about the outbreak were published on social media. Third, social media created fear and panic about the outbreak worldwide. Little or no evidence is available on the perception and impact of social media during this pandemic.

Methodology

In this study, a quantitative method of investigation was used to gather data from Indian social media users. The questionnaire was written in English and 50 social media users were sampled to collect the information. The social media users participated in a random online questionnaire, which aimed to determine the impact of social media on the spreading of panic about the

COVID-19 outbreak, as well as social media's impact on people's mental health and the health crisis facing countries worldwide.

Analysis

The first question in this study asked participants "How much time do they spend on SocialMedia?" As shown in Table1 the majority of participants (17) spend 2 hours to 3 hours on social media Each day. While the desired time suggested by experts to use social media is from 30 minutes to One hour, Table 1 shows that the number of people following the same is the lowest.

Table 1

TIME	PARTICIPANTS
Less than 30 minutes	8
30 minutes – 1hour	13
1 hour – 2hours	12
2hours – 3hours	17

The second question in this study asked participants "Which social media application do they use the most?" As shown in Table 2 the majority of participants (20) use Instagram the most. While Snapchat is used by the fewest people (03). Instagram is at the top as it is the most popular social media platform used all over the world.

Table 2

APPLICATION	PARTICIPANTS
Instagram	20
Facebook	11
Twitter	16
Snapchat	03

Figure1

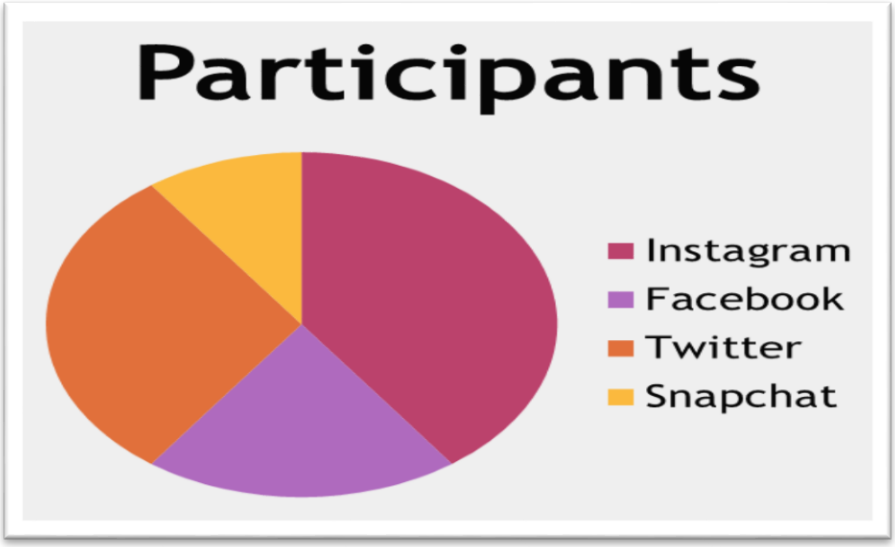
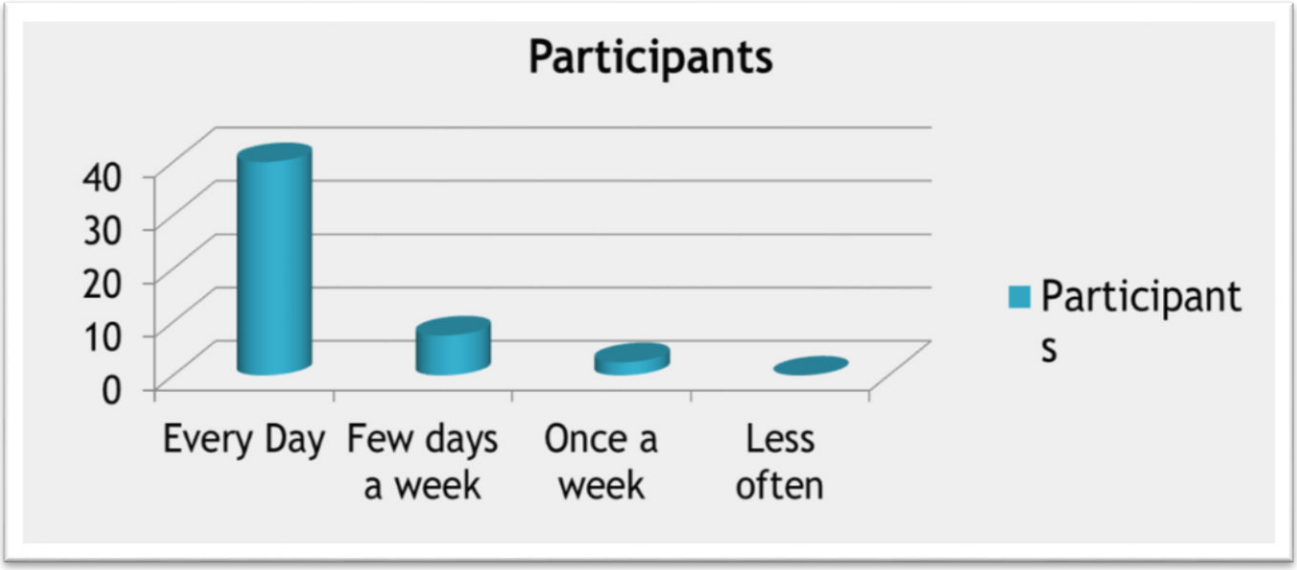


Table 3 shows that about 80% of people read the information on social media on a day-to-day basis.Whereas 15% read a couple of days a week and only 5% read once a week. In modern times, social media has acquired such importance and attention that there is not a single person who is not reliant on it to obtain any kind of information.

Table3

DAYS	PARTICIPANTS (in %)
Every Day	80%
Few Days a Week	15%
Once in a Week	05%
Less Often	0%

Figure2

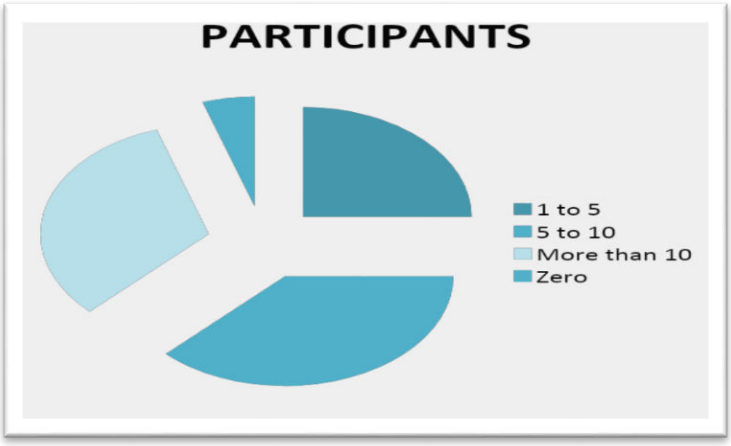


The fourth question in this study asked participants "Number of influencers they follow?" As shown in Table 4 most people follow 5 to 10 influencers. Only 20% of participants (10) follow 1 to 5 influencers. It shows that 13 people follow more than 10 influencers. It is not surprising that in modern times where social media is most powerful only 2 participants follow no influencer. This suggests that social media has a great impact on people now a days and it makes it easy for information to travel.

Table 4

NUMBER OF INFLUENCERS	PARTICIPANTS
1-5	10
5-10	15
More than 10	13
Zero	02

Figure 3

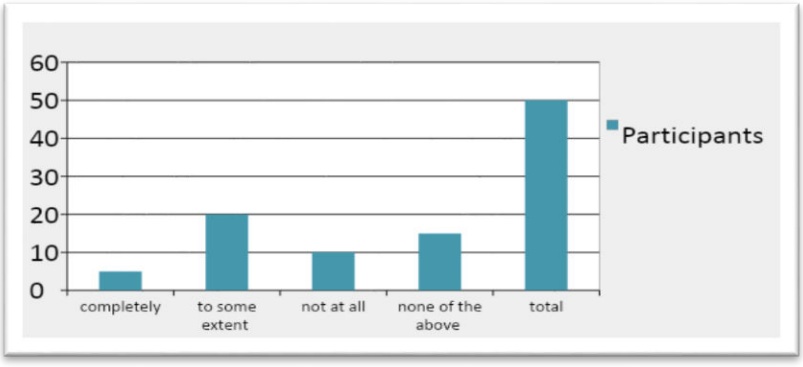


The fifth question in this study asked participants, “To what extent do they think that theInformation they see related to COVID-19 on social media is accurate?” Table5 suggests that most participants (i.e., 20) feel that the information is accurate to some extent. Whereas 15 people do not have any idea about the accuracy of the information. And only 10% of people believe that the information is completely accurate. Hence, only a few people are aware about the same, and this leads to a negative impact of social media on people, as this can mislead everyone. It is really important to educate people about the accuracy ofthe information on social media.

Table 5

ACCURACY	PARTICIPANTS
Completely	5
To Some Extent	20
Not At All	10
None of the Above	15

Figure 4



The sixth question in the study asked people "That did those influencers help in changing theirmental state during COVID-19 situation?" Table 6 suggests that 9% (i.e.18)of people felt thatthose influencers helped them improve their mental health. Whereas 22 participants believed thatthese influencers helped them but to an extent. And 20% of people felt that these influencers were of no help to them. This shows that social media influencers affect a large number of people emotionally and have a huge and long-lasting impacton them.

Table 6

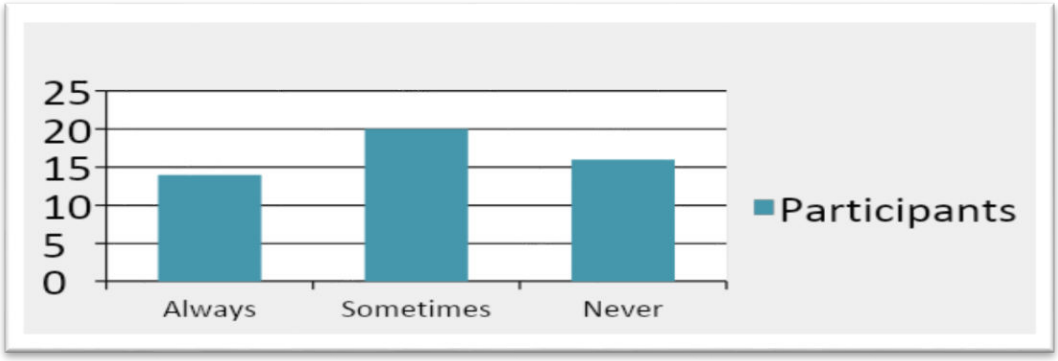
RESPONSE	PARTICIPANTS
Completely	18
To Some Extent	22
Not At All	10

The seventh question in the study asked participants "Do they share the information received from any of the social media platforms?" Table7 suggests that most people i.e., 40% share the information sometimes only. While 16 (i.e., 32%) people do not share the information at all. And only 28% of people share the information always. This shows that still people avoid sharing any information on social media as most people are not sure about the validity of the information on social media.

Table 7

RESPONSE	PARTICIPANTS
Always	14
Sometimes	20
Never	16

Figure 5



The eighth question in the study asked participants "How much do they rely on social media to stay informed about the COVID-19 pandemic?" Table 8 suggests that 50% of participants rely on social media to get information about the COVID-19 pandemic. While 25 (i.e., 50%) people do not rely on social media for the same. Surprisingly not even one person replied a little.

Hence, not all people depend on social media as; many do not feel the information on the same is totally accurate. This makes it important to teach people how to find valid information on social media.

Table 8

RESPONSE	PARTICIPANTS
Completely	25
A Little	00
Not At All	25

Discussion

Research on social media data has shown our attitudes and mental state to a certain extent during the COVID-19 crisis. These studies also showed how we produce, consume, and disseminate information on social media platforms in response to the rapid spread of SARS-CoV-2 and extraordinary confinement measures. Machine learning analyses, such as latent Dirichlet analysis and random forest, were applied in research that studied the attitudes of the audience. Articles about public attitudes towards the COVID-19 pandemic have shown that feelings have evolved over time.

Yet, this theme can be a useful indicator when evaluating interventions, such as physical distancing and wearing masks that aim to reduce the risk of COVID-19 infection. However,

public feelings had not been integrated into many intervention studies at the time we conducted this review. When a disease, such as COVID-19, starts spreading and causing negative sentiments, timely, proper, and effective risk communication is needed to help ease people's anxiety or negative attitudes regarding the COVID-19 pandemic, especially through social media. Mental health is another issue that needs to be investigated in greater detail.

Our selected studies have not addressed age-specific mental health issues, since symptoms and interventions tend to vary with age. Public health measures, such as physical distancing, that were implemented during the COVID-19 pandemic have exacerbated risk factors and unhealthy behaviors for individuals and the public.

Research has shown that social media data are useful in identifying mental health problems at the population level. Due to the early outbreak of COVID-19 and the prevalence of social media use (e.g., Sina Weibo and WeChat) in China, two studies reported increased issues of mental health among the Chinese population. A pattern similar to deterioration in mental health may occur in other regions. At the time of writing, British Columbia has recorded the highest number of overdose deaths in Canada (May 2020). The government's social media responses have become increasingly critical in the fight against infodemia and the promotion of accurate and reliable information to the public.

However, few studies have been done on the efficiency and effectiveness of these formal interventions to engage the public in believing or modifying their behavior. Nor was it clear whether the government's messages would reach more social media users or have a greater impact on them than the media.

Instagram was one of the key platforms to disseminate information about the COVID-19 response. Nevertheless, the studies we selected showed that most Instagram publications were of undesirable quality because there were few preventive measures recommended by governments or public health agencies. Undesirable quality is a disturbing observation if accurate and reliable videos and other types of information are not created and disseminated within a reasonable timeframe. Therefore, videos, especially from public health authorities, should include accurate and reliable medical and scientific information and use relevant hash tags to reach a large audience, generate a high number of views, and increase responses. Moreover, our selected studies were limited to Instagram posts only.

Conclusion

Social media is a critical part of how we experience news and share medical information in this pandemic. Thanks to the algorithms and tools of social media platforms, the most relevant information can be found in the colossal volume of shared knowledge, and this enables us to take steps to impact public health care.

During this time when there is a sense of urge to publish papers we have huge dilemmas over the quality, thanks to social media even in isolation the platforms allow us to interact betweenemisors and receivers, discussing the validity of the findings in the information shared with our network, quicker than 30 years ago.

But this positive side of social media also comes with a negative impact, the way misinformation travels is faster, hence is crucial to improve our systems understanding the flow of information between the stakeholders and do more to protect people from harmful content related to the pandemic.

The study results show that social media has played a significant role in affecting the public during the COVID-19The regression analysis from the study suggest that there is a strong positive statistical correlation between social media and the panic surrounding COVID-19.

One could argue that the panic caused by widespread information about COVID-19 is worse than the number of COVID-19 cases and will have a longer-lasting effect. It is important to communicate this to health professionals and for media experts to work with these professionals to ensure that only well-vetted information is disseminated to the public. This pandemic has certainly helped the authors identify the need for educating consumers on health topics found through social media.

We must work to educate media consumers on what constitutes good and reliable information and how to critically think through this information. Since younger people are also consuming information from social media and then spreading it to their family and friends, universities are ideal places to design courses and symposiums that can help students and faculty discern how to search for, find, and evaluate health information in the case of an epidemic or pandemic.

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A STUDY OF WIDENING GAP BETWEEN EDUCATION AND EMPLOYABILITY AMONG GRADUATES IN INDIA

Manav Narula and Isha Jain

(B.A. Economics Honors III)

Abstract

Ceaseless gaps between education and employability of the graduates continue to impact organizational performance and global development. The hope for every college graduate is to get a job. The bubble of their hope expands as they wish to get employed in sectors corresponding to their field of study. Beyond that, they continue to hope to get a sustainable and secured job to enjoy their work-life. Unfortunately, this bubble bursts for most of them, as soon as they get out of their degree colleges. Fresh graduates being the primary stakeholders, eagerly wait for the day they get employed. Similarly, the industries wait for a skilled workforce, ready to hit the ground. Somehow, their demands don't match and both of them lack what they wished for. According to a study, millions of graduates are produced by the Indian universities every year, but only 20% of them get absorbed into various industries, which is alarming. The turbulence brought by the Covid-19 pandemic has exacerbated the crisis for the youth of the country.

This paper seeks to find out and bridge the gap between education and employability of graduates in India; based on the analysis of a survey using structured questionnaires involving both the employees and the HR Executives.

Keywords: Skilled Workforce, Unemployment, Ceaseless gaps, Education

Introduction

Employability is a vital concept in higher education and it is considered as one of the factors to assess the country's socio-economic infrastructure. Graduate employability can be expressed as the compilation of a series of soft and hard skills that a graduate obtains to achieve a desirable job requirement and succeed in their career (Aniss Moumen, 2021). SHS Web of Conferences 119, 05010). According to a study, a large number of graduates in India are forced to take up jobs much below their educational qualifications or enter into unsuccessful entrepreneurial pursuits. This has created a new kind of demand-supply imbalance among the graduates being at the same time, over and under-skilled.

Statement of the Problem

Unemployment is a dismaying situation, within which lies a much worse concern of educated unemployment. One of the main objectives of graduation is to enable the students to find suitable employment opportunities in their desired field (Sarin, Charu. (2019). Analyzing Skill Gap between Higher Education and Employability). Due to persistence gaps between education and employability, only a small percentage of graduates are able to find jobs and the rest remain unemployed. The expanding size of the educated unemployed has led to a situation of distress and conflict among the graduates, where the privileged section has the option to fly abroad for better job prospects, the middle class has to resentfully settle with whatever they have and the underprivileged or under skilled are thrown out of the race. The transformation of India into a knowledge-based economy is evident but still, the country's performance on the education and employment front has been below average. The tragic irony is that despite being the 6th largest economy in the world, India's employability worldwide ranking is not at all satisfactory.

The root cause of this issue is unskillful schooling and insufficient education at degree colleges, due to which students are not job-ready and there is a gap between the skill set of the graduates

and the expectations of the employers. It is now no longer sufficient for a fresh graduate to possess only academic knowledge as employers expect analytical and practical knowledge of the subjects, but since they don't possess it and get defeated in the screening process itself. Thus, having the desired employability skills is highly crucial to enhance their job opportunities. Pay scale and type of job also play a crucial role in the unemployment concern among graduates as these are one the main reasons behind voluntary unemployment. After completion of their degree, every graduate has some essential expectations regarding the jobs and if they don't get fulfilled, they voluntarily remain unemployed, worsening the problem of unemployment.

The study investigates the following questions:

1. Why is there a gap between the demand and supply of employable graduates? (Q1)
2. What makes a candidate more desirable for employment? (Q2)
3. To what extent is the transition from degree to skills true when it comes to employability? (Q3)
4. What is the major skill mismatch that exists in the marketplace? (Q4)
5. What skills does the employer look for while hiring that the graduates are missing? (Q5)

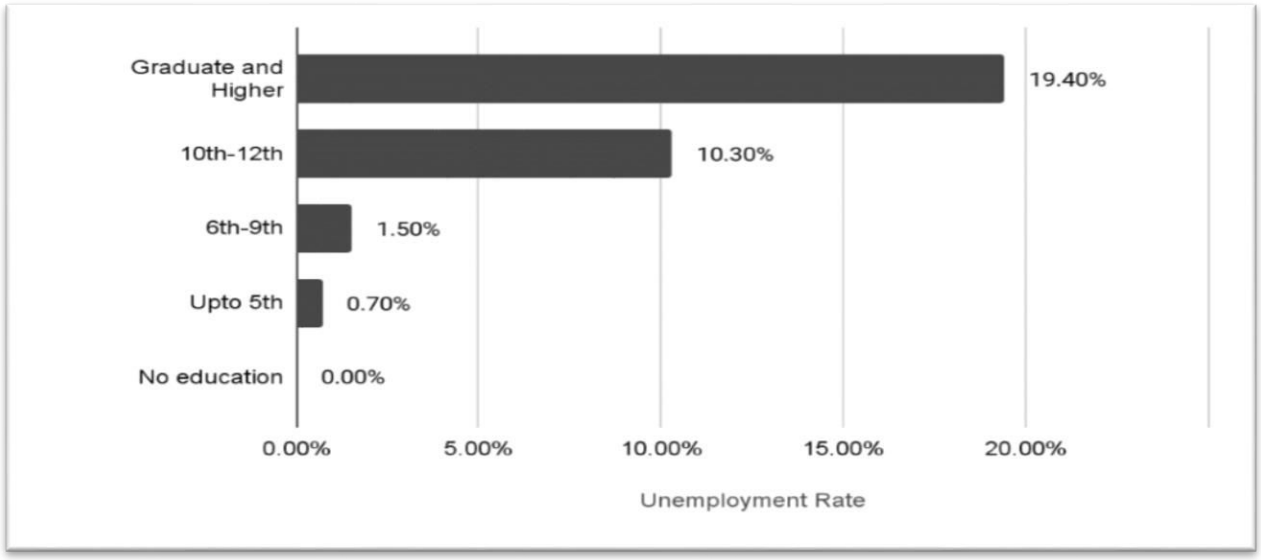
Significance of the study

Fresh graduates are met with the challenge of education and skills in this rapidly changing work environment. Today we see a lot of new work markets that were not there in the past.There is a huge pool of educated university graduates with unfulfilled aspirations. This group of dissatisfied, disgruntled youth can lead to disastrous consequences for our society (Mahajan, Shobit (2021), Indian Express).Students who graduate, wish to get the desired job but don't get it most of the time. The faulty education framework is somewhere responsible for the concern.

The current education system does not adequately focus on skills that can improve employability, and a large section of labour possess outdated skills (Institute of Rural Management Anand, IRMA, Mangalpura, Anand, Gujrat). Employers expect that students will be "work ready" after college graduation, having the hard and soft skills that are necessary for the workplace. Unfortunately, many graduates fail to possess these skills resulting in making them undesirable employees. Not just the technical skills but recognizing the importance of soft skills and their impact on specific workplaces is one of the pilot steps that need to be taken corresponding to the needs of our global economy. In addition, according to nearly 75% of

employers, candidates who have relevant work experience through internships, make them more preferable. Employers use internships as training programs to evaluate if the candidate has desired skills to convert from an intern to an employee. The educators focus on making the student understand a theory and the employers focus on putting that theory into real-time practice. Learning the employer's need and making a connection between theory and practice can make a student more desirable for the position. Therefore, this education-employment gap could be bridged through internships, where educators, employers, and students come together to provide learning experience on multiple levels.

Figure 1: Unemployment Rate in India in 2021



Source: Statista 2022: India's Unemployment rate by Education in 2021

A survey was conducted by the Centre for Monitoring Indian Economy Pvt. Ltd, (CMIE) between September and December 2021 among the rural and urban households in India. It showed that people who were graduates including those who went further for higher studies had the highest unemployment rate in India in 2021, being 19.4 percent. Individuals who completed their higher secondary education(10th-12th) followed this, with an unemployment rate of 10.30

percent. This trend continues, as the level of education is reduced, the rate of unemployment is also reduced.

Methodology

An online survey was conducted for the graduates and employers to understand the perspective on graduate employability. The sample size was 50 & 25 for graduates and HR Executives respectively. Separate questionnaires were created keeping in mind the respective requirements of both the stakeholders. The questions were based on a five-point Likert scale and multiple-choice questions were also designed for a better understanding. No subjective questions were asked from the respondents.

The survey was created on a platform called *'Google Forms'*.

Some secondary data, from previously published research and other government websites and reports, were also analyzed for the study.

Objectives

1. To examine the widening gap between education and employability for graduates in India
2. To examine various factors that are responsible for the gap
3. To identify the areas and solutions to bridge the gap

Review of Literature

Jeemol Unni (2016) identified the skill mismatch in the labour market in India. She also studied the nature of tertiary education, occupation, and industry. The major discussion of the study was about the skill gaps in graduate-intensive occupations, high technology manufacturing, and Knowledge-Intensive Services. The study also analyzed the skill mismatch and closing that gap was one of the key objectives.

Charu Jain (Assistant Professor, Delhi Institute of Advanced Studies; 2019)conducted a study to know the perception of both the stakeholders (i.e., Employees and Employers) about the skills necessary for employment. The study used the Linkert scale to derive useful insights and based on the mean score, it established a ranking order to ascertain the existing skill gap. The findings of the study gave a different picture, where the highest skill gap exists in terms of behavioral

skills, according to both the graduates and HR Executives. It also provides recommendations to bridge the skill gap which needs to be incorporated by both the stakeholders.

Tim Goles and others (2011) in their study, suggested a typology of IT skills. To find that out, the researchers gathered data of 96 IT managers and executives. They found out and refined the six categories of skills: foundational, operational, essential, project management. And opportunity skills.

Deepa KT and **Shanmugam P.** (Department of Economics, St. Thomas College, MG University, Kerala, India) along with **Archana Jayaram** (Department of Economics, Bharathiar University, Tamil Nadu, India; 2019-20) studied the socio-economic characteristics of the respondents residing in the Coimbatore district. It also traced out the gap between education and employment based on a field survey conducted in the area and concluded that skill and experience along with proper educational qualification have a significant impact on employment. There is a positive relationship between education and employment prospects.

Aya Okade (2012) studied and re-evaluated the current state of education, skills development, and employment for the youth in India. They stated that India is suffering from a deep shortage of skilled workers. The reasons they gave for this are a large mismatch in the labor market, limited access to education and skills training, and high rates of school dropout. The paper also recognized the skills gap in India between the skills young people possess and what industries demand.

Monika Aring (2012) conducted a study and drafted a report which reviewed the literature on 120 employer surveys from developed and developing countries which derived the employers' perspective on skill gap, and it indicates that employers throughout the world consider "talent" or "skill gap" as one of their top 5 concerns. This study reveals the extent of the skill gap in various countries, describes some of the major causes of the skills mismatch and reveals what employers actually mean when they state that graduates are not "employable".

Vikhe Gautam (2014) studied the gap between academia and industry. They also revealed that, over employability skills, a gap exists between HR managers and training and development officers. They pointed out the need for collaboration of both industry and academia for a win-win situation.

Ming Cheng, **Olalkekan Adekola**, **Jo Clarisse Albia,** and **Sanfa Cai (2021)** pointed out in their study that despite the clear evidence that the responsibility of employability needs to be

shared by all key stakeholders, it has been transferred to the Higher Educational Institutions by the UK government. The study also pointed out the gap between employers' expectations for employability and the government's employability agenda.

R. Mary Metilda and **Neena P.C (2016)** identified the employability skills that were necessary for employment. The purpose of their study was to investigate the gap between the skill set of business graduates expected by the employers and the actual skill set the graduates possess at the time of recruitment.

Thijs Van Rens (2015) in his CAGE/SMF research paper series studied the US data and stated that 60% of the employers of US believed in these reasons for the skill gap: *First*, workers do not adapt to changes in skills demand by attaining the necessary skills they need to find a job. *Second*, firms do not accommodate changes in skills supply by creating jobs that use skills that are available in the labor market. *Third*, lack of wage-based incentives for the workers to acquire scarce skills. The researchers suggested that the skill gap will not reduce by increasing the emphasis on scarce skills in schools, colleges, and universities. If wage-based incentives for certain skills aren't there, students will either reject to acquire these skills or will find employment in some other occupation.

According to **Dr. Atma Ram**, ex-Director General of Council of Scientific and Industrial Research, the problem of unemployment had emerged from the mismatching of academic progress and economic growth. The rate of increase of educated personnel is outrunning that of the economic growth. The real economic situation and need for the country are paid a little heed by the worn-out education system.

Results and Discussions

Existence of the gap

There is a gap between education and employment due to both lack of sufficient jobs and lack of appropriate skills possessed by candidates. This accounts for the reason behind the unsuitability of a large number of graduates for employment that are commensurate with their degrees. Nearly half of the undergraduate students (i.e., 80% of the total number of the students) are enrolled in disciplines that are least employable. According to our survey, the gap exists due to skill mismatch and the lack of industry knowledge.

According to the survey, 80% of employers believe that technical skills are more important whereas 90% of employees on the other hand consider communication skills to be of high value. This has created a mismatch between both perspectives and has increased educated unemployment in India.

Such gaps can exist sector-wise as well. For instance, the tech industry, to begin with, is facing a shortage of tech talent. According to a study conducted by NASSCOM (National Association of Software and Service Companies), the gap exists all over the world. India's tech demand-supply gap of tech talent in 2020-21 is around 21 percent. Accordingly, the construction sector accounts for a total of 11 percent of the Indian GDP and is the largest employer after the agriculture sector. According to a survey by Global Data, which is a leading analytics company, the pandemic has caused a beating to India's construction industry. The construction industry is also facing a shortage of professionals and skilled talent necessary to recover it from the turbulence caused by the pandemic. According to a research report titled "Real Estate Construction Professionals in India in 2020", by the Royal Institute of Chartered Surveyors (RICS), the number of professionals, and the skillsets for core professionals in this industry has a demand-supply gap of about 85%. Furthermore, according to the C. Madhusudhan Reddy (Chief of Andhra Pradesh State Skills Development Corporation), the drugs & pharmaceutical industry is also going through a serious situation where only 5% of the total graduate were able to secure jobs in this industry in 2020 and the remaining 95% were not possessing the necessary skills.

Reasons for the gap

HR Respondents believe that technical skills are most important whereas the employee respondents think communication skills are. This mismatch acts as one of the roots of the problem of educated unemployment. The on-the-job training of an employee is an additional cost that the company has to bear on new hires. The candidate having the technical skills would always be preferred over the candidate having no or little technical skills. There has to be a balance maintained between soft and hard skills. Focusing on one of them and neglecting the other is not a wise decision. The lack of industry knowledge also plays a vital role in the existence of the gap and serves as a reason behind the unemployment of the youth in India. According to the survey, almost 65% of employers and 70% of employees believe that internships and apprenticeships are crucial for a job. Having relevant work experience helps the

candidate stand out and also builds professional faith in the candidate. Unfortunately, 40% of employees stated that there are no industry-based mentorships and internship opportunities are offered in their institutions. Thus, both skills and work experience help candidates pave their way through the work market.

India produces around 2 million STEM graduates across all fields including undergraduates, postgraduates, and Ph.D. students. Among these, only 35% are suitable for employment, and the remaining 65% need upskills of some kind to get a job in the tech field. The study points out that the Indian universities are lagging in terms of industry-academia tie-ups that are necessary to provide training, internships, and learning to graduates to make them market-ready. With the lack of sufficient skilled professionals in the construction industry, the overall cost of the projects increases due to inefficient utilization of resources. The professionals lack in-depth knowledge about the sector and being restricted to limited domains generates this gap. Another factor increasing the demand-supply gap can be drawn from the belief of the employers who think that most of the fresh graduates are highly unemployable, i.e., they are not "industry-ready". Similarly, due to the lack of required skills, the gap exists in the pharmaceutical sector as well. Another reason would be the lack of experienced people in the industry, which in turn has created an imbalance.

Some other possible reasons that could generate and expand this gap are -

1. **Poor Educational System:**

   The education system of India does not develop human resources properly. Proper training is not given to the people who are consistent with the present economic environment. Due to this, even those who are highly educated, fail to get an appropriate job in India. When firms hire a person for a job that requires tertiary education, sometimes the firms complain that the person they hired didn't have the quality skill that was required for that job. Thus, when a person with higher education fails to possess certain quality skills, it adds to the firms' on-the-job training costs. This is a result of the poor education of the existing higher education system in India.

2. **Market conditions:**

   When a student is enrolled in high school, most of them are uncertain regarding their career paths. They tend to select the institutions under the influence of their parents, peer groups, or teachers. The student's expectations tend to coincide with reality after a period

of time. According to the market conditions and expectations at the particular time period, they need to reconsider their career paths. This time period actually contributes to expanding the existent gap.

3. **Overeducation:**

From an economic point of view, being over-educated can also act as a reason for unemployment. The term overeducation refers to when a graduate exceeds their optimum level of education. The overeducated graduates will not compromise on the normal pay scale and will try to find a job according to their educational level. Despite of the law of labor supply and demand which states that they should get a job regardless of their education level over-education creates conflict as graduates want to earn more due to the educational qualifications attained by them and the employers doesn't have a suitable job that justifies their qualifications. This leads to a wastage of resources and time invested in attaining that education.

4. **The imbalance between perspective and realities:**

After graduating, the student interacts with various sources regarding the process to go ahead in their career and find a suitable job. They tend to formulate their own ideas and expect outcomes. Whereas the market requires different sizes of labor forces to meet the needs and requirements. The employer's point of view may sometimes differ from that of the graduates while hiring, leading to unemployment.

5. **Skills and ability to hire:**

The process of hiring does not only involve educational qualifications but also looks upon the background of the candidate. Maybe the institutions ignore the importance of skills in the practical world, making it difficult for the graduates to approach their careers. After graduation, it is essential to meet the requirements of a job in order to be hired.

Degree vs. Skills

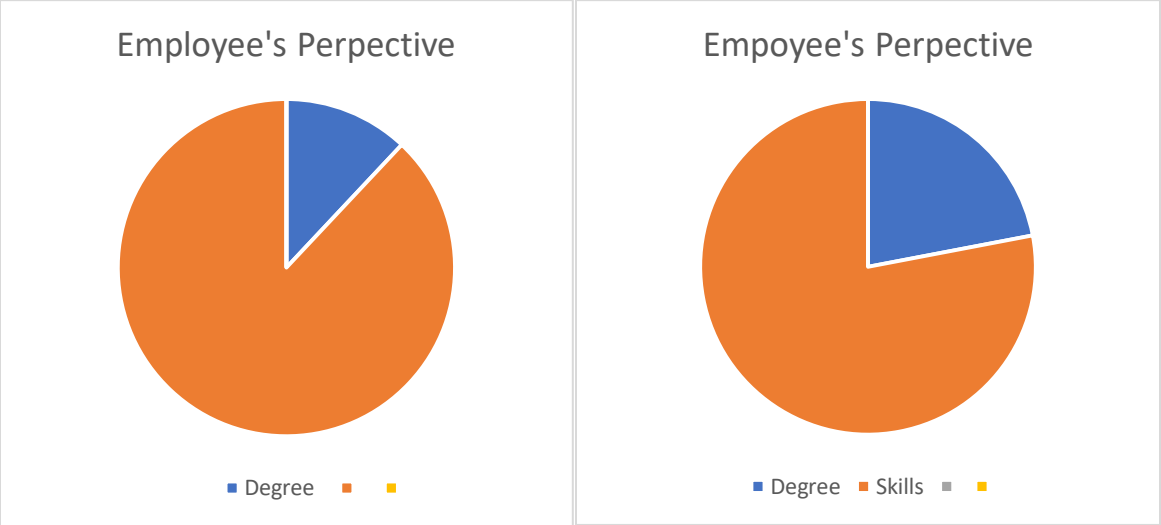
Students spend one-third of their lives acquiring college degrees to find suitable jobs to live the remaining two-thirds of their lives. According to the World Economic Forum's, Jobs of Tomorrow report, if the focus would shift from degrees to skills, there would be a bigger workforce representing a diverse population and will also help bridge the all too familiar

education and employability gap. This would mean transitioning to skill-based education and employment infrastructure that welcomes not just credentials and certifications but also the suitability for the job. Based on the estimates of the Forum, more than 1 billion jobs are likely to be transformed by technology in the coming years.

The future of work won't be about the degrees but skills would take over the lead. A job website called Glassdoor listed the names of 15 companies that no longer require a degree, including tech giants like Apple, IBM, and Google. Many companies are offering well-paying jobs to those with non-traditional education or high school diploma (Kasriel, Stephane, Upwork CEO).

The tasks performed by robots, automation, and artificial intelligence have been increasing with time which is disrupting the jobs massively. Machines are eating humans' jobs and not just the low-skilled or repetitive jobs. Artificial intelligence in recent times has shown equal or better results than humans. (Rainie, Lee (2017). PEW Research Center). According to a study, around 38 million students are enrolled in higher education across multiple degrees and colleges The success measure based on the number of jobs rolled out is less than 10%, i.e., not even 3.7 million students are able to get a job after completing their degrees (Aishe.nic.in report, 2019). This gives a clear representation that the future will not be just about college degrees and qualifications. Due to the active emergence of the gig economy, the nature of work is more inclined towards skills. Further, the covid-19 pandemic has given fair reasons to students and professionals to accelerate their careers and modern economy by joining upskilling and skilling programs. A degree can earn the job but cannot assist in growing further if not accompanied by skills. Therefore, candidates with just degrees won't be able to pave their way through this disruption. Hence, degrees along with the right skills are required to survive and excel in this automated world where AIs and robots are increasingly becoming better to perform tasks efficiently.

Figure 2: Degree - 12% Skills - 88% **Figure 3: Degree - 22% Skills - 78%**



After analyzing the responses from both the employees and the employers. A majority of both the employees and employers (78% and 88% respectively) are firm believers that skills matter more than a degree. Despite this knowledge, the employees are not able to find employment. One of the possible reasons behind this is the skill mismatch. Skill gaps and mismatches basically lead to unfavorable market conditions, youth unemployability, and a reduced pace of economic growth. Skills are not only limited to enhancing workers' productivity but also define the candidate's ability to adapt to the work environment. Some sectors have a larger number of skills than what is required resulting in graduates being underpaid or underemployed. Some sectors that require a high degree of skills that can lead to growth and employment should be prioritized while planning out strategies.

Skill mismatch can be measured using various factors like *overeducation* (have a level of education beyond what is required), *under-education* (have a level of education below what is required), *over skilled* (have a set of skills above what is required), and *under skilled* (have a set of skills below what is required). Skills can even become obsolete due to aging which degrades manual skills, caused due to technological changes. Skill shortages is another term that is related to skill mismatch in a very practical way. It refers to existent vacancies due to unqualified graduates. As the students are unable to offer what a firm asks them, the consequences are borne by both the stakeholders.

Bridging the Gap

The most crucial goal of education is to act as foundations for employability, but there is a mismatch in the expectation and reality. Upon identifying that mismatch, the bridging of the gap is the next step to make. The bridging focuses on 2 areas, first, is the skill-based closing of the gap which involves methods and ideas to make the candidates learn the necessary skills. Second, is the initiative-based closing of the gap which involves providing platforms to the candidates and crafting policies to help them get the desired job. Closing the gap can be discussed sector-wise as well. For the tech industry. closing the gap would need the increment in the corporate collaborations in tier II and tier III universities to change the curriculum and add introductory to medium-level complexity courses in the field of tech. Similarly, an NSDC analysis acknowledged that, in order to meet the requirements of the construction industry, the areas of legal knowledge, government regulations, networking, language proficiency, financial knowledge, project planning, and management skills, including applications and use of project management software, must be enhanced. To bridge the pharma industry-academia gap of trained and professional workers, the Indian education system should focus on providing expertise in complex areas. To adapt to the needs of the modern pharmaceuticals, Pharmacy Education in India must take cognizance of the deficiencies and modify their curriculum (FICCI-NMIMS report on Industry-Academia Convergence).

According to the World Economic Forum's Future of Jobs Report, almost 50% of the employees would need reskilling by 2025 since technology is being adopted increasingly. The topmost soft skills that the employers think have growth prospects are critical thinking and problem solving, Flexibility, stress tolerance, active listening, resilience, etc are also emerging as important soft skills to be learned in the discipline of self-management. The forum estimates that 85% of the jobs would be displaced due to the shift from human labor to machines.

Table 1: Top 10 Work Skills required by 2025

Analytical thinking and innovations	Leadership and Social Influence
Active learning and learning strategies	Technology use, Monitoring and control
Complex problem solving	Technology design and Programming
Critical thinking and analysis	Resilience and Stress Tolerance
Creativity, Originality and Initiative	Reasoning and Ideation

(Source: Future of Jobs survey 2020, World Economic Forum)

Some possible areas of solution in order to bridge the gap are -

1. The clarity about the task and the backdrop is necessary when working on a project or anything. Theoretical knowledge is something that college will teach, but applying it in real life is what needs to be figured out by oneself. Employers don't want candidates to memorize and replace textbooks. They want employees who can apply theories in real life to solve practical problems.
2. Theoretical knowledge and understanding are useless if a candidate is not able to express it in a lucid manner. The ability to communicate properly demonstrates confidence. The traditional "one size fits all" method is not enough in the present time. Students need customized mentoring and the space to evolve as confident individuals, which can be done by making them aware of their individual strengths.
3. Improving the pupil-teacher ratio and skills like public speaking, participation in cultural and sports events, student exchange programs, social work, festivals, etc may help in making a candidate confident for the dynamic work environment.
4. Working as interns or taking part in the family business after college hours or starting any sort of entrepreneurial venture will expose the students to real-life challenges and will also tell them the course of action to deal with such challenges.
5. To enter a corporate world, a graduate must have the requisite skills needed for employment. Academics alone is not enough to make a student work ready; skill development plays a vital role in it. While the student is pursuing their graduation, they can easily enhance other skills like fluency in English, communication skills, behavioral skills, interpersonal skills, etc. Sometimes lack of these skills can affect your chances of getting employed. The main conflict comes when the institution itself lacks in understanding the wants of the market and making their students read according to it.
6. The school and college examinations are more or less structured in a manner to assess the knowledge of an individual in terms of the syllabus and curriculum they have in their course. Assessing the candidate in terms of team building or group work skills is also necessary. Thus, to improve teamwork and related skills, participation in cultural activities or sports can help to a great extent.
7. Professional certifications, such as those offered by Coursera, edX, Udemy, LinkedIn, etc., can help you acquire new skills at a very minimal cost without even going through a

regular degree program. These platforms offer thousands of courses taught by experts in their fields. Many companies like Amazon (AWS), Microsoft, etc., offer their own certification programs in various IT-related disciplines. Google has also launched a number of online courses with the duration of 3-6 months which aim to help people find suitable jobs.

8. This world has been moving towards digitalization and soft skills have become key to the modern economy. These soft skills cover a wide range of interpersonal skills such as teamwork, analytical thinking, management, problem-solving, etc. Unfortunately, the current curriculum of colleges and universities do not include these skills.
9. Institute for Electronic Governance; It was initiated by the government of Andhra Pradesh, it's basically a non-profit organization that trains young engineers to assess their knowledge through Jawahar Knowledge Centre (JKC) i.e., main activity of IEG. It is a six months model that can be availed for free. It provides top-level training in technical and soft skills, a 24/7 library, high-speed internet, and separate laptops with an aim to create awareness in society. Rajasthan Skill and Livelihoods Department; Rajasthan has created its own position in the education sector for schools, colleges, etc. This program holds the main agency responsible for skill development across the state. Similarly, Rajasthan Knowledge Corporation was established to develop a fresh educational framework that regulates the development needs for IT skills.
10. The main and primary role of higher education institutions is to provide their students with knowledge, skills, and abilities to enter the corporate world. The industry and the educational institutions should ensure that a common platform is available for the students to carry out value-based curriculum keeping in mind the wants of the market. To reduce the employability gap, we must take action to reduce the existing gap between the industry and faculty. The educational institutions should at least make the student ready to adjust to different cultural settings.
11. Having the skills and not being able to use them is of no use. It is very important to identify your skills, organize them, plan them and use them according to the situation. Sometimes a person lacking some of the skills can get the job because he/she knows how to handle the situation better than the other. To incorporate these skills in the graduates

the institution must conduct different activities like brainstorming, role play, simulation, fieldwork, teamwork and site visits, etc.

The changing market situations and the high shifting prospects from human labor to machines suggest that demand for some jobs will increase over the next five years, while for others it will shrink. Candidates aligning their skills with the job positions that have a high demand in the future will flourish in their careers and will be able to sustain longer in their desired jobs. Some of such high and low-demand jobs of the future are listed in the table below.

Table 2

S. N	Increasing Demand	S. N	Decreasing Demand
1	Data Analyst and Scientists	1	Data entry clerks
2	AI and Machine learning specialists	2	Administrative and executive secretaries
3	Big Data specialists	3	Accounting, book-keeping and payroll clerks
4	Digital Marketing and strategy specialists	4	Accountants and Auditors
5	Process automation specialists	5	Assembly and factory workers
6	Business Development professionals	6	Business services and administration managers
7	Digital transformation specialists	7	Client information and customer service workers
8	Information security analysts	8	General and operations managers
9	Software and application developers	9	Mechanics and machinery repairs
10	Internet of things specialists	10	Material recording and stock-keeping clerks
11	Project managers	11	Financial analysts
12	Business services and	12	Postal services clerks

	administration managers		
13	Database and network professionals	13	Sales rep, wholesale and manufacturing, technical and scientific products
14	Robotics engineers	14	Relationship managers
15	Strategic advisors	15	Bank tellers and related clerks
16	Management and Organization analysts	16	Door-to-door sales, news and street vendors
17	FinTech engineers	17	Electronics and telecoms installers and repairs
18	Mechanics and machinery repairs	18	Human resource specialists
19	Organizational development specialists	19	Training and development specialists
20	Risk management specialists	20	Construction labourers

(Source: Future of Jobs survey 2020, World Economic Forum)

Conclusion

The purpose of the study was divided into 3 stages, identifying the gap, finding out the reasons behind the gap, and discovering areas and solutions to bridge the gap. The perspectives of both the employers and the employees were recorded through an online survey.

The findings of the paper indicate that the gap between education and employability exists due to a mismatch in skills. HR executives consider technical skills to be of high value and on the other hand, employees give importance to communication skills. But, in reality, both of these are equally important to secure a job, and thus focusing on one and neglecting another is not preferred. Since both stakeholders believe that skills matter more than a degree, this paper

supports the saying that "skills, not a degree, will shape the future of work" Another finding recommends that in order to satisfy the requirement needed in the labor market, academic institutions and employers should collaborate to derive strategies and frameworks to enhance employability. Also, prospects the internships and apprenticeships need to be expanded because employers prefer those who are ready for the work market and have some real-life experience. The skill gap also is quite evident due to the mismatch in the perspectives and expectations of both the stakeholders which indicates that a communication gap exists between universities and employers which needs to be addressed as well. The skilling ecosystem in India has been improving every day and has witnessed some great policy reforms that might act as strong foundations and will create a stable platform for all the stakeholders. Hence, it is essential to note that a more stable mechanism needs to be established between educational institutions, government, and industry in order to make more flexible and reliable policies.

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A Study of Sustainable Medical Waste Disposal in the Covid-19 Pandemic

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(B.A. Economics Honors I)

Abstract

With an ever-growing population, today we witness a greater influx of migrants particularly from rural locations to the cities. This can be attributed to factors such as concentration of employment opportunities in particular cities, better education, healthcare and so on to name a few. This is

often accompanied by an increase in the carbon footprint of each person migrating to the city, primarily due to increase in income of individuals and availability of a wider range of goods and services. Thus, it is imperative to find solutions to a diverse set of challenges we face today resulting from increase in consumption. One such challenge is sustainable waste disposal, which is crucial to prevent public health and environmental catastrophes. Waste can be categorized into solid waste, e-waste, hazardous waste, bio- medical waste etc. to name a few. The current research will analyze challenges posed by increasing bio-medical waste, particularly which is generated due to the COVID-19 pandemic. According to the World Health Organization, 'Tons of COVID-19 health care waste expose urgent need to improve waste management systems.' As COVID-19 battered countries, experts hunted for ways to accelerate production of then immediate necessities such as Personal Protective Equipment (PPEs), face masks, sanitizers, gloves, medical solutions etc. to combat COVID-19. Now as we reach a comparatively more stable situation, processing humongous quantities of waste generated due to measures taken for pandemic control require immediate notice. My study will stress on the importance of properly disposing of medical waste and few viable solutions to tackle the problem we face.

Key words: Waste Disposal, bio-medical waste and Personal Protective Equipment

Introduction

In developing countries, significant quantities of solid waste are dumped in the outskirts of urban areas, in the open. This makes people living in those areas in shanty housing and slums vulnerable and also poses a threat to people working in certain unorganized professions such as rag pickers and sanitation workers.

According to a report by the World Health Organization, dated 1st February 2022, tens of thousands of extra medical wastes from the response to the Covid-19 pandemic has put tremendous strain on healthcare waste management systems around the world, threatening human and environmental health and exposing a dire need to improve waste management practices. Data from the State Pollution Control Boards/Pollution Control Committees of India, state that, the average quantity of Covid-19 related bio-medical waste generated during July, 2021 was around 72.8 tons per day, 55.56 tons per day during August, 2021, 49.1 tons per day during September, 2021, 32.1 tons per day during October, 2021, 24.67 tons per day during

November, 2021 and 23.02 tons per day during December, 2021. As on 1st of February, 2022, a report by the WHO states that over 140 million test kits, with a potential to generate 2600 tons of non-infectious waste (mainly plastic) and 731,000 liters of chemical waste have been shipped to countries, while over 8 billion doses of vaccine have been administered globally producing 141,000 tons of additional waste in the form of syringes, needles and safety boxes. Such humongous quantities of medical waste call for an urgent need to be studied.

This paper studies the different types of wastes that are generated with a specific focus on medical waste and their harmful effects and how they can be managed in the aftermath of the Covid-19 pandemic.

Objectives

This paper intends to study the various types of wastes generated during the Covid-19 pandemic and their hazardous effects, understand the strategies that have been undertaken to manage medical waste generated during the Covid-19 pandemic, study measures taken and alternative methods for the disposal of such medical waste.

Literature Review

Medical waste comprises waste produced by healthcare facilities, laboratories, diagnostic facilities and bio-medical research facilities. Bio-medical waste is potentially one of the most hazardous kinds of wastes following radiation waste. It can be of different types such as chemical waste, pathological waste, sharps, medical devices and gears, body parts and discharges etc. to name a few. (Atanu Kumar Das, Md. Nazrul Islam, Md. Morsaline Billah, Asim Sarker, 2021)

Medical waste in the Covid-19 scenario is all the waste that has resulted from testing for Covid-19 as well as from caring for patients in healthcare facilities and homes. This includes vaccine needles, testing swabs, testing reagents, personal protective equipment used by healthcare workers themselves. In 2020, 4.5 trillion additional disposable masks were thrown away by the public, resulting in 6 million tons of extra waste. (Source: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/media-resources/science-in-5/episode-65---medical-waste)

According to a joint study by ASSOCHAM-Velocity, India generated 550.9 tons of bio-medical waste per day at pre-Covid-19 levels in 2018, which was forecasted to have a compound annual growth rate of 7%. This meant India would've produced 775.5 tons of medical waste per day in 2022 even without considering the possibility of the Covid-19 pandemic.(Source: http://www.biovoicenews.com/wp-content/uploads/wp-post-to-pdf-enhanced-cache/1/indias-medical-waste-growing-7-annually-assocham-velocity-study.pdf)

More automation and mechanization of the medical waste management system is required to reduce human contact with potentially infected waste. (Mohit Somani, Abhishek N. Srivastava, Shiva Kumar Gummadivali, Aparna Sharma, 2020)

Incomplete waste disposal, inappropriate ash disposal and dioxins emission due to deficiency in operation of small-scale incinerators can result in 40,000 times higher emissions than the emission limit set forth in the Stockholm convention. The classification of bio-medical waste is based on the presence of biologically aggressive pharmaceuticals, infectious substances, presence of sharps, cytotoxic, genotoxic and other toxic chemicals. There is a need for revision of guidelines so that all aspects of scientific disposal of solid and liquid waste management are taken care of not only at the institutional level, but also individual level. (Mrinalini Goswami, Pranjal J. Goswami, Sunil Nautiyal , Satya Prakash, 2021)

Dr. Maggie Montgomery from the WHO says that there's still a lot to be found out about plastics and the environment. There is an increasing pattern of micro-plastics showing up in our waterways, food systems and even in the human body in our bloodstream. This calls for safer measures for disposal of plastic generated due the treatment of Covid-19.

A report from July 2022 revealed that researchers in India detected Covid-19 variants in sewage months before they showed up in the clinical tests. The new study conducted by researchers in Bengaluru revealed that Omicron sub-lineages BA.2.10.1 and BA.2.12 were detected in waste water in January, whereas it was detected in clinical samples in March. The authors also predicted that environmental surveillance could predict disease surges by up to two weeks.

(Source: https://economictimes.indiatimes.com/industry/healthcare/biotech/healthcare/covid-variants-found-in-sewage-even-before-surge-in-cases-study/articleshow/93038117.cms)

Methods and Data Collection

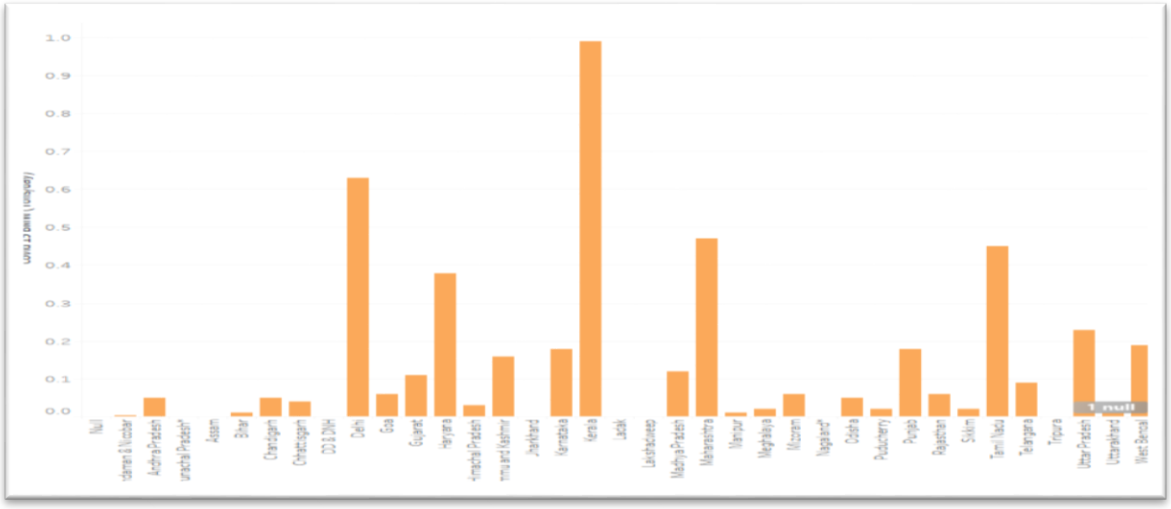
This paper includes research primarily by secondary methods using research papers, articles, news articles and data from government websites such as data from the Pollution Control Board of India. The interview method has been followed for conducting primary research.
An interview was formulated, for which there were 15 respondents across two hospitals in Jaipur. The interview questions were as follows:

- How were waste produced due to treatment of Covid-19 patients and wastes produced due to treatment of non-Covid-19 patients segregated?
- What chemicals and methods were used to sanitize the surroundings?
- Where was Bio-medical waste being processed in Jaipur and what was the frequency of visits by the pickup trucks from the BMW processing Centre?

Findings

In response to the above questions, it was found that wastes produced due to treatment of Covid-19 and treatment of non-Covid-19 patients were segregated following color coding protocols, both the hospitals used Hypochlorite solution for sanitizing hospital facilities for the purpose of Covid-19, and waste from hospitals is being processed at a waste management processing plant located in Kanota, a town near Jaipur which is over 20km from the hospitals.
Moreover, it was also found that India's Covid-19 vaccination drive had used close to 268 million syringes and needles, and 18 million glass vials as of 30th June 2021.

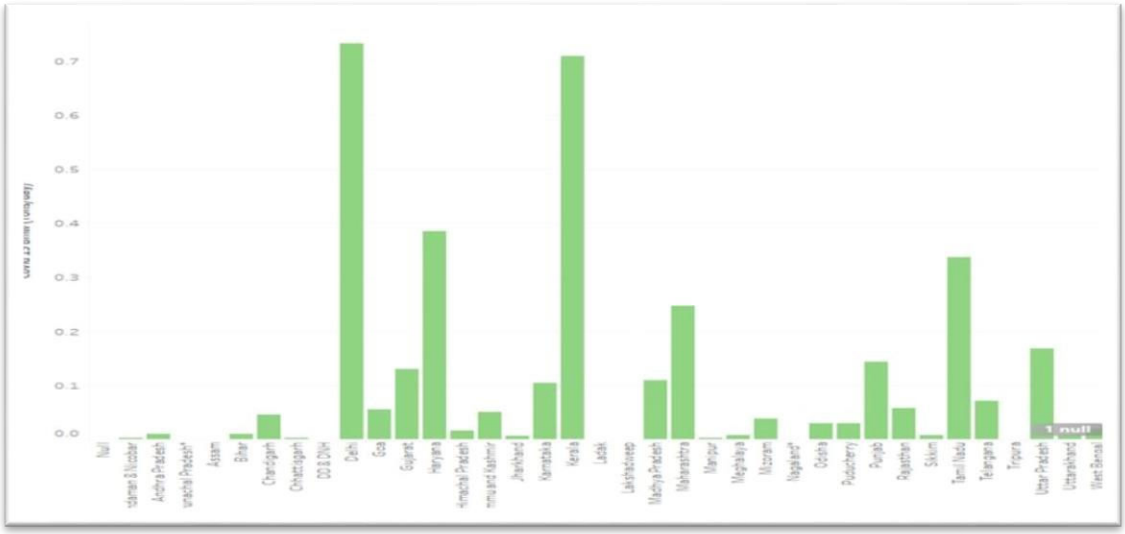
Figure1: Depicting state-wise details of bio-medical waste generated in Tons/day in April 2022



Source: https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/COVID19_Waste_Management_status_April-May_2022.pdf

From the above graph we note that Kerala generated the highest quantity of Bio-medical waste in tons/day, which stood at approximately 0.99 tons a day.

Figure2: Depicting state-wise details of bio-medical waste generated in Tons/day in May 2022



Source:https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/COVID19_Waste_Management_status_April-May_2022.pdf

From the above graph we note that Delhi generated the highest quantity of Bio-medical waste in tons/day, which stood at approximately 0.733 tons a day.

Alternatives

Conscious, well-planned choices by both the government and individuals can go a long way in reducing medical waste and its harmful impact on the planet and people.

Researchers at RMIT University in Melbourne, Australia have found out that disposable face masks can be recycled to make roads and building materials. The study showed that using recycled face mask material to make one kilometer of a two lane road would use up about 3 million masks, preventing 93 tons of waste from going to the landfill. The researchers also emphasized that incorporating a circular economy thought process is a solution to tackling this massive waste problem.

(Source: https://www.aninews.in/news/science/disposable-face-masks-can-be-recycled-to-make-roads-to-tackle-covid-generated-waste-says-study20210202213912/)

In October, 2019 it was published that a new technology developed by CSIR-CMERI, with the support of Department of Science and Technology under the programme Waste Management Technologies (WMT) in India, can help disposal of hospital waste through electric arc-plasma. This technology has been shown to reduce toxic emission in the environment. This plant has about 95 per cent waste volume reduction efficiency and is a viable technology for complete hospital solid waste treatment.

(Source: https://dst.gov.in/new-technology-can-help-disposal-hospital-waste-through-electric-arc-plasma#:~:text=electric%20arc%2Dplasma-,New%20technology%20can%20help%20disposal%20of%20hospital%20waste%20through%20electric,toxic%20emission%20in%20the%20environment.

In a report from May, 2021, in Kerala, bar-coded collection bags and containers provide IMAGE with a real-time monitoring of the collection and transportation process daily. The system helps the people involved to find out those responsible for any careless handling or violation of rules.

(Source: https://www.thehindu.com/news/national/kerala/covid-19-triggers-spike-in-biomedical-waste-in-kerala/article34532898.ece)

Conclusion

Emergence of new varieties of bio-medical wastes, requires collaboration and combined efforts of environmentalists, medical researchers and the government to safely process such

waste in a sustainable way.Also, sufficient awareness should be spread regarding hazards of bio-medical waste to foster individual effort and reduce their impact on the planet and make our surroundings safer.

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https://www.thehindu.com/news/national/kerala/covid-19-triggers-spike-in-biomedical-waste-in-kerala/article34532898.ece

New Education Policy 2020: A Vision for Better Growth Prospect of India

Jasmeet Kaur Hura, Baishali Nayak, Ajay Vardhan Singh

(B.A. Economic HonorsIII)

Abstract

Education is the act or process of imparting or acquiring general knowledge, developing the powers of reasoning, judgment and generally preparing oneself intellectually for mature life. It is designed to guide people in learning a culture, molding their behavior in the ways of adulthood and directing them toward their eventual role in society hence, contributing towards human development. Education is the backbone of the growth of the country. The gap between the current state of learning outcomes and what is required must be bridged through undertaking major reforms that bring the highest quality, equity and integrity into the system, from early childhood care to education at higher education.

In the year 2020, the Honorable Education Minister, Shri Dharmendra Pradhan initiated the New Education Policy 2020 that emphasizes the holistic, learner-centered, flexible system and attempts to fix the previous lagging of our education system to transform India into a vibrant knowledgeable society. It aims for universalization of education from preschool to secondary level with 100% GER in school education by 2030 and shifts from the 10+2 format to 5+3+3+4 format of the school curriculum. Increase the Gross Enrolment Ratio in higher education including vocational education from 26.3% (2018) to 50% by 2035. This paper intends to throw light on the positive impact of the new education policy 2020 on the economic growth of India and how it is ascertaining a creative expression for the student. The objective of the study is also to determine the emerging role of NEP 2020 in the current scenario to enhance employability opportunities for teachers' and students', how it is creating an inclusive and holistic approach for the students taking into consideration the field experiences, empirical research and lessons learned from best practices. What impact it will have on the economy of India as the NEP 2020 aims at making "India a global knowledge superpower".

Keywords: Employability, New Education Policy, Creative Expression, Economics Growth (GDP), Gross Enrolment Ratio.

1. Introduction

India had a large history of spreading knowledge and it is the house of some of the oldest universities such as Takshashila and Nalanda university but with the emerging "NEW" India the education system needed to be revamped the old education policies and make it future-ready. And for this Ministry of Education of the Government of India unveiled the NEP 2020 during the period when covid was at its peak. NEP 2020 comes 34 years after the previous policy was announced in 1986 and revised in 1992 for updating the education system for a holistic, learner-centered, flexible system and attempting to adapt and accept changes with advancing technology to transform India into a vibrant, knowledgeable society.

NEP 2020 is an inclusive framework focusing on the elementary level of education to higher education through the introduction of ICT-based learning, artificial intelligence, and machine learning will mark the replacement of the old blackboard classroom teaching and move toward digitalization and skilled India.

1.1 Objectives of Study

- To study the impact of the new education policy 2020 on **the economic growth of India.**
- To study how policy is ascertaining a **creative expression** for the students and teachers.
- To study how policy is **enhancing employability** and is setting up a **better platform for them.**
- To analyze the New Education Policy contribution in making India a **global knowledge superpower.**

2. Review of literature

As per *Alok Kumar (2020)* in his research paper titled *'New Education Policy 2020: A Roadmap for India 2.0'* National Education Policy 2020 will prove to be a milestone for Indian Education. NEP-2020 provides a comprehensive framework for primary education to include teaching business & technical education. It also got provision for internet-based e-leanings which is a paradigm shift from conventional systems. The NEP is not free from loopholes but it has taken deep insight into the global scenario.

Dr Hemlata Verma and Adarsh Kumar (2021) in their research paper titled '*New Education Policy 2020 of India: A Theoretical Analysis*' have discussed that this new system (NEP) will make India one of the world's leading countries.

B.Venkateshwarlu in his research paper titled '*A Critical Study of NEP 2020: Issues, Approaches, Challenges, Opportunities, Criticism*' has concluded that NEP-2020 is expected to fulfill its objectives by 2030. National Education Policy of India 2020 is marching towards achieving such objectives by making innovative policies to improve the quality, attractiveness, affordability, and increasing the supply by opening up higher education for the private sector and at the same time with strict controls to maintain quality in every higher education institution.

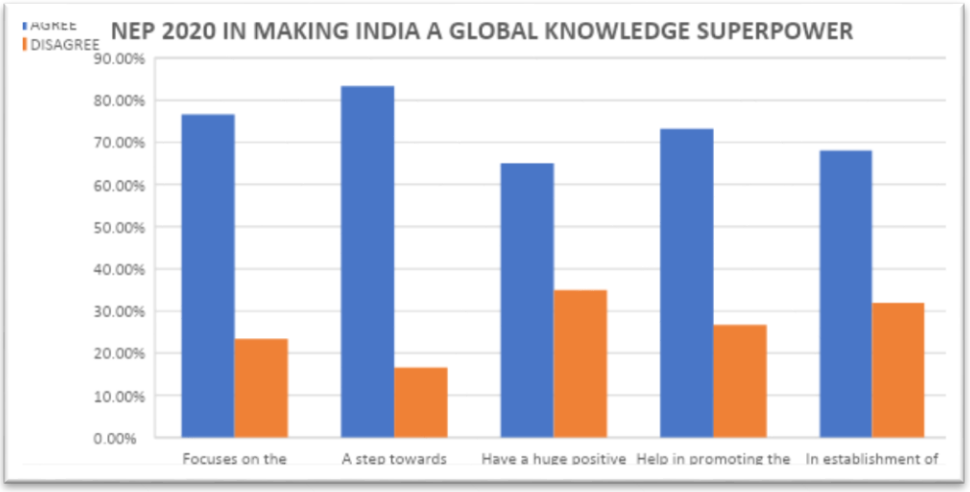
In the research paper titled 'Analysis of the Indian National Education Policy 2020 towards Achieving its Objectives' by *P. S. Aithal & Shubhrajyotsna Aithal* how NEP 2020 is making Indian higher education system is moving from teacher centered to student centric, information centric to knowledge centric, marks centric to skills centric, examination centric to experimental centric, learning centric to research centric, and choice centric to competency centric.

3. Research Methodology

Primary data was used in this research paper where a questionnaire was formed which was rotated amongst the professors, teachers and college students. The questionnaire was formed which consists of 42 questions on how NEP 2020 has an impact on INDIA'S DEVELOPMENT, EMPLOYABILITY & CREATIVE EXPRESSION, the questions were related to the research topic and first hand data was collected by directly approaching the concern person to fill the questionnaire.

Secondary Data has been used from Government Reports and verified news to analyze its impact on economics and for ways forward.

Figure 1: ***NEP 2020 in making India a Global Knowledge Superpower***

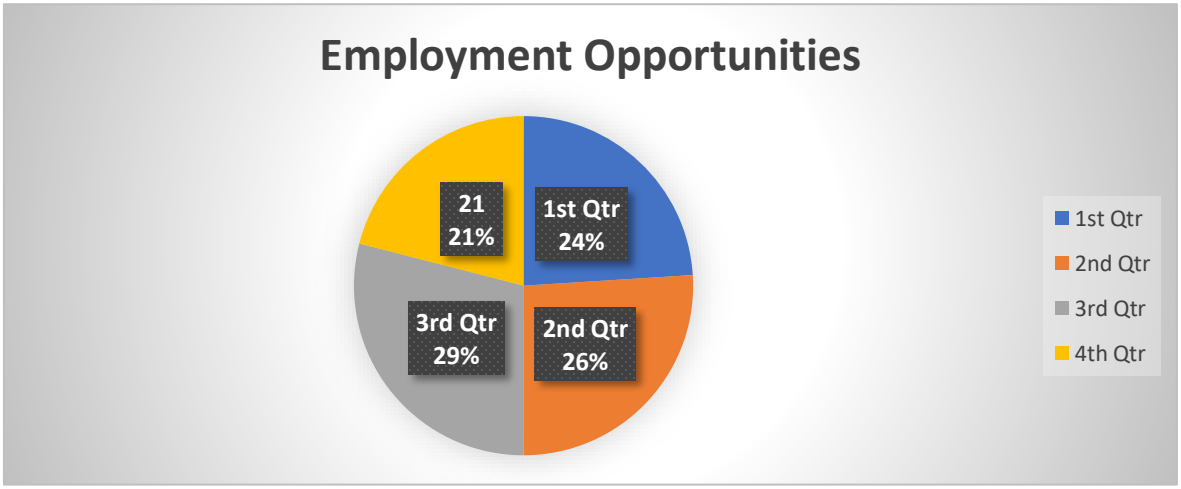


4. Analysis and Findings

Table 1: NEP 2020 and Economics Growth and India a global knowledge superpower

Focuses on the development of all capacities of human beings.	*A step towards technology-driven education and self-reliant India*	*Have a huge positive impact in achieving Goal 4 of Sustainable Development Agenda 2030*	*Help in promoting the Indian Language, arts and culture*	*In establishment of PARAKH*
76.60%	83.30%	65%	73.20%	68.10%
23.40%	16.60%	35%	26.70%	31.90%

Figure 2: Employment opportunities for teachers' and Students'



1s Qtr: Single stream to be phased out will provide employment

2nd Qtr: Revolutionize education will help increase employment

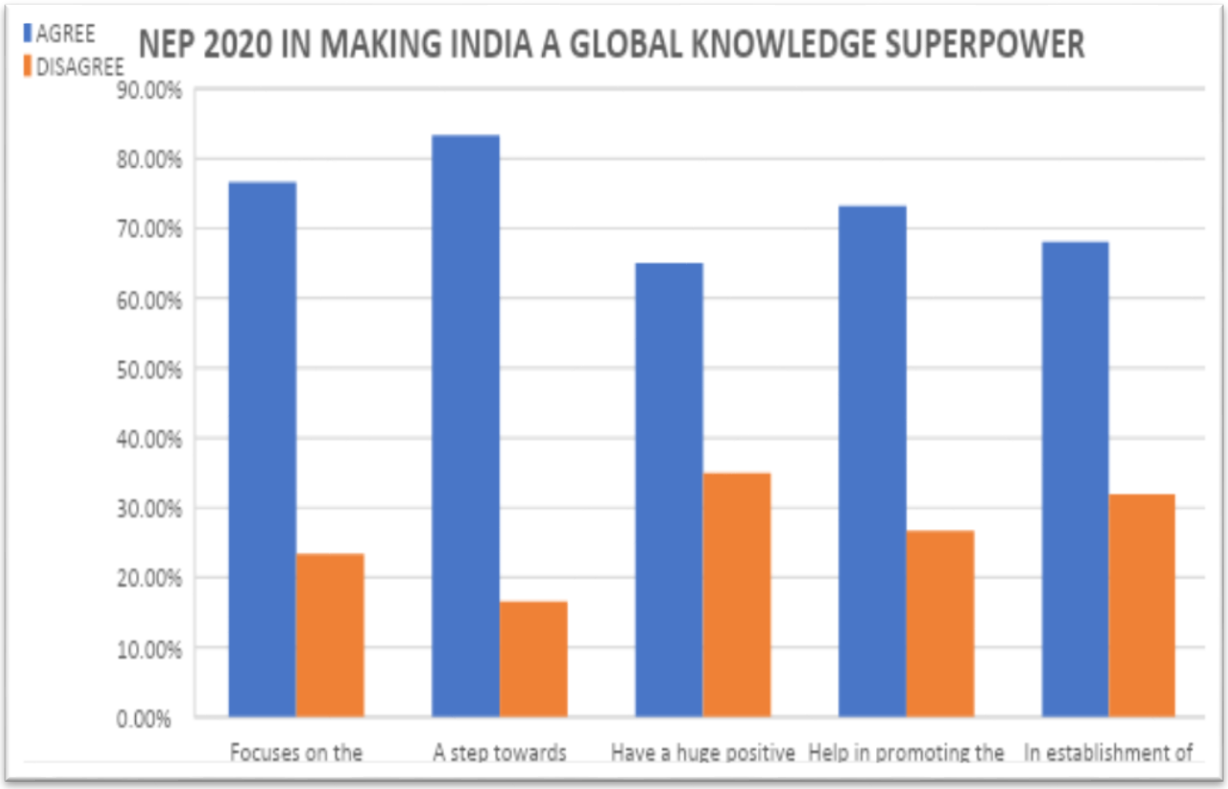
3rd Qtr: New Education Policy 2020 will encourage skilled workforce

4th Qtr: New Education Policy 2020 will provide employment to trained people

4.1 NEP 2020 and enhancing creativity

1. Creativity itself indicates the originality of ideas in the fields of different art forms suchas music, dance, drawing and painting etc. The NEP 2020 helps the students to pursue what they want to do and are interested in pursuing.

Figure 3: NEP 2020 in making India a global knowledge superpower



2. Early Childcare Education ideally consists of flexible, multi-faceted, multi-level, play-based, activity-based, and inquiry-based learning, comprising of alphabets, languages, numbers, counting, colors, shapes, indoor and outdoor play, puzzles and logical thinking,

problem-solving, drawing, painting and other visual art, craft, drama and puppetry, music and movement.

3. NEP 2020 helps children articulate their feelings and thoughts.
4. From universal early childhood care to the introduction of a 5+3+3+4 education framework and 360-degree assessments, the policy is set to revitalize the education system in order to bring out the unique capabilities of each student.
5. The confluence of education and skill development will not only help in the well-rounded development of students, but also strengthen the core tenets of the Skill India Mission.
6. It highlights the importance of imbibing logical learning in children that could certainly be instilled in young minds by the very new features introduced.

5. Discussion

The new education policy 2020 mainly focuses on the development of human resources, making India a technology driven society, in achieving goal 4 of sustainable development agenda 2030, in promoting Indian languages, arts and culture and the establishment of Parakh.

On an average, 3/4th of respondents agreed that this new policy is capable of making India stand globally by giving it a rank of 6 in GDP in 2021, in education from 34 (2020) to 32 (2021).

"The Organization for Economic Co-operation and Development (OECD), a 38-country grouping that advises policymakers, estimates that in the third quarter of 2021, India enjoyed 12.7% growth in its Gross Domestic Product (GDP)."

Focusing on employment opportunities for teachers and students, the New Education Policy 2020 is again achieving heights by helping in providing employment to trained people, encouraging a skilled workforce, and revolutionizing education.

More than 70% of the respondents agreed that NEP 2020 will work in enhancing creativity and will help reduce poverty and unemployment.

"*India's rank improved by 1 position in Global Kids Right Index 2021 with a ranking of 112 out of 182.*"

"India maintained 43rd rank on an annual World Competitiveness Index compiled by the Institute for Management Development (IMD)."

5.1 Way Forward

The Higher Education Commission of India (HECI) will be set up as a single overarching umbrella body for the entire higher education system.

The National Education Policy 2020 provides the right ingredients and the recipe; what we make of it depends entirely on us. It needs to be realized that the *real test of a policy is on the ground not just on paper.*

India is committed to Sustainable Development Goals (SDGs). Goal-4 (quality education and lifelong learning for all) is both a standalone target to achieve and an enabler to attaining all other goals. The policy reiterates a nation's commitment to the UN and other multilateral agencies.

6. Conclusion

From the data collected, analyzed, and studied it was found that:

- **73.12%** of total respondents agreed that the new education policy is focusing on human resource by establishing organizations like PARAKH, by introducing coding from 6th standard to make children learn technology based skill, promoting mother tongue, making India AtmaNirbhar, etc.
- 75.03% of total respondents agrees that NEP 2020 will make INDIA A GLOBAL KNOWLEDGE SUPERPOWER by developing skills and investing in youth, providing maximum employment to freshers as well as enhancing the skills of teachers and providing them with better platform to showcase their talents.

Summing up, the policy is a new generation 21st century policy. The success of NEP 2020 and its implementation depend to a large extent on how successfully the government, universities and schools tide with the practical aspect of it. As compared to the previous policy, NEP 2020 ascertains a creative expression for the students and teachers, enhances employability and is setting up a better platform for them, contributing in making India a global knowledge superpower and it will also help in increasing growth of the country (GDP).

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HYDROGEN ENERGY: THE FUTURE OF SUSTAINABILITY

Devansh Saxena and Aashish Kumar

(B.A. Economics Honors II)

Abstract

Hydrogen is a clean and efficient rocket fuel. It produces no greenhouse gas, no ozone-depleting chemicals, and little to no acid rain, as well as pollution, when burned. Hydrogen can be produced from a variety of sources, each of which produces a different type of hydrogen. With technological advancements, we can now use hydrogen as a fuel that can be used in other automated systems to help develop economic sectors. This research provides an overview of the economics of hydrogen energy as well as environmental protection. China is growing its hydrogen fueling infrastructure, and Japan has built one of the world's largest green hydrogen facilities; these worldwide endeavors will help the globe become more sustainable. When this

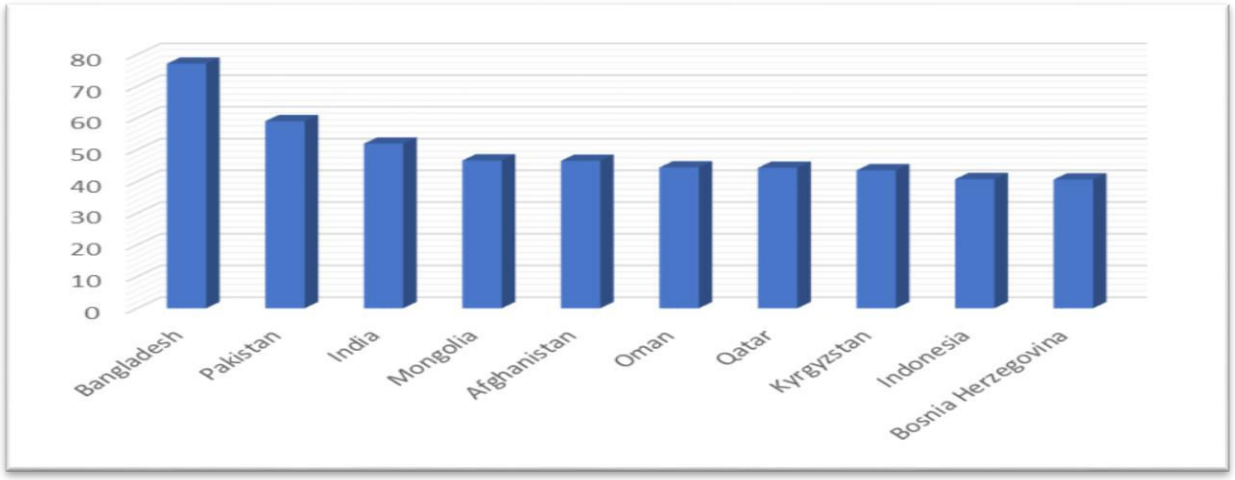
energy is fully established, CO 2 emissions will be reduced, which will benefit the environment. This study will look at the economy of hydrogen, a new leading technique to generate green electricity, and how the cost of hydrogen-powered machinery and hydrogen fuel will be affordable to the general population, as well as the impact of global initiatives on the hydrogen economy. This research will also look into the relationship between hydrogen energy, environmental protection, and global development.

Keywords: Hydrogen, Green Electricity, Hydrogen Fuel, Environment Protection, Global Development

1.Introduction

The continuous rise in the pollution level has affected the environment badly. The global pollution level is continuously increasing. Here is the graph which shows the pollution done by different countries.

Figure 1: Global Pollution Level



The global pollution level is continuously increasing. India is one of the most polluted countries in the world. Major sources of air pollution are industries, energy sector (23%), transportation (29%), electricity (25%), agriculture (10%) and commercial and residential (13%).

With technological advancements, we can now use hydrogen as a fuel that can be used in other automated systems to help develop economic sectors. We can use green hydrogen in place of grey hydrogen in the manufacturing of steel and ammonia which in turn will reduce pollution level in India. We can also use green hydrogen as a fuel in the vehicles specifically heavy vehicles.

Due to rapid economic expansion, India is going to be one of the fastest growing energy markets in the world and is expected to account for 18% of the rise in global energy consumption. India is largely dependent on import of fossil fuel to meet its energy demand and by 2030 its dependence on energy imports is expected to exceed 53% of the country's total energy. In order to be self -reliant in the energy sector, India can invest in green hydrogen to minimize its energy imports.

2.Objectives

- To analyze feasibility of green hydrogen in India
- To analyze impact of green hydrogen on economy
- To analyze impact of green hydrogen on pollution level

3.Literature Review

According to Crabtree, Dressel Haus and Buchanan, the hydrogen has societal and technical appeal as the potential solution to fundamental abundant energy supply and minimal environmental effect. According to P. P. Edwards, V. L. Kuznetsov and W. I. F., Hydrogen has an outstanding potential for becoming a major factor in catalyzing the transition of our carbon-based global energy economy ultimately to a clean, renewable and sustainable economy. According to the Report on the Potential Role of Hydrogen in India published by TERI, hydrogen has long been the 'fuel of the future' but has to-date never quite made it as a major player in the energy system. Today, a number of key developments suggest that the time for a substantial role for hydrogen in the energy system has come.

4.Research Methodology

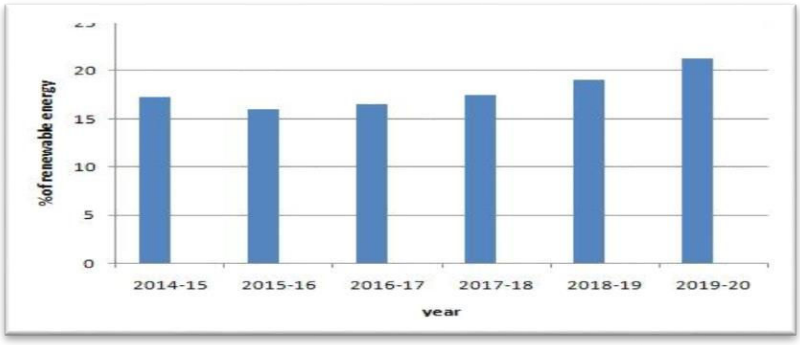
This study is based on secondary research from official government website of Ministry of New and Renewable Energy and Ministry of Steel. Data has been accumulated from reports published by The Energy and Resources Institute and EPA.

5.Findings

Feasibility of Green Hydrogen

Hydrogen is the smallest element in the periodic table and one of the most abundant. It is found in water, earth crust, hydrocarbons and it occurs naturally also and extracting energy from it is a bit of a task. Green hydrogen is formed by splitting water into hydrogen and oxygen using renewable energy. In order to generate green hydrogen we need more and more renewable energy. Now let us look at the condition of the renewable energy sector in India.

Figure 2: Condition of Pollution in India from 2014-2020



The data of this graph is taken from "Summary of all India provisional renewable energy generation" as we can clearly see from this data that condition of the from 2014 to 2020 is really good, it declined a bit in starting two years period then took a sudden rise which is really good from the point of view of the economy and if we are talking about the hydrogen economy. The point that supports the expanding renewable energy is that green hydrogen is produced from renewable sources which in total does not produce any greenhouse gasses and pollution.

Hence, we can say that with rising share of renewable energy India is ready for shift to green hydrogen.

Impact of Green Hydrogen on Pollution Level

According to the environmental protection agency and average passenger vehicle produces 4.3 metric tons of carbon dioxide every year. And according to Statista the major pollutant is the

global transportation sector, which produces the highest amount of carbon dioxide released which is 7.3 billion metric ton which is really a lot and enough to deteriorate the environment. Now consider the hydrogen powered cars in the market. Some companies have been working on hydrogen powered cars in the market. Toyota and Hyundai have shown interest in the hydrogen fuel cell-powered car segment, commercial vehicle manufacturers like Tata Motors and Ashok Leyland have shown their interest in the CV segment. Both Tata Motors and Ashok Leyland, two of the major CV manufacturers in India, have been working on developing hydrogen fuel cell vehicles. Even if we can reduce just 5% of the pollution caused by vehicles it would be really a revolution starting towards a sustainable future. 5% of 7.3 billion is 365,000,000 so we can reduce our carbon dioxide emission by 365,000,000 metric ton per year which is a really high number to be honest if we are talking about saving the environment from the adverse impact of carbon dioxide. According to the EPA in 2019 the total emission by the industrial sector was 6,558 million metric tons of CO2 equivalent. The steel industry is the third largest air polluter. In 2012, the Centre for Science and Environment, Delhi, studied the practices of the Indian steel industry for two years and prepared an environmental profile, giving it a rating of 19 out of 100. A 2012 article published in Down To Earth observed that the steel sector was struggling to meet the minimum statutory pollution norms. According to OECD, the production of steel accounts for 5% of the total CO2 emission and it uses grey hydrogen. Now if we use green hydrogen obtained from renewable sources, we will be able to reduce that 5% CO2 emission to minimum1%. This would really reduce the carbon levels from the environment and provide sustainability.

According to The Institute for Industrial Productivity 451 million metric tons of CO2 was emitted by Ammonia (NH3) synthesis in 2010 which is approximately 1% of global CO2 emission. Hydrogen used for the reaction comes from natural gas, coal, or oil. According to a 2013, joint report from International Energy Agency (IEA), and Society for Chemical Engineering and Biotechnology CO2 emission from hydrogen production account for more than half of those from the entire ammonia production process. So, we use green hydrogen which in turn can reduce CO2 emission by 225 million metric tons of CO2.

The impact can be also studied in the health sector and HDI of the country. Life expectancy plays a major role in determining the HDI of the country and India is one of the most polluted countries and according to the world economic forum air pollution is likely to reduce the life

expectancy of 40% of Indians by 9 years. This is a really big number and if we see the sources of pollution in India are mainly from transportation and energy productions from fossil fuels. If we use hydrogen powered vehicles and hydrogen fuel cells it would really reduce the carbon dioxide and greenhouse gasses emission and further reduce the air pollution by a high extent and it would at least not deteriorate the life expectancy of the population and hence further increase the HDI of the country.

Hydrogen Economy

In India, hydrogen can be seen as our next big sunrise sector and a transition to the hydrogen economy as the way forward for India. According to Lord Adair Turner, Co-chair ETC, the costs of making green hydrogen from electrolysis are falling fast, with $2 per kg production costs likely to be achieved before 2030. So, it is essential to identify what role hydrogen could play in India, and how Indian industry can seize the economic opportunity arising.

The pace with which countries like Japan, China and the European Union are aggressively supporting their green hydrogen economy is commendable. Still windows are open for countries like India to capture large parts of this market, using the advantage of a large domestic market, competitiveness of green hydrogen and low cost labour. The government should set targets for electrolyser deployment by 2030 and facilitate companies to establish electrolyser manufacturing facilities in India. Government should extend PLI for electrolyser manufacturing. Recently, the Government of India has put forward a policy which offers 25 years of free power transmission for any new renewable energy plants set up to supply power for green hydrogen production before July 2025. This means that a green hydrogen producer will be able to set up a solar power plant in Rajasthan to supply renewable energy to a green hydrogen plant in Assam and would not be required to pay any inter-state transmission charge. This kind of move is likely to make it more economical for key users of hydrogen and ammonia such as the oil refining, fertilizers and steel sectors to produce green hydrogen for their own use.

It is estimated that around 3Mt of hydrogen is in demand by the Indian fertilizer industry today which is over 50% of India's total hydrogen demand. By 2050, this could increase to around 7.5Mt under a business -as usual scenario. Ammonia produced from green hydrogen will be competitive with the current incumbent technology of ammonia produced from fossil fuel-based

hydrogen. In transport, hydrogen Fuel Cell Electric Vehicles (FCEVs) can be competitive in longer distance, heavier-weight vehicle segments, such as heavy-duty trucking.

According to TERI, the falling costs of hydrogen will drive its uptake with initial scale up being driven by collaborations between progressive public and public and private players. For example, Ambani, Asia's richest man, announced plans earlier this month to invest $75 billion in renewables infrastructure including generation plants, solar panels and electrolysis. India has an opportunity to grow an economically competitive low carbon hydrogen sector that can spur job growth and reduce energy imports along with drastically reducing emissions.

Today, all of the hydrogen consumed in India comes from fossil fuels. However, it is estimated that by 2050, 80% of the hydrogen consumed in India will come from renewable electricity and electrolysis. It is clear that green hydrogen will become a competitive route for hydrogen production by around 2030 which is driven by dramatic decline in technologies such as electrolysis and solar PV. According to the TERI report, today the cost of alkaline electrolysis is projected to drop from around Rs. 6.3 Cr/MW today to around Rs. 2.8 Cr/MW by 2030. The decline in electrolier costs will be partly driven by large-scale deployment in India and globally, by a virtuous circle between falling costs and strengthening policy to promote hydrogen. Improving efficiencies of electroliers, as well as increasing load factors of solar plants, will also play an important role in driving the costs of green hydrogen below Rs.150/kg by 2030 ($2/kg) – versus Rs. 300–440/kg ($4–6/kg) as of today. At this price, green hydrogen starts to compete with hydrogen produced from natural gas allowing it to make inroads into various end-use segments.

India currently imports 85% of its oil, 50% of natural gas, and 30% of its coal which exposes India to frequent price fluctuation of international energy markets. Domestic production of hydrogen from renewable electricity will significantly reduce energy imports, which in turn will support our domestic energy industry. This step will improve India's energy security which in turn will reduce commodity price uncertainty for major industries. By 2050, annual energy imports could be reduced by around 120 Mtoe (million tonnes of oil equivalent) which is around 20% of today's final consumption, reducing import costs by around Rs.150,000 Cr ($20 bn) each year.

Green hydrogen could supply up to 25% of the world's energy needs by 2050 and become a $10 trillion addressable market by 2050, according to Goldman Sachs. A number of countries have

recently published national hydrogen strategies, including Australia, Chile, Germany, the EU, Japan, New Zealand, Portugal, Spain and South Korea. Recently, India has also launched its national hydrogen strategy.

6.Conclusion

Hydrogen is going to play a key role in the economy of the world. India can play a leading role in this sector by leveraging its demand driven economy. As it is open secret that global energy supply is driven by geopolitics and geoeconomics of the world and India can be self-sufficient in the energy sector by investing in alternative sources of energy in which infrastructure relating to green hydrogen can be a good option which will also help in fighting climate change and controlling environmental pollution. It can also help in fulfilling the commitment of India to become a carbon neutral country by 2070.Green hydrogen can play a critical role in improving the balance of payment of India by reducing import bills along with giving a boost to the export of the country.

7.Future Works

a. Further detailed study can be done on the electrification of industrial processes, primarily heat.
b. The role of hydrogen in petrochemicals, shipping and aviation sectors for India.
c. Detailed mapping of underground storage options for hydrogen and research into potential for cost reductions in overground hydrogen tanks.

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Multidimensional Poverty: A Comparative Study of Bihar and Kerala

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(B.A. Economics Honors I)

Abstract

Defining and measuring poverty and calculating the percentage of poor in a country or a region is not just a matter of figures and numbers. According to the Nobel Prize Economist Amartya Sen, poverty is complex and multifaceted world that requires equal attention and clear analysis in all of its many dimensions. Poverty often seen as a simple measurement of income level. However, no single indicator can apprehend the multi dimensionality of this phenomena.

A multidimensional measure of poverty can incorporate a range of indicators that represent its complexity in order to design policies aimed at reducing poverty and deprivation in a country.

On the basis of multidimensional poverty, considering important indicators, this paper tries to compare the reforms and policies of two distinct states—Kerala with lowest poverty ratio and Bihar with highest poverty ratio in the MPI.This study measures the Multidimensional Poverty Index (MPI) in Kerala and Bihar and tries to compare the two states based on the analysis of the secondary data.

This paper intends to examine their developmental models, strengths and weaknesses and their implication of actual policymaking. The paper analyses past trends on poverty of the states and tries to shed new light on the recent polices of the respective state government.

Key Words: Multidimensional Poverty Index, Reform Policies, Kerala, Bihar

1. Introduction

The Resolution of the United Nations General Assembly on 25 September 2015 established the 17 Sustainable Development Goals (SDG). SDG 1 in its entirety ("End poverty in all its forms everywhere") is multidimensional in nature and definition. While target 1.1 seeks to eradicate extreme poverty –measured as people living on less than $1.25 a day which subsequently increased to $1.90/day, target 1.2 aims at reducing multidimensional poverty, by half. The Multidimensional Poverty Index (MPI) has been used by the United Nations Development Program in its Human Development Report since 2010 and is the most widely employed non-monetary poverty index in the world (Godinot & Walker, 2020). It captures overlapping deprivations in health, education and living standards (UNDP, 2010) and complements income poverty measurements because it measures and compares deprivations directly.

In this context, a national Multidimensional Poverty Index for India enabled estimation of poverty not only at the level of the States but also for all the 700 plus districts (600 plus in 2015-

16, 700 plus in 2019-20) across twelve indicators, capturing simultaneous deprivations and indicator-wise contribution to poverty, anchoring on the principle of 'Leaving no one behind', reaching the farthest behind first. The national MPI, an aggregate measure which defines poverty, as the deprivation in crucial and basic parameters (health, education, and living standards) is a significant departure from the way poverty has been understood and conceptualized historically. Multidimensional measures complement monetary measures by capturing information they lack –such as broader qualitative aspects of life like child mortality, housing conditions, and other basic services such as water and sanitation (Greve, 2020). This is of significance to policy formulation and targeted interventions in the context of intra-country or intra-region heterogeneity in development.

The national MPI is an outcome of NITI Aayog's focused strategy to execute this policy directive and the mandate given by the Cabinet Secretariat to improve India's position in global rankings of important and globally accepted indices.

This paper discusses the conceptual foundation of this goal-- reducing multidimensional poverty. Various efforts have been undertaken to reduce the multidimensional poor in the country by launching policies to improve the health, education and living standards with respect to each state. However, some states have been more successful than the others at achieving this goal. This research will focus on comparing two states in India that have demonstrated differences in their level of achievement aligned with the state processes in the two indicators of MPI- Health and Education. The first will be Kerala, which has shown to have low poverty ratio in the MPI; the second will be Bihar, which has the highest poverty ratio in MPI. Therefore, this research will make an attempt to compare and understand their developmental models, government policies and programs for reducing poverty.

1.1Research Question

What are the factors that determine the different levels of achievement in Bihar and Kerala at reducing the Multidimensional Poverty?

1.2 Objectives of the Research

- To compare the developmental models of Bihar and Kerala
- To compare the policies under the indicator of Health and Education as per the NITI Aayog's MPI report.

- To understand the model's strength and weaknesses.

2. Research Methodology

This study is chiefly based on secondary data collected from various published research papers, internet articles of various reputed researchers, Government websites like NITI Aayog, National Health Family Survey 3-4-5, Government of Kerala official websites, Government of Bihar official websites, ASER.

3.Structure of the Paper

This paper will consist of four chapters including the introduction. The second chapter will consist of critical and empirical research on the indicators in the dimension of health. The third chapter will include a mix of empirical research as well as some brief theoretical discussion on the second indicator of MPI in the dimension of education. Finally, a conclusion will follow as the fourth chapter tying together different concepts that were worked with and what can be learned from the observations and analysis made in this study.

4. Review of Literature

The following research explores and provides a detailed study about Kerala and Bihar development strategies and policies with regards to reducing the multidimensional poor in the state. This study is inspired from the research work and articles of various researchers.
In the research work by Shalya Bush, the author has talked about the importance of equality among the regions of India to culminate help people under the category of poor or below poverty line. The paper also talked about the government schemes like MDM and its real impact on the poor as well as its success.

5. Discussions and Findings

Health: Overview

In India, the health care system follows a decentralized approach in which implementation and execution of the health policies are the responsibility of the State government, considerably overlooked by the Central government. The financing and policy-making in the health sector is done by the union government and its implementation is projected by the state. Records indicates that due to the decentralized approach and health sector a state's responsibility, considerable disparities can be observed in the health care delivery standards among different states: some states still struggling whereas some have shown considerable achievement in this sector. This can be seen through the MPI report where Kerala has shown remarkable achievement in reducing the number of households deprived in the basic health parameters. In contrast with Kerala, Bihar has shown a very different result and has failed to reduce the multidimensional poor. The MPI report for the health sector has divided this indicator in 3 different parameters—Nutrition, Child-Adolescent mortality and Maternal Health. Each parameter weighted differently. Nutrition with the weight of 1/6 carries half of the dimension weight of 1/3. The remaining dimension weight is split between Child-Adolescent Mortality and Maternal Health, with each indicator having a weight of 1/12.

In this, the first discussion will be for the state of Kerala, analyzing the MPI and past trends in this indicator, their state-run programs and policies. Next, the discussion will take place for the state of Bihar.

5.1 Kerala

Kerala, the southernmost state of India has been labelled by academicians as a success story in alleviating poverty and reducing the gap of economic inequalities within its state. Though lower in per capita income, Kerala has shown strong results in the social indicators when compared to rest of the country such as high literacy, life expectancy, infant-mortality, highly improved access to health care etc. These have given Kerala, a recognition in the world stage for providing good for better health care services.

Key Health Development Indicators- Kerala & India

Table1: Key Health Development Indicators - Kerala & Bihar

Health Indicators	Kerala	India
Life expectancy at birth (Male)	74.39	69.51
Life expectancy at birth (Female)	79.98	72.09
Life expectancy at birth (Average)	77.28	70.77
Birth rate (per 1,000 population)	14.1	17.64
Death rate (per 1,000 population)	7.47	7.26
Infant mortality rate (per 1,000 population)	7	28
Under 5-Mortality rate(per 1,000 live births)	10	36
Maternal mortality ratio (per lakh live births)	53.49	178.35

Source: Wikipedia

5.1.1 Development of Health Care System in Kerala

The success of Kerala health system can be traced back before the advent of European medicines, families of the practitioners of indigenous health system like Ayurveda handed traditions from generation to generation. People were accustomed to approaching caregivers when they were sick, instead of self-treatment. At the time of the formation of the state on 1 November 1956, the medical facilities were accessible to all. From the time of state's formation, the allocation of budget by the government of Kerala for the health sector has been considerable. The period from 1956 to 1980's was characterized by great growth and expansion of the government health services. Figures from the annual compound growth rate of the Kerala's expenditure on health care for the period at 13.04% (at current prices, without deflation), both the annual compound growth rate of total government expenditure at 12.45% and the annual compound rate of the state domestic product at 9.81% (government of Kerala stats)

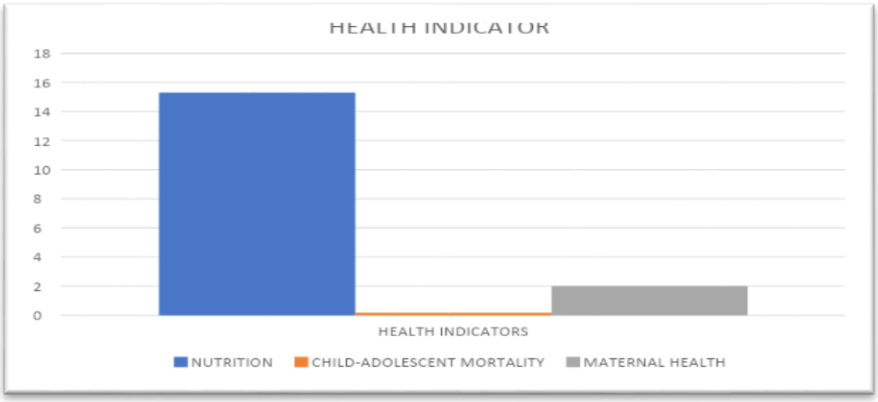
The anti-poverty programs relating to food distribution, healthcare and education in Kerala has nurtured the population due to its reliability of their functioning. The past trends can be demonstrated through some general statistics on the overall trend of poverty levels since the 1970s. For example, in 1973, 59.8% of Keralans were considered below poverty line (BPL), which was almost at par with Bihar who was at 61.2 % and was even higher than the all-India average of 54.8 % (Sandbrook et al. 2007, 69). However, by 1999-2000, the proportion of Kerala's population sitting at the BPL level dropped to 12.7%, which was the lowest of any major Indian state and less than half of the all-India average of 26.3%. Presently 7.05% of Keralites are living below the national poverty line. Given the success in the state of Kerala with

respect to these factors, it is often considered to be a model for other Indian states to follow (Drèze & Sen 2002, 101).

5.1.2 The current MPI Report

The current MPI report shows Kerala's remarkable achievement at reducing the multidimensional poor in the state for the indicator- Nutrition, adult adolescent mortality and maternal health. With only 15.29% households deprived in nutrition, 0.19% in child-adolescent mortality and 1.73% of household deprived of Maternal health.

Figure 1: MPI Report- Health Indicators

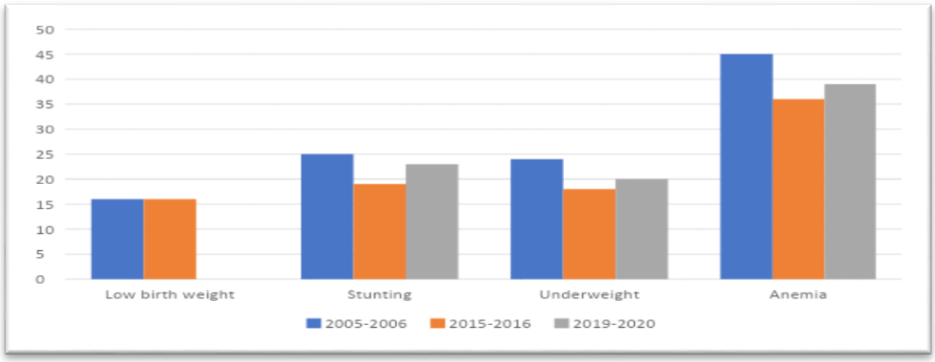


Source: NITI Aayog's Baseline report based on NHFS 4 (2015-2016)

5.1.3Analyzing the past trends

The analysis could be made for the past trends in undernutrition outcomes in children below the age of 5 years based on the NHFS reports of past years.

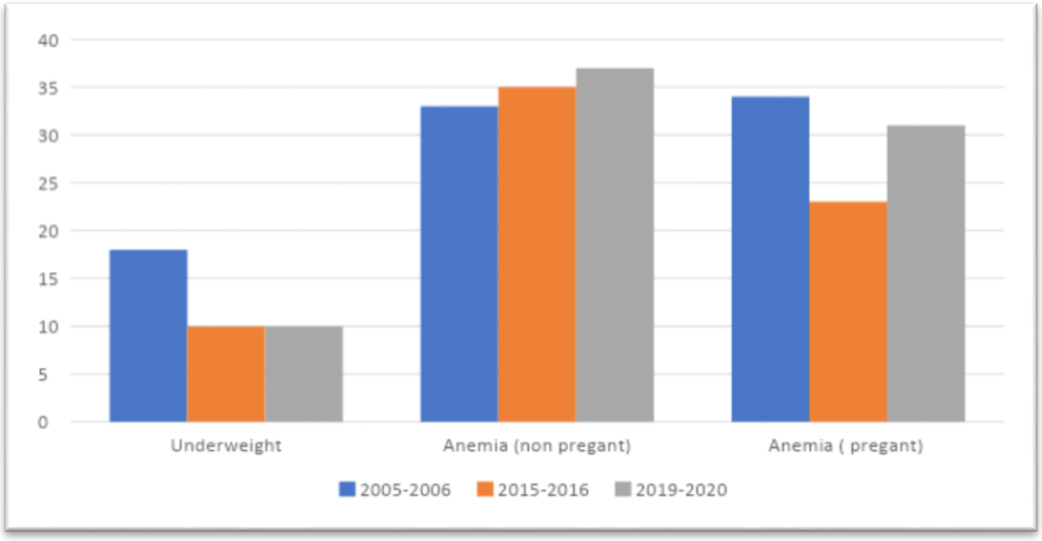
Figure2: Trends in Undernutrition Outcomes



Source: NHFS 3 (2005-2006), NHFS 4 (2015-2016), NHFS 5 (2019-2020)

In the low birth weight for both the NHFS 3 and 4 is 16% whereas the data for NHFS 5 N/A. Kerala has shown a reduction in the stunting and underweight in the latest NHFS 5 report. Anemia in children is considerably high in Kerala as compared to others. However, it must be noted that the India's average is much higher than that of Kerala's result.

Figure3: Trends in Undernutrition in Mothers(15-49 YEARS)



The MPI report has given much importance to the nutrition in the dimension of health as majority of households in India are nutrition deprived. Therefore, the specific programs will be mentioned to demonstrate the functioning of Government of Kerala to increase the nutrition level especially among people living below poverty line.

5.1.4Targeted Public Distribution System

The performance of the Targeted Public Distribution System (TPDS) in Kerala (which has been highly successful in its implementation) is the first program that will be briefly examined. In 1997, the union government launched the Targeted Public Distribution System (TPDS) due to the failure of universal PDS system to serve below poverty line. Under the targeted PDS, food grains are being distributed to BPL households at heavily subsidized prices and to APL households at marginally subsidized prices. It focused on the real poor and vulnerable sections of the society such as landless agricultural laborer, marginal farmersand daily wage earners in the informal sector and, slum dwellers in urban areas. Sandbrook et al (2007, 70) draw upon Kannan (2003, 192-3) to reveal the success of the subsidized food shops through their wiping out

malnutrition by covering 97% of households and accounting for two-thirds of the total rice purchased by the poor. It is important here to note that TPDS system provide rice and wheat which do not provide all the necessary nutrients required for a healthy diet. Therefore, we assume that when the author said 'wiping out malnutrition' it means that now Kerala would use their income that they saved from purchasing rice and wheat at subsidized prices on nutritional food.

All household in Kerala possess ration cards with which they can purchase basic food commodities like rice, wheat, sugar and kerosene, in a specific quantity per week or month at subsidized rates. Studies revealed that larger percentage of Kerala villages are served by a fair price shop within two kilometers as compared to only 35 per cent of India's villages generally. The profile of PDS in Kerala during 1990-2010 is given in table herein under.

Table 2: Profile of PDS in Kerala (1990-2010)

YEAR	RATION SHOPS	RATION PERMITS TO INSTITUTIONS	NO. OF RETAILSHOPS	WHOLE SALESHOPS
1990	50.52	9016	13007	296
1995	56.5	13173	14179	353
2000	62.6	17528	14226	345
2005	67.8	14187	14195	333
2010	68.4	14101	14239	335

In 1990, there were 50.52 lakhs ration cards in Kerala compared to 68.4% in 2010. DURING 2010, there were 14239 ration retails shops which is a significant increase in the number compared to that of 1990 which has only 13007 retail shops. Each retail outlet served on about 400 households and no individual needed to walk more than 2 kilometers to fetch the ration.

The quantity of food grains purchased from the TPDS in Kerala has been higher than that bought in most other states. According to a study in 1989, the quantity of food grains per person per year distributed through the TPDS was 8 kg in Bihar, 9 kg in Madhya Pradesh, 23 kg in West Bengal and 52 kg in Kerala. In 1991, the average amount of rice and wheat bought per consumer from the TPDS outlets in Kerala was 69.6 kg.

The success of TPDS system were due to its universal coverage, high and progressive level of utilization, physical access made to the intended beneficiaries possible through vast network of retail shops and rural bias. The growth of education especially female education made people aware of the state-run programs that helped in the full utilization. Also an important factor for the reliability of TPDS is that they are carried out in a comparatively corruption free manner. This will be shown a shark contrast in the case of Bihar. The TPDS provided a security blanket to their livelihood and built a feeling of trust on the state and the policies.

5.2 Bihar

Bihar, the third most populous state in the country, only 11.3% of the population of Bihar lives in urban areas. Additionally, almost 58% of Biharian are below the age of 25, giving Bihar the highest proportion of young people of any Indian state. However, Bihar performance in the NITI Aayog's MPI report have been drastic. Bihar among all Indian states that have majority of multidimensional poor. Most of the indicators in the report—Nutrition, Maternal health, years of schooling, cooking fuels, sanitation, electricity has been recorded low than other Indian states. The socio-economic indicators like literacy rate, life expectancy have been recorded the lowest compared to national average.

Table 3: Social Indicators of Bihar

INDICATORS	BIHAR	INDIA
Crude Birth Rate	29.4	23.1
Crude Death Rate	7.5	7.4
Total Fertility Rate	3.9	2.7
Infant mortality Rate	58	55
Maternal Mortality Rate	312	254
Sex Ratio	919	933
Female Literacy Rate	33.1	53.7

Source: Census 2011

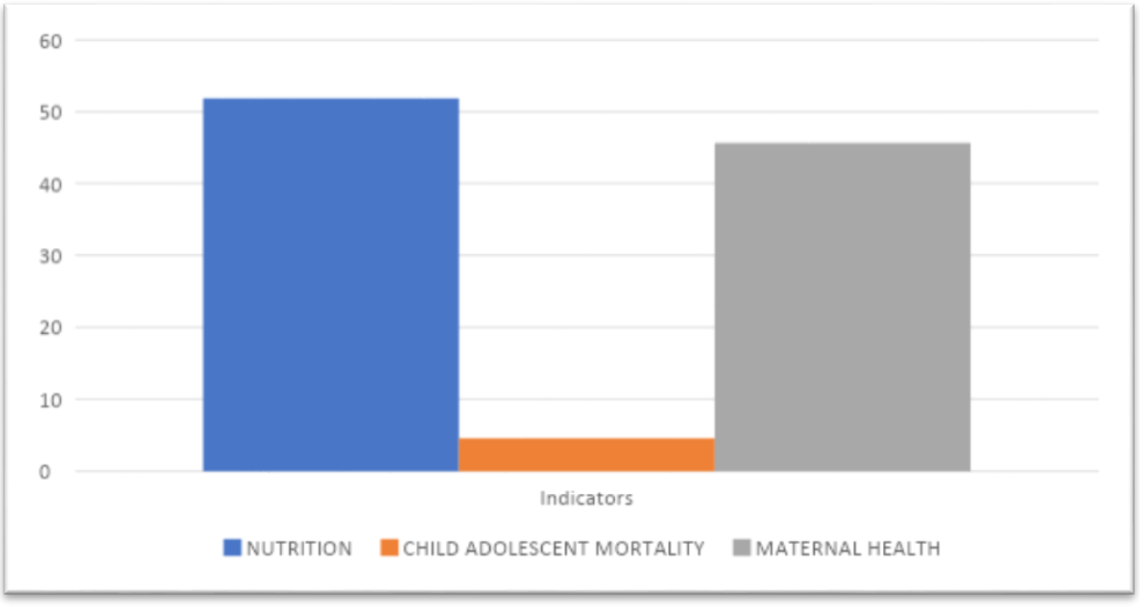
5.2.1 Development of Health Care System in Bihar

Bihar has a proud history, even in 1950, Bihar was recorded as a second-best state after Uttar Pradesh. However due to several reasons the condition of Bihar has deteriorated. In the last few years, its condition in the human development has been gone down. Presently, it is most underdeveloped state in country. Since the socio-economic indicators of Bihar are recorded considerably low it has affected severely the availability and accessibility of health care in the state which in turn affected the health status and health seeking behavior of its population. On the other hand, Bihar has recorded high growth of population in the country which has further increased the demand for public health facilities and a strong health care system. This situation gets worse for Bihar as it has lowest per capita income and nearly half of the population are living below poverty line and are multidimensionally poor.

5.2.2 The Current MPI Report

The current MPI report released by NITI Ayog based on NHFS 4 shows the failure of the state implementation of program and policies for the betterment of its population. With more than half of population 51.88% nutrition deprived, 4.58% deprived in child and adolescent mortality and 45.62% of household deprived in maternal health.

Figure4: Health Indicators in Bihar



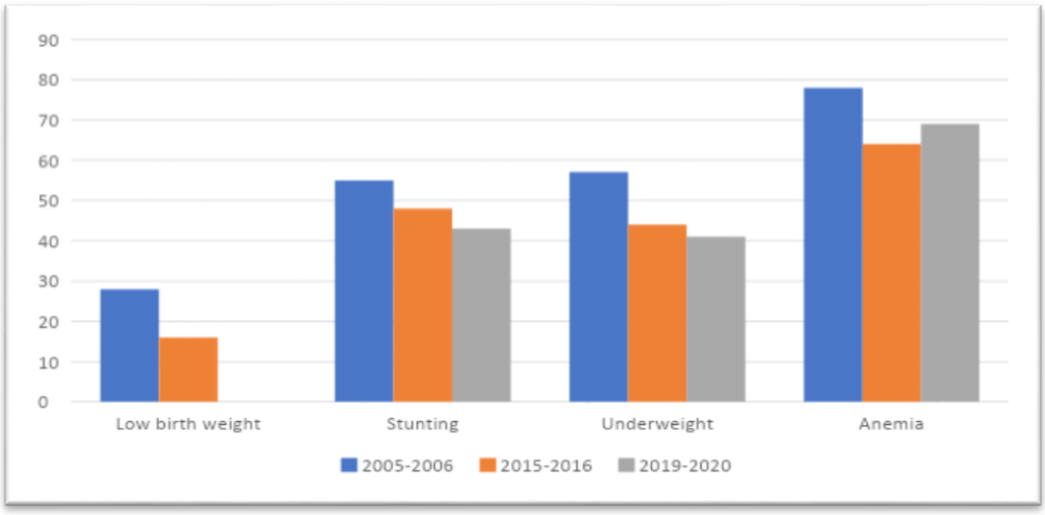
Source: NITI Aayog's Baseline Report based on NHFS 4

5.2.3Analyzing the past trends

The analysis could be made for the past trends in undernutrition outcomes in children below the age of 5 years based on the NHFS reports of past years.

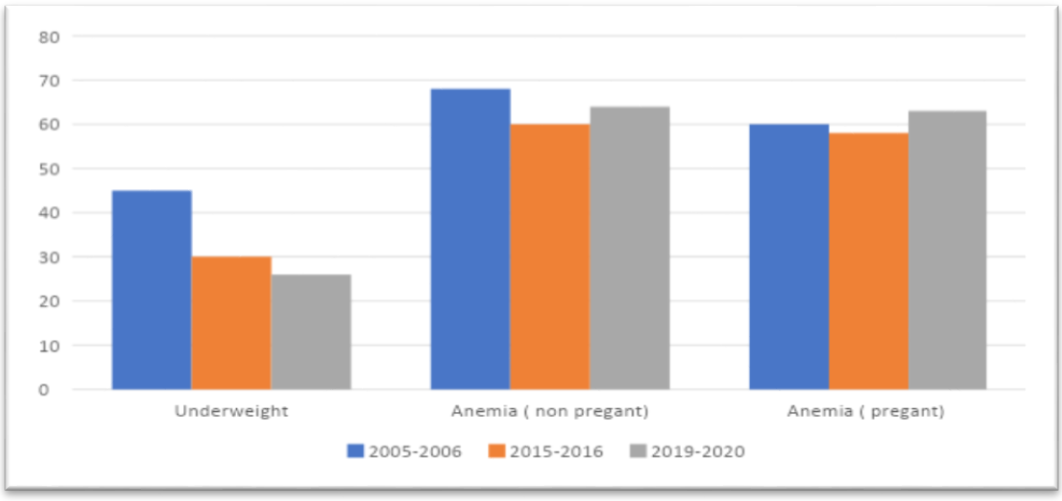
The graph had declined for the low birth rate in children from NHFS 3 to NHFS 4 by 19% whereas the data for NHFS 5 N/A. The data on stunting, underweight and anemia though has reduced by small percentage no such effective positive results are shown. It must be noted that in lot of indicators Bihar has surpassed India's average.

Figure 5: Trends in Undernutrition in Children



Source: NHFS3 (2005-2006) NHFS 4 (2015-2016) NHFS 5(2019-2020)

Figure 6: Trends in Undernutrition in Mothers



For the better understanding of such vast difference, the same poverty alleviation programs (TPDS) will be analyzed as in the section on Kerala that are under the Right to Food initiative. This is to demonstrate the wide differences between the reliability of the programs in the two states.

5.2.4 Targeted Public Distribution System

The Targeted Public Distribution system, adopted in 1997, requires that dwellers of a certain economic criteria mostly the BPL and APL or AAY are to receive ration cards which guarantee them a certain amount of subsidized food supplies like wheat, rice, sugar and kerosene per month. In the literature review by Shayla Brush, the primary data collected showed that the distribution of these cards (which are separate from – although related to - the categorization of economic statuses) was erratic, to say the least. The data collected shows that out of thirty-nine hamlets surveyed, including 2221 eligible families, only 816 of those families were in possession of a ration card (37%). The data on the TPDS is given below.

Table 4: The Profile of TPDS in Bihar

TOTAL CARDS	1,82,19,895
AVAILED CARDS	77,39,373
TOTAL SHOPS	49,869
ACTIVE SHOPS	11,804
MONTHLY TRANFER OF INCOME (%)	42.47
PMGKAY CARDS	77,32,748

Source: Government of Bihar

Studies have revealed that the intended beneficiaries do not always received the full quota of food grains through TPDS. Forty two percent of average cardholders in BPL and AAY category in Bihar on an average receives 1.1kgs and 3kgs less than the full entitlement. Due to the low literacy level in Bihar, the beneficiaries are not aware of the prices of the food grains purchased from retail shops and are often pay more than the entitled prices to buy PDS food grains. Drèze (2002, 1727-8) report has also shown an astounding finding that 80% of grain in Bihar meant for

the PDS ending up on the black market. This is because of the leakage in the system. While Kerala served in a comparatively corruption free environment, the TPDS system lacks to fulfil its objectives in Bihar due to the corruption in the system. However, it must be noted that the leakages in Bihar have significantly come down (16.28%) in the couple of years due to vast revamp in the functioning of the TPDS system in the state.

The unreliability in the state-run program in Bihar has negatively impacted on the trust of the state by its population. This has made the inhabitants not to further engage themselves and participate in the state-run programs. Resulting in the unsuccessfulness of the policies.

Education

Ensuring universal education in India has proven to be a difficult aim to obtain due to the diversity in its population. Programs and policies relating to education developed at the macro state level often do not furnish the intended results due to unanticipated differences between societies at a micro level. The author Corbridge et al (2005,80) has outlined the intentions of the state of India with respect to making education a universal right in the country. They noted that in 1950, The constitution of India stated that 'the state shall endeavor to provide within a period of 10years…free and compulsory education for all the children until they complete the age of 14years'. Yet, the author pointed out that India, as a whole has essentially failed with this objective.

However, on macro level India has undergone improvement with respect to increasing the literacy rate and school attendance to its population since the 1990's. According to National Health Family Survey 4(NHFS-4), the school attendance has increased and lessened the deprived population. With only 13.9% of India's population deprived in years of schooling and 6.4% in school attendance.

However, Dreze and Sen (2012,154) has warned the readers to not to conclude that India is close to reaching its constitutional goals of universal education. They insist that there is some reason for concern due to persisting low school attendance rates of some states, which can be seen from the MPI report where the percentage of school aged child not attending school up to the age at which he/she will complete class 8 is highest in states like Bihar 12.52%, Uttar Pradesh 11.91%, Rajasthan 8.48% and lowest in Kerala 0.54%, Himanchal Pradesh 0.89%. The NITI Aayog's

MPI report has divided the education indicator into 2 parameters—Years of schooling and School attendance weighted equally. The statistical comparison between Kerala and Bihar will help to better measure the wide gap between the rates of literacy and education.

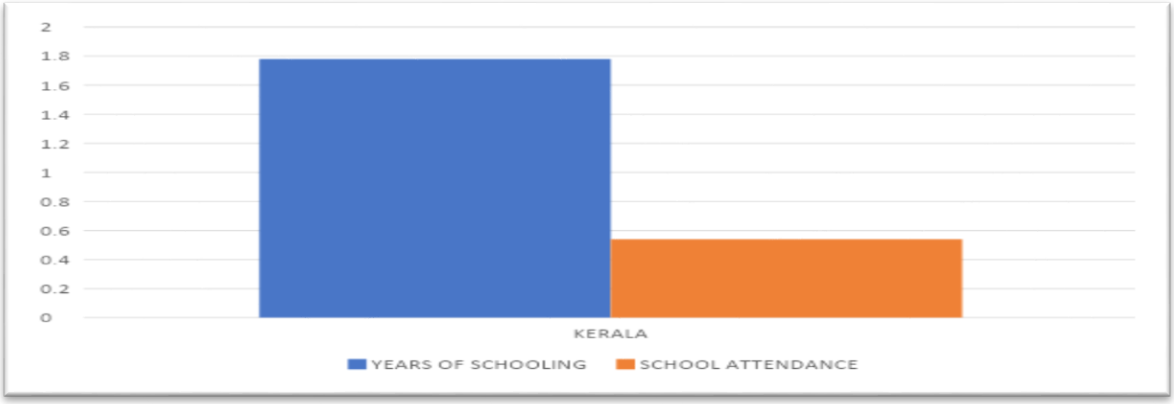
5. 3 Education - Kerala

Kerala is a success story within India when considering its level of literacy. The only state that has achieved what UNCESO calls total literacy, or a state of society in which more than 85 per cent of the adults are literate (Ramachandran 1997, 256). With the present literacy rate of 94%, the highest among any other state of India. The author Ramachandran in his work outlines the broadening of education in Kerala, beginning in the eighteen century, the task of educational transformation in Kerala was taken up by the Christian missionaries, who were the pioneers in promoting mass education in the state. The author explains the motivation was to convert the people of Travancore (then princely state of Kerala) but in practice their activities impacted educational and social reforms. One more point that author highlighted in his work that has resulted in spreading education widely in the state was the efforts made by the missionaries to provide an all-inclusive environment in education, bringing in and providing education to the oppressed castes. The Mission schools were the new-style educational institutions which the people of the oppressed caste have access. However, despite these efforts and achievements, Kerala did not achieve the goal of mass literacy until the end of nineteenth century (Ramachandran 1997, 270) but rather in the mid twentieth century. This research will now turn into brief analyses of Kerala's performance in education.

5.3.1 The Current MPI Report

According to the NITI Aayog's Baseline report, Kerala has the least percentage of population deprived in the parameters of years of schooling and school attendance among other Indian states. With only 1.78% of population deprived in years of schooling and 0.54% of population deprived in years of schooling.

Figure 7: Trends in Schooling in Kerala

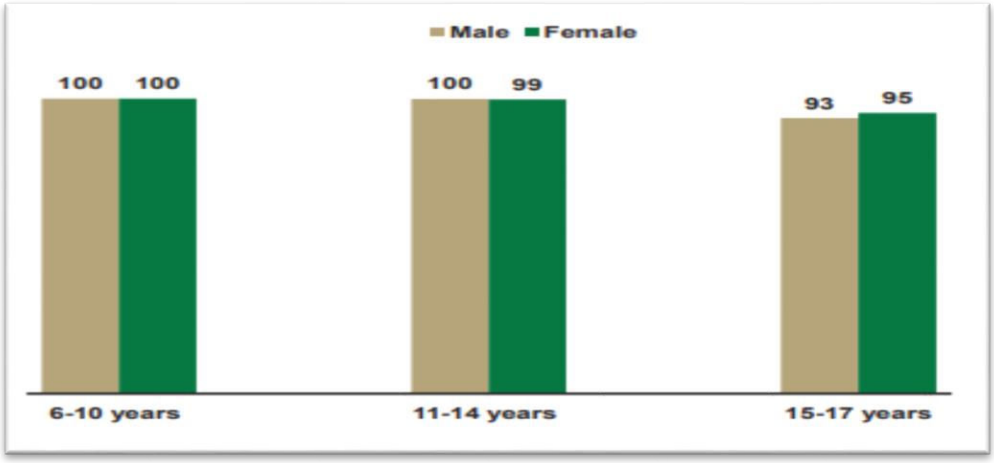


Source: NITI Aayog MPI baseline report NHFS 4

5.3.2 School Attendance among Children

Ninety-seven percent of children age 6-17 years in Kerala attend school (98% in urban areas and 97% in rural areas). School attendance is universal at age 6-14 years, and then drops to 94 percent at age 15-17 years. There is almost no gender disparity in school attendance in the 6-14 year age group.

Figure 8: School Attendance based on Gender in Kerala



Source: National Health Family Survey 4

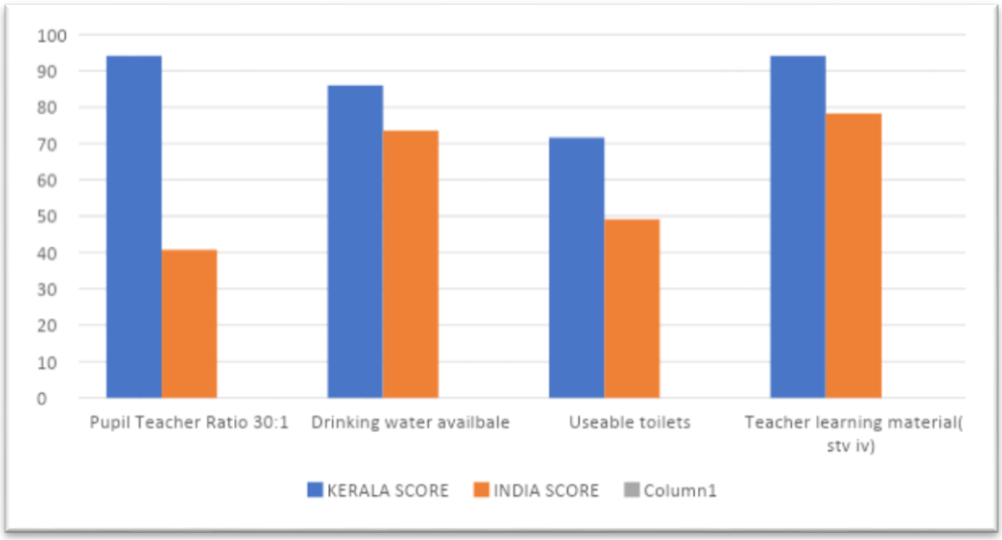
According to NHFS 4, 98 percent of women aged 15-49 and 99 percent of men aged 15-49 years are literate. Almost half of women age 15-49 (48%) in Kerala have completed 12 or more years of schooling, compared with 45 percent of men. Only 1 percent of women and men age 15-49

have never been to school. Forty-eight percent of women age 15-49 have completed 12 or more years of schooling, compared with 45 percent of men.

5.3.3 Comparison of Statistics of Kerala and India in regards of Education

The RTE Act set the PTR (pupil-teacher ratio) at 30:1 across the elementary schools in 2009. While in Kerala 94.3% schools achieved this, on an average a PTR ratio of 29:1. In other indicators like drinking water availability, useable toilets and teacher learning materials provided, the scores have been more than the India's score in these indicators.

Figure 9: RTE Indicators



Source: RTE indicator status as of 2011 for Kerala and India ASER 2011

5.3.4 Midday Meal Scheme

In addition to the infrastructure requirements set down by RTE Act in 2011, Kerala also performed better with regards to providing midday meal in schools. Due to the Act the states are obliged to serve the midday meal according to the directive issued by the government in 2003. In the eight years 2003 to 2011, 100% of schools in Kerala served the meal while the national average for provision of midday meal was 87.5%. Kerala was the first state to implement this scheme in 1984 even before the central government. The scheme was introduced first time in the lower primary schools of 222 coastal villages having fishermen as majority. In the subsequent year, the scheme was introduced in all lower primary schools (Std. I to Std. V). In the year of 1987-88, it was extended to cover all upper primary UP schools (Std. I to Std. V) in the state. In

2007-08, the scheme was extended to cover students of Std. VIII.Midday meal scheme covers all the lower and upper primary government, local bodies controlled, government aided and special schools in state.

Table5: The Coverage of MDM Scheme against Enrolment for the year 2017-18

2017-2018	ENROLMENT	COVERAGE IN MDM SCHEME	PERCENTAGE
Primary	1592053	1566029	97.54
Upper Primary	1057143	1018127	97.54

5.3.5 Budget and Expenditure

In Kerala, the per child allocation under RTE increased from US $ 29 in 2009-1010 to US $ 64 in 2011-2012, 93% of schools in Kerala reported receiving grants and 81% of schools reported receiving grants on time.

5.4 Education – Bihar

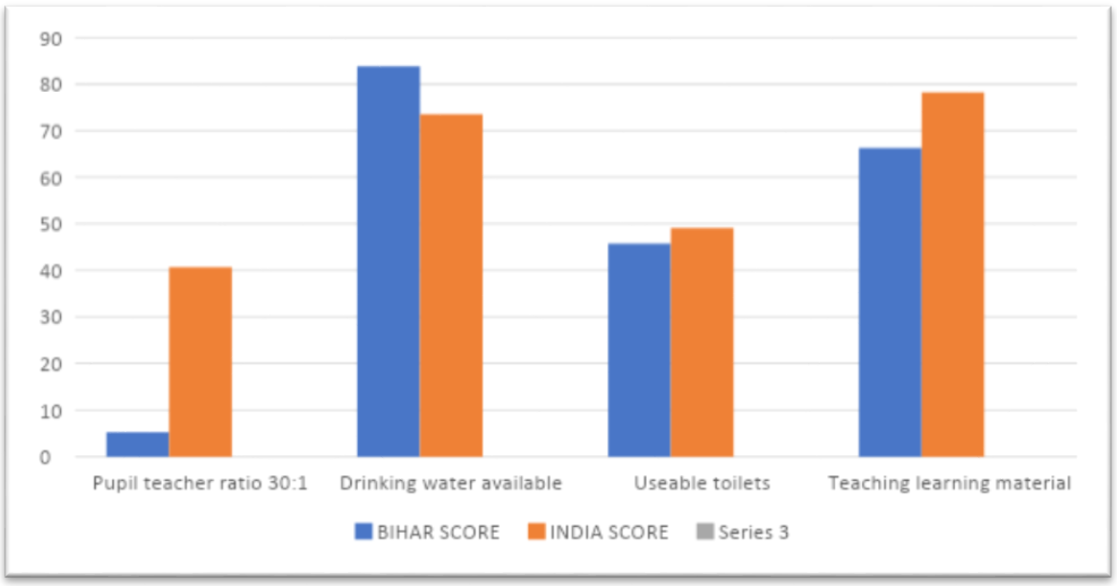
In a study done in 1976 investigating the arguments made by the author about the reason of poverty in Bihar, G.B Rodgers (1976, 267) correctly pointed out that the rate at which the education in Bihar being increased which is considered to be a cause of poverty, Bihar would never be able to achieve its constitutionally-assured universal goal of achieving high literacy rate, better access to education in the state in near future.

Bihar is considered as the most educationally backward state in the country. The relative low level of education attained in Bihar largely corresponds to the unequal social structure. From the British times, Bihar has had a system of district schools which were private and semi aided schools run and administered by local village communities. However, in 1970's and 1980's, the state government took over the functioning of these school which adversely affected the school education as the state government was ill equipped to manage the schools in the state. This impacted the education functioning in the state. Today, Bihar has the total literacy rate of 69.83%. Overall male and female literacy at 70.32% and 53.57%.

5.4.1 The Current MPI Report

According to the current NITI Aayog's MPI report, Bihar has the maximum percentage of population deprived in the parameter of education, in years of schooling and school attendance. With 26.27% of population deprived in years of schooling and 12.52% percentage of population deprived in school attendance.

Figure 10: RTE Indicators in Bihar



Source: ASER 2011

The Pupil to teacher ratio in Bihar was 5.1% corresponding to 94.3% in Kerala. The PTR ratio has been 65: 1 in Bihar. In other indicators like drinking water, useable toilets and teacher learning material the scores have been much less than the India's score and Kerala's score as mentioned in the above section.

5.4.2 Midday Meal Scheme

Midday meal scheme initiative taken by the Government of India in 2003, In eight years between 2003 to 2011, 54.5% of the schools in Bihar served the midday meal. Even among the school serving the meal, several irregularities were found. A planning commission reported the differences in the services, while some schools performed on satisfactory level, others reported sub standards food and infrequent midday meal services. Several issues related to the service

were reported, like in the town of Chappra in Bihar, an elementary school had not been served the midday meal for 15 consecutive days due to the delay in the supply of food grains.

Similar instances were recorded in different regions. In Saran District, Bihar, 22 students died and 50 were taken ill after consuming the midday meal in June 2013, investigating report stated that food has been cooked wilt illicit oil containing trace of pesticides (Devichand and Hume 2013)

5.4.3 Budget and Expenditure

In Bihar, under RTE increase in the per child expenditure rose from US $34 in 2009-2010 to US $90 in 2011-2012. 82% of schools reported receiving grants. However, among the schools receiving grants only 30% reported having received the grants on time. The problems of leakage in funds were reported as funds were been used for purpose other than for which it was obtained. Problems like overclaiming with regards to the implementation of the midday meal provision and to the politicization of teacher appointment within RTE budget were also reported.

The inefficient use of the budget, made worse when there were delay of funds. The late receipt of funds in Bihar could be the possible explanation as to why schools used the invested in the development of the infrastructure of the schools rather than teachers appointment even after the high PTR ratio in schools.

6. Conclusion

Taking down the conclusion from the study above, it can be seen that Kerala has proved to be called as a model of development due to its implementation of policies that has helped in reducing the multidimensional poor in the state. The reliability of the poverty alleviating policies of Kerala has helped the inhabitants to put trust in the state and participate in the developmental process which has rendered the predictable results for Kerala.

Kerala wide margin over Bihar in the indicators of Health and Education is also believed to be the result of imposition over many years of social and economic reforms even before the pre-independence period.

The most important feature of Kerala's success in maintaining the high developmental index is due to its political activism in bringing political reforms. Partly as a result of socio-political

consciousness of its people and citizen led mass protest demanding inclusive development methods. The state of Kerala has seen as protector of people's interest due to its strong democratic institution. Kerala's social and economic development has been substantially better than most of the other Indian states (Dreze and Sen 1997). Kerala's radical land reform and abolishing of untouchability and its women participation has helped reduced the gap of backward and advanced regions bringing in equality in most regions in the state.

In contrast with Kerala, I argue that the synergy between the state government policies and its implementation in Bihar is much weaker. Analyzing the effectiveness of the state-run poverty programs, policies formulated by the state to improve the livelihood of inhabitants are often implemented in Bihar in an erratic and unequal manner which results in the unreliability and lost in the trust of the state and less participation in the functioning of the government.

The representation of state is impaired by decades of mismanagement, inefficiency The presence of strong social hierarchy in the state also resulted in poor development and poor effectiveness of the decentralization efforts made by the state. The issue of illiteracy was also seen as a resistant in proper implementation of the decentralized development programs like TPDS. The lack of political will, unstable synergy and participation of its citizens in important public matters has resulted in the no upgradation of Bihar development.

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INTERNET ADDICTION AMONG ADOLESCENTS ACROSS GENDERS

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(B.A. Psychology Honors I)

Abstract

The internet today has become an integral part of daily life that facilitates communication, education, and entertainment. The behavioral pattern of excessive internet usage has similarities to substance addiction, such as tolerance, withdrawal, repeated failure to reduce or quit, and impairment in daily life. The present study aimed to assess the heightened risk of internet addiction during the pandemic and its effect on adolescents across genders. For the purpose of this research, a sample of 100 college individuals from Jaipur was selected using the convenience sampling method. The Internet Addiction Test developed by Dr Kimberly S. Young (1998) was circulated among the students to find out the prevalence of internet usage. A t-Test was then applied to assess whether there exists a significant difference in internet usage patterns across genders.

Keywords: Internet addiction, adolescents, internet usage, gender differences

Introduction

Along with new technologies, the Internet has reshaped and upgraded many facets of our lives by being integrated in the daily experience, by becoming more available, offering many services and its growing usage in every age group (Singh & Paliwal, 2020). Provided that the internet has become an integral part of social and professional life, it is critical to comprehend the fundamental reasons for its use, as well as the ambiguity of its impact and aspects of both positive and negative social consequences, which has prompted researchers from various fields to investigate the issue (Arshinova & Bartsalkina, 2010; Gubanov & Chkhartishvili, 2009; Khil'ko, 2015; Khutornoi, 2013).

While it is generally speculated that using technology is a positive experience, especially among young people, as it can help improve results on tests and expand and increase motivation for learning (Guan & Subrahmanyam 2009), recent factual and empirical research suggests that technology addiction enhances and complements a user's intrinsic and extrinsic gain perceptions about a system, resulting in system overuse at a dangerously high level (Turel et al., 2011).

The so-called Internet addiction issue is one of the negative social and psychological effects of the Internet's impact. Internet Addiction can be described as an individual's inability to control his or her own use of the internet causing disturbances in relationships, household, scholastics, and work commitments (Zhang, Lim, Lee and Ho, 2018). Global research conducted throughout have revealed that internet addiction might also create psychological and physical difficulties in the individual (Kraut, Patterson, Lundmark, Kiesler, Mukophadhyay, & Scherlis, 1998; Black, Belsare, & Schlosser, 1999; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000).

Adolescents are identified to be most vulnerable to Internet addiction as they have less ability to control their enthusiasm for Internet activities (Yen, Ko, Yen, Chang, & Cheng, 2009). Adolescents and young adults are more likely to use the internet for a variety of purposes, including obtaining data, social networking, discussing, playing music, emailing, playing games, and meeting social needs. Due to the decrease in face-to-face social interactions and the increased time spent indoors during the COVID-19 pandemic, there is a growing dependence on social media and online entertainment platforms for social interaction (Karki et al., 2021).

In the forward logistic regression analysis of a research, due to the COVID-19 outbreak, high impulsivity, high virtual social support, older age, low subjective well-being, low family function, and high alexithymia were all independently predictive of Internet addiction among adolescents (Lin, 2020).

Nearly 90% of students were physically cut off from their schools due to the COVID-19 pandemic, and technology became a necessity to enable students to access educational materials, to interact with each other, and to do what students need to do most: play. Among all online activities, playing video games contributed most to the increases in time spent on recreational Internet use and severity of Internet addiction, during the pandemic (Li et al., 2021).

Increased internet availability with widespread devices such as mobile phones and tablets provide adolescents access to and use of the internet during the daytime as well as bedtime. The accessibility of such facilities in developing countries has put adolescents at risk of internet addiction (Kuss & Lopez-Fernandez, 2016). A significant difference has been found in research between male and female students in terms of Internet addiction, where Internet addiction was more common in females than that in males (Najafi et al., 2018 and Orsal et al., 2013).

Internet addiction and internet-use related problems are also associated with significant impairment and distress for individuals, which have been emphasized as the criteria demarcating mental disorders (Kuss & Griffiths, 2014). Besides high risk of psychological distress, Internet addiction among adolescents have been reported to be associated with poor outcomes including physical health (Eliacik et al., 2016), substance abuse (Evren, Dalbudak, Evren & Ciftci, 2014), decreased academic performances (Mohamed & Bernouss 2020), social isolation (Tateno et al., 2019), self-injuriousbehavioral patterns such as suicidal tendencies (Lam, Peng, Mai & Jing, 2009) and low self-esteem (Woods & Scott, 2016).

The study's purpose was to identify changes in a student's daily routine variables as a result of internet usage following the pandemic, which is the first and most pertinent approach for managing collateral repercussions like internet addiction across genders, with the goal of assisting policymakers in tracking the student's potential behavioral patterns and, eventually, adopting and suggesting appropriate measures.

Review of Literature

Excessive internet use is discussed by many researchers with different concepts. “Internet addiction” (Young & Rodgers, 1998), “Internet dependency” (Wang, 2001), “pathological Internet use” (Young, 2004), “problematic Internet use” (Kaltiala-Heino, Lintonen & Rimpela, 2004), “Internet abuse” (Young & Case, 2004), “cyberaddiction” (Chebbi, Kong & Liu, 2001),

"obsessive video game playing (Keepers, 1990)" are many of these. In the modern world, excessive uncontrolled internet usage (internet addiction) has become common among students, accompanied by time-consuming computer usage that affects the ability to function normally in important aspects of life (Kannon, Karthik, Pal & Menon, 2019).

The growth of online education has generated concerns about the prospect that using the Internet in schools could affect students' lives, or at the very least increase their chance of getting Internet Addiction. Furthermore, understanding the influence of regular Internet use and the resulting potential disorders on school performance is critical when considering Internet use as a learning tool. This is an area where there is currently a scarcity of literature, and it merits additional exploration. In fact, the findings of a number of studies that looked at the direct association between Internet addiction and academic achievement were equivocal (Ellore, Niranjan, & Brown, 2014; Hawi & Samaha, 2016; Usman, Alavi & Shafeq, 2014).

Studies clearly indicate that misuse of the internet is strongly associated with a number of psychological and behavioral problems. For instance, there exists a great deal of relevance between the misuse of the Internet and issues such as anxiety, depression, loneliness, social isolation, low self-esteem, shyness, abnormal mood swings, precipitated behavior, and lack of social skills and support (Chiu, Hong & Chiu, 2013). Davis (2001) has developed a cognitive behavioral model for problematic Internet use. In Turkey, relevant studies exists focusing on the Internet addiction and pathological Internet use (Kayri & Günüç, 2008; OdabaúÕR÷lu Öztürk, Genç & Pektaú, 2007; O÷uz, Zaim, Özel & Saka, 2008; Özcan & Buzlu, 2005; Erarslan, Genç & Kalyoncu, 2005).

In terms of gender differences, Jenaro et al. (2007) argue that 28.6% of all male college students and 56.3% of all female college students are classified as heavy internet users. Moreover, Chiu, Hong & Chiu, (2013) suggest that male college students tend towards Internet addiction, while their female counterparts seem to develop an addiction to mobile phones. According to the studies adopting the Chi-square test for analysis, male college students are more prone to Internet addiction than female ones (Lam, Peng, Mai & Jing, 2009). Results of a study showed that males use the Internet mainly for purposes related to entertainment and leisure, whereas women use it primarily for interpersonal communication and educational assistance (Weiser, 2000). Schumacher and Morahan-Martin (2001) found that males were more experienced with computers, more likely to have taken high school courses requiring computer use, and reported

higher skill levels in applications such as programming, games and graphics than females. Durndell and Haag (2002) indicated that gender effects were found throughout, with males tending to report greater computer self-efficacy, lower computer anxiety, more positive attitudes towards the Internet and longer use of the Internet than females.

Although many studies indicate that males usually have higher levels of IA than females, there exists some contrary data. In a cross-cultural comparison study of IA, males had higher IA prevalence estimates than females (male 15.7% versus female 5.8%) in Chinese samples, and females had higher IA prevalence estimates than males (male 7.3% vs. female 9.7%) in the US. samples (Sun et al., 2012). A significant difference has been found between male and female students in terms of Internet addiction and sleep quality. Internet addiction was more common in females than that in males (Najafi et al., 2018; Orsal et al., 2013).Girls with emotional difficulties such as subjective unhappiness or depressive symptoms had much higher risks of Internet addiction than did boys with similar problems. Further attention should be given to developing Internet addiction prevention and intervention programs that are tailored to fit boys' and girls' different needs (Ha & Hwang, 2014).

Methodology

The research was conducted using a survey, which was circulated online among the participants. A cross-sectional quantitative survey design was undertaken for the purpose of the study. A total of 100 adolescents participated in the survey, out of which 50 were boys and the other 50 were girls. These participants belonged to the overlapping intervals of the middle and late adolescence periods.

Convenience sampling, a form of non-probability sampling, was used in the selection process of the participants. The survey consisted of one empirical questionnaire, which was the Internet Addiction Test (IAT) developed by Dr Kimberly Young (1998). Primary examination into the validity of the IAT has shown strong internal consistency ($\alpha = 0.90–0.93$) and good test-retest reliability values ($r = 0.85$) (Samaha et al., 2018).

The instrument comprises 20 items - each was extracted from previous studies and clinical research on obsessive online consumers and their features. These 20 elements evaluate attributes and demeanors related to obsessive use of the internet that comprises escapism, compulsivity,

and dependency. The inquiries also examine conflicts in personal, social, or occupational performance that may stem from addictive use. Importantly, these questions are randomized with each statement scored on a Likert-scale with values ranging from 0, indicating less radical behavior, to 5 indicative of the most radical behavior for each item. The test could be applied either on an individual basis or in a collective sample. It can be applied in two methods: self-administered and verbally, if anyone requires help in fulfilling the questionnaire. When self-administered, the rest requires 5–10 min to fill (Young & De Abreu, 2010).

The study hypothesized that there is a significant difference in the internet addiction of girls and boys, with boys being more addicted to the internet than girls.

Analysis of the difference between the means of the gender for Internet Addiction, was calculated using t-Test. The t-test applied that is unpaired and two-tailed by design.

Results

The calculated value of 't' is 3.17, which is greater than the observed value (t=2.8) at 0.05 level of significance. This implies that there is a significant difference between internet addiction of girls and boys and that boys are more addicted than girls (as observed from the mean value).

Table1: Result Table for Internet Addiction Across Genders

Group	***Number of participants (n)***	***Mean (M)***	***Standard Deviation (SD)***	***Calculated value of t***	***Observed value of t***
Boys	50	48.38	18.64	3.17	2.82
Girls	50	41.64	18.44		

Note: *The value of t is observed at 0.05 level of significance with degree of freedom - 98.

Discussion

The survey aimed to understand the internet addiction in adolescents, with the analysis of the gender differences, using the Internet Addiction Questionnaire developed by Kimbery Young in 1998.

A total of 100 adolescents who were between the ages of 15 and 19, participated in the study. For the purpose of the gender analysis component of the research, an equal number of boys (n=50) and girls (n=50) were selected. Convenient sampling, a form of non-probability sampling was used to select the participants for the study. Internet Addiction Test (IAT), an objective questionnaire, was employed as the survey tool. The survey was cross-sectional and qualitative, by design. T -test were used in the statistical analysis of the data.

Internet Addiction, a concept proposed by Young (1998), is defined as excessive and uncontrollable use of the internet that leads to problematic behavior and impairments in daily function. Although addiction might come across as a strong word, yet Internet addiction is generally categorized under the label of "technological addiction" and is defined by Kandell as a "psychological dependence on the Internet regardless of the type of activity once logged on". (Craparo et al., 2013)

Based on the statistical analysis it was inferred that there was a significant difference between the Internet usage of boys and girls. The means of their scores indicated that boys were more addicted to the internet than girls, by 6.74%.

Results from different fields of addiction haveshown an apparent gender-related disparity with females being less prone to exhibiting most addiction behaviors (Minutillo et al., 2016).

Boys are found to have scored lower than girls on IA-related protective variables like effortful control and higher on potential risk factors such as maladaptive cognitions. Thus, A review of 7 studies across different cultural groups revealed that most findings converged with males at higher apparent risk for IA, with the difference in gender-related prevalence estimates of Internet Addiction widening over time (Anderson et al., 2017).

Therefore, based on the statistical analysis, the hypothesis that there is a significant difference between the internet addiction of girls and boys, is accepted.

Suggestions

Since Internet Addiction shares distinct characteristics with other addictions, clinical therapies for internet addiction are based on therapeutic and pharmaceutical procedures that are routinely

employed in illnesses such as OCD, impulse control disorders, and other similar disorders (Singh & Paliwal, 2020). These treatment consists of psychotherapy, medicine, or a mix of the two, as these types of interventions have been demonstrated to be highly effective in reducing the amount of time Internet addicts spend online, as well as in treating depression and anxiety symptoms (Winkler et al., 2013; King et al., 2011; Przepiórka et al., 2014 ; Cash et al., 2012).
According to individual practitioners who have seen Internet addicted patients and prior research findings with other addictions, suggestive techniques to treat Internet addiction are: practising the opposite time in Internet use, using external stoppers, setting goals, abstain from a particular application, using reminder cards, developing a personal inventory, entering a support group, and family therapy (Kimberly & Young, 1999).

Conclusion

The study revealed a significance level of 0.5 corresponding to 95% confidence interval across genders. Thus, rejecting the null hypothesis that stated that there will be no significant difference in internet usage and between male and female adolescents. A recent review of 7 studies across different cultural groups revealed that most findings converged with males at higher apparent risk for internet addiction, with the difference in gender-related prevalence estimates of internet addiction widening over time (Anderson et al., 2017). This pattern may reflect male tendencies to use applications with potentially high internet addiction risk (e.g., online games or cybersexual activities) (Lin, Ko, & Wu, 2011).

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Attachment Styles among Youth: An Exploratory Study

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(B.A. Psychology Honors I)

Abstract

In psychology, attachment refers to the strong affectionate bond individuals form with special people in their lives that gives them pleasure and comfort in times of stress (Berk, 2014). The Attachment Theory, propounded by John Bowlby in the 1960s and further developed by Mary

Ainsworth in the 1970s, explains that infants form an attachment with their primary caregiver in the second half of their first year of life which becomes a vital part of an individual's personality and guides all their close relationships in the future (Bretherton & Munholland, 2008). Currently, four styles of attachment are considered: secure attachment, dismissive/avoidant attachment, anxious/preoccupied/resistant attachment, and disorganized/disoriented attachment. Despite the fact that attachment theory is widely recognized as one of the most important resources for the study of general well-being, little research has been done in the Indian context on the attachment styles of youth. Youth is defined as a phase of transition from childhood dependence to adult independence (United Nations, 2013). The purpose of this study is to examine the general attachment styles among youth. The present study is quantitative in nature and uses the Relationship Structures Questionnaire (ECR-RS) developed by Fraley, Waller, and Brennan (2011). The total sample size comprises 60 individuals, divided among people who identify as Female (N= 36) and Male (N= 24); the sample was obtained using convenience sampling. The results indicated that secure attachment style is the most common general attachment style for Indian youth. Moreover, attachment styles are highly likely to stay stable or be consistent across relationships. Lastly, male youth was more likely to be anxiously attached to their primary caregivers while female youth was more likely to be dismissively attached to them.

Keywords: Attachment, adult attachment, relationships, youth, youth relationships

Introduction

Attachment is a strong and long-lasting affectionate tie between two individuals through space and time (Ainsworth, 1973; Bowlby, 1969). It is the process of forming a strong emotional bond with a certain person. Individuals with such a synthesis experience happiness and joy, which leads to them supporting one another in times of stress (Mahmoodi, Naziri & Zarenezhad, 2014). The initial encounter between parent and kid instils some notions in the child about parental stability, support, and the reaction of the caregiver, which will serve as the child's guide in later life when expressing emotions (Sheinbaum et al, 2015). Bowlby emphasized that this bond has lifelong consequences for human relationships (Berk, 2014).

Attachment theory was originally propounded by British psychoanalyst John Bowlby (1973, 1969, 1982), which conceptualizes the universal human need to develop affectional ties with others (Polek, 2008). Bowlby's ethological theory of attachment recognizes that an infant's emotional tie to the primary caregiver provides them with safety from threat and the support to explore their surroundings and learn necessary skills to master the environment. Therefore alongside the psychoanalytic perspective, attachment can best be understood from the evolutionary perspective as this bond promotes the survival of the infant (Berk, 2014).

Mary Ainsworth and colleagues (1978) developed a lab procedure to measure the security of attachment of primary caregivers and children between 1 and 2 years called the Strange Situation Test. The results of these studies yielded three characteristic behavioural patterns that correspond to three attachment styles of which there is one secure attachment style and two insecure attachment styles (Bretherton, 1992).

Secure Attachment: Infants with a secure attachment style perceive their primary caregiver as a secure base. This occurs when the primary caregiver provides the infant with love and warmth, attends to its needs, and protects it from stress (Berk, 2014). This attachment style promotes emotional awareness and leads to proper social conduct in the individual. Individuals with a secure attachment style have strong self-esteem and confidence, can readily engage in social interactions, employ effective stress coping mechanisms, behave in a balanced manner in relationships, and consider themselves competent and open to exploration (Odacı & Çıkrıkçı, 2013).

Dismissive/ Anxious-Avoidant Attachment: When the mother or the primary caregiver is present, the infants appear to be unresponsive to them. They are typically unconcerned when she goes, and they react to the stranger, in the same manner, they do to the parent. They avoid or are slower to welcome the parent during the reunion, and when lifted up, they frequently fail to cling (Berk, 2014). Furthermore, because these people are frightened of suffering and being abandoned or rejected, they avoid forming close relationships (Bartholomew & Shaver, 1998).

Resistant/ Anxious-Preoccupied Attachment: These infants want closeness to their parents before separation and frequently fail to explore. They are usually unhappy when their parent departs, and when the caregiver returns, they mix clinginess with aggressive, resistant behavior, including hitting and kicking. Many infants weep after being taken up and are difficult to console (Berk, 2014). Individuals in this category have a poor view of themselves and a favorable perception of

others. Preoccupied people are independent of their surroundings, lack self-confidence, acquiesce to others' demands, and desire to be in relationships with others but are afraid of being abandoned (Odacı & Çıkrıkçı, 2013).

Another form of insecure attachment was added by Main and Solomon (1986, 1990) known as *Disorganized/Disoriented Attachment*: This is the most insecure form of attachment that develops as a result of the infant experiencing alarm which occurs due to physical abuse, family or domestic violence, and unresolved trauma of the parent which leads them to act unpredictably. Individuals who are dismissively attached avoid forming close relationships with others because they are afraid of negative consequences. By dismissing the benefits of developing connections with others, the individual prefers to stress his own self-worth (Bartholomew & Shaver, 1998). Individuals with a dismissive attachment style may have difficulties in real social relationships since they rate themselves favorably while criticizing people around them (Odacı & Çıkrıkçı, 2013).

It is evident that children's attachment to their primary caregiver has been classified into different types based on the primary caregiver's attitude toward the child and the child's reaction to the caregiver, who is usually the mother. This attachment shapes emotional reactions that are later expressed in interpersonal interactions, self-concept, and other important aspects of development and adulthood. The level to which one is comfortable with relying on others, closeness, intimacy, and fears of being abandoned and unloved is shaped by early caregiver experiences (Dean-Hill, 2013). During infancy, children form Internal Working Models (IWMs), i.e. expectations about the availability of their primary caregiver and how likely they will provide support during stress based on their experiences (Berk, 2014). These representations are believed to serve as a template for the individual's interpretation of their social world, affecting future interpersonal relationships which may be platonic, romantic, sexual, familial, or therapeutic (Fraley, Heffernana & Vicary, 2011)

Bowlby and Ainsworth emphasized the impact of infant-caregiver attachment styles in one specific type of relationship in adult life -- romantic relationships. In an attempt to address this new direction in the study of attachment that was emerging in the 1970s and early 1980s, Hazan and Shaver (1997; 1998) developed what is today the most successful theory about romantic attachment styles. According to them, romantic love or pair-bonding is an attachment relationship that develops through the same steps and results in the same kinds of behavioral

patterns outlined by Bowlby and Ainsworth in reference to the infant-caregiver attachment (Fraley & Shaver, 2000).

The reason childhood attachment styles influence adult attachment styles to such a great extent is due to the many parallels in the attachment dynamics during childhood and adulthood as established by Hazan and Shaver. Regardless of the phase of life, individuals prefer when people they form bonds with are close, serve as a safe haven during threatening or stressful times, and act as a secure base from where they can explore the world. In other words, people expect similar things from people who become close to them throughout their lifespan as it promotes survival and increases the chances of procreation (Shaver et. al., 1988).

Furthermore, individuals form expectations and beliefs about themselves, and others based on their interactions with people close to them in infancy. These IWMs are relatively stable and continue to guide future close relationships. Individuals tend to refer to their previous experiences of people's behavior and feelings toward them to predict how new people will act, resulting in the formation of adult attachment styles that correspond to the attachment style in infancy. For instance, a person who was securely attached to their primary caregiver learnt that the world is a safe space and that they can trust others to be present and be supportive in times of stress (Fraley & Shaver, 2000).

The definition of youth differs by the sociocultural context and the economic, financial, and demographic conditions under which it needs to be defined. It is usually understood to be a fluid transitional period in life that involves a shift from childhood dependence to adult independence which often involves finishing school and entering college or work. In terms of statistics, the United Nations defines youth as the people between the ages of 15 and 24 (United Nations, 2013).

The term "youth" has at least three unique and sometimes diverse meanings: biological category defined by age, separate social group, and cultural construct. In a biological sense, youth refers to a group of human organisms of comparable ages who are undergoing physical maturity. Cultures frequently use codes and disciplines to distinguish this physiological group from others. The current concept of youth revolves around its social definition. In many technologically unsophisticated cultures, there is no separate youth age grade. One is either a child or an adult (Weinstein, 1995).

Youth that was categorized as avoidantly attached displayed higher levels of internalizing (e.g., depression, anxiety) and externalizing symptoms (e.g., oppositional behavior, aggression) than those who classified themselves as securely attached. According to attachment theory, the unstable tactics that children adapt to either decrease or promote the expression of attachment requirements determine the type of psychopathology. In other words, minimizing techniques would predispose youngsters to externalizing disorders, since they would deny their discomfort and develop a defensive, antagonistic attitude toward caregivers. Otherwise, using maximizing techniques might result in internalizing disorders, since children are hyper-focused on their own misery and have an excessive demand for affection and support from their caregivers (Meesters, 2003).

Adolescents with relationship dysfunction are often found at risk and precede suicide attempts. relationship dysfunction is, in turn, associated with insecure attachment (Sheftall et. al.,2018). Regulation of affective experience in interpersonal relationships is one of the primary functions of attachment. Therefore, people who are insecurely attached to autoregulation use other methods such as alcohol or drug use (Adroom, 2013).

Attachment to the primary caregiver shapes the emotional responses that are later played out in interpersonal relationships, self-concept, and other significant domains of development and adult life (Dean-Hill, 2013). A study on the stability of attachments from childhood to early adulthood found that there was no significant difference in intervals larger than 15 years. Coefficients were higher for time intervals of less than two years compared to a time frame of more than five years. Additionally, securely attached youngsters at risk were less likely to maintain attachment security whereas insecurely attached children at risk most likely maintained insecurity (Pinquart, Feußner & Ahnert, 2011).

Research on attachment styles among youth is important as the attachments of youth serve as a protective factor against stress and other physical, mental, and relational health symptoms. Since most insecurely attached individuals are at a higher risk of suicide, psychopathology and other negative health symptoms.

Review of Literature

Saferstein, Neimeyer, & Hagans (2005) found that securely attached people indicate resolving conflicts, problems in friendships, and lower levels of conflict. Whereas people with avoidant attachment styles- one of the insecure attachment styles- exhibit higher levels of conflict and lesser strong friendships. Attachment styles, the sex of the participant and that of the friend (same/opposite) are all factors that have a combined effect on some friendship qualities.

Vivona (2000) found that late adolescents who were insecurely attached were more likely to report depression, anxiety, and worry than their securely attached peers. In fact, insecurely attached women, not men, were linked with lower college adjustment and lower intimacy development. The results of this study thus provide more evidence on how parental attachment influences development and adjustment in late adolescence.

Pinquart, Feubner, and Ahnert (2012) conducted a meta-analysis of 127 papers on attachment stability in which 21,072 attachments over varying time intervals, i.e., from half a month to 29 years, were studied. A correlation of r=0.39 was found between the ends of the intervals indicating moderate stability of attachment styles. It was also discovered that correlations became weaker with an increase in time with no correlation in attachment style with a time period exceeding 15 years.

Dean-Hill (2013) analyses revealed that attachment dimensions were predictive of gender-related fears and psychosocial impact of gender status, and parenting typologies are predictive of gender-related fears. The age of participants predicted the psychosocial impact of gender status, and, age moderated dependence on gender-related fears in that the importance of the dependence dimension decreased with age.

Methodology

Aim

The purpose of this research was to study the attachment styles among Indian youth.

Objectives

1. To assess the prevalence of various attachment styles of youth in India
2. To study attachment styles of the Indian youth across genders

3. To study the attachment styles of the Indian youth across different types of relationships i.e. with primary caregivers versus with romantic partners or best friends

Research Design

The present research is a quantitative, descriptive survey design.

Sample

For the current investigation, data was collected from a group of 60 individuals between the ages of 18 to 27 years of age from Tier 1 and Tier 2 cities of India. Further, they were classified into two groups i.e., woman (N= 36) and man (N=24). The method of convenience sampling was adopted for the study.

Tools

Relationship Structures Questionnaire of the Experiences in Close Relationships-Revised (ECR-RS): This questionnaire was developed by Fraley, Waller, and Brennan (2000). It consists of 9 items, each of which is measured on a 7-point Likert Scale. The ratings range from 1 to 7, with 1 representing strongly agree and 7 representing strongly disagree.

According to research by Sirin and Dogan (2021) on the Turkish population, the test-retest reliability of the ECR-RS, over an interval of 4 weeks, is 0.64 in the parental domain (mother- 0.62 and father- 0.58) and 0.80 for the peer domain (friend- 0.62 and partner- 0.68). On the global subscale, there was a test-retest reliability of 0.64. According to the same research, the composite validity for the ECR-RS was established. Additionally, discriminant validity was established for all dimensions as well.

Procedure

Each participant was given an online questionnaire, produced by Google Forms, testing their attachment. The participants registered their responses by choosing the appropriate options for each statement provided to them in the Google Form. In the first section, they were required to

enter their demographic data to ensure they qualified for the study. In the second section, they were prompted to answer the items of the ECR-RS in regards to their relationship with their primary caregiver; and in the third section, they were prompted to do the same in regards to their relationship with their romantic partner or best friend (in the absence of a romantic partner). Therefore, the participants responded to the same items twice. The data collected was analyzed with anonymity and confidentiality. Before the respondents proceeded to answer the items, their informed consent was sought, and it was ensured that their participation was completely voluntary.

Scoring

In the present study, scoring of the obtained data was done with help of the instructions on the questionnaire and the score chart provided with it. The data obtained through the questionnaire was arranged in tabular form and descriptive statistics were calculated to form the final tables and graphs.

Statistical Analysis

In the present study, descriptive statistics were calculated in order to form the tables and bar graphs.

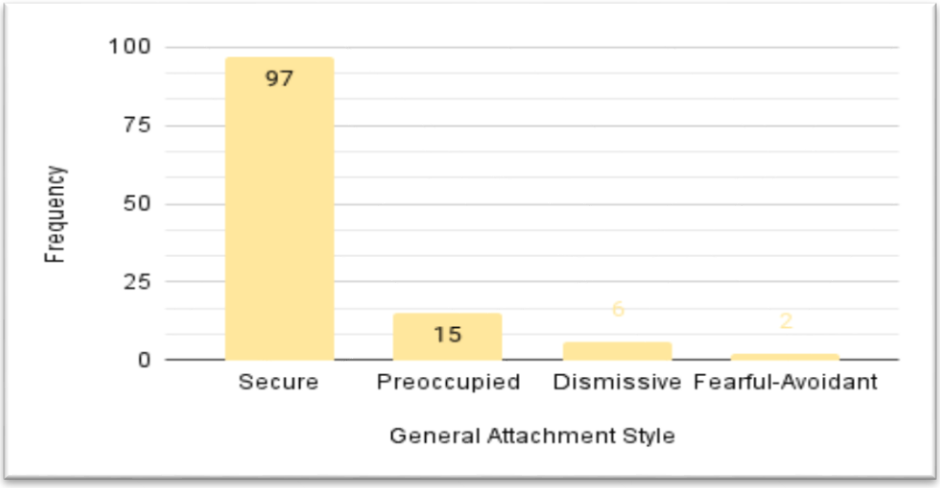
Ethical Considerations

All ethical protocols were followed in the collection and handling of the data. Informed consent of the participants was sought before they responded to the items of the ECR-RS. Confidentiality and anonymity of the respondents was maintained throughout the process. Participants were informed that their participation is voluntary and they may stop responding to the questionnaire and clear their responses at any moment. The research maintained the required objectivity and none of the responses were altered or tampered with. The whole procedure was performed without any manipulation of the data or results.

Results

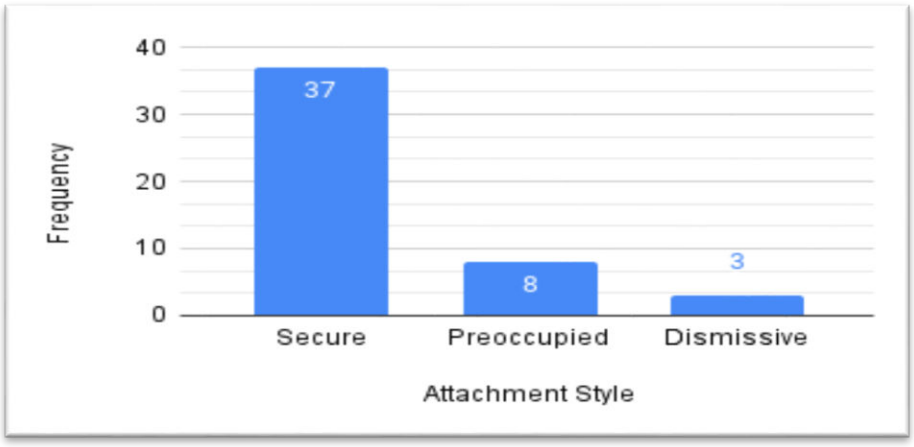
The most common attachment style of Indian youth reflected through the responses of the sample, regardless of gender or type of relationship, was secure attachment. Figure 1 illustrates the frequency distribution of the attachment styles among the responses of the Indian youth.

Figure 1: Attachment Styles Among Indian Youth



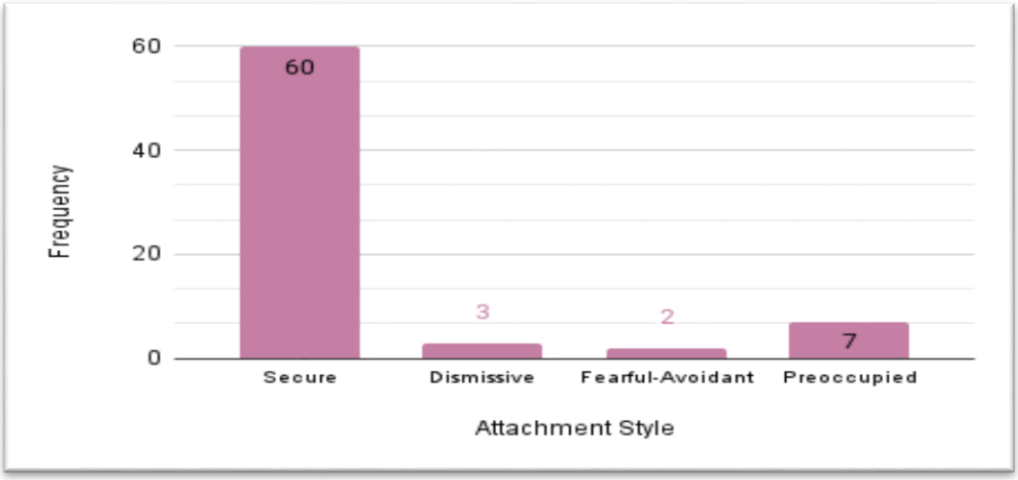
The most common attachment style reported for young Indian men, with their primary caregivers and romantic partners/ best friends is Secure Attachment. The frequency distribution of the attachment styles for men is illustrated in Figure 2.

Figure 2: Attachment Styles of Male Youth in India



Secure Attachment is the most common attachment style found among young Indian women with their primary caregivers and romantic partners/best friends. The frequency distribution of the attachment styles for women is illustrated in Figure 3.

Figure 3: Attachment Styles of Female Youth in India



Most respondents had the same attachment style with their primary caregiver and their romantic partner or best friend. The consistency of attachment styles across different relationships is depicted in Figure 4.

Figure 4: Consistency between Attachment Styles for different Relationships of Indian Youth

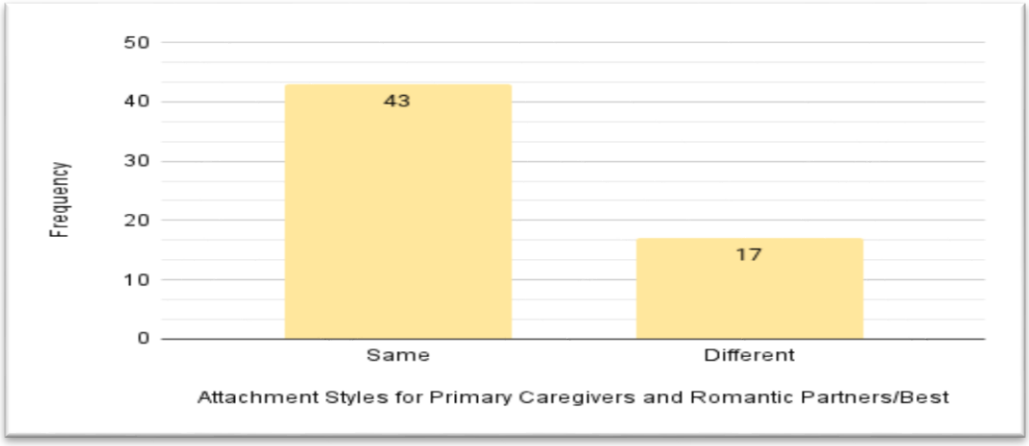


Table 1 depicts the prevalence (in percentage) of different attachment styles for each of the two types of relationships for men and women.

Table 1: Prevalence of Attachment Styles for Young Men and Women across Different Relationships

Type of	Primary Caregiver	Romantic Partner or Best Friend

Relationship								
Attachment Style	*Secure*	*Preoccupied*	*Dismissive*	*Fearful-Avoidant*	*Secure*	*Preoccupied*	*Dismissive*	*Fearful-Avoidant*
Men	87.5%	12.5%	0%	0%	66.7%	20.8%	12.5%	0%
Woman	88.9%	0%	8.3%	2.8%	77.8%	19.4%	0%	2.8%

Figure 5 illustrates the distribution of the different attachment styles with primary caregivers for men vs. women. Figure 6 graphically represents the distribution of the different attachment styles with romantic partners or best friends for men vs. women.

Figure 5: Distribution of Attachment Styles of Men and Women with Primary Caregiver

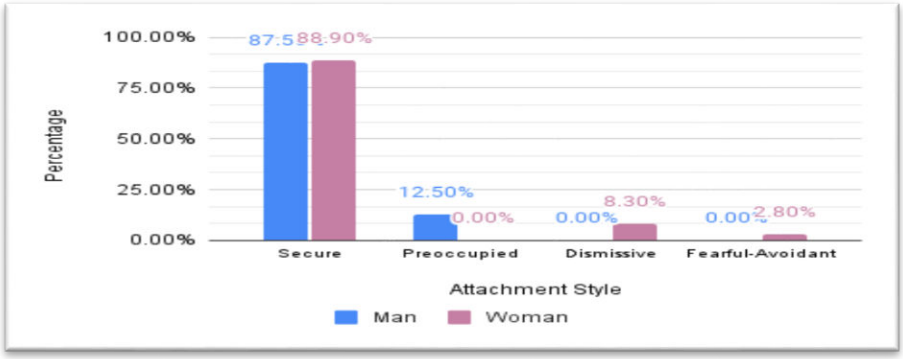
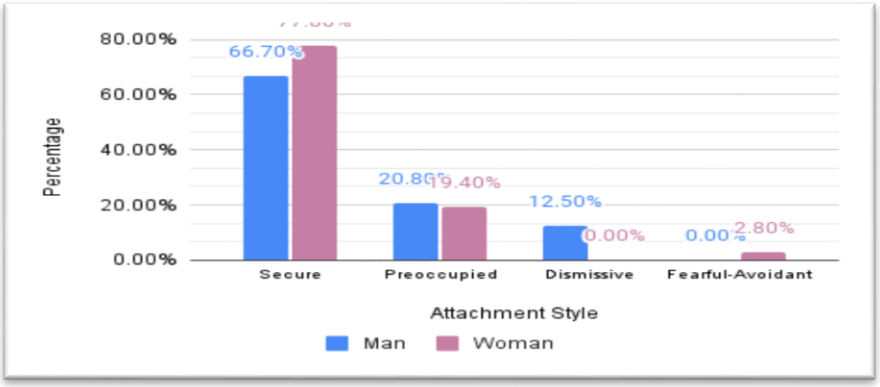


Figure 6: Distribution of Attachment Styles of Men and Women with Romantic Partner/Best Friend



Discussion

The most common reported attachment style -- for men, women, relationships with primary caregivers, and romantic partners or best friends -- is secure attachment. A total of 120 attachment scores were calculated. Ninety-seven of 120 were secure attachments, corresponding to 80.8% of the sample. In Western societies, secure attachment is the most common. Sixty percent of North American infants from middle socioeconomic status exhibit this attachment style (Berk. 2014).

While the most prevalent attachment style for men and women was the same, none of the men reported having a fearful-avoidant style with either their primary caregiver or partner or best friend.

Moreover, of the 60 respondents, 43 of them were recorded having the same attachment style for their primary caregiver and romantic partner or best friend. While most of the respondents reported having a secure attachment style in both relationships, an observation consistent with the general popularity of the attachment style, two male respondents reported having a preoccupied attachment style for both relationships. The high rate of similarity between the attachment with one's primary caregiver, which forms in childhood, and the attachment with a romantic partner or best friend, a relationship which occurred later in life, highlights the idea that early childhood relationships do serve as a template for adult relationships during the course of an individual's life.

Across genders, 12.5% of the male respondents are anxiously attached (preoccupied) to their primary caregiver, while none of the women who responded were anxiously attached. Conversely, 8.3% of women are avoidantly attached to them, while no men have this relationship pattern with their primary caregiver. This difference could be attributed to the idea that as kids in an Indian society, many boys are expected to develop life skills quickly, and parents are generally less gentle with their upbringing. For this reason, parents do not pay much close attention to boys as they are expected to learn from their peers; kids who live with such parents try to fill that void by looking harder for validation from their parents, hence forming a preoccupied attachment style. On the contrary, girls may learn from a very young age that society rids them of opportunities, hence distancing themselves emotionally from the people who initially affect their lives the most. As their expectations from their primary caregivers get lower, they form a dismissive style of attachment. While these explanations are not applicable to all

individuals, nor do they exclusively explain the formation of such attachment styles, they account for the sociocultural factors that play a role in the development of attachment.

Conclusion

The most common general attachment style for the Indian youth was secure attachment with 97 of 120 reported attachment styles being secure attachment. Furthermore, With 37 of the 48 attachment styles recorded for the male youth, and 60 of the 72 attachment styles recorded for the female youth being the secure attachment style, the secure attachment style was also the most common general attachment style for male and female youth each. Moreover, it was observed that 43 of the 60 respondents had the same attachment style for both types of relationships, i.e. primary caregiver and romantic partner or best friend; therefore, the consistency or stability of attachment styles was high. Additionally, a gender difference in the prevalence of the attachment styles was observed. Twelve and a half percent of the male youth's results indicating that they are anxiously attached to their primary caregiver while none of the female youth respondents were obtained such results; additionally, 8.3% of the female youth respondents indicated being avoidantly attached to their primary caregivers while none of the male youth demonstrated having this attachment style with their primary caregivers. A gender difference was also notable in the romantic partner or best friend relationship. Twelve and a half male youth participants reported being dismissively attached to their partners or best friends while none of the female youth reportedly had the same relationship pattern.

The results of the study suggest a considerable gender difference in attachment styles across different relationships. These findings should alert mental health practioners of the foundations of unhealthy relationships between young men and women in India. With further research, practitioners can provide early intervention to adolescents and young adults entering romantic relationships, in part by informing them of the possible risks. Additionally, parents and caregivers should be warned of the impacts that their beliefs and the society's beliefs may have on the future relationships of their children. Such change will help reduce the prevalence of verbal, emotional, and physical abuse in relationships. More research like this is especially vital in the Indian context as early romantic relationships are still considered taboo, or at least foreign,

in many parts of India; the lack of conversation as a result can led to oblivious partners who later become oblivious caregivers, continuing the cycle of unhealthy attachment.

As society is progressing, and the notions of cisnormativity, heteronormativity, and the gender binary are being challenged. Such change should be reflected in research as well. Therefore, future research should study the attachment styles of transgender or gender non-conforming people in India. Such research should take a qualitative and quantitative approach to uncover the quality of relationships transgender or gender non-conforming people have with their primary caregivers, their romantic partners, how they are different from each other, and how each have changed over the course of time.

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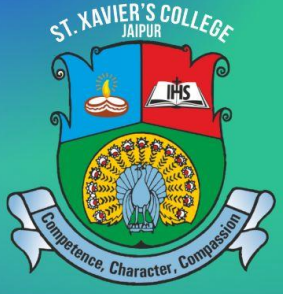

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