NUST JOURNAL OF SOCIAL SCIENCES HUMANITIES
Vol.10 No.1 (January-June 2024) pp. 1-13

Perspective

Thinking Outside of The Box! It Is High Time - Riddance of Archaic Methodology

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"*Do not take what I say as if I were merely playing, for you see the subject of our discussion – and on what subject should even a man of slight intelligence be more serious? – namely, what kind of life one should live . . ..*" **Socrates**

* The overarching objective of this opinion piece is endlessly learning and adjusting to the challenges of the modern academic world. These observations and reflections are based on first-hand experience teaching three courses: civil procedure, the law of evidence, and legal drafting. Throughout the semester, there was extensive interaction with the students—thrice a week for approximately 3 hours each class. This opinion underscores the importance of thinking outside the box and strictly adhering to the rules, regulations, and university policies in its letter and spirit across the board, whether it pertains to student attendance, assignments, projects, or grading. Also, the opinion touches on the demerits of archaic teaching and offers a few recommendations for fixing it.

The semester has flown away in the blink of an eye. It seems like yesterday flying from New York to Islamabad. My enthusiasm peaked and was entirely driven by *the desire to give back to my birth country* by teaching law as taught in the United States of America – specifically, to those who would never have a chance to go abroad for studies. The underlying desire had been and will always be—*to share my approximately forty (40) years of experience, knowledge, and daily breathing in the life of law in the world's litigious society – the United States of America.* In April 2023, Dr Asif Khan, Head of the Law Department at NUST, came to Washington, DC. We both were judging the JESSUP Competition. We discussed the idea of my teaching Civil Procedures, Evidence, and Legal Drafting for the fall semester of 2023. Despite fierce opposition from family and close friends, I agreed to the proposal. I started preparing the coursework/syllabus and everything needed for the semester.

Article history: Received: January 10, 2024, Revised: February 19, 2024, Accepted: February 25, 2024, Published: June 25, 2024

DOI: *10.51732/njssh.v10i1.183*

Journal homepage: www.njssh.nust.edu.pk

1. ISSUANCE OF ADVANCED SYLLABUS/TEXTBOOK

I issued the syllabus in advance for all three subjects, at least thirty days (30) before the start of the semester, as we do in the United States. The objective of the advanced issuance of the syllabus is for students to buy textbooks, procure required articles/periodicals, etc., and prepare for the upcoming semester. Despite all my efforts, more than half of the class never bought the textbook until the semester's end. Asking students to bring the required textbook to the class to refer to it while discussing a topic is perceived as placing an unsurmountable burden on them. Moreover, it is not fashionable. What is more attractive and cooler (in a Gen-Zee language) than having only a cell phone? Having nothing else, no pencil, no paper to take notes, is increasingly becoming attractive and fashionable.

The aversion to reading and loathing for books differs from American and Western law students. It equally defies logic. A law student who must deal with nothing else but "lawbooks" has such intensity to not carry and read books. It is frightening and mind-boggling.

2. TEACHING CASE METHOD

When I accepted the offer to teach these courses, it was discussed and agreed that preparing the case method would be significantly beneficial, like in the United States. A typical case method in the US is assigning a textbook to a particular subject, such as civil procedures, evidence, etc. Every week, the students have been allowed to read a certain number of cases spelled out in the syllabus, as noted above.

There is *No Case Book* on any subject in Pakistan. Except for a few law schools in Pakistan, the teaching case method is non-existent. To overcome this issue, I hired a teacher-assistant (TA) to help research the Pakistani cases on relevant topics. Throughout the semester, I distributed those Pakistani cases via email and uploaded them to the LMS (online system).

I brought books from the USA by paying an extra $500.00 as access baggage. Those books are not available in the Pakistani market. I hoped the Pakistani students would be thrilled and eager to read these books. I circulated a few of those books in the class. I observed the reaction of the classthe majority did not even look at these books. – and what to talk about reading them. No matter how strong-willed you are, it could not be more discouraging and draining for those passionate about books and cherish reading and sharing knowledge.

3. THE SOCRATIC METHODOLOGY

The Socratic Method involves a shared dialogue between the teacher and students. The teacher leads by posing thought-provoking questions. Students actively engage by asking questions. The discussion goes back and forth. This teaching method promotes critical thinking in classroom discussions.

Peter Conor, writing for Colorado State University: The Institute for Learning and Teaching[1], noted: Socratic inquiry is not "teaching" per se. *It does not include PowerPoint-driven lectures, detailed lesson plans, or root memorization. The teacher is neither "the sage on the stage" nor "the guide on the slide." The students are not passive recipients of knowledge.*

Conor's article highlights the method of dialogue between the teacher and the students instigated by the teacher's continual probing questions to explore the underlying beliefs that shape the students' views and opinions. From Plato onward, the method has been based on dialectical questioning. An extreme version of this method has been portrayed in the movie "The Paper Chase." To get to the heart of the ethical dilemmas and principles of moral character, Dr Kingsfield terrorizes and humiliates his law students by painfully grilling them on the details and implications of legal cases.

From a practical standpoint, the optimal utilization of the Socratic teaching method in a law school is assigning cases, law review articles, and leading newspapers' analytical writings on a particular topic. The given material must be studied before the class, in the student's own time, i.e., private study time. The class time is exclusively devoted to discussing the assigned material, cases, policies, and reasoning of the judge's decisions. Students actively answer teachers' queries/probing questions and bring their questions for clarification.

The overarching objective of this method of teaching is to foster critical thinking. That is what I had in mind and intended to undertake for the fall semester. But the ground reality was quite different than what I had expected. The teaching is mostly either PowerPoint-driven or reading from a book line by line, and discussion, as outlined above, is non-existent or minimal. There is no model of intellectually challenging the student that would instil curiosity

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[1] Colorado State University: The Institute for Learning and Teaching, Teaching Tips, The Socratic Method: Fostering Critical Thinking, by Peter Conor.

and foster critical thinking. Instead, it is a rudimentary and largely archaic way of imparting education. That led me to my following observation.

4. ARCHAIC METHODOLOGY

First, the *archaic* methods must be stopped. The same syllabus year after year should not be acceptable. The school should make a policy that all teachers must provide updated syllabi with the latest textbooks, articles, and case law for their respective subjects.

The syllabus must be provided to the students at least thirty days before the start of the semester. The syllabus must contain the assignment and the readings for each class. The teacher must discuss/engage in question-answer sessions to ensure students perform those tasks and complete the assigned readings. Performing students should be encouraged and rewarded; non-performing students must be penalized. The reward and punishment go hand in hand. This is that simple!

Required Textbooks and recommended textbooks and the distribution of periodicals/articles throughout the semester must be encouraged. Discussion of the latest case law and articles could generate interest and enthusiasm. Provided the students are held accountable for the assigned material. Teachers must be flexible to change the syllabus as needed.

5. READING ASSIGNMENTS /CASE LAW

The sad cultural reality is that students Do Not engage in reading before coming to class. The most likely reason for students not reading before the class is that teachers are not making it a prerequisite. Law teachers must encourage/engage in this teaching method.

A teacher usually comes to class with a PowerPoint/slideshow – and reads from it or the book. There might be some exceptions to this prevalent practice. Such a method is not only archaic but also utterly contrary to Western teaching. These old-fashioned teaching methods have a devastating impact that inhibits “Critical Thinking.”

6. CLASS TIME – AS A DISCUSSION PLATFORM

Having taught at American Law School as a sitting judge, I can vouch that a typical US law student comes to class having read their assignments/case law and articles, etc. The teachers use the class time as a discussion platform.

The teachers are not running through the PowerPoint/slideshow or reading line by line from a book. Law school teaching is premised upon preparing future leaders who would control the country's reins. It is not and must not be a prep class i.e., reading line by line from a book.

Modern law teaching demands that the teachers ask pointed questions such as: what was the underlying legal principle of a case?, why did the trial judge rule?, how did he do it?, what did the appellate court rule in the way it did, and why? Experimenting with this exercise during the fall 2023 semester was utterly draining and painful, to say the least.

Most students will not read assigned case law--recruiting a “teaching assistant” to research relevant Pakistani case law on a particular topic and providing US case law in the form of PDF. emailing well in advance and uploading the same on the LMS did not make any difference, whatsoever!

The overwhelming majority of the class resisted reading—a sad fact but dishearteningly true.

No matter how motivated a teacher is, such a student’s behaviour will cause a devastating blow, drain, and demoralize any human being. It has come to light that the same class has previously practiced such unbecoming behaviour with few female teachers who left the school for several reasons. Due to lack of accountability, the class has been encouraged and displayed continued recklessness. The key is accountability. Those who do not do their fair share--do not read or participate in discussions/exercises/quizzes—get the grade they deserve. It can be argued that if the students are not inclined to read, how could a teacher motivate them to engage in private reading?

It is a tall order to instil and teach motivation. First, culture plays a significant role. If the students are not attuned and encouraged to read from childhood, moulding them would not be easy. As listed below, some traditional advice was not conducive and did not yield desired results.

- Get the most out of the course.
- Consider the goals that relate to the course text and assignment.
- Make it relevant.
- Make it personal.
- Make it interesting.
- Make it required.
- Make it public.

Gosh! How wrong it turned out to be. It has been heartbroken beyond words. Or should it be phrased that the fight for change demands sacrifice? Generally, change is hard, and people, specifically students, not only resist new learning methodologies and hard work but turn to be vindictive and resentful. They resort to maligning, degrading, humiliating, and boycotting the messenger of the change – the new teacher, who happened to be me in case. That is what transpired in my classes; I experienced it first-hand in the fall semester of 2023.

7. WRITER'S BRIEF BACKGROUND/DESIRE FOR CONTRIBUTION

Before describing a few other challenges and observations of the fall semester of 2023, I will briefly describe my background for context only. On July 2, 2021, I retired from the Superior Court of Connecticut Judgeship. I practiced law and studied law – as an *unconventional* student. At the age of approximately 34/35 years old, as a young Major in the Pakistan Army, I was fatally wounded in the line of duty, preventing a smuggling operation on the Iranian border while serving in the Mekran Scouts, FC Baluchistan. I lost three (3) of my soldiers. I suffered two gunshot wounds; one stopped half a centimetre short of my heart, and the other shattered my arm. The injury to my arm was so grave that the surgeon on duty at PNS Shifa Hospital in Karachi wanted to amputate my arm. But he was unable to get consent from my wife to sign. My survival was nothing else but a second chance at life.

By a stroke of luck and a miracle from that hospital, I ended up with my wife and three small children, ages 8, 6, and 1, at the University of Texas at Austin School of Law. My wife and I started schooling on the same day – nursing and law. America was foreign, new, and challenging on countless fronts – from childcare to funding education, learning new methods, and *unlearning the old ones*. The new learning processes, which lasted approximately a decade, consequently changed our 'hard drive' and outlook on life.

The primary attributes of day-to-day life, i.e., decency, hard work, contribution to family and society at large, leading by example, striving to do more, endlessly seeking ways for personal and professional enhancement and refinement, and giving back, could become one's DNA.

The preceding attributes motivated my teaching at NUST Law School. I will now move on to the next challenge: Class Attendance.

8. CLASS ATTENDANCE

There is no such thing as 'attendance' in America. Teaching at Quinnipiac University Law School – it was unthinkable for a student to be late or absent. The teacher will be informed accordingly in case of emergency or unforeseen circumstances. An overwhelming majority of the students would be dying to learn. If a student missed a class, they would try to make up for it at all costs!

Here is the exciting and heroic tale of what happened in the fall semester of 2023: The class is scheduled from 9:00 A.M. to 12:00 Noon. I will ensure standing in the classroom at 9:00 A.M. There will be 5 to 7, or a maximum of ten students present out of 46 on most days. I was advised (unofficially, of course) to take attendance around 9:10 - 9:15 A.M., So I did just that in the beginning.

After one hour, students will start asking for a 15-minute break. I noticed that some would return after the break and keep disappearing from the backdoor. Upon sharing this concern with colleagues, I was advised to take attendance twice, once at the start and once at the end. I tried that one – those 'savvy students' focused on attendance only – would come just a few minutes before the attendance.

Another suggestion was to take a surprise quiz. That was tiring, too. This attendance shenanigan is an exhausting, utterly draining, and hugely distracting exercise for a poor teacher.

The general observation is that students were habitually late. Most come to class without paper, pen/pencil, book, or any writing material. The cell phone is not only a fashion but a constant source of distraction for a teacher in the classroom. The reason for using a cell phone is that coursework and assignments can be accessed via a cell phone.

Another reflection is that one-third of the students were absent from every class throughout the semester. If attendance is taken at the beginning of the class, some will disappear after the attendance. Some will start trickling in towards the end if attendance is accepted at the end of the class. They are very strategic about it!

The solution to this issue is that teachers religiously enforce punctuality first for themselves. If the teacher is late, doing it dilly dolly – what would you expect from the students? Teachers must – 'Lead by Example' as the cliché goes! Teachers' accountability comes in the first place.

It is easier for a teacher to hold a violator's feet to fire most fairly and transparently, who himself is a strict observer of the rules, regulations/policies. Those who missed the required 75% mark must NOT be allowed to participate in the exams. *That is precisely what I did*. Nineteen (19) out of forty-six (46) who missed the 75% mark were not allowed to sit for the exams. This was not an easy decision, but it had to be made. This is that simple. Action has consequences!

How Do We Incentivize Law Students in Pakistan for Private Learning and Reading?

Having diagnosed some of our issues, I move on to the last phase: how to fix this mess. I am not using the word "mess" lightly. It is a challenge of unimaginable magnitude and finding feasible incentives for law students in Pakistan to learn/read and excel can be a great way to promote academic excellence and a culture of continuous learning. Here are some ideas to incentivize law students:

Scholarships and Awards

- Establish scholarship programs for top-performing students.
- Introduce awards for excellence in specific legal subjects or research papers.
- Recognize outstanding achievements through certificates or plaques.

Internship Opportunities

- Collaborate with law firms, legal aid organizations, and government agencies to provide exclusive internship opportunities for high-achieving students.
- Ensure that these internships offer practical experience and exposure to different areas of law.

Conferences and Workshops

- Sponsor students to attend legal conferences, workshops, and seminars.
- Encourage participation in moot court competitions and provide financial support for travel and accommodation.

Library Access and Resources

- Ensure students have access to a well-equipped law library with the latest legal publications.
- Provide resources such as online legal databases and e-books to facilitate research and reading.

Guest Lectures and Networking Events

- Arrange guest lectures by renowned legal professionals, judges, and scholars to inspire and educate students.
- Organize networking events that connect students with professionals in the legal field.

Book Clubs and Reading Groups

- Establish law-focused book clubs or reading groups to foster a culture of reading and discussion.
- Provide incentives for active participation, such as book vouchers or small prizes.

Research Grants

- Introduce research grants for students working on innovative legal projects or conducting impactful research.
- Foster a research-oriented environment by encouraging collaborative projects.

Publication Opportunities

- Create a platform for students to publish their research papers or articles.
- Offer incentives for getting published, such as recognition, certificates, or even small cash prizes.

Technology and Innovation Competitions

- Organize competitions related to legal technology and innovation.
- Reward students who produce creative solutions to legal challenges.

Mentorship Programs

- Pair students with experienced mentors in the legal field.
- Provide opportunities for networking and guidance through mentorship programs.

Community Service and Pro Bono Work

- Acknowledge and reward students engaged in community service and pro bono legal work.
- Highlight the importance of social responsibility and ethical legal practice.
- We can tailor these incentives to the specific needs and preferences of law students in Pakistan. Combining these strategies can create a holistic approach to incentivizing learning and reading among law students.

How do we develop strategies to promote positive shifts for law students?

Addressing an aversion to private reading among Pakistani law students involves understanding the underlying factors and implementing strategies to promote a positive shift in their reading habits. Some suggestions listed below might be beneficial:

Identify Barriers

Conduct surveys or interviews to identify students' specific challenges in private reading. This could include issues like lack of time, difficulty understanding legal texts, or a preference for interactive learning.

Promote a Reading Culture

Organize reading clubs or study groups where students can discuss legal texts together. This fosters a sense of community and makes reading more engaging and collaborative.

Provide Accessible Materials

Ensure students can access various reading materials in different formats, such as summaries, podcasts, or interactive online resources. This can cater to diverse learning preferences.

Integrate Technology

Leverage technology to make reading more interactive and engaging. Use online platforms, legal apps, or e-books to present legal content in a more accessible and multimedia-friendly manner.

Faculty Engagement

Encourage faculty members to discuss the importance of private reading and share strategies for compelling reading during lectures. Faculty involvement can motivate students to take their reading more seriously.

Assign Relevant and Interesting Readings

Select readings relevant to the curriculum, engaging, and applicable to real-world scenarios. This can spark students' interest and encourage them to engage in private reading.

Time Management Workshops

Offer workshops or seminars on effective time management. Many students may need more time to avoid private reading. Teaching them how to allocate time efficiently for reading can be beneficial.

Reward Systems

Introduce a reward system for students who consistently engage in private reading. This could include recognition, certificates, or even small incentives to motivate them to establish a regular reading habit.

Library Resources and Support

Enhance the resources available in the library and offer support services such as study guides, reading comprehension workshops, or librarian-led sessions on legal research.

*A potential critique of these recommendations could be twofold:

- Too Western – one might argue these ideas are overly Western-focused and unfeasible.
- Funding – where will you get the money for the libraries, research centres, workshops, and books in the country starving for cash?

**I acknowledge that some of these recommendations are Western-originated conceptions, but many are doable in the context of Pakistan, provided we are determined to do it. *Where there is a will – there is a way!* We must innovative and continuously think outside of the box.

9. CONCLUSION

At the risk of repeating ourselves, we must be innovative and continuously think outside the box. We must strive to attract young, motivated, foreign-educated professionals of Pakistani origin to teach short courses, seminars, clinics, etc. Such an endeavour can catalyse change, exchange of ideas, mingling, and practical learning for our students.

Continuously monitor the ever-changing curriculum and syllabus. The archaic, outdated system needs to be revised. Legal education must be cutting-edge, along with highly sophisticated, highly trained, and dedicated law faculty. We must teach and equip our students with the latest skills, like those needed in advanced democracies, which is critical.

The biggest takeaway is "leading by example!" If I, as a teacher, attempt to adhere to rules strictly in their letter and spirit, most likely, it will shape and mould most, if not all, students intuitively.

It is a tall order! However, it is critical and pivotal for maintaining the standards and prestige of the school.

Punishment without fear and favouritism is a tool a teacher must apply as needed. Upon receipt of a disciplinary violation, the university authority should investigate the allegations from a student or a teacher most transparently and call it as it is. The university administration should not budge in favour or against the teacher or student. This practice will foster confidence in the rules and instil discipline in the NUST community.

The unspoken message is that actions have consequences! The application of the rules in the fairest and transparent manners we must strive for! I will close with Jalauddin Rumi's message*:* If everything around you seems dark, look again. You may be the light."

NUST JOURNAL OF SOCIAL SCIENCES HUMANITIES
Vol.10 No.1 (January-June 2024) pp. 15-38

Globalization and Happiness Across World Countries

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Abstract

Globalization encompasses interaction and interdependence among nations which may result in greater happiness through multiple channels such as socialization, access to global products, international peace and security attained through collaboration between governments, sustainable development through international organizations, and much more. The current study investigates the impact of globalization on happiness by taking data from eighty countries worldwide and covering the period of all seven waves of the World Values Survey (1981-2022). The impact of economic, political, and social dimensions of globalization on happiness are analysed separately. In addition, GDP per capita, Inflation, Democracy, Human Capital, Life expectancy, and Employment are additional regressors in the model. The uniqueness of this study lies in the fact that it is not only one of the few studies on the topic using longest span of panel data but also in furnishing regional analysis of globalization and happiness for Asia, Africa, Europe and Latin America, and Caribbean. Results of the Fixed Effects model estimation support the evidence that globalization fosters happiness across the sample of world countries and social globalization has largest impact as compared to economic and political dimensions. Regional analysis confirms that globalization has robust impact on happiness of Asian and Latin American regions but insignificant impact on African and European regions. Besides globalization, GDP per capita and human capital are found to have a positive and significant impact on Happiness. The study recommends development of those strategies aimed at maximizing the positive impacts of globalization while mitigating its potential negative consequences on well-being.

JEL classification: I31; F60; D60

Keywords: Human Capital; Happiness; Fixed Effects Model; Globalization; Panel Data

Article History: Received: February 4, 2023, Revised: May 8, 2024, Accepted: June 18, 2024, Published: June 25, 2024

DOI: *10.51732/njssh.v10i1.186*

1. INTRODUCTION

A core aim of every economy is to make its population skilled, promote education, overcome poverty & unemployment, control corruption, and terrorism and maintain international peace and security. To meet these standards every country tries its fullest by integrating with the global economy. Not only economies but international organizations and markets are equally involved in this process. The world today is more connected than ever before. Economies differ in terms of natural endowments and thus are highly dependent on each other. These dependencies had led to the foundation of the highly debated term "The Global village." Globalization reflects a scenario where states are economically, socially, culturally, and politically interconnected. ''Globalization is conceptualized as a process that erodes national boundaries, integrates national economies, cultures, technologies, and governance and produces complex relations of mutual interdependence'' (Dreher, 2006, p. 1842) as cited in Lin, Lahiri and Hsu, 2017).

Globalization is attributed for bringing diversity and competition all over the globe. It helps nations in making effective use of their natural endowments resultantly making them a competitor in the international market. Globalization is usually encapsulated across three dimensions namely, economic, social, and political globalization. Economic globalization majorly covers capital flows across countries (Shangquan, 2000). Social globalization, on the other hand, refers to sharing of information, ideas, and thoughts. Technological advancements that are a fruit of globalization have converted hours and days into minutes and seconds (Barker, 1999). Finally, political globalization is more related to the political relationships between economies. Greater political involvement leads to international peace. However, there may be some negative implications for states and humans. Continuous increase in the level of globalization may have resulted in threats like westernization, cultural proximity, loss of national identities and moral codes.

There has been a lot of debates regarding the effects of globalization and numerous studies are available that connect globalization with various aspects. One of them is the impact of globalization on happiness. Before moving towards the possible relationship that might exist between globalization and happiness, it is pertinent to explain the term happiness. Dr Ruut Veenhoven in his book "Conditions of happiness" has taken happiness as "the degree to which an individual judges the overall quality of his life as a whole favourably" (Veenhoven, 1984, p. 30). Globally, two components of happiness are identified, namely the cognitive and affective component of happiness. The cognitive component is determined by cultural wants and the affective component is determined by universal human needs. There are multiple channels through which globalization might affect happiness. There is this popular argument which connects globalization with quality of life that "Globalization brings good and bad news" (Henderson, 2002 as cited in Lin, Lahiri and Hsu, 2017).

In the present world, social media has become a hegemon which is shaping our lives and daily routines. People of every age tend to use social media. Different websites & social media apps are available that not only connect people round the world also share their daily life experiences in the form of pictures and videos. On the other hand, social media usage might have negative effects in terms of decreased family time, lessened social interactions and much more (Wright, 2000). Trade brings competition and provides a diverse range of production enhancing consumer choices, but foreign influence may not be appreciated and accepted by everyone. There are people that are not satisfied with the changes and want to return to the "good old days" that existed before industrial revolution (Veenhoven & Berg, 2013). When neighbours were fully aware of the problems of the person living next door. So, one needs to assess how globalization is affecting us and our daily life routines.

As far as happiness ranking of countries is concerned, world happiness report provides a comprehensive overview of global happiness rankings based on numerous factors including economic prosperity, social support, good health, freedom of choices, generosity etc.as per the report Northern European countries like Finland, Denmark, Norway, Sweden, and Iceland have been consistently ranked happiest among all world countries. Besides, northern European countries some western European countries like Switzerland, the Netherlands, and Germany have performed well in the ranking. There are some variations across Latin American countries on happiness rankings. Countries like Costa Rica and Uruguay are often ranked high while other countries like Argentina and Brazil have fluctuations in rankings. Similarly, Asian countries exhibit a wide range of happiness rankings. Southeast Asian countries such as Singapore, Japan, Taiwan, South Korea performed well in happiness ranking as compared to Middle east and South Asian countries. Few middle east countries with high happiness ranking include Qatar and UAE owing to their wealth and infrastructure.

Happiness levels in Sub-Saharan Africa countries tend to be more diverse. Some countries, like Mauritius and Ghana, demonstrate relatively high happiness scores attributed to factors such as improvements in living standards. However, other nations in the region face significant challenges such as poverty, disease, and conflict, resulting in lower happiness scores.

The study aims at analysing the impact of globalization and its different dimensions, namely, economic, social, and political, across different countries of the world. It analyses the direction and the extent to which globalization affects happiness at the country level and compares the impact across different dimensions. Wright (2000) posed an important question which is being addressed by this study. In Wright's words "Thanks to Globalization human beings are wealthier and freer than at any time during our long climb from the top of the evolutionary food chain to the highest rung of the corporate ladder. But are we happier? Put down that cell phone, ignore the incoming email, and consider the evidence" (Wright, 2000, p. 55). In the existing literature, few other studies have particularly focused on the topic of globalization and happiness, but these studies are either based on cross-sectional data or considered a particular region such as Asia or Africa and spans over a shorter period of 2006-2016.

The major contribution of this study is conducting both the global and regional analysis of impact of globalization and its different dimensions on happiness utilizing panel regression techniques. Sample covers eighty countries for the period 1981-2022. For this purpose, the study uses data of happiness from the World Value Survey (WVS), which is one of the pioneering data sources on happiness and subjective wellbeing with a much longer time span of over 40 years. Furthermore, the study also provides regional analysis for globalization's impact on happiness for Asia, Africa, Latin America & Caribbean, and Europe. Regional analysis may provide a different dimension to the relationship between globalization and happiness within certain geographical boundaries. Regional analysis is conducted for Asia, Africa, Latin America & Caribbean and Europe.

2. LITERATURE REVIEW

As far as the theoretical plausibility is concerned, there are multiple theories available. Beginning with the *Objective list theory* that considers objective things that are valuable in real life as source of happiness. These objective things include career, friendship, beauty, freedom, love, family, education, material comforts of life, good science, value etc. This theory is instrumental in explaining the relationship between globalization and happiness because most of the factors of the objective list are related to globalization. But there are some conditions where people with an ideal happy settled life as per objective list theory may not be happy (Martin, Seligman & Royzman, 2003). Therefore, according to the *Set Point Theory of Happiness*, human beings are programmed to experience certain degree of happiness irrespective of how life is going because happiness is an inner feeling (Veenhoven, 2009). Adaptation and habituation are the two channels stabilizing the happiness level in the long run (Gerstorf and Hulur, 2018). On the contrary, there is *Liveability theory* which puts forward the argument that there is a series of objective goals like income, education and health that affect the level of happiness of individuals. According to this theory, happiness of individuals is not fixed; rather, can be enhanced over some periods.

Besides these theories, proponents and opponents of globalization have put forward certain arguments such as: globalization leads to an increased gap between the rich and the poor. However, in absolute terms income growth at least improves their absolute living standards (Wright 2000). Therefore, globalization is believed to bring freedom of choice through increased income resulting in individuals having increased access to a variety of products without worrying about the budget (Uchida & Ogihara (2012). Globalization is believed to be positively related to happiness both in absolute and relative terms due to its spillover effects. No matter how poor the population might be, if that population is surrounded by poorer countries, their happiness level will be higher because they consider themselves rich in relative terms (Lin, Lahiri and Hsu, 2016). Furthermore, Veenhoven et al. (2013) also concluded that the level of modernity that the world is enjoying today is positively influencing the world population. Wright (2000) argued that once a society attains a fair living standard, further money will not bring happiness. Wright (2000) further argued that workers living abroad are earning high, but their level of happiness is low because of being away from their families and homes.

The impact of globalization on the quality of life of individuals may be negative because it leads to loss of national identity but some of the people appreciate the freedom that is offered due to globalization (Starr, 2005). Finally, Sirgy *et al.,* (2004) is of the view that impact of globalization on happiness can be either positive or negative that may offset each other; therefore, it is difficult to conclude about the direction of overall impact.

In economics, there is limited empirical literature on the impact of globalization on happiness. The determinants of happiness or the happiness functions on the other hand have been widely studied using both the panel and the cross-sectional data. Three recent studies in this context are worth mentioning. Firstly, Stéphane and Noumba (2024) has analysed the impact of globalization and its different dimensions on 34 African countries for the period 2006-2019. Overall, globalization and its economic and political dimensions have positive impact on happiness while social globalization lowers happiness in the study. Furthermore, the study has shown that the effects of globalization on happiness is conditional on democratization, level of human development and natural resources. Secondly, Kumari *et al.,* (2022) in their analysis of socio-economic conditions on happiness of twenty-one emerging market economies have concluded a negative impact of globalization on happiness for the period 2006-2019. Thirdly, Kumari *et al.,* (2021) has confirmed a positive long-run and negative short-run relationship between globalization and happiness for Asian lower middle-income countries for the period 2006-2016. Authors have utilized Westerlund co-integration technique and Pooled Mean Group Estimator for the analysis.

Retrospectively, Di Tella and MacCulloch (2006) argued that globalization leads to changes in macrocosmic variables and these changes affect the happiness of the economies. Lin, Lahiri and Hsu (2016) examined the impact of widespread globalization on happiness using data from 145 nations. The results of two stage least squares (2SLS) regression with spatial lag confirmed a positive relationship between the two variables. Further, they found an inverted U-shaped relationship between average happiness and happiness inequality, and they named it as the *Happiness Kuznets curve*.

Veenhoven et al. (2013) incorporated industrialization, size of services sector, globalization, democracy, market economy, education, urbanization, and per capita income as independent variables while capturing both the cognitive and affective part of happiness. All the variables except the size of the services sector were found to foster happiness. Uchida & Ogihara (2012) in their study for Japan have indicated that globalization can only affect happiness by bringing more freedom of choice and that is possible through increase in wealth. While Sirgy et al. (2004) identified that globalization has both a positive and negative impact on happiness and these opposite forces make it arduous to analyse the overall impact. Finally, using the data of around 125 countries, Sajjad et al. (2019) analysed the relationship between globalization, happiness, and entrepreneurship. Authors concluded that happier and globalized nations produced more entrepreneurs. In a country study for China, Bianjing (2016) showed that areas with relatively high globalization levels are less happy.

Tsai (2007) investigated the impact of globalization on human well-being. Focusing on results of different dimensions of globalization; economic and social globalization have a negligible impact on the Human development Index (HDI); while political globalization has a significant positive impact on Human well-being. Globalization fosters human development and contributes to poverty reduction too. Each economic, social, and political dimension contributes towards the overall positive impact of globalization.

The literature comprises of several studies analysing the impact of globalization on subjective wellbeing measured through either life satisfaction or happiness. Most of the studies are panels in nature but focus on a particular region or have used a shorter time span of data. This study's primary contribution lies in conducting a comprehensive analysis, both globally and regionally, of the impact of globalization and its various dimensions on happiness, employing panel regression techniques. The sample encompasses eighty countries spanning from 1981 to 2022. To achieve this goal, the study utilizes happiness data from the World Value Survey (WVS), a pioneering source of data on happiness and subjective wellbeing with a time span exceeding 40 years. Additionally, regional analyses are provided for Asia, Africa, Latin America & the Caribbean, and Europe. These regional analyses offer insight into how the relationship between globalization and happiness varies within specific geographical boundaries.

3. METHODOLOGY AND DATA

Different studies have analysed the impact of different socio-economic variables on happiness/life satisfaction using the country level data. Together with globalization, other commonly used plausible determinants of happiness are GDP per capita, inflation, employment, democracy, human capital, and life expectancy. Adapting from studies of, Stéphane and Noumba (2024), Kumari *et al.,* (2022) and Perovic and Golem (2010), the specific model of the study takes the following form:

$$Hap_{it} = \alpha_{oi} + \beta_1 G_{it} + \beta_2 PCI_{it} + \beta_3 Inf_{it} + \beta_4 Emp_{it} + \beta_5 Dem_{it} + \beta_6 LE_{it} + \beta_7 HC_{it} + \mu_{it} \quad ...(1)$$

where, Hap_{it} is happiness measured through the percentage of people in a country who are either very happy or quite/rather happy. G_{it} is globalization measured through KOF index, PCI_{it} is per capita income growth, Inf_{it} is inflation rate, Emp_{it} is the employment in millions, Dem_{it} is the democracy measured by polity index, LE_{it} is life expectancy and HC_{it} is human capital. It is worth mentioning that Globalization is measured across three dimensions namely economic, political, and social (Dreher & Axel, 2006). Equation 1 is estimated separately for overall globalization, economic globalization, social globalization, and political globalization. The study also encapsulates regional analysis of different continents of the world by estimating equation 1 for four different regions.

The focused variable in this study is globalization. Happiness level in a country is believed to be impacted by the level and extent of globalization. On the one hand, globalization is believed to improve freedom of choice through increased income and resulting in better access to a variety of products. On the other hand, globalization leads to an increased gap between the rich and the poor leading to a negative impact on their wellbeing. Sirgy *et al.,* (2004) have termed the relationship between well-being and globalization as a "*double-bladed*" phenomenon encapsulating both the positive and negative forces offsetting each other, which makes it difficult to determine the aggregate effect.

Per capita income is one of the control variables and is believed to be instrumental for happiness and subjective wellbeing because money is the core factor that helps people meet their basic needs. Income facilitates consumer choices and freedom resulting in better living standards and happiness. Thus, income and happiness are believed to be positively related, but they reach a certain level of income after which more income may not bring any happiness (Wright 2000). At the core of income happiness relationship is the *Easterlin Paradox* (Hernandez-Murillo 2010). Easterlin utilized happiness surveys of almost nineteen countries and concluded that people who earn more or belong to higher income groups are likely to report higher levels of happiness. On the contrary, at the international level, average happiness does not increase with an increase in country's average per capita income.

The next regressor is inflation rate; controlling inflation is the core aim of every economy because a higher level of inflation reduces the purchasing power of individuals, resultantly affecting the living standards and have welfare consequences. Shiller (1996) is of the view that inflation leads to a simultaneous decline in happiness as people perceive a rise in inflation as a fall in their lifestyle. Further, inflation brings bad news for the people with fixed wages as compared to the higher income groups, therefore, the poor are more concerned about inflation as compared to the rich (Easter & Fischer, 2001).

As far as employment as an explanatory variable is concerned, work plays a key role in shaping our lives and routines. It makes up such an important part of our lives. Firstly, jobs are a source of income and thus jobs are conducive to happiness (Neve and ward, 2017). Employment affects a person's happiness not only through the salary attached to it but also some non-monetary benefits associated with employment. Having a job can indeed play a significant role in shaping one's social circle and daily routine and can have a positive impact on overall well-being and happiness. The sense of being employed also keeps the individuals satisfied, thus people with jobs identify their quality of life more favourably than the unemployed persons (Clark and Oswald, 1994).

The next explanatory variable in the model is the democracy index. Democracies are attributed to ensure happiness of the public because such governments are elected on the willingness of individuals. Democratic governments are believed to be more answerable to the public. Democracies have the potential to enhance individuals' satisfaction and happiness through larger investments in social welfare and the social sector of the economy. (Frey & Stutzer, 2000). The model also includes Human Capital as an explanatory variable measured through years of schooling and returns to education. A direct explanation for the positive relationship between education and income is the impact of education on income. Moreover, education influences happiness by fostering the development of personality traits and boosting individuals' self-esteem and confidence levels. Individuals with higher education are likely to be happier because of extensive interaction and involvement with the modern world (Chen, 2012). Alternatively, Crocker (2002) explained that in the modern era human capital is equally important as physical and financial capital and the author emphasized on the importance of ideas and innovations for subjective well-being and happiness.

In equation (1), life expectancy is used as a proxy for health and health is rendered as one of the key determinants of happiness. The statement money cannot buy happiness fits here. Good physical health contributes to happiness because healthy people are more likely to engage in activities they enjoy (Gerdtham and Johannesson, 2001). On the other hand, poor physical health causes discomfort and reduced ability to enjoy life leading to lower happiness.

Data for empirical analysis is of pooled cross-sectional nature. Data covers eighty countries and encompasses all the seven waves (1981-84, 1990-94, 1995-98, 1999-2004, 2005-09, 2010-14, and 2017-2022) of WVS as seven time-series observations. Since World Values Survey (WVS) is most common source of data for happiness and subjective wellbeing and has gained great importance due to its credibility and open availability for research purpose.[2] Sample is selected based on the data availability. Its data is especially useful for analysis because it covers most of the countries in the world including developed, developing, emerging and less developed countries. Considering the variation in the countries included in every wave of WVS and the availability of data for control variables, the sample is unbalanced. The data description and sources for each variable is given in Table 1 and Table 2 presents brief descriptive statistics of the sample. The sample includes a total of 222 observations.

Table 1. Variables and Data Sources

Variable	Indicators	Data Sources
Happiness (Hap_{it})	Respondent's perceived level of happiness, 4 for very happy, 3 for quite happy/rather happy, 2 for not very happy, and 1 for not at all happy.	World Values survey (A008)
Economic Globalization (EG_{it})	Actual flows and restrictions	KOF Globalization index
Political Globalization (PG_{it})	Number of embassies, memberships in international organizations, participation in UN missions and international treaties	KOF Globalization index
Social Globalization (SG_{it})	Personal contact, information flows and cultural proximity.	KOF Globalization index
Overall Globalization (G_{it})	Overall globalization	KOF Globalization Index
Per capita income (PCI_{it})	Annual % growth of GDP per capita	World Development Indicators by World Bank
Democracy (Dem_{it})	Polity II index	Polity V project 2015
Human Capital (HC_{it})	Human capital index, based on years of schooling and returns to education.	Penn World tables 9.1
Employment (Emp_{it})	Number of persons engaged (in millions)	Penn World tables 9.1
Life Expectancy (LE_{it})	Life expectancy (in years)	World Development Indicators by World Bank
Inflation (Inf_{it})	Consumer price Index (% annual)	World Development Indicators by World Bank

[2] The aim is to capture variations in beliefs, attitudes, and values around the world. Furthermore, it also includes personal finances, happiness feeling, satisfaction with life, satisfaction with the political conditions and much more.

As mentioned in Table 1, WVS measures happiness on an ordinal scale through the question: "*Taking all things together, would you say you are 1) very happy, 2) quite happy/rather happy, 3) not very happy, 4) not at all happy*"[3]. WVS measures happiness at the individual level, however, to aggregate it at the country level, the cumulative percentage frequency of the first two categories of the scale, that is, very happy and quite happy/rather happy, are taken. The data for globalization is taken from KOF Index (Dreher, 2010) which covers the economic, political, and social dimensions of globalization. The data for inflation, GDP Per capita, and life expectancy is sourced from World Development Indicators (WDI). Data for employment and human capital index is retrieved from Penn World Tables (PWT). Democracy data is measured using the polity IV variable which ranges from -10 (strongly autocratic) to +10 (strongly democratic) (Marshall and Gurr 2020). Averages of each control variable have been taken for time intervals as per the WVS wave.

[3] Earlier versions of WVS include the 2nd response as '*quite happy'* while the later versions replace the option '*quite happy*' with '*rather happy'*.

Table 2. Descriptive Statistics

Variables	PCI_{it}	INF_{it}	LE_{it}	Dem_{it}	OG_{it}	EG_{it}	SG_{it}	PG_{it}	Hap_{it}	Emp_{t}	HC_{it}
Number of Obs.	222	222	222	222	222	222	222	222	222	222	222
Std. deviation	2.6	120.6	7.2	5.9	13.0	15.4	18.2	13.2	12.5	134.5	1.5
Maximum	10.9	1667.1	84.2	10	89	94	89	98	98.1	791.7	22.8
Minimum	-8.8	-0.5	45.9	-12	34	17	15	31	33.4	0.02	1.13
Mean	2.6	20.6	72.5	5.2	64.9	56.1	60.2	78.3	81.5	52.1	2. 7

4. RESULTS AND DISCUSSIONS

Table 3 gives the estimation results of the fixed effects model. The study uses the Hausman test to determine the use of fixed effects model. Chi square value for the Hausman test is 39.17 which is significant at one percent level of significance favouring the use of fixed effects model. Equation 1 is separately estimated for overall globalization and its each dimension, economic, social, and political and results are reported accordingly. Column 1 in Table 3 presents all the explanatory variables in the analysis. Column 2 shows the results of the estimation of impact of overall globalization on happiness. Column 3 shows the regression results for economic globalization while columns 4 and 5 show the results for social and political dimensions of globalization, respectively. The coefficients for each variable for all the four regressions are reported in their respective columns along with the standard errors in parenthesis. The coefficient of overall globalization is positive and is statistically significant at 1% level of significance. It implies that, keeping other variables constant, one unit increase in overall globalization will increase happiness by 0.54 percent. The results of this study are in line with the relationship identified by Lin, Lahiri and Hsu (2016) and Veenhoven et al. (2013). Starting from the initial stages of trade to the complex international trade system, there are multiple channels that explain the positive relationship between globalization and happiness. It not only brings technology but is a source of movement and transportation of knowledge across boundaries. It brings diversity in cultures, introduces newer traditions and civilizations. It generates employment opportunities by increasing the demand for goods and services resulting in betterment of subjective well-being of humans. Besides, globalization if succeeds in bringing happiness will pave ways for integration in the neighbouring countries through its spillover effects.

Table 3. Impact of Globalization on Happiness: A Global Analysis

Variables	Overall Globalization	Economic Globalization	Social Globalization	Political Globalization
OG_{it}	0.5492*** (0.1802)	-	-	-
EG_{it}	-	0.3012*** (0.1098)	-	-
SG_{it}	-	-	0.3788*** (0.1657)	-
PG_{it}	-	-	-	0.3337*** (0.1261)
PCI_{it}	0.9059*** (0.3425)	1.0503*** (0.3630)	0.9886*** (0.3545)	1.1117*** (0.3699)
DEM_{it}	0.1058 (0.1554)	0.1422 (0.1782)	0.1652 (0.1638)	0.1063 (0.1632)
HC_{it}	0.5281*** (0.1007)	0.5520*** (0.1089)	0.5347*** (0.1063)	0.5173*** (0.1002)
EMP_{it}	-0.0361 (0.0416)	-0.0036 (0.0497)	-0.0436 (0.0359)	-0.0053 (0.0421)
LE_{it}	0.0394 (0.5608)	0.6482 (0.4180)	0.0951 (0.6572)	0.6637 (0.4173)
INF_{it}	-0.0091 (0.0015)	-0.0022 (0.0016)	-0.0024 (0.0016)	-0.0019 (0.0018)

Note: Standard errors are reported in (). ***, ** and * show 1%, 5% and 10% level of significance, respectively. Results are estimated using linear regression with fixed effects model. The model is tested for cross-sectional dependence and heteroskedasticity. There was no problem of cross-sectional dependence while panel corrected standard errors for heteroskedasticity are reported.

Economic globalization also shows a positive impact on happiness with a coefficient value of 0.30 indicating that one unit increase in economic globalization in an economy will increase happiness of individuals by 0.3%. These results are in line with the study of Dluhosch & Horgos (2012) and Tsai (2007). Economic globalization majorly refers to the movement of capital in and out of the country along with international trade. The benefits of economic globalization are that it contributes to the movement of technology and skills in the developing world. Further, economic globalization leads to the creation of employment opportunities in foreign countries that contribute to human capital and is a source of flow of foreign exchange in the economy. Trade leads to the availability of a variety of products as well as increase in the efficiency levels of domestic industries as they want to compete with their products in the international market. Economic globalization is believed to provide a source of earnings to every individual and from the aerial view it benefits the economy as well. Economic globalization facilitates individuals with diverse range of varieties at different prices. These aforementioned factors contribute towards betterment of living standards through the income channel and thus making people more and more satisfied and happy with the life they are living.

Inventions like the internet has made people of every age active on social media but the question here is that, is this social globalization favourable for happiness. In estimating the impact of social globalization on happiness, results indicated a positive and significant impact of social globalization on happiness. The coefficient shows that one unit increase in social globalization will increase happiness by 0.37%; a value that is higher than the coefficient for economic globalization. Tsai (2007) has also confirmed the positive relationship between social globalization and happiness. In a world where people are connected without any wires or visible electronic equipment, voices, text messages and graphics are travelling in the form of signals through air without any interruptions; and thus, the world has become more connected than ever. These are all the fruits of social globalization the entire world is enjoying today. Sharing daily life experiences over the internet is a source of satisfaction according to Wright (2000). Social globalization is a source of introduction to new cultures. The products, magazines, brands, and social media apps that are popular around the world create a demonstration effect and people feel a sense of satisfaction from consumption or usage of those goods. Instagram, Facebook, twitter all these platforms have led to increase the interactions between humans. People often spend hours and feel satisfied in sharing their happiness with others. These are some of the channels through which social globalization can contribute to happiness.

The third dimension under study is political globalization. The results indicate a strong positive relationship between political globalization and happiness. The coefficient is positive and is statistically significant at 1% level of significance. Results indicate that a unit increase in political globalization will increase happiness by 0.33%. These results prove the evidence provided by Tsai (2007) that political engagement or political globalization contributes significantly towards happiness. Politics play a key role in shaping the lives of human beings. The policies and steps taken by the government of economies affect the lives of the public on another level. Today governments are collaborating and are working for collective good. The best examples can be the sustainable development goals (SDGs) and the Millennium development goals (MDGs) that are the core policy targets on individual as well as global level. Through the collective efforts made by the economies, we see improvements around the world. However, some economies (less developed) are quite short of the target than other economies (developed), but the United Nations is continuously making efforts to cover the gap. Political collaboration leads to the development of strong ties between economies fostering economic activities across borders and affecting the lives of people in both the economies. It is a major source of maintaining international peace and security. Politics in the international arena and collective struggle for common benefits will lead to higher happiness because of social globalization.

Moving towards other regressors in Table 1, the coefficient for GDP per capita growth is positive and statistically significant at 1% level of significance. This shows that a 1% increase in GDP per capita growth will lead to an increase in happiness of the country by 0.9%. Income is a source of higher living standards as it facilitates the consumer with good health facilities, nourishment, education, sanitation, and housing facilities. These are all the things most individuals wish for and the basic factors which might contribute to a person's satisfaction with his or her life. Results of this study are supported by previous evidence on the relationship identified by Galletta (2015); Hussien & Heshmat (2010); Abounoori & Asgarizadeh (2013); Frey and Stutzer (1999) and Ribeiro & Marinho (2016). Some studies have confirmed that poorer nations report lower levels of happiness, but income might not be the sole reason behind this lower level of happiness. Relative condition of government stability and law and order might be some other factors contributing towards higher happiness in developed nations (Diener et al. 1995).

Human Capital in this study has been taken as a proxy for education whose coefficient has a positive sign and is statistically significant at 1% level of significance. The value of the coefficient is 0.52 indicating that one unit increase in human capital index will increase happiness by 0.52%. Many other studies have confirmed the positive relationship between happiness and education (Blanchflower and Oswald, 1994; Albert and Davia 2005). Education according to scholars and theorists is a major force for moving the imperfect man closer to perfectness in their life. Being educated makes you independent and helps create your own identity and repute within society. A doctor, engineer, economist, banker, socialist, preacher, teacher, botanist whatever it is, it gives people an identity that they have earned on their own. The positive relationship between human capital and happiness is also furnished by the studies of Chen (2012) and Cunado and Gracia (2012). Coefficients for democracy, life expectancy, inflation and employment are insignificant in Table 3.

As mentioned earlier, regional level analysis for the impact of Globalization on happiness has also been conducted and the results are reported in Table 3. For the sake of brevity and focus being the impact of globalization, only the coefficients for globalization and its different dimensions are reported for each region in Table 4.[4]

Starting from the left side of the column we see Asian economies being significantly positively affected by globalization. The coefficient of overall globalization is quite high indicating the fact that Asian population undoubtedly enjoying the fruits of globalization incidence. Though, coefficient of economic

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[4] STATA output of results is reported in an appendix as proof.

globalization is statistically insignificant; but both social and political dimensions of globalization are fostering the happiness of Asian population.

Table 4. Impact of Globalization on Happiness: Regional Analysis

Variables	(1) Asia	(2) Africa	(3) Latin America & Caribbean	(4) Europe
Overall Globalization	0.7398*** (0.2985)	0.5289 (0.3804)	0.9729*** (0.4399)	-0.0099 (0.3939)
Economic Globalization	0.1984 (0.1444)	0.3591 (0.2662)	0.6723*** (0.3659)	-0.2230 (0.2153)
Social Globalization	0.4698*** (0.2147)	0.0208 (0.3973)	1.0148*** (0.5656)	0.1982 (0.2831)
Political Globalization	0.5882*** (0.2230)	0.6589 (0.4278)	0.2713 (0.2461)	0.0987 (0.2051)

Note: Standard errors of coefficients are reported in (). ***, ** and * show significance at 1%, 5% and 10% level of significance, respectively. Results are estimated using linear regression with fixed effects model.

However, the coefficient of political globalization is higher than social globalization with the value of 0.5882. Moving on to the next column we see the continent of Africa for which the coefficient of globalization and the dimensions are positive, yet the regression coefficients are all insignificant. For Latin American and Caribbean region, the coefficients of globalization are significant except for coefficient of political globalization. Overall globalization is having a robust positive and significant impact on happiness in this region with the coefficient value of 0.9729. This coefficient is the highest among all regions. As is clear from Table 4, regression results indicated comparatively greater impact of social globalization on happiness for Latin American region where the coefficient value of social Globalization is highest in the whole analysis. Its value is 1.0148 which shows that every time social globalization increases in Latin American Economies, the region experiences an increase of happiness by 1.041%. The coefficient value of political globalization is positive but statistically insignificant. Surprisingly for

European economies no significant relationship between happiness and globalization is found in Table 3. It is worth mentioning that regions where most and least globalized economies are located did not show any significant results as both Africa and Europe ended up with insignificant coefficients.

5. CONCLUSIONS

Subjective well-being has been gaining increasing attention, primarily due to its significant impact on an overall human's well-being, as it encompasses emotions, values, and personal experiences. Globalization, on the other hand, is a complex process fostering interconnectedness and mutual reliance among nations through various means such as social interaction, access to global products, international collaborations for fostering peace and security, initiatives by International Organizations (IOs) for sustainable development, and economic interdependence among nations.

Growing interest of economists and researchers in the field of happiness economics has led to the development of various measures of calculating self-reported happiness. The focused independent variable of this study is globalization, a concept that was first introduced by Theodore Levitt. The success stories like that of China motivated the governments of different countries to integrate into the global system and get benefitted. The current study is aimed at analysing the impact of globalization on self-reported happiness of the individuals.

Estimation of the model depicts a positive and significant relationship between happiness and overall globalization with a coefficient of 0.54. The first dimension of globalization is economic globalization, and it is also positively related with happiness with the coefficient value of 0.30. Social intrapersonal relationships among individuals are also found to be a stimulating force towards happiness and its coefficient value is 0.37. In the end political engagement in the international system also Favors the happiness of individuals in the countries. One of the main objectives of the study was to see that which dimension of globalization relatively high influence on happiness has so the coefficients suggest that out of the three dimensions, social globalization is the one, which is affecting happiness at the highest level followed by political and surprisingly economic globalization in the end. Results of the study imply that in the current era technology and communication advancements are so influential that its effects are surpassing those of income and economic factors.

The study concludes that globalization has been a major driving force behind harmonizing cultures, higher integration of economies in the international market and finally in fostering happiness. Regional analysis of globalization and happiness have shown that happiness levels of Asian and Latin American and Caribbean economies are highly positively impacted by globalization. On the other hand, African economies did not show any significant results for the impact of globalization on happiness. This might be due to the reason that this region is not as integrated as compared to rest of the world, so the globalization incidence has negligible impact on individuals in this region. Similar insignificant results were seen for Europe. The only explanation that can be given is that these economies have reached a certain limit of happiness that is derived from globalization incidence so now there's minimal effect of any changes in globalization on lives of people in Europe. Furthermore, the results of the fixed effects model provide evidence that per capita income growth and human capital are significantly positively related with happiness.

Keeping in mind the undeniable importance of happiness in the global world crucial steps are required in this direction. In the light of empirical results of this study, for a better future and wellbeing of individuals and societies the study suggests the following policy recommendations.

- Every Government should appoint officials for happiness goal.
- Governments should reserve a certain amount of expenditure for investment in education and health.
- Regions that are lagging in terms of economic development, such as Africa, should be given proper attention so that the situation might improve.

Future work on the topic can be extended by incorporating different types of globalization such as de jure and de facto or by analysing the mediating role of other variables in the relationship between globalization and happiness.

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NUST JOURNAL OF SOCIAL SCIENCES HUMANITIES
Vol.10 No.1 (January-June 2024) pp. 39-60

Impact of Cooking Energy Sources on Respiratory Health in Pakistan

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Abstract

Around 2.8 billion people worldwide utilize biomass energy sources, including firewood, animal dung, agriculture residue, kerosene, and coal, mainly for cooking. Ninety percent of this gigantic number lives in rural areas. Several studies have linked burning biomass fuels with respiratory diseases, the primary disease being asthma. However, most of these studies do not directly consider the endogeneity of choice of cooking energy sources by the household. To address this problem, this study applies the instrumental variable (IV) approach to estimate the correlation between cooking energy sources and respiratory health among household members by using Pakistan's Rural Household Panel Survey (RHPS). Results based on OLS estimates provide evidence for the impact of cooking energy sources on respiratory health particularly for asthma. Surprisingly, the results based on 2SSL suggest no significant relationship between using energy sources and asthma prevalence. This result can be because residences and cooking places in rural houses of Pakistan are generally open and airy compared to their urban counterparts, reducing the chances of lung disease prevalence due to cooking fuel use.

Keywords: Energy Consumption; Cooking Fuels; Respiratory Health; Instrumental Variable; Household Behaviour.

Article History: Received: March 19, 2024, Revised: May 16, 2024, Accepted: May 24, 2024, Published: June 25, 2024

DOI: *10.51732/njssh.v10i1.184*

1. INTRODUCTION

The developing world's access to efficient and clean energy sources remains inadequate (Kaygusuz, 2012). Households in developing countries rely on biomass fuels, including firewood, agriculture residue, and animal dung, for energy use (Mirza & Kemp, 2011). Although access to electricity has improved significantly in recent years, its usage is limited to lighting and running appliances such as fans and washing machines (Cozzi *et al.,* 2017; Fischer, 2008; Dubin & McFadden, 1984). For cooking, it is estimated that about 2.8 billion people across the world (about 90% of the rural population) still consume traditional biomass fuels (Cozzi *et al.,* 2017). Moreover, the transition to clean cooking fuels and technologies supports multiple SDGs (Rosenthal *et al.,* 2018). Similarly, most rural households in Pakistan also consume biomass fuels for cooking and heating purposes (Jan *et al.,* 2012; Mirza & Kemp, 2011; Moeen *et al.,* 2016; Ali et al. 2019; Imran & Ozcatalbas, 2020).

These biomass energy sources have several socioeconomic consequences, particularly for health and welfare (Pachauri *et al.,* 2013; Santana *et al.,* 2021; Qiu *et al.,* 2023). The use of biomass fuels for cooking is linked to various health hazards such as tuberculosis, cancers of the upper aerodigestive tract and the uterine cervix, low birth weight, and stillbirth due to the close exposure of household to air pollution from these sources (Smith *et al.,* 2014; Wylie *et al.,* 2014; Faizan *et al.,* 2019). It is especially pointed out that using biomass fuels impacts respiratory diseases, including asthma (Dutt *et al.,* 1996; Smith, 2006; Kim *et al.,* 2011; Qiu *et al.,* 2023). Asthma is a chronic respiratory disease, and around two hundred and thirty-five million people in the world currently have asthma. Three hundred and eighty-three thousand died due to its severity.[5]

Accordingly, many studies have been conducted to examine the impact of biomass fuels on respiratory health, including asthma. From the medical point of view, studies have found that biomass fuels have a severe effect on respiratory diseases (Robin *et al.,* 1996; Sümer *et al.,* 2004). It is argued that indoor household pollution due to biomass fuels can be a significant risk factor for asthma in children by analyzing asthma patients (Daigler *et al.,* 1991; Ehrlich *et al.,* 1996).

These studies discuss that the effect of pollution on human health arises

[5] http://www.who.int/respiratory/en/ accessed on March 1, 2024.

due to biomass fuels in the household, which are mainly harmful to respiratory health. This argument based on medical evidence is also supported by environmental studies, which claim that biomass fuels severely impact respiratory health (Smith *et al.,* 2014).

The studies discussed that biomass fuels contained pollutants (particulate matter, Sulphur dioxide, benzene, and carbon monoxide), which severely impact respiratory health (see Chafe *et al.,* 2014; Smith *et al.,* 2013). It is also argued that the incomplete combustion of energy sources is associated with respiratory diseases (Kim *et al.,* 2011). According to studies with medical and environmental arguments, biomass fuels are related to respiratory diseases, but whether they have some negative impact also depends on socioeconomic conditions such as the house's structure, having a separate kitchen, and cooking stoves.

Several studies using econometric or statistical techniques examine the impact of cooking energy sources on respiratory health; however, these studies use a simple regression method. For example, Jamali *et al.,* (2017) analysed the effects of biomass fuels for cooking in the household by using multiple logistic regression models in Pakistan. They found a significant impact of biomass fuels on respiratory health. Boadi and Kuitunen (2006) also found a considerable negative effect of cooking energy sources on respiratory health in Accra, Ghana. Dutt et al. (1996) examines respiratory illness specifically for women among the two groups using biomass fuels for cooking compared to using kerosene and liquefied petroleum gas. They found a significant occurrence of respiratory disease among the women using biomass fuels for cooking. The studies also examine the impact of cooking energy sources on asthma (see Ehrlich *et al.,* 1996; van Gemerta *et al.,* 2011). They found that house pollutants arise due to biomass fuel smoke, a significant risk factor for asthma in sub-Saharan Africa.

Many studies also discussed the insignificant impact of biomass fuels on respiratory infections, including asthma (Desalu *et al.,* 2010; Schei *et al.,* 2004; Shah *et al.,* 1994). Desalu, Adekoya, and Ampitan (2010) conducted a correlation study based on a cross-sectional analysis of two hundred and sixty-nine adult women in Nigeria. They did not find a strong correlation between cooking energy sources and respiratory diseases, which include breathlessness, nasal symptoms, and chronic bronchitis, which could lead to asthma. Using simple regression, Schei et al. (2004) also found less evidence for asthma in childhood if the household uses firewood with a fireplace. Shah et al. (1994) did not find risk factors in the use of biomass fuels based on multivariate logistics regression analysis.

This paper contributes to the literature by examining the impact of energy sources on asthma prevalence in Pakistan. Unlike previous studies, this study uses an instrumental variable (IV) approach to consider the endogeneity in the choice of energy sources by the household. This study also conduct the analysis separately for adults and children to examine the differential impact of the cooking energy source on respiratory health. Further, this study also discuss the differential impact of cooking energy sources depending on the household structure.

The analysis is based on the Rural Household Panel Survey (RHPS), conducted by the International Food Policy Research Institute (IFPRI) and Innovative Development Strategies (IDS) in 2014. OLS estimates provided significant results for the causal relationship between asthma prevalence and the use of biomass energy sources with or without district-fixed effect[6]. However, 2SLS results found no impact on asthma prevalence from the use of energy sources. This study's findings contribute to the literature by discussing the impact of the use of energy sources on respiratory diseases.

The remaining part of the paper is organized as follows. Section two explains the data of RHPS. The identification strategy and econometric model are described in section three. Section four discusses the estimated results and the conclusion provided in the final chapter.

[6] Districts are third-order administrative divisions of Pakistan, and there are one hundred and fifty-four districts in Pakistan.

2. DATA

The paper utilizes data from the Rural Household Panel Survey (RHPS), Round III, conducted by the International Food Policy Research Institute (IFPRI), and Innovative Development Strategies (IDS), which was conducted in 2014. A multistage sampling methodology was used for the data collection. The data consists of nineteen districts of three provinces: twelve from Punjab, five from Sindh, and two from Khyber Pakhtunkhwa (KP). The total number of villages was seventy-six, with four villages from each district, and twenty-eight households were randomly selected from each village. Therefore, two thousand one hundred and twenty-four households were interviewed for the survey (Nazli & Haider, 2012).

This study used round three of RHPS because detailed information on household energy use was available. Round three data comprised 1,869 households, with 1,177 in Punjab, 486 in Sindh, and 206 in KP. After cleaning the data, 1,716 households remain in the sample, with 1,156 in Punjab, 483 in Sindh, and 77 in KP province for the analysis. Appendix Table 1 provides detailed summary statistics of the data.

In RHPS, the household has reported asthma prevalence in the health module for each household member. The asthma prevalence in the household is defined as 1 if at least one of the household members has asthma. The households can choose between natural gas, firewood, animal dung, and plant residue for cooking. Natural gas is a modern energy source, whereas other sources are traditional. Household characteristics, including gender and education of the household head, number of household members in the household, size of cultivated area, ownership of livestock, tobacco smoking of the household member, and structure of the house, are also reported in the data. The village-level characteristics, such as the distance of the village to the nearest city, the type of internal road, and gas availability at the villages, were taken from a community survey of the RHPS. Most importantly, the study employed Global Positioning

System (GPS) data on the household location using DIVA-GIS[7] to construct the distance variable from the household to the nearest forest. Footnote: Figure 1 shows the location of the sample household.

Table 1 presents the household energy consumption sources for cooking. Data shows that households use several energy sources for cooking, such as gas, firewood, agriculture residue, animal dung, and other biomass. Firewood was consumed by most households (sixty-nine percent), followed by agriculture residue (fourteen percent). Natural gas is an efficient and modern energy source, but it is only consumed by 9.79 percent of households for cooking in rural Pakistan. Overall, 90 percent of households consumed traditional energy sources for cooking, with a significant contribution made by firewood.

Table 2 summarizes the prevalence of asthma in the household with each energy source. The data shows that overall, 14 percent of households suffer from asthma. While 9.5 percent of households with modern energy sources have asthma prevalence, 14.5 percent of households who consume traditional energy sources for cooking suffer from asthma.

3. IDENTIFICATION STRATEGY AND MODEL

The main challenge for estimating the causal effect of traditional energy sources on asthma prevalence in households is the endogeneity of the household's choice of cooking energy sources. This section describes the identification strategy to deal with this problem. Since the main dependent and explanatory variables are in binary form, this study used a linear probability model (LPM), which can be expressed as:

$$\mathrm{Y}_i = \beta_0 + \mathrm{X}_i\beta_1 + \acute{\gamma} K_i + \mathrm{U}_i \qquad \text{... (1)}$$

The index i (i=1, 2, 3 …n) denotes household. Y_i represents an indicator variable that equals one if any member has asthma in household i. X_i, the variable of that

[7] http://www.diva-gis.org/ accessed on February 25, 2024.

equals one if the primary energy source is the traditional energy source used for cooking in households. K_i is a vector of various household-level characteristics. The estimated coefficient $\tilde{\beta}$ themselves are the marginal effects.

Households endogenously determine their energy sources for cooking from natural gas, firewood, animal dung, and plant residue. To circumvent this problem, an instrumental variable (IV) approach is appropriate. The instrumental variables include the distance from the household to the nearest bushes and forest, gas availability at the village, and household ownership of livestock. This study also includes the district-fixed effect to control for all region-specific changes.

4. RESULTS AND DISCUSSION

4.1. First-stage Estimates

The first-stage estimates are shown in Appendix Table 2. As discussed, the instruments are the distance from the household to the nearest bushes or forest, gas availability in the village, and livestock ownership by the household. The estimation model includes each instrument separately from columns one to three and all three instruments together in columns four for a specification that includes household characteristics, village characteristics, and district fixed effect. Household characteristics include smoking of household members, number of females in the household, number of rooms in the house, the structure of the house, gender and education of household head, cultivated area, and household expenditures. The village characteristics, such as distance from the village to the nearest city and the developed road, also include the robustness check. The village-level variable is used for the robustness check. Therefore, cluster standard error at the village is used for the estimates.

The first-stage estimates show a strong correlation between the instruments and the choice of energy sources for cooking. Distance from each household to the nearest bushes or forest and gas availability have a significant negative correlation with traditional energy sources for cooking. However, livestock ownership has a strong positive correlation with using traditional energy sources for cooking. These results suggest that if the distance from the household to bushes or forest increases, the household is less likely to use traditional energy sources. Similarly, if gas is available in the village, the probability of using traditional energy sources for cooking decreases. However, if a household has livestock, it is more likely to increase the use of traditional energy sources for cooking.

The results remain stable and consistent, moving similarly across the various specifications. The first-stage F-statistics for the excluded instruments remain over ten from columns one to four. Thus, the estimates are not biased by weak instruments.

4.2. Estimation Results for the Impact of Cooking Energy Sources on Asthma Prevalence in the Household

Table 3 shows the estimation results of the impact of cooking energy sources on asthma prevalence in the household. The results of OLS and 2SLS are shown in columns one to four. Column one reports the correlation estimates between using energy sources for cooking and asthma prevalence in the household with and without district fixed effect. In column one, the coefficient of the primary explanatory variable is 0.059 and is statistically significant at a one percent p-value. The result implies that households tend to use traditional energy sources, which has a probability of an increase in asthma prevalence by six percent. The results remain significant in column two after adding controlling for the district fixed effect. OLS estimates suggest there is a statistically significant impact of traditional cooking energy sources on the prevalence of asthma.

The 2SLS estimates in columns three and four of Table 3 are based on three IVs. According to the estimates, the results found a statistically insignificant correlation between cooking energy sources and asthma prevalence in the household. Comparing 2SLS estimates with OLS, the direction of 2SLS estimates remains like OLS, but the results are insignificant.

The reduced form of instruments shown in columns five and six reports estimates by including controls with similar variables as reported from columns one to four. Here, the leading independent variables are the distance from the household to the nearest bushes or forest, gas availability in the village, and household ownership of livestock, which are all insignificant, suggesting that there is no correlation between instrumental variables and asthma prevalence in the household. The results remain stable for the reduced form estimates across all the specifications.

4.3. Estimation Results on the Impact of Cooking Energy Sources and House Structure on Asthma Prevalence in the Household

The estimates in Table 4 report the effect of cooking energy sources with an interaction term of the household improved structure. This is because one may argue that the improved structure of the house may reduce the effect of indoor emissions on the respiratory health of the household members. The improved house structure implies that the outer wall, roof, and floor are made of cement, bricks, and stones. The results report adding household and village characteristics along with district fixed effect. The OLS results in columns one and two report a significant correlation with a positive sign between cooking energy sources and asthma prevalence in the household. The coefficient is around two-thirds of the standard deviation of the asthma prevalence in the household, implying that the impact of using traditional energy sources is significant to increase the probability of asthma in the household. The coefficient of the interaction term also reported a significant correlation with a negative sign, implying that if the house structure had improved, the household could have reduced the probability of asthma prevalence.

The 2SLS estimates with an interaction term show an insignificant correlation between cooking energy sources and household asthma prevalence. This suggests that cooking energy sources do not affect the severity of asthma prevalence in the household.

4.4. Estimation Results on the Impact of Cooking Energy Sources on Asthma Prevalence for Adults and Children in the Household

This study also estimates the results of the separate impact of cooking energy sources on asthma prevalence for adults and children in the household. The results estimates are shown in Table 5, which follows a similar identification strategy that reports estimates for asthma prevalence in the household. From columns one to four, the OLS estimates for the effect of cooking energy sources on asthma prevalence in adults and children report a significant impact across all the specifications with or without district-fixed effect. The coefficient of the primary explanatory variable is about one-fourth of the standard deviation of the asthma prevalence of adults and children in the household.

On the other hand, the 2SLS results show that cooking energy sources do not affect asthma prevalence in the household's adults and children. The results are consistent for all household members without distinguishing adults and children.

5. CONCLUSION

Access to efficient modern energy sources is a requirement for human development. This study examines the impact of cooking energy sources on respiratory health. To address the endogeneity of the household's choice of cooking energy sources, this study estimated IV models by using the distance from the household to the nearest bushes and forest, gas availability at the village, and livestock ownership as IV.

OLS estimates suggest there is a statistically significant impact on the positive sign of traditional cooking energy sources on the prevalence of asthma. The positive sign of the coefficient suggests that use of biomass cooking fuels have a significant positive impact in terms of asthma prevalence at the household level. OLS estimates from found consistency when adding control variables for district fixed effect, village characteristics, and household characteristics.

However, 2SLS estimates found no correlation between cooking energy sources and asthma prevalence at the household level. This insignificant relationship is consistent with previous studies, which found that cooking energy sources do not impact respiratory diseases with the main disease of asthma (Desalu *et al.,* 2010; Schei *et al.,* 2004; Shah *et al.,* 1994).

These results can cast doubt on the effectiveness of policy for providing clean energy sources to reduce health hazards caused by indoor emissions. One limitation of this study is that the RHPS data reports that only 9.5 percent of households use natural gas for cooking energy sources. Also, the provision of modern energy sources for cooking should not be discussed from the perspective of health hazards. Further study is needed to investigate the impact of cooking energy sources on respiratory health. This investigation may require a large dataset to address the limitations of the current study. The authors intended to explore this issue with a larger dataset, but the study nevertheless contributed significantly due to its robust methodology.

ACKNOWLEDGEMENT

The author acknowledges the support of numerous reviewers for their feedback. I would also like to thank the International Food Policy Research Institute (IFPRI) for giving me access to the Rural Household Panel Survey (RHPS) dataset which was used to complete this study. This work is from my master’s thesis from the University of Tsukuba. I am grateful to Professor Yuko Nakano from the University of Tsukuba for guiding me at every stage of this study.

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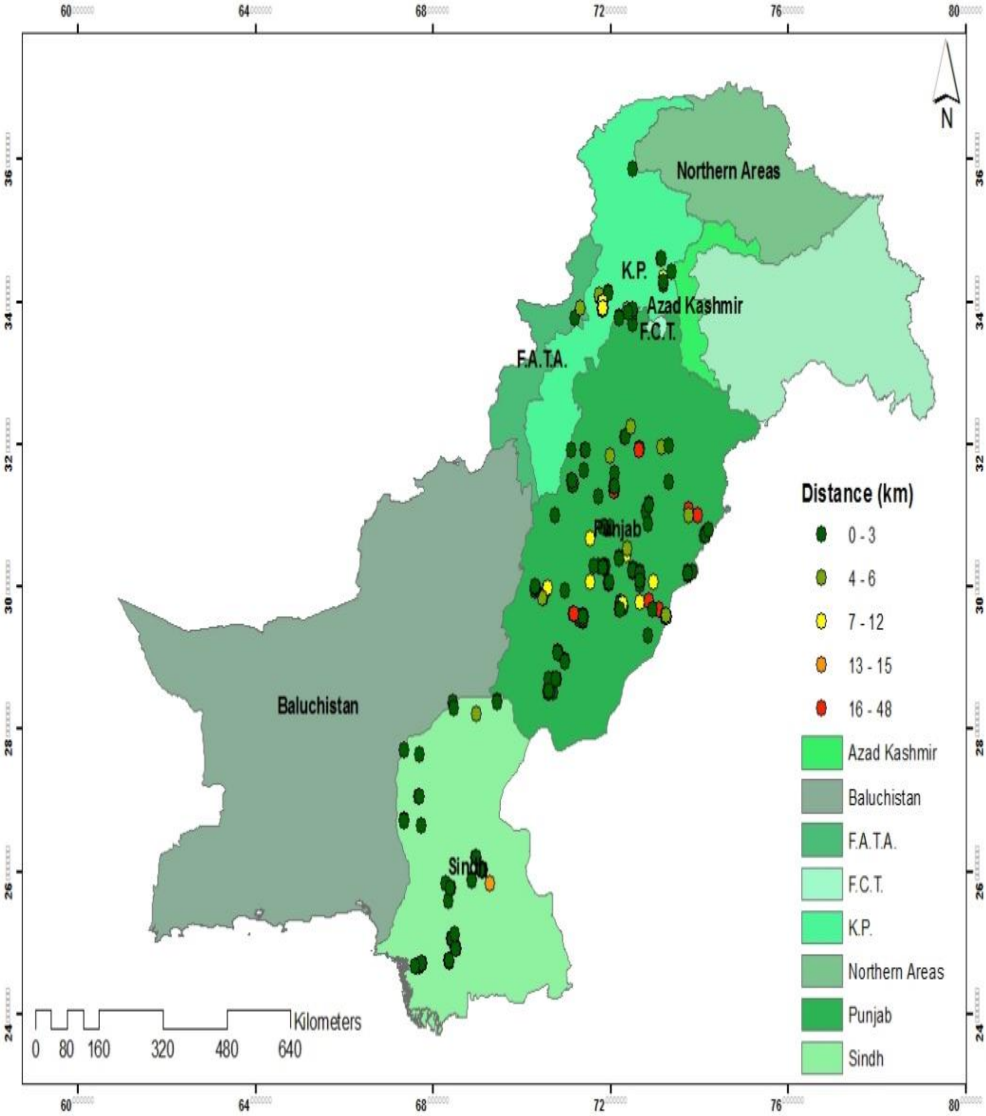
Figure 1. Distance from Household to Nearest Bushes and Forest for RHPS



Source: Pakistan Administrative and Natural Data from DIVA-GIS.

Table 1. Household Cooking Energy Sources in Rural Pakistan (RHPS)

Energy Source	Freq.	Percent
Gas	168	9.79
Firewood	1,189	69.29
Agriculture Residue	243	14.16
Animal Dung	110	6.41
Another Biomass	6	0.35
Total	1,716	100

Source: Author's Rural Household Panel Data Round – 3 Calculations, IFPRI-IDS.

Table 2. Summary of Asthma Prevalence in the Household (RHPS)

Energy Source for Cooking	Mean	Std. Dev.	Freq.	*t-value*
Gas	0.095	0.294	168	
Firewood	0.134	0.341	1,189	
Agriculture Residue	0.156	0.364	243	
Animal Dung	0.236	0.427	110	
Another Biomass	0.167	0.408	6	
Total	0.140	0.347	1,716	3.30***
Modern	0.095	0.294	168	
Traditional	0.145	0.352	1,548	
Total	0.140	0.347	1,716	1.76*

Source: Author's Rural Household Panel Data Round – 3 Calculations, IFPRI-IDS.

Table 3. The Effect of Cooking Energy Sources on Asthma Prevalence in the Household.

Variables	OLS Estimates		2SLS Estimates		Reduced Form Estimates	
	(1)	(2)	(3)	(4)	(5)	(6)
Energy sources for cooking (1=traditional, otherwise 0)	0.059* (0.030)	0.076* (0.041)	0.045 (0.115)	0.081 (0.157)		
Distance from household to nearest bushes or forest (km)					0.001 (0.002)	-0.001 (0.003)
Gas availability at the village (1=yes)					-0.001 (0.028)	-0.002 (0.022)
Household ownership of livestock (1=yes)					0.015 (0.021)	0.007 (0.019)
District fixed effect	No	Yes	No	Yes	No	Yes
Household characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Village Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,716	1,716	1,716	1,716	1,716	1,716
R^2	0.015	0.048	0.015	0.048	0.014	0.046

Note: Cluster robust standard errors at village level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table 4. The Effect of Cooking Energy Sources and House Structure on Asthma Prevalence in the Household.

Variables	OLS estimates		2SLS estimates	
	(1)	(2)	(3)	(4)
Energy sources for cooking (1=traditional, otherwise 0)	0.183** (0.0263)	0.240** (0.0435)	-0.0220 (0.771)	-0.302 (0.662)
Improved structure of house (1=yes)	0.125** (0.0268)	0.184** (0.0452)	-0.0826 (0.749)	-0.310 (0.631)
Energy sources for cooking (1=traditional, otherwise 0) × Improved structure of House (1=yes)	-0.131** (0.0343)	-0.177** (0.0490)	0.0737 (0.760)	0.344 (0.636)
District fixed effect	No	Yes	No	Yes
Household characteristics	Yes	Yes	Yes	Yes
Village Characteristics	Yes	Yes	Yes	Yes
Observations	1,716	1,716	1,716	1,716
R^2	0.016	0.049	0.015	0.039

Note: Cluster robust standard errors at village level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table 5. The Effect of Cooking Energy Sources on Asthma Prevalence in the Adults and Children of the Household.

Variables	OLS estimates				2SLS estimates			
	Adult		Children		Adult		Children	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Energy sources for cooking (1=traditional, otherwise 0)	0.052** (0.027)	0.070** (0.040)	0.043** (0.019)	0.063** (0.029)	0.032 (0.101)	0.079 (0.121)	0.018* (0.083)	-0.022 (0.116)
District fixed effect	No	Yes	No	Yes	No	Yes	No	Yes
Household Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,716	1,716	1,716	1,716	1,716	1,716	1,716	1,716
R^2	0.014	0.041	0.017	0.047	0.013	0.041	0.016	0.043

Note: Cluster robust standard errors at village level in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Appendix-1. Summary Statistics

Variables	Obs.	Mean	SD
Asthma prevalence of members in household (1=yes)	1,716	0.140	0.347
Asthma prevalence of adults in household (1=yes)	1,716	0.129	0.335
Asthma prevalence of children in household (1=yes)	1,716	0.080	0.272
Energy sources for cooking (1=traditional, otherwise 0)	1,716	0.902	0.297
Energy sources for cooking (1=traditional, otherwise 0) × Improved structure of House (1=yes)	1,716	0.535	0.498
Improved structure of house (1=yes)	1,716	0.868	0.338
Distance from household to nearest bushes or forest (km)	1,716	4.136	4.203
Gas availability at village (1=yes)	1,716	0.573	0.495
Household ownership of livestock (1=yes)	1,716	0.797	0.403
Gender of household Head (1=Male)	1,716	0.980	0.139
Household head Educated (1= any level of schooling)	1,716	0.478	0.500
Number of total Member of household	1,716	7.197	3.271
Number of males in the household	1,716	1.958	1.227
Number of females in a household	1,716	1.990	1.253
Number of children in a household	1,716	3.208	2.248
Tobacco smoking (1=any member of household)	1,716	0.371	0.483
Cultivated area (acre)	1,716	1.798	4.963
The annual total expenditure of household (PKR 000)	1,716	250	176
Number of rooms in House	1,716	2.291	1.399
Distance from the village to the nearest city (km)	1,716	12.373	8.212
Type of internal roads (developed=1)	1,716	0.346	0.475

Source: Author's Rural Household Panel Data Round – 3 calculations, IFPRI-IDS.
Note: The asthma prevalence in the household is equal to one if any household member has asthma. A similar approach applies to the asthma prevalence for adult members and children in the household.
The improved structure of the household is equal to one if the outer wall, roof, and floor of the house are made of cement, stones, and bricks; otherwise, it is zero, which implies that the house structure is made of mud.

Appendix 2. First Stage Estimates

Dependent Variable: Energy sources for cooking (1=traditional, otherwise 0)				
Variables	(1)	(2)	(3)	(4)
Distance from household to nearest bushes or forest (km)	-0.012** (0.006)	-0.069* (0.037)	-0.093** (0.027)	-0.011** (0.005)
Gas availability at the village (1=yes)				-0.053** (0.030)
Household ownership of livestock (1=yes)				-0.084** (0.026)
District fixed effect	Yes	Yes	Yes	Yes
Household Characteristics	Yes	Yes	Yes	Yes
Village Characteristics	Yes	Yes	Yes	Yes
Weak identification test (F-Statistics)	76	25	51	46
Overidentification test (p-value)				0.557
Observations	1,716	1,716	1,716	1,716
R^2	0.540	0.530	0.533	0.556

Cluster robust standard errors at village level in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Note: The results report first-stage estimates to explain the correlation between a set of instruments and an endogenous variable. IVs are the distance from the household to the nearest forest, gas availability at the village, and household involved in livestock. First-stage estimates from columns 1-4 report the correlation between each instrument and cooking energy sources, which is found to be strongly correlated with an endogenous variable. Column four reports the relationship between all three instruments and cooking energy sources. After adding control for district fixed effect and village and household characteristics, the results remain significant. F-statistics for weak identification test reports that instruments are unlikely to bias with weakness. The p-value of the overidentification test is larger than 0.05, and the null hypothesis is that the overidentification restrictions are valid.

NUST JOURNAL OF SOCIAL SCIENCES HUMANITIES
Vol.10 No.1 (January-June 2024) pp. 61-73

Facebook Addiction as Predictor of Work Engagement and Social Relationship among Organizational Employees

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Abstract

The primary objective of this paper is to explore the role of Facebook addiction as a predictor of work engagement and social relationships, including its sub-components, namely family relationships and peer relationships. The sample comprised 400 organizational employees, 200 male and 200 female, aged 20 to 50 years (M = 37.5, SD = 13.32). Utrecht Work Engagement Scale (UWES) (Schaufeli & Bakker, 2003), the Bergen Facebook Addiction Scale (BFAS) (Andreessen, 2012), and the Provisions of Social Relation Scale (PSRS) (Ayub, 2004) were employed to measure the indicators of the study. Results revealed that Facebook addiction leads to less work engagement, weak family relationships, and strong peer relationships. It is also indicated that younger adults have more Facebook addiction, less work engagement, weak family relations, and strong peer relationships than older adults. Furthermore, no significant differences were observed in Facebook addiction between male and female individuals upon their work engagement, family relationship, and peer relationship. Non-significant differences were found between graduates and post-graduate individuals regarding study variables.

Keywords: Facebook Addiction; Work Engagement; Social Networking; Utrecht Work Engagement Scale; Peer Relationship

Article History: Received: October 9, 2023, Revised: May 7, 2024, Accepted: May 17, 2024, Published: June 25, 2024

DOI*:* *10.51732/njssh.v10i1.187*

1. INTRODUCTION

Facebook has seamlessly woven into our daily routines due to its immense popularity (The Irish Times, 2012). The widespread utilization of social media platforms, like Facebook, has the potential to diminish in-person interactions among people. Numerous studies suggest that the correlation between Facebook addiction and diminished social interaction accounts for the decline in interpersonal communication among family members who live together. Younger individuals prioritize spending time on social media over conversations with their loved ones. Additionally, research has revealed that youngsters often forgo attending family gatherings and events (Karamat *et al.,* 2019).

Boundary Theory

This theory explores the boundaries between work and non-work domains and how they influence individuals' experiences and behaviour. Facebook blurs these boundaries by providing a platform for work-related and non-work-related interactions. While excessive Facebook use during work hours may harm productivity, moderate use facilitating social interaction and relationship building among colleagues can enhance work engagement by fostering a positive work environment and sense of community (Ashforth *et al.,* 2000).

Kujath (2011) has contended that online communication should not be regarded as a substitute for face-to-face interaction but rather as an extension of in-person communication among individuals and family members. According to Bergh and Kenna (2004), it was discovered that rather than fostering new relationships, Facebook use was primarily motivated by the desire to maintain existing social connections.

In their meta-analysis study, Coyle and Vaughan (2008) found no significant relationship between Facebook users and their social relationships. The apparent lack of communication or reduced communication between Facebook users and their offline social connections can be attributed to the existing gap in their relationships. Furthermore, Facebook is primarily utilized to maintain connections rather than as a significant platform for socializing.

Further, Shklovski et al. (2006) reported that Facebook offers features that help users prioritize friendships, which is crucial for fostering those relationships. However, this platform is less suitable for maintaining family relationships due to its transient nature. Furthermore, Cole (2000) found that Facebook users tend to spend less time engaging in face-to-face conversations with their family and prefer spending more time online with their peers.

According to empirical research, the use of social networking sites differs among men and women. As Raacke and Raacke (2008) reported, men typically tend to have more friends on social networking sites (SNS) than women. However, Pfeil, Arjun, and Zaphiris (2009) found the results vice versa. Similarly, Wilkinson and Thelwall (2010) found that female users use social networking sites more than males for socializing purposes. The risk factor is also involved when sharing personal information on social networking sites (Jelicic *et al.,* 2004; Fogel & Nehmad, 2009).

Pfeil et al. (2009) discovered that social networking site users exhibit differences based on their age groups. The research revealed that teenagers tend to have a larger social circle on social media platforms, with their friends being predominantly of a similar age in contrast to older users.

Furthermore, this study also investigated the impact of excessive Facebook usage on users' work engagement and workplace behaviour. Work engagement is a positive, fulfilling state of mind related to work, characterized by vigor, dedication, and immersion (Schaufeli *et al.,* 2002).

A detrimental link has been established between work engagement and the utilization of Facebook and other social networking platforms. Sulasula (2023) has asserted that the excessive use of social media directly impacts employees' overall job performance, affecting their ability to concentrate on tasks and their overall productivity. Furthermore, another study has indicated that excessive social media usage not only diminishes employee productivity but also leads to increased absenteeism and a higher incidence of errors in their work (Santos & Rivera, 2021). Secondly, a negative correlation has been identified between the use of Facebook and face-to-face interactions (Hogg & Vaughan, 2004; Jacobsen & Forste, 2011).

A study involving multitasking individuals revealed that those who used Facebook during work took more time to complete tasks than those who remained focused on their tasks without using Facebook (Levine *et al.,* 2007; Bowman *et al.,* 2010).

However, in recent years, there has been a significant surge in the use of social networks, which has led to changes in people's relationship priorities (Rousseau *et al.,* 2019). Consequently, this study aims to investigate whether Facebook is diminishing face-to-face social interactions among users with friends and family and to uncover the underlying factors contributing to this decrease in face-to-face interaction. Additionally, the research delves into the use of Facebook within Pakistan and its influence on face-to-face communication. While prior studies have investigated gender disparities in social networking site (SNS) usage, there remains a notable gap in research regarding Facebook specifically.

The primary aim of this study is to investigate how Facebook addiction influences work engagement and social relationships, including family and peer connections. Additionally, it analyses the effects of demographic factors such as gender, education, and age.

To achieve these objectives, the following hypotheses were formulated and tested.

Hypothesis 1: Facebook addiction leads to weak work engagement among organizational employees.

Hypothesis 2: Facebook addiction predicts low-income family relationships among organizational employees.

Hypothesis 3: Facebook addiction leads to strong peer relationships among organizational employees.

Hypothesis 4: Younger adults have more Facebook addiction, less work engagement, weak family relations, and strong peer relationships than older adults.

Hypothesis 5: Male individuals have more Facebook addiction, less work engagement, and low-income family and peer relationships than female individuals.

Hypothesis 6: Graduate individuals have more Facebook addiction, less work engagement, and weak family and peer relationships than post-graduate individuals.

2. METHODOLOGY

2.1. Sample

A purposive convenience sample (N = 400; men = 200, women = 200) was selected from various organizations in Islamabad and Rawalpindi. The age range of participants was 20 to 50 years (M = 37.5, SD = 13.32). Among them, 58% were undergraduates and 42% were postgraduates. The minimum qualification was 14 years of education and regular Facebook users as an inclusion criterion for the sample.

2.2. Measures

Bergen Facebook addiction scale (BFAS). The Bergen Facebook Addiction Scale (BFAS) (Andreessen, 2012) was used to measure Facebook addiction. This scale comprised 18 items, three for each of the six core features of addiction: salience, mood modification, tolerance, withdrawal, conflict, and relapse. Higher scores indicated more significant Facebook addiction. Cronbach alpha was .83.

Utrecht Work Engagement Scale (UWES). Utrecht Work Engagement Scale (UWES; Schaufeli& Bakker, 2003) was developed to measure work engagement and its underlying dimensions, including vigour, dedication, and absorption (Salanova *et al.,* 2001). The reliability of UWES is 0.78.

Provisions of Social Relations (PSR). The Provisions of Social Relations (Ayub, 2004) was designed to have 15 items. The family relations factor contains six items assessing family support (items 4, 7, 8, 10, 11, and 14), and the peer relations factor comprises nine items that address support from friends (items 1, 2, 3, 6, 9, 12, 13, 15). Items 7 and 15 are negatively worded. The scale's reliability was 0.97. Scores above the median indicated more social support, and below the median indicated less social support.

2.3. Procedure

The study obtained permission for data collection from the relevant administrative authorities within representative organizations. To assess Facebook addiction, work engagement, and provisions of social relations, the researchers administered the Bergen Facebook Addiction Scale (BFAS), the Utrecht Work Engagement Scale (UWES), and the Provisions of Social Relations (PSR) questionnaire. Before participation, informed consent was obtained from all participants individually. The assessments were conducted in group settings, with participants agreeing to participate voluntarily. Furthermore, all respondents were assured that their data would be treated with utmost confidentiality and privacy.

2.4. Ethical Consideration

Ethical approval to conduct the study has been taken from the IIUI research ethical committee.

3. RESULTS

We conducted empirical analyses using the Statistical Package for Social Sciences (SPSS—version 25) to meet the study's objectives and test the formulated hypotheses.

Table 1. Descriptive Statistics for Study Variables (N=400)

Variables	*N*	α	*M (SD)*	Min-Max	Skew	Kurt
Work Engagement	17	.87	54.88(8.10)	0-102	.15	.02
Face book addiction	18	.79	59.6(8.20)	18-90	.15	.06
Family relationship	06	.89	20.33(3.98)	1-30	.03	.72
Peer relationship	09	.86	25.02(5.10)	1-45	-.04	-.64

Table 1 shows reasonable reliability estimates, which indicate that all the instruments are internally consistent. Results also specify that skewness and kurtosis values fall within the acceptable range, i.e., -1 to +1.

Table 2 shows that Facebook addiction negatively predicts work engagement (β= -.77, p<.05). The R^2 value indicates that Facebook addiction contributed a 25 % variance in work engagement F = 22.46 (p <.001). Results also revealed that Facebook addiction negatively predicts family relationships (β= -.79, p<.001). The R^2 value explains 29 % variance in family relationships due to Facebook addiction with F = 27.32 (p <.001).

Table 2. Linear Regression Analysis shows Facebook addiction as the predictor of work engagement, Family relationships, and Peer relationship (N=400)

Predictor	Facebook Addiction				
Outcome variables	*B*	*SE*	*Β*	*t*	*P*
Constant	34.60	2.25		15.39	.000
Work Engagement	.24	.25	-.77	.941	.03
R^2= .25					
Constant	32.73	2.15		17.22	.00
Family relationship	.37	.29	-.79	.98	.00
R^2= .29					
Constant	27.39	3.12		16.29	.00
Peer relationship	.47	.39	.73	.83	.00
R^2= .31					

Moreover, Facebook addiction positively predicts peer relationships (β=.73, p<.001). The R^2 value explains 31 % variance in peer relationships accounted by Facebook addiction with F = 23.46 (p <.001).

Table 3. Mean differences among younger and older adults on Facebook addiction, work engagement, family relations, and peer relations (N=400)

	Young Adults	Older Adults			95% CI		
	M(SD)	*M(SD)*	*T*	*P*	*LL*	*UL*	*Cohen's d*
Facebook Addiction	19.58(3.61)	18.99(3.91)	1.01	0.03	.57	1.77	.14
Work Engagement	23.99(5.60)	24.40(5.58)	.47	0.04	-2.16	-1.33	.07
Family Relations	95.01 (13.99)	98.49 (17.84)	1.37	0.01	1.53	8.48	.22
Peer Relations	93.74(17.33)	89.45(14.77)	1.76	0.01	1.43	7.98	.08

df=398, LL= Lower Limit, UL= Upper Limit, CI= Confidence Interval, LL= Lower Limit.

Table 3 shows the significant differences between young and older adults in Facebook addiction, work engagement, family relationships, and peer relationships. The mean column indicates that young adults are more Facebook addicted (M=19.58, SD= 3.61), less engaged in work (M=23.99, SD=5.60), weak family relationships (M=95.01, SD=13.99), and have strong peer relationships (M=93.74, SD=17.33) than older adults.

Table 4. Mean differences among male and female individuals on Facebook addiction, work engagement, family relations, and peer relations (N=400*)*

	Male	Female			95% CI		
	M(SD)	*M(SD)*	*t*	*P*	*LL*	*UL*	*Cohen's d*
Face book Addiction	17.58(4.21)	18.29(4.91)	1.31	0.30	-.97	1.37	.18
Work Engagement	23.99(15.30)	23.40(15.53)	.67	0.74	-6.16	2.33	.06
Family Relations	95.01 (13.29)	95.49 (14.84)	1.73	0.98	-1.93	6.48	.21
Peer Relations	87.74(16.37)	87.45(16.77)	1.83	.75	-3.43	9.39	.20

df=398, LL= Lower Limit, UL= Upper Limit, CI= Confidence Interval, LL= Lower Limit.

Table 4 shows the non-significant differences between male and female individuals on Facebook addiction, work engagement, family relationships, and peer relationships.

Table 5. Mean differences among graduate and post-graduate individuals on Facebook addiction, work engagement, family relations, and peer relations(N=400)

	Graduate	Post-Graduate			95% CI		
	M(SD)	*M(SD)*	*t*	*P*	*LL*	*UL*	*Cohen's d*
Facebook Addiction	17.56(4.32)	18.10(4.71)	1.98	0.60	-.87	1.37	.80
Work Engagement	23.36(15.21)	23.60(15.33)	.89	0.78	-3.15	3.64	.70
Family Relations	93.05 (13.29)	93.94 (14.04)	1.69	0.87	-2.03	7.45	.69
Peer Relations	88.44(14.87)	87.98(15.88)	1.90	.74	-3.75	9.63	.82

df=398, LL= Lower Limit, UL= Upper Limit, CI= Confidence Interval.

Table 5 shows the non-significant differences between graduate and post-graduate individuals on Facebook addiction, work engagement, family relationships, and peer relationships.

4. DISCUSSION

A primary focus of this study was the use of Facebook, a social networking site in the context of Pakistan, to determine the negative impacts of Facebook users on face-to-face communication. The study also bridges the gaps by providing knowledge about social networking sites for social interaction. It answers the question by determining the use of Facebook between the different genders, how their social relationships are changed, and their job performance and productivity. The current study also answers how the use of Facebook affects its user's education, social interaction, and work engagement.

Facebook addiction negatively predicts work engagement in adults (Table 2). Facebook addiction interferes with the performance of an individual during work timings. As individuals continuously chat, update their status, and do other things, they must pay proper attention to their work. This may lead to less work engagement. These results can be reinforced by the study done by Bargh and Vaughan (2004). They found that Facebook is distracting, so it can easily distract the user from his/her work. According to May, Gilson, and Harter (2004), employees seek fulfilment through self-expression at work. These authors believe that for employees to thrive, they should engage themselves cognitively, physically, and emotionally in their work. However, when they are not involved cognitively and physically, as when they are engaged in using Facebook, they will not complete their tasks and responsibilities on time.

Family relationships are negatively associated with Facebook addiction (Table 2). It is indicated that Facebook addiction is associated with weak family relationships. Due to vast exposure to the internet and social networking sites like Facebook, social relationships have changed. People avoid face-to-face interaction. Instead, they rely more on making conversations through Facebook. Similarly, Gjylbegaj and Abdi (2019) reported that families' excessive internet or social media engagement is the common reason for the lack of appropriate communication among family members. Noticeably, people at family gatherings spend more time on their devices than face-to-face communication.

Additionally, it was found that frequent internet use reduces one's social circle. Another study reported that extensive use of social media increases the chances of low-quality family relations. Moreover, individuals who spend more time on social networking sites have poor relationships with their parents (Sultana, 2017).

As far as peer relationships are concerned, it was found that Facebook addiction positively predicts peer relationships (Table 2). However, the main goal of using Facebook is to keep in touch with friends and family and to keep one's relationships. Besides that, Facebook is also used for insignificant conversations with close and distant friends, but it is not considered the primary form of socialization (Coyle & Vaughan, 2008). Facebook-addicted people reported less talking time spent with their families while they spent more time with their peers online (Cole, 2000). Facebook helps maintain peer relationships, but family relations get disturbed and distorted due to the heavy use of Facebook.

While comparing young and older adults, significant differences were found in Facebook addiction, work engagement, family relationships, and peer relationships (Table 3). It was found that young adults are more addicted to Facebook than older adults (Pfeil *et al.,* 2009). Young adults are free of responsibilities and are not committed to some responsible and significant roles in the family, which is why they are more involved in activities like social networking sites. They have few responsibilities, so they have nonserious attitudes toward their work. They do not consider their job a commitment, are involved in other activities during work, and pay less attention to their work (Sotero *et al.,* 2019).

Moreover, young adults spend much less time with their family members and try to avoid meeting with relatives. They have less communication with family members, but most of the time, they remain busy using Facebook and communicating with their peers, as peers have more influence on an individual than adults (Dhir & Tsai, 2017). Older adults are more committed to their family and work. They have a sense of responsibility, so they try to focus on their responsibilities and commitments rather than leisure activities like Facebook. Their family is much more critical for them than their peers and friends. They get the required satisfaction through spending time with family and having strong family relationships (Pfeil *et al.,* 2009).

Insignificant differences were found between men and women in the use of Facebook addiction, work engagement, family relationships, and peer relationships (Table 4). The insignificant differences indicate that gender does not affect Facebook use. Men and women are equally addicted to Facebook, and its effects are similar for both genders (Khattak *et al.,* 2017). Most individuals, both men and women, agreed that they spend more time on Facebook conversation than in person, and they agreed that the extensive amount of time they spend on Facebook reduces their face-to-face communication with their families and relatives. Furthermore, their work engagement is also affected similarly (Kujath, 2011).

It was also discovered that there is a non-significant difference between graduate and post-graduate individuals on Facebook addiction, work engagement, family relationships, and peer relationships. Education is not directly associated with Facebook addiction (Jafarkarimi *et al.,* 2016). If individuals have exposure and facilities, they can get addicted to Facebook no matter how educated they are. Some illiterates can also have Facebook addiction, so education is not any criterion in determining the use of Facebook and its effects on one's social and occupational life.

5. CONCLUSION

The primary focus of this study was to examine the use of Facebook as a social networking site and whether the use of Facebook has negative effects on its user's social relationships. It also focuses on how Facebook addiction predicts work engagement. It is concluded from the results of the study that Facebook addiction is more common in young adults, and it negatively predicts work engagement and family relationships, but peer relationships are enhanced through it. In older adults, Facebook addiction is not very common. As far as gender and qualification are concerned, no differences are found in Facebook addiction and its association with social relations and work engagement.

6. LIMITATIONS AND SUGGESTIONS

In the light of this study, possible limitations should be considered.

1. Data was collected only from educated working people in Islamabad and Rawalpindi, so we cannot generalize the results to the whole population. Hence, further research with a larger and more demographically diverse sample would strengthen the study's findings.
2. Second, considering the study's results, it is suggested that future studies can be proposed on other variables, such as social site usage other than Facebook, and demographics, such as marital status and monthly income, can be investigated along with work engagement and social relationships.
3. The respondents' attitude towards research was quite nonserious. That could be one reason that some results were not desirable.

7. IMPLICATIONS

The future implications of a study are multifaceted and can impact various aspects of organizational management and employee well-being.

1. **Policy Development:** Organizations may use the findings to develop policies and guidelines regarding the appropriate use of social media platforms like Facebook during work hours.
2. **Employee Training and Development:** Employers can implement training programs to raise awareness about the potential risks of excessive Facebook use and provide employees with strategies to manage their online behaviour effectively.
3. **Employee Assistance Programs (EAPs):** Organizations may consider integrating support services, such as counselling and mental health resources, into their employee assistance programs to address issues related to social media addiction and its impact on 3work engagement and social relationships. Providing employees access to professional support can help them manage stress, improve coping mechanisms, and maintain healthy work habits.
4. **Technology Integration:** Companies may explore integrating technology solutions, such as productivity tools or software applications, that help employees manage their digital habits and focus

on work-related tasks while minimizing distractions from social media platforms.

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NUST JOURNAL OF SOCIAL SCIENCES HUMANITIES
Vol.10 No.1 (January-June 2024) pp. 75-94

International North-South Transport Corridor: A Geo-Economic Initiative in a Geopolitical World

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Abstract

Commercial liberalism advocates for equitable trade and diplomatic ties, highlighting the interconnectedness of individuals and nations. It emphasizes reducing tariffs and streamlining administrative processes to lower trading expenses. With 75% of the world's energy reserves, Eurasia aspires to economic prosperity through integration. In 2000, Russia, Iran, and India initiated the International North-South Transport Corridor (INSTC) to enhance connectivity and reduce transportation costs across Eurasia. This qualitative research, utilizing sources such as books, journals, government reports, and periodicals, delves into the geopolitical, strategic, economic, and infrastructural aspects of the INSTC. The corridor aims to boost regional integration and economic vitality by improving connectivity and cutting transportation expenses. It addresses conflicts, trade restrictions, and infrastructure development, with its expansion contingent on multiple factors. Strategic planning is vital for the corridor's development in tandem with neighbouring regions. Future research should focus on infrastructure growth, geopolitical analysis, economic impacts, international collaboration, and environmental and social effects, thereby enhancing the INSTC's efficiency and potential. For Pakistan, the INSTC presents significant economic opportunities. As a key transit country, Pakistan stands to benefit from increased trade flows, reduced transportation costs, and improved regional connectivity. This will spur industrial development, job creation, and economic growth, reinforcing Pakistan's role in the regional economy and fostering stronger ties with neighbouring countries.

Keywords: Economic Integration, Commercial Liberalism, Regional Connectivity, Geo-politic

Article History: Received: May 20, 2024, Revised: May 31, 2024, Accepted: June 10, 2024, Published: June 25, 2024

DOI*: 10.51732/njssh.v10i1.189*

1. INTRODUCTION

The rationality of commercial liberalism posits that integration enhances trade and interaction among states and global regions by streamlining trade laws, eliminating unnecessary barriers such as tariffs, and facilitating unimpeded transport across borders (Jaffrelot, 2023). For Eurasia, an area at the intersection of two continents, breaking through restrictive barriers is crucial to unlocking its vast commercial potential. Hosting three-quarters of the world's energy resources, many Eurasian countries, including landlocked ones, have sought greater access to foreign markets (Bukhari *et al.,* 2024). This strategic significance has drawn the interest of global powers eager to influence the region's geo-economic and geo-strategic landscape. In response to this modern power struggle, the United States has focused its security efforts on the Indo-Pacific region, utilizing strategic alliances like QUAD and AUKUS to counter China and Russia (The White House, 2022). Concurrently, investments in regional economies have fostered new economic entities such as the Eurasian Economic Union (EAEU) and the Shanghai Cooperation Organization (SCO), both of which emphasize connectivity and integration (Wu & Frazier, 2021).

Eurasia has long been referred to as a 'Grand Chessboard' for great power politics, a concept predating Brzezinski's 1997 work and rooted in the ideas of Sir Halford John Mackinder and Nicholas Spykman. Despite its significant geo-economic potential, strategic differences have hindered the region from achieving its full economic capabilities (Bukhari *et al.,* 2024). Contemporary conflicts, such as the Russia-Ukraine war, the Nagorno-Karabakh war, and the Arab-Israel conflict, exacerbate geopolitical tensions and obstruct integration efforts (Robinson & Smith, 2023). Amidst this escalating rivalry and the resurgence of the families-of-nations approach, the International North-South Transport Corridor (INSTC) emerges as a vital geo-economic project essential for developing Trans-Eurasian links.

Conceived by Russia, Iran, and India 2000, the International North-South Transport Corridor (INSTC) aims to enhance Eurasian connectivity, reduce transportation costs, and develop production hubs leveraging the Caspian region's transit and trade potential. With agreements signed by 13 countries, the project promises to reduce transportation costs between India and Russia by 30% and significantly cut transit times compared to the Suez Canal route (Tashjian, 2021). The INSTC and the China-Pakistan Economic Corridor (CPEC) hold transformative potential for Pakistan, offering substantial economic and strategic benefits. The INSTC positions Pakistan as a critical transit nation, facilitating increased trade, reduced transportation costs, and stronger regional connectivity, driving industrial growth, job creation, and economic expansion. Meanwhile, CPEC focuses on infrastructure development, energy projects, and the strategic Gwadar Port, enhancing connectivity between China's western regions and international markets. This initiative is expected to attract foreign investment and significantly boost Pakistan's economy. These corridors position Pakistan as a critical player in regional and global trade networks, enhancing its economic and strategic significance (Bukhari *et al.,* 2024).

International North-South Transport Corridor (INSTC)

Map – 1 (https://www.isdp.eu/people/jagannath-p-panda/).

Objectives of the Study

- To analyse the geopolitical and geo-economic implications of the International North-South Transport Corridor (INSTC) for the Eurasian region and its participating countries.
- To evaluate the potential economic benefits and challenges associated with the INSTC, focusing on Pakistan.

Research Questions

- How does the International North-South Transport Corridor (INSTC) influence the geopolitical dynamics of the Eurasian region?
- What are the potential economic impacts of the INSTC on participating countries, particularly Pakistan?

Purpose of the Study

The research aims to outline and investigate the role of the International North-South Transport Corridor (INSTC) within current geopolitical and geo-economic processes. It seeks to examine the corridor's implications for future development, particularly in enhancing regional connectivity and integration, and to explore its strategic significance for Pakistan.

Significance of the Study

This study is critical as it offers a firsthand understanding of an emerging geo-economic project with the potential to reshape the economic and strategic landscape of the Eurasian region. By analysing the International North-South Transport Corridor (INSTC), this research provides valuable insights into regional connectivity efforts and contributes to the broader discourse on international trade, economic relations, and geopolitical strategy. Considering the limited scholarship on the topic, the study holds added significance, which highlights its implications for Pakistan.

2. LITERATURE REVIEW

2.1. International North-South Transport Corridor (INSTC)

The International North-South Transport Corridor (INSTC) is a strategic initiative established by Russia, India, and Iran in 2000. It aims to enhance transport connections between Europe, Asia, and the Middle East, focusing on facilitating the movement of goods. The INSTC represents a significant effort to redefine transit routes across Eurasia by improving connections between these regions. The corridor's infrastructure includes seaports, railways, and road links, all working together to improve logistics and reduce transport costs (Panda, 2022). It is also important to highlight that no book is written on this multimodal project.

2.2. Geo-Economic Significance

The International North-South Transport Corridor (INSTC) is a critical component of Russia's "U-turn towards the South," aimed at strengthening economic relations between the Commonwealth of Independent States (CIS) and other Eurasian countries. This initiative aligns with the goals of both the Eurasian Economic Union (EAEU) and the Shanghai Cooperation Organization (SCO), which focus on regional integration and cooperation (Wu & Frazier, 2021). By enhancing transport efficiency and affordability, the INSTC is expected to unlock the economic potential of landlocked nations in Eurasia and support regional development (Robinson & Smith, 2023).

2.3. Geopolitical Context

The regional rivalries in Eurasia are fundamentally shaped by great power politics, a concept extensively explored by theorists like Brzezinski and Mackinder. Brzezinski (1997) famously referred to the Eurasian landmass as the 'Grand Chessboard,' illustrating that global powers' interests intersect. This is evident in ongoing applications of power politics in the region, exemplified by conflicts such as the Russo-Ukrainian War, the Nagorno-Karabakh War, and the Arab Israeli conflicts (Robinson & Smith, 2023). These conflicts define the region's character and influence the feasibility of large-scale connectivity projects like the International North-South Transport Corridor (INSTC) today.

2.4. Strategic and Economic Implications

The strategic implications of the International North-South Transport Corridor (INSTC) are multifaceted. The corridor presents an opportunity for Russia to diversify its trade routes and decrease reliance on traditional pathways like the Suez Canal. The corridor is anticipated to reduce transportation times and costs, thereby enhancing the competitive advantage of Russian exports. Similarly, for India, the INSTC provides a strategic pathway to access Central Asian markets, circumventing Pakistan and alleviating geopolitical tensions (Jaffrelot, 2023). Iran's involvement in the INSTC is pivotal due to its geographical positioning as a link between the Indian Ocean and the Caspian Sea. Despite encountering economic sanctions and infrastructural obstacles, Iran stands to gain significantly from the increased transit traffic and trade facilitated by the corridor (Tashjian, 2021).

2.5. Regional Integration and Economic Benefits

The International North-South Transport Corridor (INSTC) is positioned to play a crucial role in the economic integration of the Eurasian region. Research indicates that improved connectivity and reduced transportation costs can substantially increase trade volumes among participating nations (Wu & Frazier, 2021). The corridor is anticipated to enhance the economic prospects of Central Asian Republics, the Caucasus, South Asia, and the Middle East by streamlining supply chains and promoting regional trade (Panda, 2022). For Pakistan, the INSTC presents both challenges and opportunities. On one hand, Pakistan benefits from enhanced regional connectivity and deeper economic integration. Conversely, the corridor's development may redirect trade routes away from traditional Pakistani ports, potentially impacting the country's trade revenues (Robinson & Smith, 2023).

2.6. Infrastructure and Development Challenges

The International North-South Transport Corridor (INSTC) faces infrastructural and developmental hurdles, with inadequate transport infrastructure and geopolitical tensions hindering its progress (Tashjian, 2021; Panda, 2022). Competition from projects like TRACECA and China's BRI further complicates its development (Wu & Frazier, 2021). The future of the INSTC depends on geopolitical and economic factors, including strategic cooperation between Russia and China (The White House, 2022) and increased regional collaboration through platforms like the SCO and EAEU. Despite challenges, recent studies suggest the INSTC could reduce transportation costs and transit times, offering an alternative to traditional routes (Tashjian, 2021). Its success relies on resolving conflicts, improving infrastructure, and securing ongoing support. Overall, the INSTC holds the potential to transform Eurasian trade dynamics but must overcome obstacles to realize its strategic and economic benefits.

3. INSTC - A COMMERCIAL LIBERALISM PERSPECTIVE

The International North-South Transport Corridor (INSTC) can be analysed within the framework of commercial liberalism, a variant of liberal internationalism. This economic theory promotes a free-market economy, advocating for minimal restrictions on trade to stimulate economic advancement. Proponents argue that unrestricted commerce across borders encourages economic interdependence, thereby reducing the risk of conflict by making the costs of war prohibitively high. According to this theory, liberal trade practices contribute to a peaceful international system by aligning the economic interests of states (Keohane & Nye, 1989).

3.1. Theoretical Underpinnings of Commercial Liberalism

In "Global Dimensions of Democracy and Human Rights: Problems and Perspectives," Irakli Kervalishvili asserts that a liberal economy fosters socio-economic development and international cooperation, thereby promoting peaceful coexistence (Chitadze, 2022). He contends that in a laissez-faire economy, prices of goods and services are determined through mutual agreement between buyers and sellers without government intervention. Such self-regulating markets are believed to naturally achieve equilibrium, thereby enhancing overall economic efficiency.

3.2. Geopolitical Context of Eurasia

Eurasia's intricate geopolitical terrain demands more than mere economic interdependence for stability. The political frameworks of INSTC member states, notably Russia and Iran, underscore the necessity for a deeper level of economic interdependence intertwined with strategic alignment to safeguard the project against political instability (Leonard, 2016). This "complex interdependence" requirement underscores the significance of shielding economic endeavours from geopolitical tensions.

3.3. Complex Interdependence Theory

Robert O. Keohane and Joseph Nye's theory of complex interdependence emphasizes the significance of heightened transnational interactions in fostering peaceful international relations. They posit that cooperation in one policy domain frequently triggers collaboration in others, forming a network of interdependencies that reinforce stability (Keohane & Nye, 1989). This notion holds relevance for the INSTC, which aims to bolster regional connectivity and economic integration among its member states (Bukhari, 2024).

3.4. Connectivity Wars and Geo-Economics Competition

In "Connectivity Wars," Mark Leonard suggests that future conflicts will likely emerge in geo-economics, institutions, and infrastructure domains. Leonard emphasizes the importance of comprehending connectivity and interdependence in navigating 21st-century international politics. He argues that significant powers utilize connectivity as a geo-economic tool to wield political influence, a viewpoint that resonates with the strategic goals of the INSTC (Leonard, 2016).

3.5. Russia’s Geo-Economics Strategy

Since 2008, scholars have interpreted Russia's embrace of the global economy as an effort to harmonize capitalist principles with its Marxist communist framework, thereby preserving its geo-economic significance. The International North-South Transport Corridor (INSTC) plays a pivotal role in Russia's political economy, particularly amid the Ukraine crisis. The corridor aligns with Russia's "Look East" policy and bolsters its trade and commerce opportunities by offering an alternative route to traditional Western pathways (Rashid, 2022).

4. Navigating the Geo-Economic Landscape: The Strategic Dynamics of INSTC

The International North-South Transport Corridor (INSTC) aims to enhance regional trade and reduce costs by 30-40%, which is crucial for Pakistan's economic integration (Boltuc, 2023). However, it faces technological and geopolitical hurdles, including slow infrastructure development and competition from other projects (Tashjian, 2021). Member states like Russia, India, and Iran leverage the INSTC to extend their influence (Kaya, 2023). The 2021 assessment by the Eurasian Development Bank highlights the corridor's potential to foster new transport connections across Eurasia, benefiting landlocked nations (Vinokurov *et al.*, 2021).

4.1. Eurasian Connectivity Initiatives beyond INSTC

As the US declines, China and India rise and Russia returns to world politics; the Eurasian supercontinent becomes increasingly significant. INSTC and BRI growth have complicated connectivity. Russia, Iran, and India are working on this complication. INSTC transcontinental transport corridor intends to promote Eurasian integration, reduce trade distances, and give landlocked Central Asian countries sea access. Chinese BRI's Silk Road

Economic Belt and Maritime Silk Road boost Eurasia's connectivity (Bukhari, 2024).

The Asian Infrastructure Investment Bank (AIIB) and Silk Road Fund have funded this comprehensive strategy, which comprises industrial parks, key cities, and economic corridors (Rakhmat, 2019). Trans-Caspian Rail Corridor and Eurasian Tunnel in Istanbul are initiatives to strengthen Asia-Europe infrastructure and multimodal connectivity (Daily Sabah Istanbul, 2015). Trans-Caspian Rail Corridor integration requires cooperation on railway pricing and customs laws. China-Europe freight train services must work hard to overcome rail gauge differences (Hutchinson, 2015). These projects are essential to Eurasia's advancement, sustainability, and economic growth as connections evolve globally (Tashjian, 2021).

4.2. Geo-Economic Challenges to Development of INSTC

The INSTC faces various financial, administrative, tariff, and technical challenges. These barriers hinder the increase in freight traffic and often stem from deeper institutional or macroeconomic issues. The project spans multiple nations with distinct and incompatible logistics systems, leading to rival logistical frameworks due to differences in infrastructure, operational methods, and regulatory environments. This variability can lead to inefficiencies, delays, and increased costs, undermining INSTC’s goal of facilitating rapid and cost-effective transcontinental trade. Subsequent paragraphs will delve into some of these challenges.

4.3. Competing Logistical Systems

The INSTC, a vital southern logistics route, remained underutilized until 2022 despite its strategic location, versatile capabilities, and successful container deliveries. However, the evolving landscape presents growth opportunities, with operations expanding to previously connected nations, new trade routes opening, and freight flows attracting from Africa, Latin America, and the Asia Pacific region. The Eurasian Development Bank foresees significant growth in INSTC container freight traffic, accommodating diverse freight categories (Vinokurov *et al.,* 2021). To stimulate INSTC freight traffic, various routes and modes of transportation can be utilized:

- Western Route by Road: The Western Route benefits road transport by guaranteeing prompt delivery without needing extra paperwork or transshipment. The well-developed road network in Iran, Azerbaijan, and Russia makes transportation along the route even faster.
- Western Route by Rail: Thanks to railway transportation over the Western Route, container services between Belarus/Russia and Turkey can be organized quickly. Container traffic to the

Iranian port of Bandar Abbas will be possible after the Rasht–Astara section is finished.

- Eastern Railway Route: The Eastern Railway route proves its usefulness by providing a singular chance to transport goods from West Siberia and the Urals to the port of Bandar Abbas. Car components were transported from China to Iran, and containers from the Moscow Region to India via this route, which proved successful in its initial use in 2022.
- Transportation via Waterway: Certain products can be transported by combined river-sea navigation vessels from Central Russia to Iranian Caspian ports through waterway transportation along the Trans-Caspian Route.

4.4. Transport Infrastructure Bottlenecks

The INSTC encounters significant physical and infrastructural challenges, including congestion, limited infrastructure, and capacity constraints in harbours, compounded by soft infrastructure obstacles like taxes and market access restrictions. Proposed solutions by the UN Economic Commission for Europe aim to address these issues (Pearman & Secretariat, 2009). Specific barriers to the INSTC's efficiency include incomplete infrastructure, limited train capacity, road impediments, canal sedimentation, and inadequate logistics facilities. To overcome these challenges, measures such as transshipment enhancements, railway construction, electrification, road repairs, canal dredging, fleet expansion, and the establishment of multimodal logistics hubs are recommended to improve corridor effectiveness. Modernizing infrastructure is imperative, especially at border crossing points like Dariali/Verkhniy Lars, ill-prepared for increased trade volumes. More technology, infrastructure, and equipment are needed to improve efficiency. Traffic at Dariali/Verkhniy Lars has surged due to EU restrictions on Russia and Belarus and increased Turkish and European shipping to Russia. The lack of modern railcars, locomotives, containers, and auxiliary equipment poses additional challenges (Bukhari, 2024).

4.5. Trade Barriers: Sanctions, Track Gauges, and Customs Disarray

The INSTC, linking Caspian, Turkmenistan, and Russian ports, offers an alternative trade route to sea lanes (Gupta, 2022). While its freight volume along the Silk Road Economic Belt is significant, it trails that of the Suez Canal. The INSTC has the potential for cross-border e-commerce and energy transport, yet its economic value requires re-evaluation to address Asia-Pacific energy needs (Passi, 2023). Trade challenges include customs procedures and digitization issues. Efforts like the green corridor between Russia and India aim to streamline goods flow (Bank, 2016). Non-tariff barriers, like rail gauge changes, hinder trade, with initiatives like the China-Europe Silk Road Railway proposed to overcome such challenges. Various stakeholders fund INSTC projects, with segments like the Rasht-Astara railway needing extra investment from Azerbaijan. Loans from institutions like the Islamic Development Bank and the Asian Development Bank highlight the need for financial support, especially compared to projects like China's Belt and Road Initiative (Panda, 2023).

4.6. Transport Law Disparities, Global Commodity Dynamics, and Freight Rate Volatility

Countries inconsistent laws challenge the INSTC, requiring government support and regulatory limits. Varying customs rules among transit countries complicate goods transport, while border and customs issues slow commodity movement. The absence of a Single Window system leads to repeated paperwork and inspections, increasing costs and border idle time. Limited International Road Transport operations, unclear vehicle escort laws, and sporadic INSTC Coordination Council meetings further hinder operations. Proposed changes aim to standardize regulations and improve information exchange to expedite cross-border travel (Vinokurov, 2022; Broers, 2024).

5. INSTC AND THE GEOPOLITICS OF EURASIA

The transition from unipolar to multipolar dynamics in the 21st century has shifted focus towards geo-economics over geopolitics, evident in initiatives like the US Indo-Pacific Strategy and Russia's resurgence in Eurasia. This shift has prompted strategic realignments seeking more significant influence in the global south, with initiatives like the INSTC initiating these changes. However, historical tensions have hindered the project's development. Geopolitical flashpoints such as the US involvement in Afghanistan and Iraq, the annexation of Crimea in 2014 leading to the Russian invasion of Ukraine in 2022, the Nagorno Karabakh conflict, and recent Iranian involvement in the Middle East have impacted INSTC progress (Panda, 2023). A survey conducted by Pandita in 2022 revealed that member countries are primarily concerned about regional issues affecting the INSTC (Pandita, 2022) and found that member countries' top worries due to regional issues include:

- Sanctions of the US-led West against Russia for invasion of Ukraine.
- China's competing connectivity projects with countries of Central Asia and South Asia, including Pakistan and the Caucasus region.
- US sanctions against Iran amid the Middle East volatile situation.
- Geopolitical differences among INSTC member states, including Armenia and Azerbaijan; and,
- Looming threats of terrorism amid political instability, especially those emanating from Afghanistan.

It is important to highlight that the implications of these challenges are felt by all. At the same time, certain opportunities have also come to light. The dialectic of strategic convergences and divergences has certain pros and cons for the region and beyond.

5.1. Russia-Iran Nexus

Amid concerns about American sanctions, potential investors, including member states, interested nations, and private enterprises, have been cautious about making substantial investments in Iran. However, following the West's imposition of sanctions on Russia after the Russian invasion of Ukraine, Moscow and Tehran found common ground, leading to a revival of interest in the INSTC (Johny, 2023). The sanctions imposed by the US-led West have restricted Russia and Iran's access to international markets and trade, necessitating the strengthening of commercial ties with regional partners to evade sanctions. For both countries, the INSTC represents a crucial avenue for economic growth (Shokri, 2023). Russia perceives this corridor as a strategic tool to circumvent economic pressures from the West.

5.2. The India's Way

Indian External Minister Jaishankar underscores the importance of geopolitics and power balance globally, drawing insights from Indian traditions, particularly Kautilya's perspective (S. Jaishankar, 2022, p. 17). India's role as a net security provider in the Indian Ocean Region has led to diplomatic tensions with the US, notably in its stance on the Gaza ceasefire and the Ukraine-Russia conflict. These actions garnered support from Tehran, Moscow, and Middle Eastern Muslim nations. Despite the economic benefits of the INSTC for EU members, divergent geopolitical interests among them persist (Duffy, 2023). Duffy's analysis in 'The Diplomat' suggests that India's pursuit of INSTC ambitions risks involvement in conflicts led by the US-West-Israel alliance against Iran, potentially incurring high costs. India's focus on the Chabahar Port aims to bypass Pakistan and enhance connectivity with Central Asia through the INSTC-linked port. Indian investment in Chabahar diversifies export routes, counters China's Belt and Road Initiative (BRI), and bolsters energy security. However, geopolitical tensions, international agreements, and border disputes challenge Chabahar's potential within the INSTC framework (Aliasgary, Ekstrom, 2021).

5.3. The Caucasus and The Middle East

The project's conducive environment for rapid development is evident in the Armenia-Azerbaijan ceasefire brokered by Russia. Additionally, China's diplomatic initiatives have fostered closer ties between Iran and Saudi Arabia, contributing to regional stability in the Middle East. While the Gaza crisis persists, there are optimistic signs of an imminent resolution (Broers, 2024).

5.4. The Chinese Factor

Recent diplomatic developments have created a favourable environment for the rapid advancement of the project. Russia's mediation led to a ceasefire between Armenia and Azerbaijan, while China's diplomatic efforts facilitated improved relations between Iran and Saudi Arabia, fostering stability in the Middle East. Despite ongoing challenges like the Gaza crisis, signs point toward potential resolutions (Broers, 2024).

6. METHODOLOGY

This qualitative study explores the International North-South Transport Corridor (INSTC) within Eurasia's intricate geopolitical and geo-economic landscape, explicitly focusing on Pakistan. Employing descriptive and interpretive research methods, it delves into secondary data from academic sources, government reports, and policy papers. The study applies theoretical frameworks like commercial liberalism and complex interdependence to comprehend the INSTC's economic motivations and stability. Data collection involves systematic literature review and document analysis to identify critical themes such as geo-economic significance and regional integration benefits. A case study approach further examines the INSTC's impact on Pakistan, elucidating challenges and opportunities. Through data triangulation and ethical research practices, the study ensures validity and reliability. While qualitative research has limitations, this study offers valuable insights into the strategic and economic implications of the INSTC in the context of evolving geopolitical dynamics.

6.1. Thematic Analysis

The thematic analysis of the study on the International North-South Transport Corridor (INSTC) aims to identify and examine the key themes and patterns that emerge from the qualitative data. This analysis helps understand the geopolitical and geo-economic dimensions of the INSTC and its implications for regional connectivity, economic integration, and strategic significance. The main themes identified are:

- The International North-South Transport Corridor (INSTC) aims to enhance connectivity between Europe, Asia, and the Middle East, reducing transportation costs and boosting trade.
- It unlocks the economic potential of landlocked Eurasian countries.

- The corridor supports Russia's "Pivot to the South" strategy, countering initiatives like China's Belt and Road Initiative (BRI) amidst great power competition in Eurasia.
- The INSTC offers Russia diversified trade routes, provides India with strategic access to Central Asian markets, and gives Iran a crucial geographical link despite sanctions.
- This enhances regional economic integration.
- The corridor boosts trade volumes and stimulates economic development in Central Asia, the Caucasus, South Asia, and the Middle East.
- For Pakistan, it offers enhanced trade opportunities but also presents challenges.
- The INSTC faces infrastructural and developmental hurdles, including underdeveloped transport infrastructure, geopolitical tensions, and economic sanctions on Iran and Russia.
- It also faces competition from other connectivity projects.
- The corridor promotes peaceful international relations through economic interdependence among member states.
- Success depends on overcoming infrastructural and geopolitical challenges, fostering regional cooperation, and leveraging strategic alignments to transform Eurasian trade dynamics.

The INSTC's success hinges on overcoming infrastructural and geopolitical challenges, fostering regional cooperation, and leveraging strategic alignments to transform Eurasian trade dynamics.

North-South Eurasian Corridor

Map – 2 (theazb.com).

7. DISCUSSION

The International North-South Transport Corridor (INSTC) represents a transformative initiative to enhance Eurasian countries' connectivity and economic integration. As analysed, the INSTC is poised to significantly reduce transportation costs and transit times, fostering trade and economic growth across the region. This discussion delves into the corridor's strategic and economic implications, geopolitical challenges, and the role of complex interdependence in its success. The INSTC's strategic importance cannot be overstated. It provides a vital alternative to the Suez Canal for Russia, diversifying its trade routes and reducing dependency on Western-controlled maritime paths. India, similarly, stands to gain from direct access to Central Asian markets, bypassing geopolitical tensions with Pakistan. With its central geographical position, Iran is crucial for linking the Indian Ocean with the Caspian Sea despite sanctions and infrastructural limitations (Wu & Frazier, 2021).

The corridor's economic benefits are significant. Enhanced connectivity is expected to boost trade volumes among participating countries by creating more efficient supply chains and fostering regional economic growth. For instance, the INSTC could reduce transportation costs between India and Russia by up to 30%, making their exports more competitive (Tashjian, 2021). For Pakistan, while the corridor offers new regional integration opportunities, it poses challenges by potentially diverting trade routes away from traditional Pakistani ports. However, the INSTC faces substantial challenges. The geopolitical landscape of Eurasia is complex, characterized by ongoing conflicts such as the Russia-Ukraine war, the Nagorno-Karabakh dispute, and tensions in the Middle East (Robinson & Smith, 2023). These conflicts exacerbate geopolitical rivalries, posing significant risks to the corridor's stability. Moreover, economic sanctions against key players like Russia and Iran further complicate the corridor's development (Leonard, 2016).

Infrastructure development is another critical challenge. Many participating countries must develop transport infrastructure, which impedes the corridor's full operationalization. Moreover, competition from other regional connectivity projects, such as China's Belt and Road Initiative (BRI) and the Transport Corridor Europe-Caucasus-Asia (TRACECA), presents additional challenges. These projects, backed by significant investments and strategic partnerships, have gained considerable traction and could overshadow the INSTC.

The theory of complex interdependence offers a pathway for mitigating these challenges. By increasing economic and political interactions, the INSTC can foster more stable and cooperative relationships among member states (Keohane & Nye, 1989). This requires a strategic alignment that combines economic interdependence with geopolitical stability. Enhancing regional cooperation through platforms like the Shanghai Cooperation Organization (SCO) and the Eurasian Economic Union (EAEU) could provide the necessary support for the corridor's successful implementation (The White House, 2022).

The International North-South Transport Corridor (INSTC) holds immense potential to profoundly impact the economies of participating nations, with particular significance for Pakistan.

7.1. Economic Impacts on Participating Nations:

- **Enhanced Trade Connectivity**: The INSTC endeavours to optimize trade routes between Europe, Central Asia, and South Asia, thereby reducing transit costs and times. This streamlined trade flow is poised to augment trade volumes and streamline supply chains.
- **Economic Integration**: By bridging diverse markets, the INSTC facilitates economic integration, enabling countries to harness regional synergies in production and consumption. This integration has the potential to spur economic expansion along the corridor.
- **Infrastructure Development**: Anticipated investments in infrastructure, such as ports, railways, and roads, will enhance logistic capacities, stimulating related sectors like construction and services.
- **Market Diversification**: Landlocked Central Asian countries stand to benefit from enhanced access to global markets, stimulating exports and attracting foreign investment, thereby diversifying their economies.

7.2. Specific Impacts on Pakistan:

- **Strategic Trade Hub**: Positioned as a pivotal transit nation within the INSTC, Pakistan stands to capitalize on its strategic location, emerging as a crucial trade hub facilitating the movement of goods between Eurasia and South Asia.
- **Economic Expansion**: The envisaged reduction in transportation costs and subsequent increase in trade volumes are expected to catalyse industrial growth and economic expansion within Pakistan. This trajectory could pave the way for the emergence of new industries and the fortification of existing ones.
- **Employment Opportunities**: The associated infrastructure enhancements and heightened economic activities are poised to create numerous job opportunities, contributing to employment generation and skill development.

- **Attraction of Foreign Investment**: Augmented connectivity and a robust infrastructure network have the potential to attract foreign investment, further propelling economic growth and development.
- **Facilitated Regional Integration**: Strengthened ties with neighbouring nations and integration into regional trade networks can bolster Pakistan's economic and diplomatic relationships, fostering greater regional cooperation and stability.

In essence, the INSTC promises to optimize trade connectivity, foster economic integration, and catalyse infrastructure development across participating nations. For Pakistan, this translates into consolidating its role as a strategic trade hub, stimulating economic growth, generating employment opportunities, attracting foreign investment, and facilitating regional integration.

8. CONCLUSION OF THE STUDY

The International North-South Transport Corridor (INSTC) is a pivotal geo-economic initiative poised to revolutionize transportation and trade in Eurasia. Offering a more efficient route aims to unlock economic potential and foster regional integration. Russia stands to gain strategic autonomy by reducing its dependence on Western maritime routes, while India benefits from direct access to Central Asian markets, bypassing tensions with Pakistan. Despite facing sanctions and infrastructural hurdles, Iran's central role links the Indian Ocean and the Caspian Sea. Economically, the INSTC is expected to boost trade volumes and stimulate growth by reducing transportation costs. However, geopolitical conflicts like the Russia-Ukraine war and Middle East tensions pose risks. Infrastructure gaps and competition from projects like China’s BRI add complexity. Leveraging complex interdependence principles and enhancing regional cooperation through platforms like the SCO and EAEU are essential for success. Addressing infrastructural challenges and securing sustained support from participating countries are crucial steps forward.

8.1. Future Research Implications/Direction

Future research on the International North-South Transport Corridor (INSTC) should focus on several key areas to further understand its implications and optimize its development. One critical area is the detailed examination of the corridor's infrastructural needs and logistical challenges. Research should identify specific infrastructural gaps and propose solutions to enhance the efficiency and capacity of the transport network. This includes studying the feasibility of integrating modern technologies and best practices in transport logistics. Another important direction is the analysis of geopolitical dynamics and their impact on the INSTC. Given the corridor’s strategic importance and the complex geopolitical landscape of Eurasia, future studies should explore how ongoing and potential geopolitical conflicts influence the corridor's development. This includes assessing the impact of economic sanctions, regional rivalries, and strategic alliances on the INSTC's operational stability and growth. Economic impact assessments are also crucial. Future research should quantify the economic benefits of the INSTC for individual member states and the region. This involves analysing trade volume changes, cost reductions, and economic growth stimulated by the corridor. Studies should also evaluate the corridor's potential to attract foreign direct investment and its role in enhancing the economic resilience of participating countries.

Additionally, research should explore the role of regional and international cooperation in supporting the INSTC. This includes examining the contributions of regional organizations such as the Shanghai Cooperation Organization (SCO) and the Eurasian Economic Union (EAEU) in facilitating the corridor's development. Future studies should also consider the potential for integrating the INSTC with other major connectivity projects like China's Belt and Road Initiative (BRI) to create a comprehensive and interconnected transport network across Eurasia—lastly, the environmental and social implications of the INSTC warrant further investigation. Future research should assess the environmental impact of increased transport activity along the corridor and propose sustainable practices to mitigate adverse effects. Additionally, studies should explore the social implications, including the potential for job creation, skill development, and improved living standards in communities along the corridor. By addressing these research areas, future studies can provide valuable insights and recommendations to enhance the growth and impact of the INSTC. This will help policymakers, stakeholders, and international organizations make informed decisions to optimize the corridor's benefits and ensure its successful implementation.

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NUST JOURNAL OF SOCIAL SCIENCES HUMANITIES
Vol.10 No.1 (January-June 2024) pp. 95-108

Perceived Stress as Mediator for Adjustment Problems and Job Satisfaction among Employees

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Abstract

The primary objective is to compare the level of perceived stress, adjustment issues such as depression, anxiety, and conduct problems, along with job satisfaction among employees working in various organizations. In this cross-sectional research, doctors, teachers, bankers, and soldiers were approached in hospitals, schools, banks, and army units, respectively, situated in Gujrat, Jhelum, and Kharian. A sample of 160 working individuals with the age range between 21 to 59 years (males=116 and females=44) were selected by purposive sampling. We used Urdu versions of the Perceived Stress Scale by Tahira and Kausar (2013), the Scale of Adjustment Problems for Adults (SAPA, Naz, Bano, & Laghari, 2018), and the Job Satisfaction Survey by Shahzad (2010) to collect the data. The results revealed a significant negative correlation between perceived stress, adjustment problems, and job satisfaction. However, a significant positive correlation was observed between perceived stress and employee adjustment problems. Hierarchical regression analysis revealed perceived stress as a complete mediator between adjustment problems and employee job satisfaction. Bankers have been found to suffer from high stress and adjustment problems, whereas teachers seem to have the lowest job satisfaction. Implications are discussed in the light of the research findings.

Keywords: Anxiety, Mediator; Perceived Stress; Job Satisfaction; Analysis of a Moment Structures.

Article History: Received: February 24, 2023, Revised: January 4, 2024, Accepted: June 10, 2024, Published: June 25, 2024

DOI*: 10.51732/njssh.v10i1.185*

1. INTRODUCTION

Previous research has empirically posited a firm correlation between organizational productivity and financial development with employees' psychological wellbeing and job satisfaction. The higher the level of job satisfaction and wellbeing in employees, the greater would be the productivity and revenue generation in the organization (Bhatti & Qureshi, 2007; Bianchi, 2012; Burton *et al.,* 2008; Drobnič *et al.,* 2010; Kahn & Langlieb, 2003; Kassenboehmer, & Schmidt, 2011). An inverse correlation is found between wellbeing and depression, anxiety, and conduct-related issues (Smith *et al.,* 2020; Fairchild *et al.,* 2019). Therefore, variables such as stress, depression, anxiety, and conduct problems are crucial for study to peep into their impact on job satisfaction, thereby reciprocally affecting organizational performance and productivity. With the advancements in science and technology, people's lifestyles have changed. Stress has become inevitable, and individuals can suffer from stress due to any precipitating reasons (such as conflicts with others, being overwhelmed, and inability to cope effectively) present either at home or in occupation. Stress is defined as a threatening drive that upsets the person's equilibrium and leads to biochemical changes resulting in behaviour variations, thereby diminishing the person's coping resources (Bhargava & Trivedi, 2018; Shahsavarani *et al.,* 2015; Jehangir *et al.,* 2011). The perceived stress might lead to many outcomes, such as memory problems, focusing only on negative things and sadness or despondency, nervousness, mood swings, irritation, rage, speechlessness, solitude, and separation from others. There are specific physical issues encountered after stress, such as aches, discomfort, stomach problems, vomiting, shakiness, pain in the chest, increased heart rate, and lack of sexual motivation. Finally, behaviour-related problems such as reduced eating and sleeping patterns are evident (Help Guide, 2019).

The perceived stress, measured by the Perceived Stress Scale (Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983; 24:385–96.) affect the job satisfaction of professionals (Vinothkumar M, Arathi A, Joseph M, Nayana P, Jishma EJ, Sahana U. Coping, perceived stress, and job satisfaction among medical interns: The mediating effect of mindfulness. Industrial Psychiatry Journal. 2016 Jul;25(2):195-201; Akyurt N. Job satisfaction and perceived stress among radiology technicians: a questionnaire survey about sociodemographic and occupational risk factors. International Archives of Occupational and Environmental Health. 2021 Oct; 94:1617-26.). The high organizational performance is contingent on the workers' perceived job satisfaction, which in turn is linked to their mental health (internally) and stress-free environmental conditions (externally). Prior research has established an association between stress and job satisfaction. Stress can result in poor job performance, thereby causing low job satisfaction among working people (Sullivan & Bhagat, 1992; Babin & Boles, 1996; Jaramillo *et al.,* 2006).

Job satisfaction is conceptually considered to be the attitude, positive or negative, a person has about the job. The term also embraced the feeling and emotional component one experiences as liking or disliking the various aspects of one's work (Aziri, 2011; Singh & Jain, 2013; Thiagaraj & Thangaswamy, 2017). There are three main elements of job satisfaction. The first component is evaluative, which is a general response of a person towards his/her organization, for example, an employee's liking or disliking of the organization. The second element is cognitive, in which people's thinking patterns, perceptions, judgment, originated beliefs, and expectations towards the organization are measured. The last element is affective, which is linked with a person's induced feelings about his/her organization. The positive feeling is induced by proper information and a response from the employer.

Further, organization situations that enhance a person's self-esteem and self-concept also originate positive feelings (IEduNote, 2019). According to Singh and Jain (2013), different factors associated with job satisfaction may include policies of compensation and advantages, job safeguards, working conditions, association with the manager, promotion and career development, leadership style, working group, and personal variables. Several researchers have found a negative correlation between job satisfaction and experiences of depression and anxiety among employees (Salma & Hasan, 2020; Poursadeghiyan *et al.,* 2016; Yilmaz, 2018).

Depression, anxiety, and conduct-related issues are expressed in the form of adjustment problems. These are changes related to the emotional and behavioural manifestations of an inability to cope with the stressors that occur three months after encountering the stressors. It can be defined as unusual reactions to stressful events or responses. Adjustment problems are specified with depression symptoms that may include low mood, feelings of hopelessness, or tearfulness. Further, it is specified with anxiety comprising symptoms of worry, jitteriness, or separation. Finally, the conduct disturbance specifier has incorporated conduct-related issues (American Psychiatric Association, 2023). Adjustment problems are explained as the group of conditions in which a person is unable to satisfy his psychological, social, and biological needs successfully and faces an imbalance between the expectation of society and personal needs, resulting in the disturbance of psycho-equilibrium and manifested in terms of depression, anxiety, and conduct problems (Srivastava, & Singha, 2017).

The previous research confirmed the role of stress in developing adjustment problems in terms of depression, anxiety, and psychoticism, thereby resulting in poor job satisfaction among police officers (Singleton & Teahan, 1977). The adjustment problems of rescue workers were studied about posttraumatic stress disorder and job satisfaction (North *et al.,* 2002). Therefore, few researchers have focused on exploring perceived stress in the context of the health of individuals and their adjustment that could result in the acquisition of inner dissatisfaction or, more particularly, job dissatisfaction (Watson *et al.,* 1987; Williams *et al.,* 2001). Adjustment mechanism is elucidated as a scheme by which a person reduces his anxiety and tension for adjustment which helps in regaining the mental health. Everyone encounters stress, but if a person feels difficulty in coping with these stressors, then adjustment problems take place. In this way, different types of adjustment strategies are used based on stressors that an individual faces. However, if the individual fails, these adjustment problems lead to serious psychological adjustment disorders in return. It is linked with the emergence of depression and anxiety (Carta *et al.,* 2009; Casey, 2009). Therefore, profound stress has been found to pave the grounds for the emergence of depression (Yang *et al.,* 2015). High levels of stress are linked with hostility, anxiety, and depression (Mohammad, 2014).

Several researchers have found an empirical relationship between job satisfaction and individual adjustment. Adjustment and job satisfaction among 60 white-collar workers were found with the help of a Job Satisfaction Questionnaire and Saxena's Adjustment Inventory. The product-moment correlation of the two variables (r=.52) indicated that workers who were satisfied tended to have better scores on adjustment, and those less satisfied were generally poorer in their adjustment (Sinha & Agarwala, 1970). Another study explored the relationship between adjustment and job satisfaction among 400 teachers (256 males and 144 females). It was found that there was a positive correlation (.404) between teacher adjustment and job satisfaction (Halder & Roy, 2018). Prior research has considered the positive aspect of adjustment as it is thought to be human resilience to adapt to given environmental conditions.

The current study foresees the role of perceived stress in mediating the relationship between adjustment problems and job satisfaction among employees. The implications of the study based on the investigation of relational significance among three variables would shed light on policymakers' development of strategic intervention plans accordingly, thereby increasing productivity and adding to per capita income. The hypotheses of the study are

1. The higher the perceived stress and adjustment problems, the lower employee job satisfaction.
2. Perceived stress will mediate the relationship between adjustment problems and employee job satisfaction.
3. There will be significant differences in stress, adjustment problems, and job satisfaction among different professionals.

2. METHODOLOGY

2.1. Participants

A sample of 160 working individuals (males=116, 72.5%; females=44, 27.5%) was selected by purposive sampling from different organizations (hospitals, schools, banks, army units). Their age ranged from 21 to 59 years (M=32, SD= 7.71), and their monthly income ranged from 15,000 PKR to 200,000 PKR. The inclusion criteria for employees focused on qualification ≥ intermediate and > one year of work experience. Exclusion criteria qualify as less than intermediate and have work experience of less than a year.

2.2. Instruments

Three standardized scales were used in addition to a demographic sheet.

Perceived Stress Scale (PSS) was designed to evaluate individuals' stress levels. Tahira and Kausar (2013) have translated PSS into Urdu. The 14 items are rated on a Likert-type scale, ranging from "0-Never to 4-very often'.

The PSS scores ranged from 0-56, with high scores indicating greater perceived stress (Cohen *et al.,* 1983). The findings show good internal consistency (0.83), test-retest reliability (0.73), Spearman-Brown (0.83), and Guttman Split-Half (0.83) reliability coefficient. Further, convergent validity (0.66) and discriminant validity (-0.03) are acceptable in the Pakistani population (Mushtaq & Ahmed, 2020).

Scale of Adjustment Problems for Adults (SAPA) was developed in Urdu to be used with Pakistanis. This scale consisted of 48 items with 8 subscales, namely Depression Physiological, Anxiety Physiological, Depression Cognition, Anxiety Cognition, Conduct Cognition, Depression Behaviour, Anxiety Behaviour, and Conduct Behaviour. The scores ranged from 48 to 144, with high scores indicating adjustment problems. The items are rated on a three-point Likert-type scale ranging from "1=not at all to 3=always". The reliability of the sub-scales was between 0.71 and 0.88 (Naz *et al.,* 2018).

Job Satisfaction Survey (JSS) is developed by Spector (1994) with 36 items and 9 subscales: pay, promotion, supervision, fringe benefits, contingent rewards, operating procedure, coworker, nature of work, and communication. The rating is done on a Likert-type scale with "1=strongly disagree to agree" choices (Spector, 1997) and 6= strongly agree. JSS has Cronbach's alpha ($r = .88, p < .01$), split-half ($r =.87, p < .01$), and test-retest reliability after one-week interval ($r = .80, p < .01$). Convergent validities of JSS with Organizational Commitment Questionnaire-Revised Version ($r = .52, p < .01$), Rosenberg Self Esteem Scale ($r = .55, p < .01$) and Trait Emotional Intelligence Questionnaire ($r = .56, p < .01$) was satisfactory in Pakistani population (Abbas, & Khanam, 2020).

3.3. Procedure

The study was carried out after obtaining permission from the authors to use the tools. A permission letter was signed by the head of the department and supervisor to collect information from different schools, banks, hospitals, and army units. For the data collection, questionnaires were delivered to 160 respondents from different institutions such as banks, schools, army units, and hospitals of the public and private sectors of Gujrat, Jhelum, and Kharian. Informed consent was obtained from the respondents, and they were given instruments. The anonymity and discretion of the participants were maintained. Data was collected at the feasibility and ease of participants without creating a hindrance in their work. Ethical principles of informed consent and confidentiality were followed strictly during data collection.

3. RESULTS

Data was analysed using the SPSS 21 version. The data was screened to check for missing values, and no missing values were found. Cronbach's alpha, range, skewness, mean, standard deviation, and one-way ANOVA with LSD post-hoc analysis was performed to compare stress, adjustment problems, and job satisfaction among professionals. The mediating role of perceived stress between adjustment problems and job satisfaction is analysed in the Analysis of a Moment Structures (AMOS-24) version.

Table 1. Psychometric Properties of Major Scales of the Study(n=160)

Scales	*k*	Algha	Range		skew
			Potential	Actual	
Perceived Stress Scale	14	.70	0-56	9-52	.45
Scale of Adjustment Problems for Adults	48	.95	48-144	48-132	1.24
Job Satisfaction Survey	36	.85	36-216	84-206	.49

Table 1 shows that Cronbash's Alpha reliability of the Perceived Stress scale is .70, SAPA's reliability is 0.95, and JSS's reliability is 0.85.

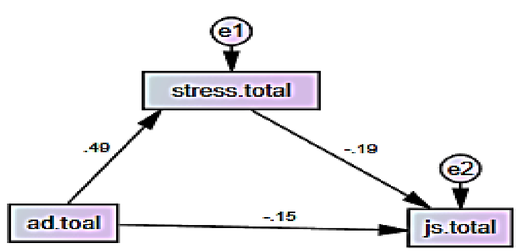
Table 2. Inter-correlation among Scales of the Study (n=160)

Sr.#	Variables	M	SD	2	3
1	Stress	23.20	6.92	.45**	-.27**
2	Adjustment problems	69.21	15.34	-	-.25**
3	Job satisfaction	145.96	24.92	-	-

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2 shows the mean, standard deviation, and Pearson product Moment Correlation Coefficients for stress, adjustment problems, and job satisfaction.

Figure 1. The Mediating Role of Perceived Stress between Adjustment Problems and Job satisfaction among Professionals (n=160).



Note: P. S=Perceived Stress; J. S= Job satisfaction; A.d= Adjustment Problems.

Figure 1 shows that perceived stress served as a complete mediator between adjustment problems and job satisfaction among professionals.

Table 3. One Way ANOVA for Perceived Stress, Adjustment Problems, and Job Satisfaction among Professionals (n=160) df= (3,156).

Variables		N	M	S. D	F	p	95% Confidence Interval for Mean	
							Lower Bound	Upper Bound
Perceived Stress	Teachers	40	22.97	5.76	3.01	.032	21.13	24.81
	Bankers	40	25.90	7.79			23.40	28.39
	Army	40	21.85	6.62			19.73	23.96
	Doctors	40	22.07	6.84			19.88	24.26
Adjustment Problems	Teachers	40	69.40	13.59	3.44	.018	65.05	73.74
	Bankers	40	74.87	17.97			69.12	80.62
	Army	40	68.42	11.71			64.67	72.17
	Doctors	40	64.17	15.96			59.06	69.28
Job Satisfaction	Teachers	40	139.60	23.41	3.56	.016	132.11	147.08
	Bankers	40	145.25	21.80			138.27	152.22
	Army	40	156.30	25.65			148.09	164.50
	Doctors	40	142.72	26.22			134.33	151.11

Table 4. Post Hoc Analysis (LSD) for Perceived Stress, Adjustment Problems, and Job satisfaction among Professionals (n=160)

Dependent Variable	(I) profession	(J) profession	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Perceived Stress	Teachers	Bankers	-2.92	1.51	.056	-5.92	.07
		Army	1.12	1.51	.460	-1.87	4.12
		Doctors	.90	1.51	.554	-2.10	3.90
	Banker	Army	4.05^{*}	1.51	.008	1.04	7.05
		Doctors	3.82^{*}	1.51	.013	.82	6.82
	Army	Doctors	-.22	1.51	.882	-3.22	2.77
Adjustment Problems	Teachers	Bankers	-5.47	3.35	.105	-12.10	1.15
		Army	.97	3.35	.772	-5.65	7.60
		Doctors	5.22	3.35	.121	-1.40	11.85
	Banker	Army	6.45	3.35	.056	-.17	13.07
		Doctors	10.70^{*}	3.35	.002	4.07	17.32
	Army	Doctors	4.25	3.35	.207	-2.37	10.87
Job Satisfaction	Teachers	Bankers	-5.65	5.44	.301	-16.40	5.10
		Army	-16.70^{*}	5.44	.003	-27.45	-5.94
		Doctors	-3.12	5.44	.567	-13.87	7.62
	Banker	Army	-11.05^{*}	5.44	.044	-21.80	-.29
		Doctors	2.5	5.44	.643	-8.22	13.27
	Army	Doctors	13.57^{*}	5.44	.014	2.82	24.32

4. DISCUSSION

The obtained results of this study confirmed the research hypotheses: 1) the relationship among perceived stress, adjustment problems, and job satisfaction; 2) the mediating role of perceived stress between adjustment problems and job satisfaction; and 3) There will be significant differences among stress, adjustment problems, and job satisfaction in different professionals. The Urdu versions of the PSS, SAPA, and JSS were highly reliable for use with the Pakistani sample of employees, with internal consistency of 0.70, 0.85, and 0.95, respectively (see Table 1). A value of 0.70 and above is an acceptable minimal value for Cronbach Alpha on a scale (DeVellis, 2003).

The study's first hypothesis is, "The higher the perceived stress and adjustment problems, the lower the job satisfaction among employees." Table 2 shows that there is a negative significant correlation between stress and job satisfaction ($r= -.27$, $p<0.01$). Also, there is a significant negative correlation between adjustment problems and job satisfaction ($r= -.25$, $p<0.01$). Several research supported the findings of the present study. A study found a negative correlation between stress and job satisfaction among university staff (Ahsan *et al.,* 2009). The impact of stress on job satisfaction in 122 Air Traffic Controllers of Pakistan was studied. The results indicated a negative correlation between stress and job satisfaction. Air traffic controllers with high levels of job stress showed low job satisfaction (Iqbal & Waseem, 2012). Among 200 pharmaceutical sales representatives, the relationship between stress and job satisfaction was negative (Vasan, 2018). Similarly, 200 municipality personnel in Iran had low job satisfaction due to high job stress (Bemana *et al.,* 2013). Moreover, adjustment problems in terms of depression, anxiety, and conduct disturbances were found to have a significant negative relationship with job satisfaction among workers of different occupations (Ferguson *et al.,* 2012; Newbury-Birch D & Kamali, 2001; Zeffane *et al.,* 2008). Hence, perceived stress negatively correlates with job satisfaction (Erdoğan *et al.,* 2020; Bansal *et al.,* 2021).

The results of Table 2 showed a significant positive relationship between perceived stress and adjustment problems of individuals ($r=.45$, $p<0.01$). The results are consistent with other empirical findings (Caspi *et al.,* 2003; Shin & Liberzon, 2010; Koenen *et al.,* 2005). This implied that in the presence of stress, depression, anxiety, and conduct disturbances naturally emerged in the employees and completed the comorbid syndrome in the individuals.

The second hypothesis, "Perceived stress will mediate the relationship between adjustment problems and job satisfaction among employees," was confirmed. Figure 1 showed that perceived stress entirely mediated between and job satisfaction in several other studies conducted on different samples (for example, patients with mental illness and ballet professionals (Tziner *et al.,* 2015; Nisar *et al.,* 2020). Therefore, the results of the present study have supported the empirical findings already conducted on the fundamental variables of stress, adjustment, and job satisfaction.

The third hypothesis of the study is, "There will be significant differences among stress, adjustment problems, and job satisfaction in different professionals. Significant differences were." present in the perceived stress of bankers with the army persons and doctors. It has been witnessed that the banking sector encounters various changes in its setup. The changes were linked to the introduction of new technology and organizational structure that affected the work and lives of employees. Employees in banking come across different disorders. Among all professionals (teachers, army, doctors), bankers experience work-related stress at a very high life-threatening point. It also directly affects their work, wellbeing, and the organization (Giorgi *et al.,* 2017).

Regarding job satisfaction, army personnel significantly differed from teachers, doctors, and bankers and showed the highest job satisfaction. The army persons often testified to problems related to their military practices, work-life equilibrium, health, and relationship issues. Further, they require proper instruction, psychotherapy, and emotive care from others (Sims *et al.,* 2017). Finally, regarding adjustment problems, bankers were significantly different from doctors. It has been witnessed that bankers experience anxiety and depression (Clarke, 2013). The teaching profession, particularly in school, is understood as a stressful occupation (Griffith *et al.,* 1999; Montgomery & Rupp, 2005; Olivier & Venter, 2003), which is why they have suffered from the lowest job satisfaction.

5. CONCLUSION

The workers in Gujrat, Jhelum, and Kharian have experienced adjustment problems, and the impact has been enhanced by the presence of perceived stress among employees. These psychological distresses have influenced their job satisfaction. Perceived stress has significantly and wholly mediated the relationship between stress and job satisfaction of the working class in banking, teaching, health, and the army.

This quantitative research has a small sample size (n=160) and has been selected only from four professionals. In the future, the same study can be more effective if other job-related factors are explored, like job citizenship, job commitment, job performance, worker management, job loyalty, turnover, workplace setting, rewards-recognition system, coaching, and development. Further, other professions can be explored for future consideration. A qualitative, in-depth study can also explore these variables in the indigenous culture.

There is a dire need to establish counselling units in various organizational settings in Pakistan and provide counselling to these personnel for the abolition of mental anguish. Counselling services must be provided in schools, banks, hospitals, and army institution personnel to boost adjustment, reduce stress, and enhance job satisfaction without interfering with organizational structural and managerial norms on the one hand. On the other hand, policymakers should focus on issues of employee equity and optimal flexible working conditions to provide a stress-free environment for their employees.

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NUST JOURNAL OF SOCIAL SCIENCES HUMANITIES
Vol.10 No.1 (January-June 2024) pp. 109-130

Parenting Styles, Bullying Behaviour and Mental Health of Prisoners

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Abstract

The current study examined the association between parenting styles, bullying behaviour, and the mental health of prisoners. We hypothesize that there was likely to be a positive relationship between parenting styles and bullying behaviour, respectively, and there was likely to be a positive relationship between parenting styles and the mental health of prisoners in jail. It was also hypothesized that there is expected to be a negative relationship between bullying behaviour and mental health, and bullying behaviour was likely to mediate between parenting styles and the mental health of prisoners. The study uses a cross-sectional research design and purposive sampling strategy to recruit 134 participants (Men=, 104, Women=30). The sample was within the age range of 18-55 years (M=35.13& SD=9.65). Demographic sheet, Parental Authority Questionnaire-short version, Direct and Indirect Prisoners Behaviour Checklist-R, and Mental Health Inventory were administrated. Correlational analysis revealed a strong correlation among parenting styles, bullying behaviour, and mental health. Hierarchal multiple regression analysis revealed that bullying behaviour also strongly predicts mental health. The predictor, parenting styles, partially predicts mental health, as one parenting style out of three showed a significant variance in the outcome.

Keywords: Bullying; Prisoners; Parenting; Mental Health; Qualitative Analysis; Hierarchal Multiple Regression Analysis.

Article History: Received: January 1, 2023, Revised: February 2, 2024, Accepted: March 5, 2024, Published: June 25, 2024

DOI: *10.51732/njssh.v10i1.188*

1. INTRODUCTION

Bullying amongst prisoners is undeniably a significant issue, and all types of prisoners, juvenile, women, men, young, and adult offenders, are seen exhibiting this behaviour at some point in time (Ireland, 2014). According to

Ireland (2002), bullying behaviour is defined as an individual being bullied when they are the victim of direct or indirect aggression happening every week by the same or different perpetrator and the behaviour which a person manifests intentionally to hurt someone, physically or psychologically, having no justified reason (Efobi & Nwokolo, 2014). A prison is a place of confinement, especially for lawbreakers convicted of severe crimes. Prisons are dynamic sites that have a probability for the events of adult bullying to occur (Ireland, 2013). A prisoner is deprived of liberty and kept under involuntary restraint, confinement, or custody, especially on trial or in prison. The word ‘criminality’ comes from the word Crimen in Latin, defined as an act of human conduct damaging to others. Crime can be of many kinds, such as robbery, murder, larceny-theft, burglary, motor vehicle theft, including arson, and victimless crimes (Khan, 2016). The prison population is growing on all the continents. Crime is present everywhere in the world and in established and established countries. This problem has become severe in the least developing countries, particularly Pakistan. The massive increase in crimes is cautious due to increased unemployment, the elevating cost of food and resources, the enhancing discrimination between the rich and the needy, the shifting from diffused to developed areas, and insufficient education. Not only do some groups commit crimes, but many educated and well-off people also indulge in criminal acts or behaviour (Khan, 2016). Crime rates cause heavily populated prisons, which then produce more susceptibility to bullying and mental health issues. The structure of the prison system promotes bullying. For example, bullying is associated with maintaining regulation and authority (Randall, 1995). Ireland (2002) proposed that both direct bullying, which includes physical, verbal, psychological, and sexual bullying, and indirect bullying, which provides for gossiping, rumour spreading, and telling practical jokes, happen in prison. *The deprivation model* suggests that inmate aggression is the outcome of the stressful and repressive conditions inside the prisons. In short, the lack of environment in the prison creates aggressive or self-destructive behaviour (Armour, 2012). *The multifactor model of bullying in secure settings* identifies two distinct ways leading to perpetrating aggression based on environmental experience. The first one is the 'desensitization pathway,' which happens in an aggressive background in which the individual feels threatened by the aggressive environment but cannot manage it. The second one is the 'environment and prior characteristic pathway,' which is determined by the personality traits of the individual who is already inclined to use aggression (Ireland, 2012).

Parenting styles play a vital role in describing the bullying attitudes of prisoners in prison. Parenting styles are attributed to parents' methods or approaches to raising their children. Two aspects of parenting are involved, i.e., parental responsiveness and demandingness (Ladd & Ladd, 1998). Parental responsiveness is how parents intentionally foster individuality, self-regulation, and self-assertion by being attuned, supportive, and acquiescent to children's unique needs and demands (Baumrind, 1991). Parental demandingness is explained as the claims parents make on children to become integrated into the family whole through their maturity demands, supervision, disciplinary efforts, and willingness to confront the child who disobeys (Baumrind, 1991). Baumrind stated three parenting styles: *Authoritative Parents* include both aspects, i.e., demanding and responsiveness. In this type of parenting, parents govern the activities of their children in a logical, problem-oriented way (Baumrind, 1991). This parenting style is democratic in that the parents are vigilant and give the logic behind the rules created for children (Greenwood & Wilkinson, 2013). *Authoritarian Parents* are exceptionally demanding but show no responsiveness. According to Buamrind (1991), authoritarian parents tend to mould control and assess the child's behaviour without taking account of their feelings. *Permissive Parents* show more responsiveness than demand (Baumrind, 1991). Baumrind further says that permissive parents do not punish their children, are accepting, and have affirmed relations with their children.

According to social learning theory, children's everyday experiences and exposure contribute directly or indirectly to shaping their behaviour. A child is likely to repeat a behaviour when he receives an instant reward for his behaviour and is less likely to repeat the behaviour if he gets punished. Social learning theory emphasizes parental conflict, coercion, and constant discipline while dealing with the historical significance of negative and hostile behaviour in children (McLeod, 2011). *Attachment theory* states that optimal and non-optimal attachment depends upon the quality of care, basically sensitivity and responsiveness. Attachment theorists state that attachment relationships affect the assumptions for other vital relationships. A child develops the model of self and others as loving, loveable, and helpful when he has an account of persistent and emotional care with his parents (Bakermans-Kranenburg *et al.,* 2003).

World Health Organization (WHO) considers mental health a state of well-being in which a person recognizes their potential, can deal with daily life stressors, can work proficiently and effectively, and is also involved in contributing to the community in many ways. Thus, mental health enhances the capacities of individuals and communities by encouraging them to attain their self-determined targets (WHO, 2001). Mental fitness does not merely mean an absence of mental illness; complete health consists of overall mental, physical, and social well-being. Physical, mental, and social functioning are interrelated and cannot exist independently (Wing *et al.,* 1990). Mental health plays a considerable role in human life at the individual, societal, and cultural level*s. The mental health model proposed* two components of mental health about the mental health model: i) psychological well-being and ii) psychological distress. Psychological well-being defines an overall positive mental health status, like emotional connections, and psychological distress depicts conditions like anxiety, depression, and loss of behavioural/emotional control, which are negative mental health states (O'Hagan, 2009).

The covariate of the study is personality. Personality is a concept formulated in different ways; Schultz (2005) provides more precision in defining personality as the unique, relatively enduring internal and external aspects of a person's character that influence behaviour in different situations. The Big Five model of personality (McRae & Costa, 1995) represents five traits: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. These are often attributed to the acronym OCEAN. These are the "broad" traits because they contain multiple domains or facets of personality (Costa & McCrae, 1995).

The bully/victim behaviour is linked to various components of parenting styles and family incidents. Research findings have shown that bullying behaviour is dominant in those children whose parents have an authoritarian parenting style (Prgomet *et al.,* 2009). Bullying not only affects the victims negatively but also the perpetrators. According to Kim and Kim (2004), the victims of bullying have long-lasting behavioural and psychological problems. Parents whose children are involved in bullying behaviour generally have issues with their families and unreliable attachment patterns with their children. The personalities, home atmosphere, relationship with family and peers of both the victims and bullies are assessed while conducting psychological research on bullying. Parental support is linked to lower signs of depression and less bullying behaviour (Wang *et al.,* 2009).

2. SIGNIFICANCE OF THE STUDY

Throughout the years, bullying has increased significantly, and a notable number of individuals have indulged in bullying. Bullying has a relationship with elevated symptoms or signs of depression and anxiety, while careful parenting brings a decline in these symptoms (Moradi & Sepahvand, 2020). Parenting is vital in evaluating bullying behaviour as it gives a strong background. According to Georgiou (2008), bullying starts at home. Moreover, Extreme bullying can affect the lives of prisoners who are suffering from victimization. Such victimization can lead to many adverse outcomes, especially suicidal behaviours (Blauuw *et al.,*2001). Bullying in prison is also a significantly less explored area all over the world. Only a finite number of developed countries with individualistic cultures have researched bullying among inmates. Countries like Pakistan, with a collectivistic culture and underdevelopment, lack this research. So, bullying needs to be studied more and more all around the world so that victims can be protected from the perpetrators, and the prison department should take proper steps on the administrative level to prevent disastrous behaviours like bullying. So, the significance of the present study is to explore this less-explored dimension of bullying behaviour among inmates of underdeveloped countries like Pakistan. Proper research should be conducted so that the attention of respective authorities will be drawn towards this dangerous act and its outcome in the destruction of mental health or suicidal ideation. Parents' attention is also proposed to be grabbed in this study because good and supportive parenting leads to better behaviour, unlike bullying.

2.1. Objectives of the Study

- To study the prisoners and their bullying behaviour in prisons.
- To identify the relationship between parenting styles, bullying behaviour and mental health of prisoners.
- To identify the mediating relationship of bullying behaviour between parenting styles and the mental health of prisoners.

2.2. Objectives of the Study

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- To identify the relationship between parenting styles, bullying behaviour, and mental health of prisoners.
- To identify the mediating relationship of bullying behaviour between parenting styles and the mental health of prisoners.

Proposed Model

Figure 1

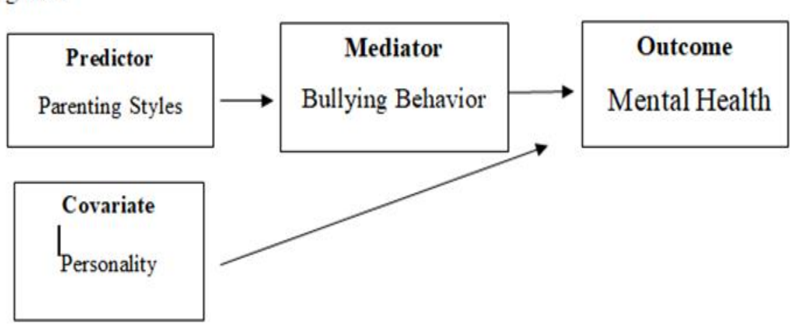

Figure 1 Proposed model of parenting styles, bullying behavior, and mental health of prisoners in adult prisoners with predictor; parenting styles, mediator; bullying behavior, Outcome; Mental health, covariate; personality.

3. METHOD

The study used a cross-sectional research design and a purposive sampling strategy to select the sample from Central Jail Lahore. Using G power sample size analysis with alpha=0.05 and medium effect size, i.e., 0.3 and β= = 0.90, a total of N=134 Prisoners (men=104, Women=30) was selected as a sample size. The sample was within the age range of 18-55 years (M=35.13& SD=9.65).

3.1. Inclusion Criteria

Those participants who met the following criteria were included.

- The prisoners are within the adult age range of 18-55 years of age.
- Both genders, male and female, are prisoners of the Central Jail Lahore.
- All the prisoners at Central Jail Lahore, including both convicted and under-trial prisoners.
- All the prisoners who committed any crime.

3.2. Exclusion Criteria

- The mentally unstable prisoners were excluded.

4. MEASURES

4.1. Demographic Sheet

The researcher will create a demographic sheet to acquire information regarding the participant's age, gender, birth order, number of siblings, education, marital status, family structure (nuclear or joint), religion, socioeconomic status, and monthly income.

4.2. Parental Authority Questionnaire (Alkharusi *et al.,* 2011)

This tool measures three parenting styles: authoritative, authoritarian, and permissive. The questionnaire consisted of twenty items on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Internal consistency coefficients ranged between .65 and .75, and two-week test-retest reliability coefficients ranged between .77 and .92. We presented evidence of construct and criterion-related validity. The Cronbach alpha of the three subscales of this tool in this study is 0.78, 0.78, and 0.66, respectively. This tool was administered in Urdu.

4.3. Direct and Indirect Prisoner Behaviour Checklist (Ireland, 1998)

The Direct and Indirect prisoner behaviour checklist is used to measure bullying behaviour. The DIPC-Revised is separated into two sections, section one examining self-reported 'victims of bullying,' and section two addressing self-reported 'bullying behaviour.' The final DIPC-Revised checklist consists of items describing both experienced events and actions. Items include those indicative of 'being bullied' or of 'bullying others'. The tool consists of 79 items in total. It consists of 8 subscales on both sections of bully and victim. The Cronbach alpha of the subscales of this tool ranges from .42 to .93 in this study.

The tool was administered in Urdu as translated and adapted by Tahir (2011) according to the culture of Pakistan.

4.4. Mental Health Inventory (Veit &Ware, 1983)

The Mental Health Inventory developed by Veit and Ware (1983) measures mental health in terms of psychological distress based on anxiety, depression, loss of behavioural/emotional control scales, and psychological well-being based on the general positive affect, emotional ties and life satisfaction subscales, concentrating on affective states. It consists of 38 items cantered on these constructs. The scale measures are on a Likert scale, in which some items are reverse scored. The test-retest-reliability of the inventory is 0.64. The Internal consistency coefficient is 0.96, and the scale's reliability is 0.81.

4.5. Covariate Measures

Big five inventory -10 (Rammstedt & John, 2007). This is a short measure to assess personality. It consists of ten items divided into five scales measuring five dimensions of personality. Each scale consists of 2 items. The responses are given on a five-point Likert scale (1= = strongly disagree to 5= = strongly agree). The test-retest reliability of this instrument is .75, and Cronbach's alpha is .85 (Rammstedt & John, 2007). The Cronbach alpha of the five subscales of this inventory in this study is 0.85, 0.95, 0.80, 0.89, and 0.83, respectively.

5. PROCEDURE

Firstly, we obtained permission from the department's Research Committee, and consent to use assessment measures was obtained from the authors before starting data collection. Written permission was taken from the Inspector General Prisons, Punjab, for data collection at Central Jail Lahore. The authorization and informed consent were taken from the participants. A pilot study was conducted in which a demographic sheet and questionnaire were administered to 10-12 participants to determine the difficulty level of items for each, and the administration time taken by the participants. After the successful completion of the pilot study, primary research was conducted. The sample of 134 adult prisoners (men=104, women=30) was selected from the Central Jail Lahore, and the study measurements were administered.

Ethical Considerations

- Permission from the Inspector General Prisons Punjab was sought.

- Informed consent was obtained, and the participants were provided with all information about the nature and purpose of the study. It was also ensured that the participants could withdraw from the research at any time.

6. RESULTS

Pearson correlation was run to check the hypothesis; correlation was also found between the variables and the demographics. This correlation consisted of three parts. The first part examines the correlation of demographic variables with the study variables. The Table 1 results showed that gender is significantly negatively correlated with verbal bullying victimization and anxiety; this shows that males are less vulnerable to verbal bullying as victims in prisons as compared to females are less anxious as well as compared to males. This correlation of gender is also positively correlated with life satisfaction and psychological well-being, meaning that males are more satisfied with their lives than females. The results also showed that there is a significant positive correlation between marital status and verbal bullying victimization and anxiety, whereas there is a significant negative correlation with life satisfaction. This showed that widows are more vulnerable to verbal bullying, victimization, and anxiety as compared to divorce. At the same time, they are much less satisfied with their life than they were with divorce. The results also revealed a significant positive correlation between religious inclination and authoritative parenting and positive, proactive behaviours, which shows that the more a person is religiously inclined, the more he experienced authoritative parenting in his childhood. The more he shows positive behaviours towards others. The intercorrelation table also showed the negative correlation between the family system and perpetrators of theft and bullying. This showed that people living in a joint family system show less tendency towards theft and bullying as perpetrators as compared to people living in the nuclear family system. The table shows that the home environment has a significant positive correlation with an authoritative parenting style, which shows that people with pleasant home environments experience good parenting compared to those with just a typical home atmosphere. Theft in childhood is negatively correlated with Coercive aggression as the perpetrator. This means those who do not commit theft in childhood are less inclined to engage in coercive aggression as a perpetrator than those who steal in childhood. The correlation table also showed a significant negative relationship between family members ever staying in jail and psychological bullying as a victim; this means that those prisoners whose family members were never in jail are more likely to experience psychological bullying as compared to those whose family members have been in prison. The table also showed a negative relationship between the first sentence in jail and physical bullying as victims.

It means that those who are on their first time in prison are more likely to experience physical bullying as perpetrators than those who are not for their first time in jail.

In the second section, the personality covariate in this study was also interpreted with the study variables: parenting styles, bullying behaviour, and mental health of prisoners. The results showed that agreeableness is negatively correlated with verbal and theft bullying while positively correlated with Life satisfaction. It means that the more a person is agreeable, the less he will be victimized by verbal and theft bullying and the more he will be satisfied with his life. The table showed that neuroticism has a significant strong negative correlation with the Authoritative parenting style and a positive correlation with anxiety. It shows that person who is more neurotic are less likely to experience authoritative parenting in their childhood and are more anxious as compared to those who are low on neuroticism.

The third section analyses the study variables: The Table showed a significant negative relation between Authoritative parenting and the indirect bullying of a perpetrator. This shows that the people who experience authoritative parenting in their childhood are less likely to act as perpetrators in psychological bullying as well as indirect bullying as compared to those who do not experience such highly responsive parenting. The Results showed that there is a significant positive relationship between Authoritarian parenting style and anxiety; it shows that the people who experience authoritarian parenting are more likely to experience anxiety as compared to those who do not experience such parenting. The table also shows the significant positive relationship between the mediator physically bullying a victim with anxiety, depression, and psychological distress and a negative correlation with psychological well-being. It shows that those who experience physical bullying as victims are more likely to experience an excess amount of anxiety, depression, and psychological distress while less likely to experience psychological well-being. The same case is with the correlation of verbal and theft bullying, where more bullying as victims leads to more anxiety, depression, and psychological distress while less psychological well-being. The results also showed that theft bullying as a perpetrator has a negative correlation with life satisfaction and psychological well-being, which means that more theft bullying as a perpetrator leads to less life satisfaction and psychological well-being. The table also showed the positive correlation of coercive aggression as a perpetrator with loss of behavioural and emotional control, which means that those who show high coercive aggression as a perpetrator are more likely to experience loss of behavioural and emotional control. The table also showed indirect bullying as victims positively correlate with anxiety, depression, and psychological distress while negatively correlate with emotional ties and psychological well-being. It means that Those who experience indirect bullying as victims are more likely to experience anxiety, depression, and psychological distress while less likely to experience emotional ties and psychological well-being. The results also showed that Negative behaviours as the victims have a significant negative correlation with emotional ties, life satisfaction, and psychological well-being. It means that those who experience negative behaviours as victims have less emotional ties with others, are less satisfied with their lives, and are less satisfied psychologically.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1.Agreeableness	1	-.13	.08	-.10	-.08	-.14	.00	-.24**	-.10	-.28**	-.09	-.19*	-.05	-.12	.00	-.10	-.17*	.13	.10	-.04	-.13	-.22*	-.21*	-.21*	.20*	-.05	.25*	.18*	-.23**	-.13
2. Neuroticism	-	1	-.24**	-.01	-.09	.12	-.09	.06	-.00	.01	.04	.10	.06	-.05	-.12	.01	.02	-.09	-.28**	.00	.11	.17*	.21*	.16	-.22**	-.08	-.15	-.23**	.18*	.05
3. Authoritative	-	-	1	.43**	.05	-.16	-.19*	-.20*	-.19*	-.10	-.17*	-.14	-.22**	-.087	.00	-.13	-.23**	.08	.08	.10	-.10	.03	-.03	.00	.06	.08	-.06	.07	.01	.05
4.Authoritarian	-	-	-	1	.33**	-.06	-.13	.02	-.05	-.00	-.07	-.01	-.13	-.06	.01	-.00	-.12	-.00	.07	.06	-.01	.24*	.13	.09	-.11	-.13	-.06	-.11	.19*	.13
5. Permissive	-	-	-	-	1	.07	-.06	.03	-.04	.16	-.02	.00	-.07	-.06	-.05	.02	-.00	-.05	-.09	.09	-.02	.03	-.03	-.04	.04	.05	.05	.05	-.01	.01
6. Physical Bullying(Vic)	-	-	-	-	-	1	.27**	.57**	.43**	.58**	.16	.52**	.34**	.47**	.11	.57**	.45**	.18*	.19*	.18*	.15	.38*	.27**	.17*	-.19*	-.15	-.16	-.21*	.32**	.20*
7.Physical Bullying (Per)	-	-	-	-	-	-	1	.31**	.78**	.50**	.62**	.48**	.69**	.47**	.46**	.44**	.69**	.17*	.17*	.18*	.16	.11	.06	.08	-.13	-.10	-.02	-.14	.09	.00
8.Verbal Bullying (Vic)	-	-	-	-	-	-	-	1	.52**	.68**	.21*	.69**	.33**	.45**	.08	.81**	.54**	.30**	.19*	.18*	.03	.39*	.37**	.27**	-.15	-.11	-.20*	-.18*	.38**	.28**
9. Verbal Bullying(Per)	-	-	-	-	-	-	-	-	1	.59**	.47**	.62**	.67**	.52**	.36**	.59**	.74**	.15	.25**	.15	.19*	.21*	.18*	.17*	-.09	-.01	.04	-.07	.20*	.16
10. Theft Bullying(Vic)	-	-	-	-	-	-	-	-	-	1	.51**	.71**	.46**	.54**	.15	.70**	.66**	.27**	.18*	.38**	.11	.35*	.27**	.21*	-.21*	-.12	-.25*	-.24**	.31**	.17*
11.Theft Bullying(Per)	-	-	-	-	-	-	-	-	-	-	1	.37**	.49**	.31**	.30**	.25**	.64**	.13	.08	.11	.07	.08	.03	.03	-.13	-.09	-.17*	-.17*	.04	-.05
12.Psychological Bullying (Vic)	-	-	-	-	-	-	-	-	-	-	-	1	.49**	.59**	.26**	.75**	.61**	.19*	.22**	.42**	.06	.26*	.23**	.12	-.21*	-.15	-.21*	-.24**	.23**	.09
13.Psychological Bullying(Per)	-	-	-	-	-	-	-	-	-	-	-	-	1	.40**	.33**	.35**	.66**	.09	.09	.15	.15	.18*	.15	.14	-.04	.01	.00	-.04	.17*	.14
14. Coercive Aggression(Vic)	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.23**	.58**	.47**	.19*	.27**	.31**	.14	.10	.14	.05	-.15	-.17*	.00	-.16	.10	.00
15.Coercive Aggression(Per)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.23**	.32**	.00	.01	.09	.03	.05	.15	.18*	.01	.04	-.00	.02	.12	.14
16. Indirect Bullying(Vic)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.61**	.31**	.27**	.31**	.06	.26*	.27**	.16	-.16	-.18*	-.16	-.20*	.25**	.13
17.Indirect Bullying(Per)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.21*	.22**	.09	.14	.23*	.14	.19*	-.06	-.00	-.12	-.09	.20*	.15
18. Positive/Pro Beh (Vic)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.32**	.13	-.01	-.03	.04	-.10	.08	-.01	-.16	.03	-.03	-.01
19. Positive/Pro Beh (Per)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.07	-.04	-.03	-.07	-.24**	.08	-.12	.06	.04	-.11	-.08
20. Negative Behaviors(Vic)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.00	.07	.08	.02	-.12	-.25**	-.22*	-.21*	.07	-.04
21.Negative Behaviors(Per)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.20*	.14	.20*	.01	.04	-.07	.02	.20*	.21*
22. Anxiety	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.74**	.66**	-.32**	-.10	-.35*	-.32**	.92**	.73**
23. Depression	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.69**	-.32**	-.13	-.36*	-.33**	.87**	.67**
24. Losss Of Beh/Emo Control	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-.07	.07	-.34*	-.09	.87**	.81**
25. General Positive Affect	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.53**	.47*	.96**	-.25**	.28**
26. Emotional Ties	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.31*	.68**	-.06	.32**
27. Life Satisfaction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.60**	-.39**	-.05
28.Psychological Well-being	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-.27**	.29**
29.Psychological Distress	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	.84**
30. Mental Health Index	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

Note. N= [illegible] (both Men and Women) Male= Gender, Widowed= Marital status, Vic= Victimization, Per= Perpetration, Beh=Behavioral, Emo=Emotional, Pro= Prosocial, F.A= [illegible] level

Note: Phy Bull=physical bullying, ver.bull=verbal bullying, theft bull=theft bullying, neg beh.=negative behavior, loss of beh/emo con.=loss of beh/emo control,Gen. Pos.Aff=general positive affect, Emo.ties=Emotional ties,Psy.Well-be= psychological well-being,Psy.distress=psychological distress, Mental H=Mental health.

It was also hypothesized that Bullying behaviour would play the role of mediator between parenting styles and Mental health. Multiple hierarchical regression analysis was carried out to test this hypothesis.

According to Table 2, Model 1 of the prisoners, demographics, and covariates significantly predicted the anxiety dimension of mental health, indicating 16% of the variance. It also considerably predicted the depression dimension with a 15% variance. It also predicted other dimensions of mental health, including loss of behavioural/Emotional control with a variance of 14%, Life satisfaction dimension with a variance of 24%, psychological well-being dimension with an 8% variance, psychological distress dimension with a 20% variance, and most significantly predicted the General positive affect dimension of mental health with 44% variance. In Model 2, the mediator, bullying behaviour, significantly predicted more than half of the five dimensions of psychopathic tendencies. The Bullying behaviour significantly predicted the Anxiety dimension of mental health with a 26% variance; it significantly predicted the Loss of Behavioural/Emotional control dimension of Mental health with a 32% variance. Bullying behaviour also considerably predicted the life satisfaction dimension with a 32% variance, the psychological distress dimension with a variance of 32%, and the overall dimension of the mental health index of mental health with a variance of 22%. Coercive aggression as the perpetrator was the strongest predictor of mental health. Model 3 showed that the parenting styles significantly predicted 2 out of 9 dimensions of mental health: The anxiety dimension with 32% variance and the psychological distress dimension with 36% variance, with the Authoritarian parenting style being the strongest predictor of mental health.

The Results partially supported the hypothesis that parenting styles are likely to predict bullying behaviour and the mental health of prisoners, as only two out of nine dimensions of mental health (anxiety and psychological distress) are predicted by parenting styles. The other hypothesis stated that there is likely to be a mediation relationship between bullying behaviour in parenting styles and mental health. This hypothesis is significantly proved as more than half of the five dimensions of mental health (anxiety, loss of Beh/Emo control, life satisfaction, psychological distress, and mental health index) are predicted by bullying behaviours.

Table 2. Hierarchical Multiple Regression Predicting Mental Health.

Predictor	Anxiety		Depression		Loss Of Beh/Emo control		General Positive Affect		Emotional Ties		Life Satisfaction		Psychological Well-being		Psychological Distress		Mental Health Index	
	ΔR²	β	ΔR²	β	ΔR²	β	ΔR²	β	ΔR²	β	ΔR²	β	ΔR²	β	ΔR²	β	ΔR²	β
Model 1	.16***		.15**		.14**		.44*		-.05		.24***		.08*		.20***		.07	
Male		-.28*		-.28*		-.38***		.12		-.06		44**		.12		-.35**		-.28*
Widow		.15		.17		.02		-.06		-.13		.02		-.08		.14		.09
F.A		.08		.05		.07		.02		-.05		-.01		-.00		.08		.08
Urdu		.00		.05		.05		-.02		-.05		-.06		-.04		.04		.01
Religious Incl.		.07		.03		.01		.12		-.06		.01		.08		.05		.10
Joint Family Sys		-.03		.00		-.04		.09		.06		.12		.11		-.03		.03
Pleasant home envi		.17		.04		.13		-.03		.04		-.09		-.02		.15		.14
Satisf. Relat. friend		-.03		.02		-.06		.08		.10		.13		.11		-.06		.00
No physical illness		-.08		-.02		-.03		.06		-.04		.00		.02		-.08		-.06
No Mental illness		-.16*		-.09		-.04		.08		.07		-.12		.04		-.11		-.08
No theft in childh		.11		-.04		-.03		-.14		-.06		-.12		-.14		.03		-.05
No fam. Crime hist		.01		.02		.03		.05		-.05		.07		.03		.02		.04
No fam.Jail hist		.02		.01		.11		.16		.09		.05		.14		.04		.12
1st time at jail		-.05		-.04		-.06		-.02		-.02		-.05		-.02		-.06		-.07
Agreeableness		-.17*		-.15		-.17*		.08		-.11		.14		.05		-.17*		-.14
Neuroticism		.14		.15		.10		-.15		-.06		-.02		-.15		.13		.04
Model 2	.26*		.22		.32***		.55		.01		.32*		.13		.32**		2**	
Phy. bul(Victim)		.22*		.03		-.03		-.05		-.09		-.11		-.06		.11		.08
Phy bul(Perpetrato)		.08		-.11		-.09		-.40*		-.34		-.01		-.38*		-.05		-.27
Ver.bul(Victim)		.26		.18		.29		.10		-.04		.08		.06		.27		.30
Ver bul(perpetarto)		-.12		.04		-.01		.27		.32		.40*		.34		-.03		.15
The. bul(Victim)		.26		.27		.28		-.11		.15		-.12		-.06		.31*		.28**
The. bul(Perpetrat)		-.06		-.02		-.17		-.05		-.18		-.15		-.13		-.10		-.17
Psy. bul(Victim)		-.03		-.16		-.24		.02		.08		-.02		.05		-.14		-.11
Psy bul(Perpetrtor)		.09		.14		.02		.10		.12		.03		.12		.09		.16
Coe Agg(Victim)		-.11		.06		.07		-.14		-.14		.15		-.13		-.01		-.09
Coe Agg(Perpetrat)		.14		.29**		.31***		.03		.09		-.13		.03		.26**		.28
Ind Bull(victim)		-.16		.05		-.19		-.17		-.24		-.10		-.19		-.14		-.25
Ind.Bull(Perpetrat)		-.00		-.18		.23		.14		.16		-.15		.09		.01		.06

Pos/Beh(Victim)		-.16		-.03		-.18*		.12		.13		-.09		.12		-.14		-.07
Pos/Beh(Perpetrat)		-.01		-.04		-.23*		.03		-.14		-.05		-.02		-.10		-.11
Neg. Beh(Victim)		-.09		-.10		-.04		.00		-.21		-.11		-.09		-.09		-.14
Neg.Beh. Perpetra)		.15		.09		.14		.14		.06		-.04		.13		.14		.21*
Model 3	.32*		.21		.34		.57		.04		.33		.15		.36*		.22	
Authoritative Par		.06		.03		.11		-.02		.18		-.12		.01		.06		.07
Authoritarian Par		.27**		.13		.12		-.17		-.31*		-.05		-.22		.23*		.10
Permissive Par		-.07		-.07		-.06		.10		.11		.09		.12*		-.08		-.01
Total R^2																		

Note:Reli. Inc=Religious inclination,Satisf. Relat. Friends=Satisfactory Relations with Friends,No fam.Jail hist=No family Jail . bul (Victim) = Physical bullying(Victim)Phy.bul(Perpetrator)=Physical bullying(Perpetrator)Ver.bul(Victim)=Verbal bullying (Victim)Ver.bul(perpetartor)=Verbal bullying(perpetartor)The.bul(Victim)=Theft bullying(Victim)The.bull(Perpetrator)=Theft bullying(Perpetrator)Psy.bul(Victim)=Psychological bullying (Victim),Psy.bul(Victim)=Psychological bullying (Victim), Psy.bul(Perpetrtor)=Psychological bulying (Perpetrtor) Coe.Aggr (Victim) = Coercive Aggression(Victim)Coe.Aggr(Perpetrator)=CoerciveAggression(Perpetrator)Ind.Bull(victim)=Ind.Bull(victim)=Indirect Bullying (victim) Indi.Bull(Perpetrator)=IndirectBullying(Perpetrator)Pos/Beh(Victim)=Positive/ProBehaviors(Victim)Pos/Beh(Perpetrator)=Positive/ProBehavior(Perpetrator),Neg.Beh(Victim)=Negative Behaviors (Victim)Neg. Beh. (Perpetrator)=Negative Behaviors(Perpetrator),Authoritative Par=Authoritative Parenting,Authoritarian Par=Authoritarian Parenting,Permissive Par=Permissive Parenting.

Figure 1.2: Emerged Model

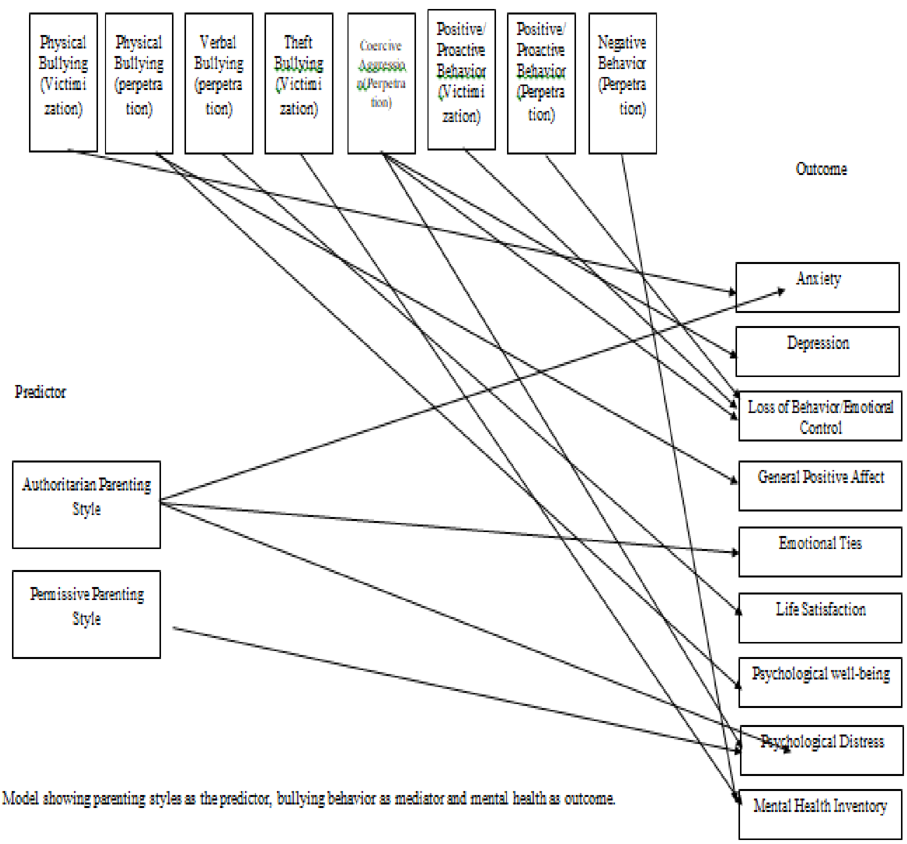

Figure 1.2 Model showing parenting styles as the predictor, bullying behavior as mediator and mental health as outcome.

7. DISCUSSION

The current study sought to identify a correlation between the methods of upbringing, aggressive conduct, and the psychological welfare of incarcerated adults. During this inquiry, we examined the impact of different parenting approaches on aggressive behaviour and mental stability. Furthermore, we aimed to discover if bullying tendencies served as a mediator between nurturing styles and psychological health.

The first hypothesis held that there was a likely correlation between styles of parenting (Authoritarian and Permissive), bullying tendencies (as either the bully or the victim), and the mental well-being of incarcerated individuals. This suggests that authoritarian parenting often results in the child becoming a bully, while permissive parenting tends to create victims of bullying. Authoritative parenting, however, is associated with the least amount of bullying behaviour, a notion partially supported by our findings. It is widely accepted that authoritative parenting is superior to other methods, and our study corroborates this by demonstrating a significant negative correlation between authoritative parenting and bullying behaviour. Therefore, it continues to be recognized as the most effective approach to child-rearing (Kopko, 2007). Strict parenting, characterized by its authoritarian nature, often leads to unfavourable outcomes in children's future lives. However, our research did not support previous literature findings linking such a style with instances of bullying.

Table 2 *Hierarchical Multiple Regression Predicting Mental Health.*

Predictor	Anxiety		Depression		Loss Of Beh/Emo control		General positive Affect		Emotional Ties		Life Satisfaction		Psychological Well-being		Psychological Distress		Mental Health Index	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Model 1	.16***		.15**		.14**		.44*		-.05		.24***		.08*		.20***		.07	
Male		-.28*		-.28*		-.38***		.12		-.06		.44***		.12		-.35**		-.28*
Widow		.15		.17		.02		-.06		-.13		.02		-.08		.14		.09
F.A		.08		.05		.07		.02		-.05		-.01		-.00		.08		.08
Urdu		.00		.05		.05		-.02		-.05		-.06		-.04		.04		.01
Religious Inclination		.07		.03		.01		.12		-.06		.01		.08		.05		.10
Joint Family System		-.03		.00		-.04		.09		.06		.12		.11		-.03		.03
Pleasant home environment		.17		.04		.13		-.03		.04		-.09		-.02		.15		.14
Satisfactory relations with friends		-.03		.02		-.06		.08		.10		.13		.11		-.06		.00
No physical illness		-.08		-.02		-.03		.06		-.04		.00		.02		-.08		-.06
No Mental illness		-.16*		-.09		-.04		.08		.07		-.12		.04		-.11		-.08
No theft in childhood		.11		-.04		-.03		-.14		-.06		-.12		-.14		.03		-.05
No family Crime history		.01		.02		.03		.05		-.05		.07		.03		.02		.04
No family Jail history		.02		.01		.11		.16		.09		.05		.14		.04		.12
Yes first time at jail		-.05		-.04		-.06		-.02		-.02		-.05		-.02		-.06		-.07
Agreeableness		-.17*		-.15		-.17*		.08		-.11		.14		.05		-.17*		-.14
Neuroticism		.14		.15		.10		-.15		-.06		-.02		-.15		.13		.04
Model 2	.26*		.22		.32***		.55		.01		.32*		.13		.32**		.22**	
Physical bullying(Victim)		.22*		.03		-.03		-.05		-.09		-.11		-.06		.11		.08
Physical bullying(Perpetrator)		.08		-.11		-.09		-.40*		-.34		-.01		-.38*		-.05		-.27
Verbal bullying(Victim)		.26		.18		.29		.10		-.04		.08		.06		.27		.30
Verbal bullying(perpetartor)		-.12		.04		-.01		.27		.32		.40*		.34		-.03		.15
Theft bullying(Victim)		.26		.27		.28		-.11		.15		-.12		-.06		.31*		.28**
Theft bullying(Perpetrator)		-.06		-.02		-.17		-.05		-.18		-.15		-.13		-.10		-.17
Psychological bullying(Victim)		-.03		-.16		-.24		.02		.08		-.02		.05		-.14		-.11
Psychological bulying(Perpetrtor)		.09		.14		.02		.10		.12		.03		.12		.09		.16
Coercive Aggression(Victim)		-.11		.06		.07		-.14		-.14		.15		-.13		-.01		-.09
Coercive Aggression(Perpetrator)		.14		.29**		.31***		.03		.09		-.13		.03		.26**		.28
Indirect Bullying(victim)		-.16		.05		-.19		-.17		-.24		-.10		-.19		-.14		-.25
Indirect Bullying(Perpetrator)		-.00		-.18		.23		.14		.16		-.15		.09		.01		.06
Positive/Pro Behaviors(Victim)		-.16		-.03		-.18*		.12		.13		-.09		.12		-.14		-.07
Positive/ProBehavior(Perpetrator)		-.01		-.04		-.23*		.03		-.14		-.05		-.02		-.10		-.11
Negative Behaviors (Victim)		-.09		-.10		-.04		.00		-.21		-.11		-.09		-.09		-.14
Negative Behaviors (Perpetrator)		.15		.09		.14		.14		.06		-.04		.13		.14		.21*
Model 3	.32*		.21		.34		.57		.04		.33		.15		.36*		.22	
Authoritative Parenting		.06		.03		.11		-.02		.18		-.12		.01		.06		.07
Authoritarian Parenting		.27**		.13		.12		-.17		-.31*		-.05		-.22		.23*		.10
Permissive Parenting		-.07		-.07		-.06		.10		.11		.09		.12*		-.08		-.01
Total R^2																		

Note: N=134, Male=Gender, Widow=Marital status, F.A=Education level of Inter, Urdu=Language, β=Standardized Coefficient, ΔR^2=Adjusted Variance *=p<.05, **=p<.01, ***=p<.001, Agreeableness=dimension of personality, Neuroticism=dimension of personality, pro=proactive behaviors.

Contrary to our initial hypothesis, we found no evidence suggesting authoritarian parenting promotes aggressive and defiant behaviours (Kopko, 2007). Our study also unproven the second aspect of our hypothesis, which suggested that lenient parenting results in victimization. This finding does not align with earlier studies indicating a correlation between permissive parenting and the experience of victimization (Georgiou, 2008).

The findings in Pakistani culture align with the theory that nurturing parenting contributes to a decreased crime rate as opposed to stern or unsupportive parenting (Kausar & Pinquart, 2016). Our study's outcomes demonstrate a substantial positive correlation between an autocratic parenting style and anxiety levels, indicating that a higher degree of authoritarianism in parenting results in increased anxiety. Earlier research also suggests that children exposed to affirming and supportive parenting are less likely to suffer from poor mental health or distress, as this type of parenting yields optimal results for mental health (Dallaire *et al.,* 2006). The Pakistani culture also supports this presumption that affirmative and nurturing parenting contributes to reduced psychological distress compared to hostile and severe parenting (Ijaz & Mahmood, 2009).

The other hypothesis that bullying behaviour will likely mediate between the parenting style and bullying behaviour is also proved in this study that authoritative parenting has a significant negative relationship with the different bullying behaviours, and the respective bullying behaviours in going forward are showing substantial relationship with mental health. It was found that an authoritative upbringing negatively correlates significantly with varied bullying actions. These behaviours, in turn, exhibit a significant relationship with mental wellness. Thus, the hypothesis is confirmed: Bullying acts as a bridge between parenting styles and mental health. This conclusion aligns with previous research indicating that positive parenting results in fewer depressive symptoms and improved mental health compared to severe parenting, with bullying or aggression serving as a link (Holt & Espelage, 2007). In Pakistan's cultural context, it is observed that children from supportive households exhibit less inclination towards bullying or deviant behaviour, thereby suffering less from psychological distress or depressive symptoms (Tahir &Konstantinos, 2011).

The investigation further confirmed that acts of bullying can have significant impacts on mental health. It was found that there exists an inverse relationship between bullying actions and psychological well-being, as well as a direct relationship with psychological distress. This implies that an increase in bullying leads to a decline in mental health and an emergence of psychological distress. In contrast, decreasing bullying corresponds to improved psychological well-being and life satisfaction. This aligns with earlier literature that linked bullying or aggressive behaviour to poor mental health and psychological distress (Kim, 2004; Rigby, 2000). Similar conclusions have been drawn from the Pakistani culture, where aggressive behaviour has been associated with depressive symptoms (Zaadeh & Ahmad, 2012).

8. CONCLUSION

The study aimed to study the relationship between parenting styles, bullying behaviour, and mental health in prisoners. Previous literature was reviewed to study the variable mentioned above in the present study. The data was collected, recorded, and calculated. The results were analysed, and it was concluded that there was a relationship between parenting styles, bullying behaviour, and mental health in prisoners. The research identified strong relationships between the study variables. Bullying behaviour came out as strongly correlated with mental health and acted as a strong mediator between the predictor and the outcome. Demographics like marital status, education, family history of crime, and first time in jail are also strong predictors. Personality as a covariate also influenced the result and significantly correlated with the study variables.

Strengths of the Study

The three variables under study have yet to be studied collectively before on prisoners as no published literature was available, especially in Pakistan. Standardized measuring instruments, along with a detailed demographic sheet, were used. This increased the sensitivity and generalizability of the research and provided information about the socio-demographic variables of the participants. A sample was collected from Central Jail Lahore, where prisoners from different regions of Punjab are brought for imprisonment, which provides and enhances generalizability.

Limitations of the Study

- Only one jail was included in the study for data collection from prisoners, and the data was comprised more of men than women due to the lesser number of females in central jail Lahore and gender differences with the researcher, which reduced the generalizability of gender on both sides.

Implications of the Study

- The research will help in gaining knowledge about the prisoners who are imprisoned in the Central Jail, Lahore, based on different crimes, the reasons behind the crimes, and from different regions of Punjab. The research highlights how upbringing from parents results in behaviours of children in their upcoming life, which shapes their personality and thus results in either stability or disability of their mental health.
- The research raises awareness of the importance of how some people commit offenses that result in imprisonment for many years.
- Future studies could increase the number of jails to explore these relationships. It could also be interesting to study these variables on men and women prisoners in equal ratios.

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