TRIBAL STUDENTS IN HIGHER EDUCATION: EXPLORING THEIR PEDAGOGICAL, SOCIAL, AND COGNITIVE CHALLENGES AND SUPPORTS

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By

Anirban Kisku

Reg. No-A00ED1300218

Supervised by

Dr. Lalit Lalitav Mohakud

Associate Professor of Education

Jadavpur University, Kolkata

DEPARTMENT OF EDUCATION

FACULTY OF ARTS

JADAVPUR UNIVERSITY

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Dedicated to my Beloved Parents

Sri Girindra Kisku
&
Smt. Lakshmi Kisku

CERTIFICATE

Certified that the thesis entitled, **"Tribal Students in Higher Education: Exploring their Pedagogical, Social, and Cognitive Challenges and Supports",** submitted by me for the Degree of Doctor of Philosophy in Arts (Education) at Jadavpur University is based upon my work carried out under the supervision of Dr. Lalit Lalitav Mohakud, Associate Professor, Department of Education, Jadavpur University, and that neither this thesis nor any part of it has been submitted before for any degree or diploma anywhere/elsewhere.

Countersigned by the
Supervisor:
Date:

Candidate:
Date:

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Abbreviations Used

AISHE	All Indian Surveys on Higher Education
ANOVA	Analysis of Variance
CB	Cognitive Barriers
CC	Cognitive Challenge
CCS	Cognitive Challenges and Supports
CS	Cognitive Supports
df	Degrees of Freedom
DRC	Departmental Research Committee
EFL	English as a Foreign Language
EM	Ethnic Minorities
f	Frequency
F	F-test
Fig.	Figure
GER	Gross Enrolment Ratio
HE	Higher Education
HEI	Higher Education Institution
ICT	Information Communication Technology
IGNOU	Indira Gandhi National Open University
ITC	Information and Communication Technologies
Ku	Kurtosis
LB	Language Barrier
LC	Language Challenges
LS	Language Supports
LSB	Learning Style Barrier
LSC	Learning Style Challenge
LSD	Least Significant Difference
M	Mean
MD	Mean Deviation
N	Number
OB	Overall Barriers
OBC	Other Backward Classes
OC	Overall Challenges
ODL	Open and Distance Learning
OS	Overall Supports
PB	Pedagogical Barriers
PC	Pedagogical Challenge
PG	Post Graduate
PPSCBS	Perceived Pedagogical, Social, and Cognitive Barriers Scale
PPSCSS	Perceived Pedagogical, Social, and Cognitive Support Scale

PS	Pedagogical Supports
PTGs	Primitive Tribal Groups
PvTGs	Particularly Vulnerable Tribal Groups
RAC	Research Advisory Committee
SB	Social Barrier
SCs	Scheduled Caste
SC	Social Challenge
SD	Standard Deviation
Sk	Skewness
SPSS	Statistical Package for the Social Sciences
SS	Social Supports
ST	Scheduled Tribe
Std.	Standard
t	t-test
TTI	Teacher-To-Teacher Interactions
UG	Under Graduate
UGC	University Grant Commission
UT	Union Territory
WB	West Bengal
CRT	Critical Race Theory
CMT	Cultural Mismatch Theory
CLT	Cognitive Load Theory
CPR	Cultural Relevant Pedagogy
CSCL	Computer-Supported Collaborative Learning
PCK	Pedagogical Content Knowledge

PREFACE

This thesis has been submitted to Jadavpur University for the Doctor of Philosophy in Arts (Education) degree. Submitting this thesis under the supervision of Dr. Lalit Lalitav Mohakud, Associate Professor in the Department of Education at Jadavpur University, brings me immense joy. I completed this study within the stipulated time, with academic and moral support from my supervisor, who also guided me in approaching the subject matter of this work.

I have ensured that all relevant and essential information about the field has been included. I have made this project engaging and easy to comprehend. This study aims to explore the pedagogical, social, and cognitive challenges and supports faced by tribal students in higher education in West Bengal, considering various demographic factors. The thesis is structured into six chapters (Chapters I to VI). Chapter I, entitled Introduction,' presents the theoretical and conceptual background of the study. Chapter II, entitled 'Review of Related Literature,' analyzes a wide range of relevant literature exploring the trends in research. Chapter III, entitled 'Problem Statement,' includes the rationale for the study, knowledge gaps, statement of the problem, operational definitions of the major terms used, research questions, objectives, hypotheses, delimitations, and the conceptual framework of the study. Chapter IV, entitled 'Methodology of the Study,' outlines the research design, variables, population, sample, sampling techniques, data collection and analysis procedures, and the tools and techniques adopted for the study. Chapter V, entitled 'Analysis and Interpretation of Data,' presents the results and their interpretations. Lastly, Chapter VI, entitled 'Findings and Conclusions,' presents the major findings and discussions, educational implications, limitations, and suggestions for future research. To visualize the data and illustrate theories and concepts effectively, relevant figures and diagrams have been incorporated. I hope this study will offer valuable insights and contribute significantly to the field of education, benefiting students, educators, and policymakers.

Abstract

Tribal students in Higher Education (HE) face several pedagogical, social, and cognitive challenges that significantly influence their academic advancement. They also get support from peers, teachers, and institutions related to pedagogical, social, and cognitive support. This study explores the significant pedagogical, social, and cognitive challenges and supports tribal students face in their HE. The study also investigates various demographic factors associated with the pedagogical, social, and cognitive challenges and supports of tribal students in HE. Furthermore, the study examines the pedagogical, social, and cognitive supports that independently and collectively effect and predict overall challenges among tribal students in HE.

This study was a cross-sectional survey conducted among 531 tribal HE students who studied higher education (UG and PG). Data were randomly collected from colleges and universities in West Bengal. Data were collected by administering a Participant's demographic Profile, the 'Perceived Pedagogical, Social, and Cognitive Barriers Scale (PPSCB scale) and The Perceived Pedagogical, Social, and Cognitive Supports Scale (PPSCS Scale) constructed by Dr. L.L. Mohakud, A. Kisku, and S. Khan (2023). Collected data were analysed using parametric statistical techniques such as Pearson correlation, t-test, one-way analysis of variance (ANOVA), and regression analysis through SPSS.

The study findings revealed that most tribal students face pedagogical, social, and cognitive challenges in HE. The results also revealed that most tribal students are not supported by their peers, teachers, and institutions. Additionally, various demographic factors significantly influence pedagogical, social, and cognitive challenges among tribal HE students. Similarly, the demographic factors also influence the pedagogical, social, and cognitive support of tribal students in HE. The study also revealed the relationship between pedagogical, social, and cognitive challenges and pedagogical, social, and cognitive supports among tribal HE students. Finally, the study found the effect of pedagogical, social, and cognitive support on overall challenges among tribal HE students.

CHAPTER- I

INTRODUCTION

CHAPTER- I

INTRODUCTION

1.1.0. Introduction

Tribes, as social groups, play a significant role in various societies worldwide, including India, where they are often known as Scheduled Tribes (ST) or Adivasi. These tribal groups share common characteristics such as language, culture, territory, and kinship ties, fostering a sense of unity and identity among their members (Leake, 1978). The tribes have significantly influenced global history, with Euro-American empires having a crucial role in classifying and interacting with tribal populations worldwide, affecting their autonomy and prospects. They have historically been marginalized and disadvantaged, with distinct cultural practices, languages, and traditions that differentiate them from mainstream society (Tigga, 2024). Understanding the complexities of tribes is not just an academic exercise but a crucial step in fostering inclusivity. It involves delving into the culture, encompassing shared beliefs, values, customs, and behaviours, and exploring how socialization and acculturation influence their adaptation and social interaction (Naik et al., 2023). It is crucial to understand that the tribes in India require a broader perspective beyond the caste framework to encompass their unique development and cultural experiences. This broader perspective allows us to (re) conceptualize and contextualize 'community' in tribal societies, opening our minds to new ways of understanding and supporting these communities (Bori, 2023).

In the 1901 census in India, tribal communities were initially classified as "backward classes" or "depressed classes", which were officially recognized as “Scheduled Tribes” (ST) by the 1941 Census (Girhepunje, 2024). Article 342 of the Indian Constitution authorizes the President to identify and list ST's continuous refinement of inclusion criteria through legislative measures and government notifications (Munshi & Gajbhiye, 2024). These ST communities frequently inhabit isolated and remote areas, which can substantially influence their living conditions and societal status. They are facing challenges in accessing healthcare facilities (Gondane, 2023), geographical barriers (Cáceres et al., 2023), insufficient infrastructure, and social prejudice leading to isolation from the rest of society and making them one of the most marginalized social groups (Khamo, 2024). However, one of the primary

obstacles faced by these communities is the lack of educational opportunities. They face significant educational challenges due to economic issues, literacy gaps, lack of access to quality education, institutions far from residences, insufficiently skilled teachers and limited resources (Chaudhari, 2023).

Higher education (HE) enhances tribal communities by improving social status, reducing marginalization and inequalities, and fostering socioeconomic development. However, their low literacy and high dropout rates hinder HE progress (Vallam, 2022), and they are receiving conventional HE that does not incorporate their socioeconomic conditions or cultural heritage (Gandhi, 2022). Gender discrimination, household responsibilities, poverty, and inadequate facilities and support further impede their HE, emphasizing the need for inclusive education and proper facilities in HE institutions (Hdyitulah & Aman, 2023). Teachers also face challenges in teaching tribal students due to cultural mismatches between the institutions and family environments, leading to discipline issues and academic disengagement (Sarkar, 2023). Addressing these multifaceted issues is crucial to providing quality HE and empowering tribal students by implementing inclusive education practices, including cultural heritage and socioeconomic support, which can improve the educational experience, reduce dropout rates, and enhance their overall lifestyle.

This chapter offers a comprehensive overview of tribal communities in India and West Bengal, tribal students' HE, and their various challenges and supports, primarily pedagogical, social, and cognitive. It also provides a significant conceptual framework and theoretical perspective on pedagogical, social, and cognitive challenges and supports among tribal students at higher education levels.

1.2.0. Tribal Communities in India and West Bengal

In India, over 730 ethnic groups are recognized as ST (Prajapati, 2023) under Article 342 of the Constitution of India. They are known as “Adivasis,*”* which means Indigenous Peoples. They are also known as "Anusuchit Janjati," "Vanavasi," "Adimjati," etc. (Singh & Singh, 2018). They grapple with extreme poverty and exploitation, primarily relying on hunting, agriculture, and fishing for their sustenance while often dwelling in scattered, remote settlements within hilly and forested regions. The tribal groups in India hold great

significance, accounting for nearly 8.2% of the total population (Mitra, 2008), showcasing distinctive linguistic and genetic traits, reflecting their diverse origins and cultural customs.

Indian Indigenous societies can be classified into three fundamental language groups: Austro-Asiatic, Dravidian, and Tibeto-Burman (Chandal & Kanchan, 2014). Each tribe have diverse customs and is influenced by neighbouring communities (Roychoudhury et al., 2001). However, the tribes in southern India exhibit diminished genetic variation and substantial genetic distances (Miller, 1997). Conversely, northern tribes manifest greater diversity and indications of prehistoric demographic expansions (Cordaux et al., 2003). Additionally, the northeastern tribes possess distinctive characteristics compared to other groups and exhibit a closer genetic affinity to East Asians (Majumder & Mukherjee, 1993; Mohakud, 2013). This variety indicates the rich cultural tapestry and historical significance of India's tribal communities.

Scholars have categorized India's ethnic groups according to their respective regions, given that these tribes span enormous geographical territories. According to B.S. Guha (1937), India's tribal ethnic groups are categorized into three zones: North and Northeastern, Central, and Southern. Majumdar and Madan (1956) provide similar classifications in "Introduction to Social Anthropology".

1. **Northern and Northeastern Zone:** This zone includes the sub-Himalayan region and the mountain valleys of eastern India. Consists of states such as Eastern Kashmir, Eastern Punjab, Himachal Pradesh, Northern Uttar Pradesh, Assam, Sikkim, Meghalaya, and Nagaland. The Aka, Dafla, Miri, Gurung, Apatani, and Mishmi are among the notable tribes. Tribes, including the Sippi, Beda, Balti, Bot, and Changa, live in Kashmir. In contrast, tribes like Gaddi, Kanaura, Lamba, Gujjar, and Lahula live in Himachal Pradesh, and primitive tribes like Bhutia, Sherpa, Lepcha, and Tibet live in Sikkim. Besides, Kuki, Kachari, Mikir, Garo, Chakma, Dimasa, live in Mizoram and Arunachal Pradesh.
2. **Central or Middle Zone:** This zone comprises plateaus and mountainous regions between the Indo-Gangetic plain and the Krishna River. Tribal communities in Madhya Pradesh, Uttar Pradesh, Rajasthan, Maharashtra, Bihar, and Orissa inhabit this zone. Notable tribes include the Savara, Gadaba, Juang, Kharia, Khond, Bhumij, Munda, Santhal, Oraon, Ho, Birhor, Katkari, Kol, Bhil, Gond, Koraku, Agaria, Pardhan, Baiga,

and Muria. While most tribes practice shifting cultivation, some have adopted plough cultivation due to cultural exchanges.

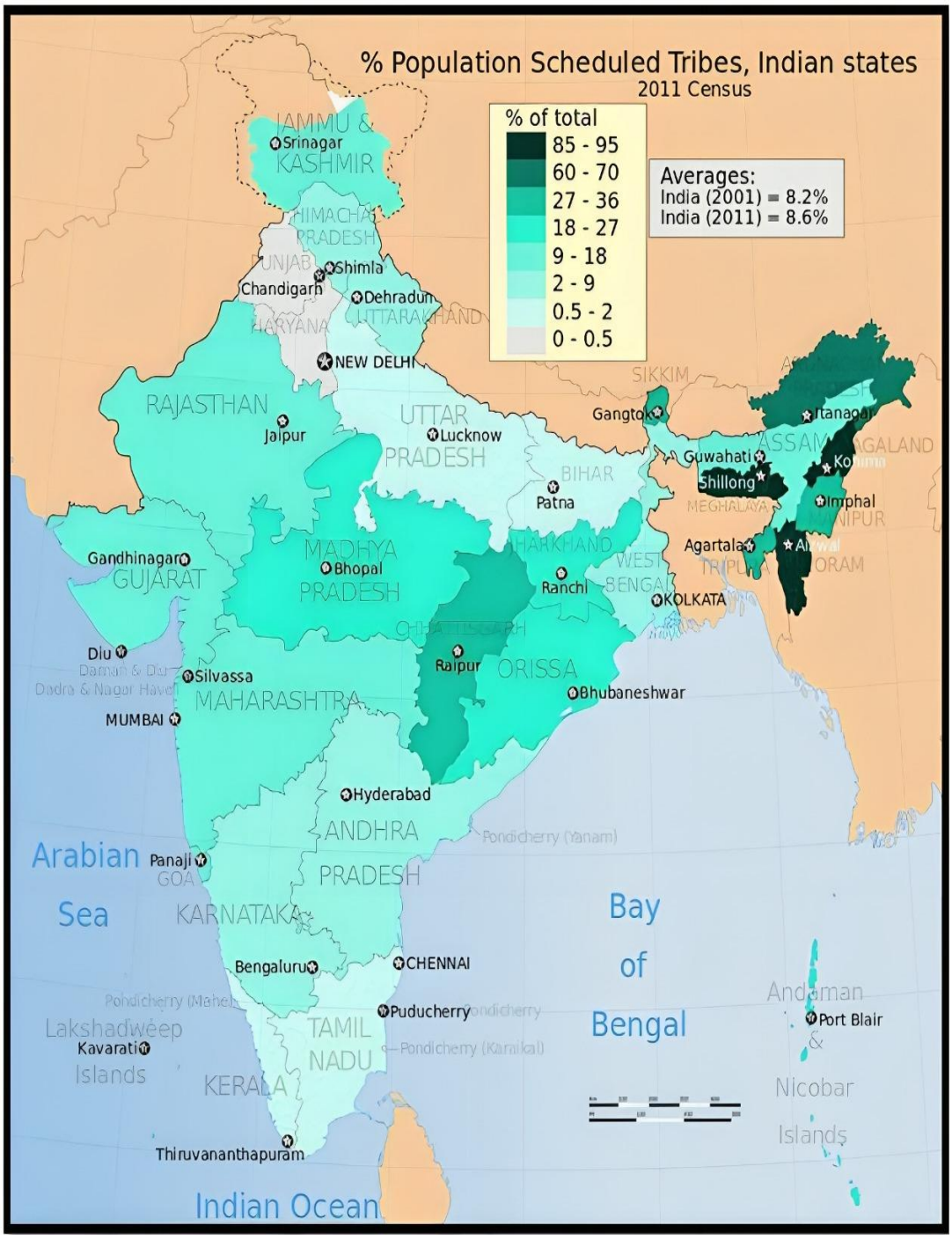


Figure 1.1: Distribution of STs in India

Source:(https://epgp.inflibnet.ac.in/epgpdata/uploads/epgp_content/S000001AN/P001118/M013304/ET/145802302410ET.pdf)

3. **Southern Zone:** This Zone encompasses southern India, south of the Krishna River, and includes Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, and more. Tribes like the

Chenchu, Yeruva, Toda, Irula, Paniyan, Kurumba, Kadar, Kanikkar, and Malvadan inhabit this zone, relying on hunting and fishing for sustenance. Though not included in Guha's (1937) classification, the Andaman and Nicobar Islands house tribes like the Jarwa, Onge, North Sentinelese, Andamanese, and Nicobari, distinct from mainland tribal groups.

The Indian government and regional authorities have made concerted efforts to promote the growth of these societies. However, disparities in socioeconomic and demographic advancements persist among the tribes (Samal et al., 2000). Indian Constitution (Articles 366 and 342) defines tribes as scheduled or listed communities officially recognized as ST by the President by an initial public notification or a subsequent amending Act of Parliament would be treated as such (Jaiswal, 2020). Indian Constitution (ST) Order of 1950, which has been updated, 40 ethnic groups have been officially recognized as ST in West Bengal (Bhowmick, 1985; Ghurye, 1980; Sing & Mohakud, 2024). The list of recognized STs in WB is shown in Table (1.1). Toto, Birhor, and Lodha are recognized as Particularly Vulnerable Tribal Groups (PvTGs) because of their backwardness in many development metrics. Previously, they were referred to as PTGs (Primitive Tribal Groups).

Table1.1: Number of STs Recognized in West Bengal

Asur	Garo	Korwa	Munda
Baiga	Gond	Lepcha	Nigeria
Bedia, Bediya	Gorait	Lodha, Kheria, Kharia	Oraon
Bhumij	Hajang	Lohara, Lohra	Pahariya
Bhutia, Sherpa, Toto, Dukpa, Kagatay, Tibetan, Yolmo	Ho	Magh	Rabha
Birhor	Karmali	Mahali	Santal
Birjia	Kharwar	Mahli	Sauria Paharia
Chakma	Khond	Mal Pahariya	Savar
Chero	Kisan	Mech	Limbu
Chik Baraik	Kora	Mru	Tamang

Source: Backward Classes Welfare Department, Government of WB

Tribes have profound cultural traditions and a deep affinity for nature (Sarkar & Modak, 2022). These communities have a history of using medicinal plants for therapeutic purposes, employing ethnobiological techniques to address issues like bites and stings (Sardar et al., 2021; Modak et al., 2020). Their socioeconomic marginalization and acculturation hinder their preservation (Goswami & Tattwasarananda, 2023; Chakraborty & Basak, 2023) and have contributed to the cultural diversity of WB (Ghosh, 2022; Biswas, 2008; Mahato, 2022). Understanding tribals' demographic composition and socioeconomic circumstances is crucial for developing policies that empower these people and safeguard their traditional heritage (Satpati & Sharma, 2022). A bottom-up approach is necessary to strengthen these communities and protect their traditional identity (Satpati & Sharma, 2022). They are socially and culturally rich yet have multiple issues and challenges like low economic status, inadequate infrastructure, low literacy, high dropout rates, low enrollment in higher education, and insufficient support systems (Chandel et al., 2023). Higher education for tribal students is crucial to their development, yet challenges persist despite various government initiatives. The tribal population is 10.42 crore, accounting for 8.6% of the country's population (Census of India 2011). In WB, the literacy rate is 77.08%, while among ST is only 57.92% (Census of India 2011). This significant difference emphasizes the immediate requirement for enhanced educational support, opportunities, and government action to reduce inequities among tribal populations (Chakraborty, 2019).

1.3.0. Higher Education of Tribal Students

India's higher education system is publicly sponsored and the third largest in the world (The World Bank, 2010). According to the AISHE (2021-22), India's HE system comprises 1162 universities and 45473 colleges. The total number of students enrolled in HE has risen to approximately 4.33 crore in the academic year 2021-22, compared to 4.14 crore in 2020-21, representing an increase of 18.87 lakh (4.6%). The Gross Enrolment Ratio (GER) in HE for the age group 18-23 years has risen to 28.4 in the year 2021-22, compared to 27.3 in 2020-21 and 23.7 in 2014-15 (according to population projections based on the 2011 census). The percentage of ST students enrolled in higher education is approximately 6.3%. The enrollment of ST students has risen to 27.1 lahks in the academic year 2021-22, up from 24.12 lahks in the previous year, 2020-21. An increase of 41.6% in ST student enrollment has been seen

since 2017-18, and the overall growth in ST student enrollment since 2014-15 is 65.2% (AISHE report 2021-22). ST students' GER has increased to 21.2 in 2021-22 from 18.9 in 2020-21. GER has also significantly improved from 2014-15 (13.5). The Indian Constitution offers distinctive avenues to enhance tribal education through diverse systems. It emphasizes education since independence, including creating model, residential, and ashram schools (Chandel et al., 2023).

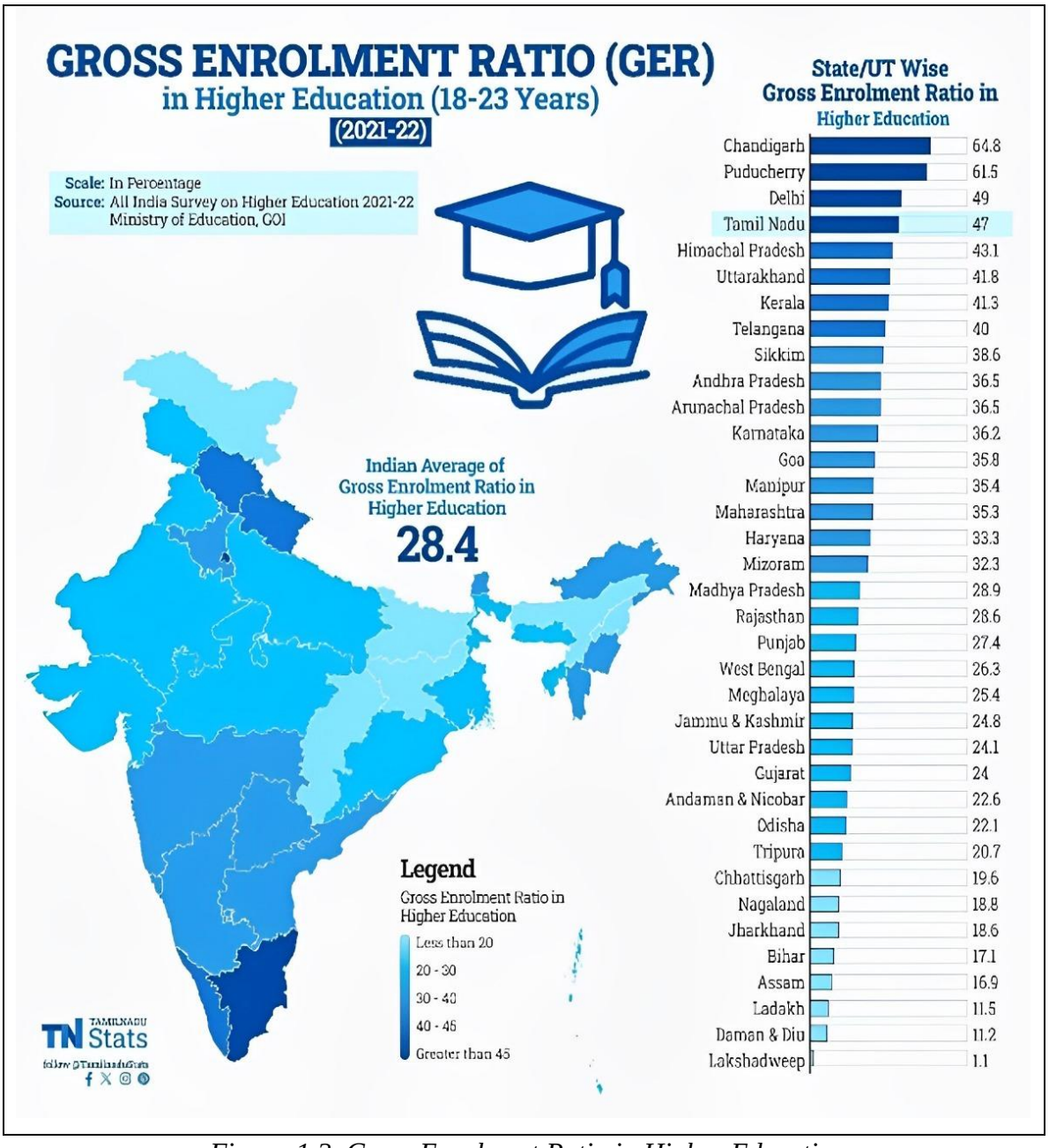


Figure:1.2 Gross Enrolment Ratio in Higher Education

Source: https://tamil.oneindia.com/news/tamilnadu/tamil-nadu-tops-in-gross-enrollment-ratio-2021-2022-579251.html

Table 1.2: Total Number of Enrollment STs and All Categories (2021-22)

	All Categories			Scheduled Tribe		
	Male	Female	Total	Male	Female	Total
India	22576389	20691792	4,32,68,181	1364524	13,46,154	27,10,678
West Bengal	1,375,627	1,346,524	2,722,151	46,586	49,120	95,706

Source: - AISHE Report 2021-22, Ministry of Education, GoI

West Bengal is the fifth-highest-enrolled state in terms of higher education enrollment (AISHE Report 2021-22). In the academic year 2021-22, 27.22 lakh students (13.75 lakh male and 13.46 lakh female) were enrolled. In the case of ST, the enrolment is 95,706 in WB. The GER for the age group 18-23 years in WB is 26.3. It indicates that ST students face various challenges, such as limited literacy rates, poverty, social exclusion, high dropout rates, low GER, cultural norms, gender biases, insufficient facilities and resources, financial limitations, and restricted and inadequate support, which hinder entry to HE institutions (Chandel et al., 2023; Gangele, 2019; Panda, & Ojha, 2021). However, the WB government has implemented various schemes to promote the HE development of ST communities. With schemes like scholarships, reservation quotas, and specialized educational institutions, a notable gap persists in delivering quality education to tribal communities, resulting in disparities in literacy rates and educational achievements compared to the general populace (Panda & Ojha, 2021).

1.4.0. Tribal Students in Higher Education: Challenges and Supports

1.4.1. Pedagogical Challenges and Supports

Pedagogy is a complex term encompassing various aspects of teaching and learning, including strategies, methods, tools, and materials teachers use (Friesen & Su, 2023). It is a science and art of teaching-learning that examines the principles and methods of teaching and learning, exploring the organization of learning content, cognitive procedures, and diverse methods (Cooke & Philpott, 2022). It can refer to various pedagogical relationships and approaches encompassing the methods of instruction, student-teacher relationships, and the content to be evaluated.

Tribal Students face numerous instructional and educational challenges or barriers in their colleges and universities. They need help interacting with teachers, adopting new methods, concept clarification, class participation, understanding content, classroom management and

instruction. They also face challenges encompassing parental educational involvement, student-teacher relationships, and learning experiences (Frenz, 2022 & Atone et al., 2022). In particular, tribal students feel that various challenges have created barriers to their educational progress, namely personal, cultural, educational, and technological barriers in their colleges and universities. Furthermore, HE systems across various countries confront grave challenges, encompassing teacher-related issues, curriculum-related issues, monolingual education issues, and racial and socioeconomic segregation (Baran, 2019). Impediments to effective family engagement in education can impede student accomplishment, especially for tribal parents who deviate from the cultural mainstream (Banuelos & Lovitos, 2013). Pedagogical challenges are obstacles encountered during the teaching process that can hinder the implementation of effective instructional techniques and affect the overall efficacy of discourse and interaction (Muhamad & Jasim, 2022).

It is common for tribal students to face several challenges and barriers in HE. To overcome this significant challenge, they need sufficient support from teachers, educators, stockholders, policymakers and peers. Therefore, pedagogical support for tribal students in HE is crucial for their academic success and cultural preservation. They need their peers' support to complete project work, teacher support, and engagement in their academic development and challenges. They also need remedial classes, peer learning, and collaboration to support their academic improvement. This support is expected from their institutions for academic progress. They also require culturally responsive teaching strategies that use Indigenous knowledge to enhance the learning effectiveness of tribal students (Seaway et al., 2022).

Additionally, incorporating sustainability education pedagogy at tribal colleges can positively impact student attitudes and persistence in HE (Caughman, 2022). Furthermore, programs like tribal natural resources management emphasize integrating Indigenous knowledge alongside technical skills, fostering a sense of responsibility toward caring for the land and waters while preparing students to become future leaders (Eitel et al., 2023). By adapting new teaching methodologies to the unique cultural backgrounds of tribal students, educators can provide the necessary support for their academic growth and cultural pride (Adhikari & Mohapatra, 2022).

1.4.2. Social Challenges and Supports

Tribal communities in India face significant social challenges in HE due to socioeconomic disparities, cultural isolation, inadequate representation, backwardness, lack of equal opportunities, poor learning outcomes, limited access to HE, and inadequate educational

infrastructure (Sarkar, 2023; Sing & Mohakud, 2024). The tribes in different regions of India exhibit varying levels of development, with the northeast tribes showing higher levels of socio-political, literacy, and living standards compared to their counterparts in central India (Kumar, 2024). These communities encounter obstacles in accessing HE due to geographical remoteness, cultural linguistic barriers, and scarcity of quality educators, necessitating collaborative efforts for improved HE (Roy et al., 2023). Educational challenges persist among tribal communities, with economic problems, unemployment, and literacy hindering their development (Chaudhari, 2023). Furthermore, due to a cultural mismatch between home and institutions, tribal students from various communities find it difficult to adjust to regular educational settings. This results in issues with behaviour, administration, and responsiveness to academic activities (Kumar, 2023). Access to HE is severely hampered for many Indian tribal communities by a lack of financial resources. These communities struggle to pay for HE expenses, including books, housing, and tuition (Panda & Ojha, 2021; Acharya, 2022; Nusselder, 2023) because of poverty and financial resources. Tribal communities' economic hardship and marginalization frequently make it harder to participate in HE (Rajak, 2022; Vallam, 2022). The low-income students who earn the most from scholarship funds frequently work part-time jobs, making it even harder to pay for college. In general, the financial constraints faced by India's tribal communities obstruct access to HE and prolong the cycle of marginalization and poverty.

The HE may be hampered by restricted access to high-quality primary and secondary education in tribal areas. These communities need proper educational infrastructure, such as colleges and universities (Permana et al., 2023). In socio-academic contexts, tribal students may encounter unpleasant behaviour from others, poor participation, prejudice and stereotypes that harm their self-worth and academic achievement in HE (Barry et al., 2022; Adisa et al., 2023; Ottaplackal et al., 2022). Tribal students who experience discrimination because of their identification may experience social rejection, stigmatization, and even mental health problems as a result (Greenfield et al., 2021). Due to potential lower self-esteem, cultural heritage, fewer educational chances, and ignorance of development programs, tribal students are especially vulnerable to the adverse effects of discrimination on their academic performance (Krishna & Kumar, 2020). Social discrimination can also make it more difficult for them to access opportunities and resources, exacerbating educational inequities in HE.

Furthermore, tribal students who lack exposure to successful role models from their community who have pursued HE may struggle to develop high expectations and believe in

the significance of education. Empirical research has provided evidence of the importance of role modelling in the educational process and its ability to promote a sense of community and the development of professional identity (Spaans et al., 2023). Unfavourable role modelling by educators might negatively affect their attitudes and behaviours during their academic journey.

There may not be enough counselling and guidance services available in India to meet the unique needs of tribal students as a result of inadequate support structures. They need emotional support from their teachers during distress. They also need encouragement from peers, teachers, and community members, which indicates positive reinforcement for access to HE. This support is essential for overcoming obstacles connected to personal, educational and career (Singh, 2022). They expect importance, value, and good relationships with their teachers to help them achieve their educational goals. Education authorities, universities, and organizations should offer guidance and counselling services to alleviate the high dropout rate (Munandar & Wachyudi, 2023), with the effectiveness of individual counselling dependent on students' interests (Radinata & Sukma, 2023). However, implementing innovative learning strategies, asking the local government for financial support, and enforcing severe penalties for infractions are ways to overcome these challenges (Jannah & Aini, 2023). Effective and efficient provision of infrastructure and amenities in educational units necessitates implementing well-developed policy development and analysis. The presence and implementation of government intervention and policies are crucial in ensuring the provision of educational facilities. (Pattamajhi & Patra, 2023). The efficient implementation of reservation regulations in higher education in India is the best support for tribal students (Roy et al., 2023; Sasso et al., 2023).

1.4.3. Cognitive Challenges and Supports

Cognition is an essential mental process through which individuals gain knowledge and understanding through their thoughts, actions, experiences, and senses. This knowledge and understanding are vital for various fields of life, including education (Dodig-Crnkovic, 2022), where the cognitive process is essential to attention, language, learning, memory, perception, and thought (Moini et al., 2024; Gauvain & Richert, 2023). Various cognitive challenges can hinder these cognitive processes in educational settings, which is crucial for optimizing student learning outcomes. Cognitive challenges refer to the students' difficulties in performing tasks that require mental processes, such as learning, language, writing, reading, and decision-making, impacting their academic performance (Pereira & Hunter, 2023; Parisi

& Nathanael, 2023). These challenges can vary based on the complexity of the task and the individual's cognitive abilities, influencing various domains like motor tasks and learning (Pereira & Hunter, 2023; Parisi & Nathanael, 2023). These challenges are internal assumptions that can affect how we see and feel about ourselves, our abilities, and the world. However, many tribal students in HE face various cognitive challenges in teaching, learning, and language, including pronunciation, understanding lectures, and non-native language instruction. These challenges make it hard to comprehend class instructions and study materials (Kisku & Mohakud, 2018). They need help with presentations and hands-on activities and are uncomfortable with classroom worksheets. Their thinking styles can affect their academic performance, while legislative, monarchic, anarchic, and global thinking styles contribute negatively to the academic achievement of tribal students (Singh & Verma, 2011; Vinu, 2021). However, tribal students frequently face language challenges due to instruction not being in their native tongue (Wilson et al., 2022). In HE, addressing the challenges of English-medium instruction requires considering language and content, interaction, and cultural factors to foster better communication (Ou et al., 2022; Korolova, 2022).

To overcome these challenges, tribal students need encouragement and motivation to communicate openly, improve their language proficiency and academic achievement, think analytically, understand deep content, and develop confidence and self-presentation skills. The challenges tribal students face in HE are integral to developing critical thinking, decision-making skills, and problem-solving through inclusive and culturally responsive learning environments, which are vital for success in practical situations (Abdalla & Moussa, 2024). They utilize strategies like differentiated instruction and diverse learning styles while integrating culturally relevant content into the curriculum to enhance the educational experience for tribal students (Abdalla & Moussa, 2024). The cognitive challenges framework can help teachers understand the reasons for students' learning difficulties and adapt their teaching to achieve optimal learning outcomes (Chan & Sidhu, 2015). HEIs can also be crucial in addressing cognitive challenges by providing educational support services, mentoring programs, personalized guidance and counselling services, significantly impacting students' academic success (Tomaszewski et al. (2022; Nguyen, 2024). Teachers also facilitate the development of critical thinking and problem-solving skills through collaborative learning activities, empowering tribal students to express their perspectives and succeed academically (Rachamim & Orland-Barak, 2023). Teachers are critical in enabling Indigenous students to succeed in HE by fostering a supportive and nurturing learning environment.

1.5.0. Theoretical Perspectives

Theoretical perspectives focus on the various frameworks shaping pedagogical, social, and cognitive challenges and supports. These viewpoints provide vital knowledge for comprehending and improving students' educational experiences.

1.5.1. Theories of Pedagogical Challenges and Supports

Theories suggest various pedagogical challenges and support that significantly impact tribal students' growth and educational achievement, allowing educationists and researchers to analyze the challenges and how to overcome them for their growth.

1. **Pedagogical Content Knowledge (PCK) (Lee Shulman, 1986):**

   Pedagogical Content Knowledge (PCK), introduced by Lee Shulman in 1986, refers to the unique blend of content and pedagogy essential for effective teaching. PCK emphasizes that knowing a subject profoundly is not enough; teachers must also understand how to teach that subject effectively. This involves knowing what makes specific topics difficult or easy to learn, students' misconceptions, and the teaching strategies to address these challenges. PCK integrates the "what" of teaching (content knowledge) with the "how" (pedagogical knowledge), enabling teachers to present subject matter in ways that are accessible and engaging for students, thus facilitating deeper understanding and learning.

2. **Culturally Relevant Pedagogy (CRP) (Gloria Ladson-Billing, 1995):** This theory focuses on teaching methods that recognize and incorporate students' cultural backgrounds, making learning more accessible and meaningful for tribal students. This theory explored leveraging students' diverse backgrounds to enhance academic success, cultural competence, and sociopolitical consciousness. CRP aims to create inclusive learning environments that acknowledge and value students' identities, experiences, and heritage. It involves strategies that empower students from different cultural backgrounds, such as honouring their linguistic repertoire, building trust, recognizing students' assets, setting high expectations, and adapting teaching methods to various learning styles (White, 2023). Although there are challenges, such as reluctance to address student identity and the mistaken belief that mathematics is devoid of cultural influence (Shultz et al., 2023), the adoption of CRP can result in fairer and more efficient educational methods that accommodate the requirements of all students, regardless of their backgrounds.

3. **Computer-Supported Collaborative Learning (CSCL):** One of the recent pedagogical practices in education is the emergence of computer-supported collaborative learning (CSCL). CSCL combines collaborative learning with information and communication technology (ICT) to create effective learning and communication settings (Koschmann, 1996). Two influential traditions that have significantly contributed to the advancement of CSCL include the study of cooperative (Forman & Cazden, 1985) and collaborative (Dillenbourg, 1999a) learning, as well as the research on computer-supported cooperative work (CSCW) (Dourish, 1999). While a unified theory of CSCL does not currently exist, the common thread among various perspectives is the emphasis on how technology can enhance peer interaction and group work in collaborative learning. Additionally, collaboration and technology play a role in facilitating the sharing and spreading of knowledge and expertise among learning community members. Conversely, CSCW is uncovering concerns about the collaborative aspects of work facilitated by groupware. The latter tradition has omitted discussions on learning but has laid the groundwork for creating groupware solutions for educational purposes and engaging environments for knowledge-intensive work and workplace learning.

4. **Critical Pedagogy**: This theory, advocated by Brazilian educator Paulo Freire, emphasizes a transformative and participatory approach to education (Da Costa, 2024). Freire's work, particularly highlighted in "Pedagogy of the Oppressed" (1968), promotes a classroom environment that challenges traditional teaching methods, encourages dialogue between educators and students, and fosters a problem-posing model of education where learners actively engage in critical analysis and problem-solving (Santos & Coutinho, 2024). Freire aimed to empower individuals to critically examine their social context by focusing on conscientization and liberation pedagogy, leading to a sense of agency and the ability to enact positive societal change. This approach has influenced educators globally, inspiring the adoption of more participative, critical, and liberating educational practices.

5. **Experiential Learning Theory (David Kolb, 1984):** This theory emphasizes learning through experience and reflection, highlighting the importance of active participation in the educational process. Kolb's theory provides a structured framework for designing educational activities encompassing a complete learning cycle, catering to diverse learning styles and preferences (Haritha & Rao, 2024). By incorporating theoretical concepts into

practical situations cyclically, instructors can augment students' comprehension and cultivation of soft skills, essential for success in diverse professional domains.

1.5.2. Theories of Social Challenges and Supports

Theories of Social Challenges and Supports explore how students learn from social experiences and overcome social challenges. The fundamental theories are

1. **Social Learning Theory (Albert Bandura, 1977):** This theory emphasizes that individuals learn through observation, imitation, and modelling of others' behaviours (Khozin et al., 2024). Bandura's theory highlights the role of cognitive processes in social learning, where individuals acquire new behaviours by witnessing the consequences of actions in social situations, even without direct reinforcement (Scott et al., 2024). This theory underscores the importance of vicarious reinforcement, where observing rewards and punishments influences behaviour. Bandura's research has been instrumental in developing cognitive-behavioural therapies and interventions, such as guided mastery therapy for anxiety disorders, by focusing on self-efficacy beliefs and self-regulatory processes. By integrating noble character values and serving as role models, teachers can effectively shape students' characters and behaviours based on the principles of Social Learning Theory.
2. **Social Integration Theory (Vincent Tinto, 1975):** This theory is rooted in the concept of social integration as a crucial element in the functioning of modern societies (Grunow et al., 2023). Tinto's theory emphasizes the importance of social relationships, community engagement, and productive activities in promoting well-being and healthy ageing (Jung et al., 2022). It builds upon the foundational work of Emile Durkheim, who identified normative and functional integration as critical components of social integration (Caldas, 2022). Tinto's theory aligns with the idea that social integration is not just about order and consolidation but also involves value dilemmas and conflicts, highlighting the complexity of integration processes in society (Schwinn, 2023). Focusing on the multidimensional factors influencing social integration, Tinto's theory provides a comprehensive framework for understanding how individuals interact within societal structures to achieve optimal health and well-being (Jung et al., 2022).
3. **Ecological Systems Theory (Urie Bronfenbrenner, 1979):** This theory offers a structure for comprehending diverse facets of human development and behaviour in distinct environmental settings. Bronfenbrenner's model consists of microsystems (individual's

immediate environment), mesosystems (connections between microsystems), exosystems (external environments indirectly influencing individuals), and macrosystems (larger cultural contexts). While the theory has been widely applied in diverse fields such as education, environmental values formation (Ortiz, 2024), and understanding student retention in higher education (, it has been critiqued for not fully addressing systemic issues like racism and oppression in educational settings (Renn & Smith, 2024). However, innovative adaptations incorporating critical lenses such as queer theory and critical race theory have enriched the analysis of higher education environments. Additionally, research has shown the importance of considering multiple forms of violence, including structural and symbolic violence, in the application of Bronfenbrenner's theory to understand better the impacts on young adults' development and well-being (Niebles, 2023).

4. **Social Capital Theory (Pierre Bourdieu, 1986 and James Coleman, 1990):** Bourdieu's (1986) work emphasizes the importance of social resources embedded in relationships, while Coleman (1990) defines social capital as resources derived from networks. Additionally, Bourdieu's theory delves into the concept of linguistic capital, highlighting the power of language in societal positioning and the symbolic construction of reality (Van Bakel & Horak, 2024). Furthermore, Bourdieu's seminal work, "Outline of a Theory of Practice," provides a foundational understanding of his epistemological and methodological views, showcasing a pivotal moment in his transition from structuralism to post-structuralism (Van Bakel & Horak, 2024). These insights underscore the complexity and multidimensionality of Social Capital Theory as elucidated by Bourdieu and Coleman, emphasizing the need for a nuanced and contextualized approach in its application.

5. **Critical Race Theory (CRT):** CRT is an interdisciplinary academic discipline that examines the connections between societal perceptions of race and ethnicity, legal and political systems, and media. CRT posits that racism is structural, encompassing different laws and rules rather than being rooted in individual prejudices. The term "critical" in the name refers to its scholarly association with critical theory rather than denoting criticism or blame toward individuals (Taylor, 1998).

6. **Cultural Mismatch Theory (CMT):** CMT suggests that educational disparities can be attributed to cultural dispositions that align or misalign with postsecondary institution values. First-generation college students often come from working-class homes, which can

mismatch with independent postsecondary values (Stephens et al., 2012). However, independent cultural values align with continuing-generation students from middle- and upper-class socioeconomic backgrounds. This cultural value mismatch significantly determines poor adjustment and educational disparities among social class groups at baccalaureate-granting institutions (Guan & Vasquez-Salgado, 2023).

1.5.3. Theories of Cognitive Challenges and Supports

Various theories explain the cognitive aspect of tribal students' growth and development, allowing educationists and researchers to analyze the challenges and how to overcome them for their growth. The basic theories are

1. **Constructivist Learning Theory (Lev Vygotsky, 1930)**: This theory, as proposed by Lev Vygotsky, emphasizes the sociocultural factors influencing mental development and education (Byrkun & Liashenko, 2024b). This theory highlights the importance of self-directed growth, learning and the Zone of Proximal Development (ZPD) in fostering students' educational accomplishments and self-reliance. Implementing constructivism in educational settings involves collaborative learning, scaffolding, and reflective thinking to enhance meaningful learning outcomes (Mishra, 2023). Furthermore, the role of educators in modern higher education institutions is crucial in organizing personal learning environments to promote self-regulated learning and individual student abilities. By integrating constructivist principles into teaching practices, educators can facilitate active knowledge acquisition, critical thinking skills development, and overall improvement in the learning process.
2. **Cognitive Learning Theory (Jean Piaget 1936, 1950)** focuses on how children adapt to their environment and interpret the world through four cognitive development stages (Khotimah & Agustini, 2023). Piaget's theory emphasizes that children's intelligence evolves as they progress through these stages, from the sensorimotor to the formal operational stage. This theory highlights the importance of understanding children's cognitive development, the factors influencing it, appropriate educational methods, and the significance of student-centred learning in early childhood education (Magdalena et al., 2023). Piaget's work has significantly impacted developmental psychology, although it has faced criticism for overlooking cultural and social factors in cognitive development. Teachers can customize their instructional approaches to align with students' cognitive

capacities at various stages of development by acknowledging and using Piaget's cognitive learning theory.

3. **Cognitive Load Theory (CLT) (John Sweller, 1988):** This theory emphasizes that our working memory has a limited capacity to retain knowledge, and hence, instructional techniques should be designed to prevent overwhelming it, thus optimizing learning outcomes (Sweller, 1988).

4. **Metacognition theory (John Flavell, 1979):** This theory emphasizes the awareness and comprehension of one's cognitive processes and centres on thinking about thinking. Over the years, research has highlighted the importance of metacognition in various fields, such as education, language learning, intentional epistemic actions, and Theory of Mind (ToM). Metacognitive practices have been found to enhance academic achievement, language learning outcomes, and cognitive development by promoting self-regulation, goal-setting, and knowledge activation.

5. **Information Processing Theory:** This theory, formulated by American psychologists George A. Miller and Richard Shiffrin in the 1960s, elucidates the cognitive processes involved in the encoding, storing, and retrieving of information within the human mind. This hypothesis posits that our mental faculties are contingent upon the interplay between sensory memory, short-term memory, and long-term memory. These components collaborate to facilitate the effective encoding, storage, and retrieval of information (Miller, 1956).

These theories explain the pedagogical, social, and cognitive aspects of child development, which help to understand the pedagogical, social, and cognitive challenges and supports of tribal students in higher education. The above-discussed theories are most relevant to this study.

CHAPTER-II

REVIEW OF RELATED LITERATURE

CHAPTER-II

REVIEW OF RELATED LITERATURE

2.1.0. Introduction

A literature review is essential to any research process, offering a detailed overview and critical analysis of existing knowledge. As (Bailey, 2021) highlights, it summarises, analyses, evaluates, and synthesises relevant literature within a particular field of study. This process provides a comprehensive understanding of key theories, concepts, and research trends, helping to contextualise the research problem, identify gaps in the current literature, and justify the necessity of the present study. Through this, the researcher can effectively navigate the field and contribute to the ongoing academic conversation.

This chapter serves as a solid theoretical foundation, equipping the researcher with the necessary knowledge about the findings and methodologies of past investigations. Understanding the current investigation's theoretical framework, methods, and applicability (Bailey, 2021) is crucial for producing reliable and trustworthy study outcomes. A comprehensive literature review, such as the one presented here, provides the necessary theoretical and conceptual background information regarding the pedagogical, social, and cognitive challenges and supports faced by tribal students in higher education. This study, for instance, delves into how these challenges affect tribal students' educational experiences and outcomes. It draws on various literature searches to establish a critical and comprehensive rationale and background knowledge, preparing the researcher to tackle research problems and engage with knowledge through a systematic study.

2.2.0. Objectives of the Literature Review

The primary objectives of the literature review are multifaceted. The objectives of the present literature are-

1. To identify knowledge gaps and gather sufficient background information for the study.
2. To formulate research questions, state the research problem, objectives, and hypotheses, and guide the research methodology.

3. To assist in carrying out the research process and identifying key factors or variables for the study.
4. To understand the findings' significance, applicability, and connection with other studies, including their pedagogical implications.
5. Avoid duplication by assessing existing evidence and providing valuable theories and hypotheses.

2.3.0. Methodology of the Literature Review

The researcher employed a systematic literature review approach to search and identify the relevant literature for this study. A systematic literature review is a review method that systematically searches, identifies, evaluates, and analyses relevant studies on a specific topic to summarise the findings and make the evidence more accessible (Kumar, 2023; Lowe, 2009). In this study, the literature search began with popular and reliable databases such as Google Scholar, ProQuest, Science Direct, Scopus, Shodhganga, and PubMed, etc. various keywords were used in the searching the relevant literature, such as 'pedagogical challenges and supports', 'cognitive challenges and supports', 'social challenges and supports', 'tribal students,' 'pedagogical barriers,' 'social barriers,' 'cognitive barriers,' 'tribal students,' 'scheduled tribe,' 'higher education,' and 'challenges of tribal students in higher education.' The focus was on the most relevant studies that were recently published in the English language.

2.3.1. Inclusion and exclusion criteria

The following inclusion and exclusion criteria were used in the study:

Inclusion Criteria	Exclusion Criteria
1. Studies published between 2011 and 2023. 2. Studies that focused on tribal students at higher education levels. 3. Studies should provide sufficient data on objectives, methodology, and findings.	1. Studies that were not published in English. 2. Studies that had insufficient data. 3. Studies were unrelated to the tribal students in higher education. 4. Studies for which the full text was unavailable.

2.3.2. Literature Selection Process

The literature screening process is depicted in Figure 2.1. involves systematic steps to refine a large number of literature into a final set of studies for inclusion in research. Initially, 723 studies were identified through Google Scholar, ProQuest, Science Direct, Scopus, Shodhganga, and PubMed databases. After removing duplicates, 573 studies have remained. These were then screened by title and abstract, reducing the number to 177 studies. Of these, 396 records are excluded for not being relevant to this study. The remaining studies have undergone full-text download, resulting in 80 studies. Further exclusions were made for non-relevance, non-English language and lack of full-text availability. Finally, 60 studies were included in the research. This thorough process ensures that only the most pertinent and high-quality studies are considered.

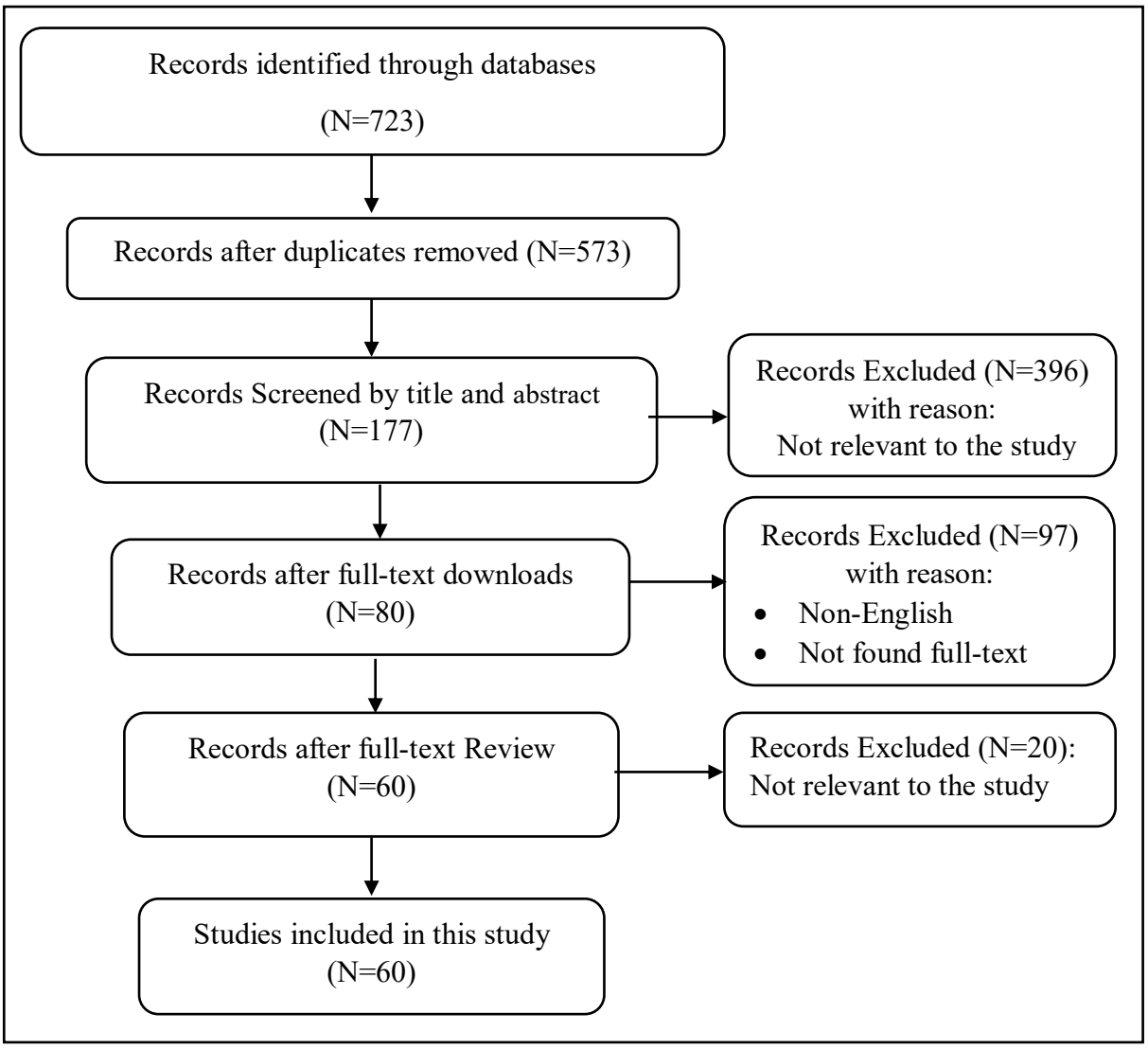


Figure 2.1: Literature Selection Process

2.4.0. Review of Related Literature

Tribal students face various obstacles/challenges and opportunities/supports during their higher education path. Several research studies have examined these factors, with a particular emphasis on teaching-learning methods, cultural assimilation, and institutional support systems, to improve the academic achievements and overall educational experiences of tribal students. The pedagogical, social, and cognitive challenges and support studies are discussed below.

2.4.1. Studies on Pedagogical Challenges and Support

Several researchers studied pedagogical challenges and supports of tribal students in the higher education context, and the most relevant studies were discussed here. For example, Usma Wilches et al. (2018) conducted case study research involving over 300 Indigenous students at Universiade Antioquia, Colombia. They collected data through databases, surveys, interviews, and conversation circles to establish a sociolinguistic profile of these students. Their findings highlighted Indigenous students' challenges in learning English in universities and the need for equitable pedagogical principles and effective implementation. Harrison and Clarke (2022) conducted a qualitative study on 162 students to investigate the integration of Indigenous knowledge into HE. They highlighted a global interest in embedding Indigenous knowledge, emphasising the need for reflexive pedagogical approaches to foster social cohesion. As per Butler's concept, leveraging narrative could enhance understanding across diverse perspectives. The study also reveals the limitations of traditional teaching methods in conveying emotional depth, with students expressing various reactions to Ivan's story, underlining the potency of personal narratives in fostering empathy. Gallop and Bastien (2016) conducted a qualitative study at a Canadian HE institution to understand Aboriginal students' academic experiences and identify factors supporting and challenging their success. They highlighted the importance of creating positive relationships between Aboriginal students and their peers and formalising support in institutional planning and faculty instructional support. Upmanyu (2016) conducted a case study utilising primary and secondary data sources to enhance the understanding of tribal education in the context of India. The significant finding was that there is a critical need for increased philanthropic investment outside the classroom to strengthen tribal education in India, which would provide a foundation for leveraging assets

and developing more substantial individual potential to overcome the barriers faced by tribal communities.

Several researchers studied the aspects of the Indigenous curriculum for tribal students. For example, Fredericks et al. (2023) conducted mixed-methods research employing interviews with 35 Indigenous graduates about their experiences of racism and the indigenisation of curriculum. They found that universities must prioritise educating academic staff and students on cultural competence by including Indigenous perspectives in the curriculum. They also suggested that building communities of practice within universities could facilitate the complex work of indigenising the curriculum. Rupavath (2016) investigated the educational status of the tribal population from Hyderabad in Vishakhapatnam and Anantapur districts and critically examined the problems and challenges faced by tribal students in the education system. The study revealed high dropout and illiteracy rates among tribal communities and identified pedagogical challenges such as understanding difficulties influenced by teaching methods, language barriers, and a lack of incentives for tribal language curriculum. Thorpe and Burgess (2012) conducted qualitative research through observations, interviews, document analysis, and theoretical frameworks at the Koori Centre, University of Sydney, focused on curriculum design and pedagogical approaches in Indigenous education within the institutional context. They found the importance of culturally safe learning environments and engaging assessment processes to address challenges lecturers face to better prepare future teachers for effectively educating Indigenous students, ultimately contributing to social justice in Indigenous education. David et al. (2013) studied Brazilian universities' multicultural Curriculum challenges for Indigenous students in higher education. They found that affirmative actions are needed to promote Indigenous access, but the current approach is limited to remedial multiculturalism. A survey of Indigenous students at the Federal University of Pará revealed contradictions and resignation, suggesting that a hegemonic curriculum does not achieve equal access to education.

Few studies emphasised communication challenges in HE like Ke (2023) conducted mixed-methods research to identify tertiary-level English as a Foreign Language (EFL) literacy development in ethnic minorities (EM) in China, an underexamined population in the literature. This study provides insights into the challenges EM students face in HE and the coping strategies they adopt, which can inform the pedagogical support needed for tribal students. Raziq and Popat (2023) conducted a comprehensive review of ST education in India

to explore the key challenges and barriers hindering educational opportunities for these groups. They found that language emerged as a significant hurdle, where using non-native languages impeded learning. The presence of non-tribal teachers who lacked proficiency in local tribal languages further compounded this challenge. Moreover, issues like teacher absenteeism, qualifications, and adjustment to remote areas were identified as barriers to effective teaching and learning in tribal communities.

Several studies focused on the Cultural pedagogical aspect, such as Crowfoot (2017) conducted a qualitative study on how engaged learning and integrative pedagogies transformed a multidisciplinary seminar on the challenges of unsustainability that began in 1999 for first-year college students. The study also illuminates possible ways students and teachers can enable each other's learning. This study emphasises the importance of transforming social and environmental relationships, including those within local communities, to address sustainability challenges effectively, which can inform the pedagogical support needed for tribal students. Tang (2022) conducted a qualitative study collecting data from instructor reflections, student surveys, and interviews at the higher education level in Taiwan to explore the effects of culturally sustaining pedagogy on Indigenous students and delve deeper into the challenges of Indigenous educational sovereignty and found that the significance of culturally sustaining pedagogy and identified four critical components of educational approaches tailored for Indigenous students. Similarly, Luecke and Sanders (2023) conducted a qualitative study on United States tribal college and university students to investigate the connections between local heritage, culture, and mainstream education. They revealed a pathway for teaching and learning mathematics with Indigenous communities and students, honouring the call to connect the math classroom with local heritage and culture. Kickett et al. (2023) conducted qualitative research using case studies, interviews, and document analysis to gather data from Indigenous students, educators, researchers, and administrators, focused on innovative education and research programs at the Centre for Aboriginal Studies. They found that the effectiveness of culturally appropriate teaching, learning, and organisational principles in empowering Indigenous students and communities underscores the importance of creating environments aligned with Aboriginal aspirations for social justice, self-management, and self-determination in higher education.

Very few studies focused on STEM (Science, Technology, Engineering, and Mathematics education. For example, Batty and Reilly (2023) served 232 STEM students in the United

Kingdom to investigate the challenges faced by STEM students, particularly in laboratory teaching, within the context of inclusive curricula in HE. They could not identify differences between ethnic groups due to the low participation of Black Asian and Minority Ethnic students, highlighting the broader issues of participation in STEM subjects. Hall et al. (2017) investigated factors influencing STEM participation among ethnic minority college students in a Western US public university. They revealed the negative impact of ethnic discrimination on academic self-efficacy and intent to major in STEM fields. Diversity in friendship groups could mitigate these effects by offering positive experiences and social support. Educators and institutions were encouraged to address pedagogical challenges through inclusive teaching practices, mentorship programs, culturally relevant curricula, and supportive learning environments.

Most of the researchers investigated the general educational challenges and supports of tribal students in HE. For example, Patra et al. (2021) conducted a qualitative study using secondary data collected from government reports, census data, and educational statistics to examine the educational status of ST students in the Purulia District. They observed an increase in ST students' enrolment and improved access and participation in HE. Some ST students attend reputable institutions and research sectors and access quality educational opportunities. They also found that the positive impact of government schemes and reservation policies and continued progress in enrollment and supportive policies could enhance the socio-economic well-being of ST communities. Shiva (2020) studied the status and challenges of higher education in tribal communities in Telangana State, focusing on factors like literacy rates, Gross enrollment ratio, Pupil Teacher Ratio, and university growth. The study found increased higher education institutions, increased tribal student participation, and reduced literacy gaps. However, it is crucial to focus on minimising dropout rates, designing curricula in Indigenous languages, implementing mid-day meals and adult education centres, and promoting research activities to improve the educational status of tribal communities further. Bramhane (2023) conducted a qualitative study utilising surveys, interviews, focus groups, and observations to gather perspectives from various stakeholders to explore the experiences and challenges faced by tribal communities in accessing higher education. The study identified Key barriers that include geographical remoteness, language constraints, economic conditions, lack of infrastructure, parental attitudes prioritising immediate economic returns, and teacher absenteeism in remote areas. The research evaluated government initiatives like scholarships,

proposing recommendations such as expanding educational scope, improving monitoring, and increasing coordination. The study emphasised the importance of higher education for empowering tribal communities and called for increased awareness, literacy campaigns, and enhanced support for tribal students, especially girls. Bailey (2016) conducted qualitative research by employing semi-structured interviews with 17 Indigenous students at McMaster University to examine the impact of everyday racism and microaggressions on Indigenous students' academic experiences. The study reveals that subtle forms of racism persistently affect Indigenous students, hindering both their academic and personal success despite existing support systems and improving graduation rates. Barriers like interpersonal discrimination, frustration with the university system, and feelings of isolation underscore ongoing challenges in achieving educational equality for Indigenous peoples. Panda (2010) conducted a qualitative study by applying in-depth interviews, focus group discussions, and case studies to delve into the experiences and hurdles faced by ST students in accessing HE. The study reveals that underdeveloped tribal communities, plagued by poverty and struggle to make ends meet, face elusive educational opportunities. Addressing basic sustenance issues is important to improve educational outcomes for these marginalised communities. Khan (2018) conducted mixed-methods research utilising quantitative analysis of National Sample Survey Organisation (NSSO) data with qualitative interviews in India to analyse trends in education access, dropout rates, and disparities among social groups, particularly SCs and STs. The study revealed the challenges faced by marginalised students in HE. The significant disparities across social groups are encountering difficulties in accessing quality education despite private sector involvement. Retention concerns persist, underscoring the need for targeted support mechanisms. The study highlighted the importance of remedial coaching schemes for marginalised students. Behera (2015) conducted a qualitative study to examine governmental interventions and determinants of participation among tribes. The study revealed that access to HE for advice is in the central and northeast Indian regions, concentrating on specific regions of India. Pedagogical challenges faced by tribal students in higher education are addressed through governmental interventions and affirmative action policies to enhance their access and participation. Kumar (2023) conducted a case study utilising snowball sampling to collect data from Dalit and Adivasi students at central universities in India to illuminate their challenges, the mechanisms of exclusion they encounter, and the broader impact of discrimination on their educational journeys and socio-

economic circumstances. The study highlighted the widespread discrimination in the educational system, affecting Dalit and Adivasi students through curriculum design, pedagogical practices, differential treatment, and humiliation, emphasising the need for urgent measures to address and mitigate these issues. Paringatai (2019) conducted a qualitative study, collecting data through participant observations and interviews, to explore the impact of a culturally embedded course on tribal students at a New Zealand university. The study revealed the importance of integrating Indigenous pedagogies and cultural perspectives into HE to enhance learning experiences and promote personal growth. It underscores the value of privileging Indigenous knowledge and restoring neglected teachings for Indigenous development and societal well-being. Additionally, the study highlighted the cathartic role of Maori performing arts in fostering cultural expression and connection among students. Nayak et al. (2020) conducted a case study by utilising exploratory and descriptive techniques, utilising primary sources like admissions records and discussions with learners in Madhya Pradesh and secondary sources like existing literature to explore the potential of Information and Communication Technology (ICT) in delivering HE to tribal communities of IGNOU Regional Centre in Bhopal through Open and Distance Learning (ODL). They highlighted challenges in providing HE to tribal areas but emphasised ICT's potential to address these challenges and increase the participation of ST learners. Positive trends in ST learner enrolment were noted, particularly in 2018.

2.4.2. Studies on Social Challenges and Support

The most related studies were on the socio-economic challenges and support of tribal students at the HE level. Akter (2017) surveyed 45 students through interviews and observations to explore the socio-economic status and challenges faced by Aboriginal Indigenous students at the University of Dhaka. The study revealed a low participation rate of Indigenous people in higher education. It highlighted demographic differences, such as age and year of study, and showed a correlation between family income and educational attainment. Many students expressed aspirations for careers in civil service or the private sector. Challenges in adjusting to university culture, including language, religion, food, and accommodation, were identified. Tandi (2019), who studied at Sambalpur University in Odisha, aimed to examine the socio-economic backgrounds of 30 postgraduate students, focusing on tribal students, particularly from the Scheduled Tribe (ST) category. The study identified barriers to student engagement, effective participation, and progress in higher education within the institution. Tilak and

Choudhury (2021) conducted an empirical study by using National Sample Survey Office (NSSO) survey reports (data from 2007-08 to 2013-14) to explore the relationship between household economic status and access to HE, investigating changes in this relationship over seven years. They highlighted increasing inequalities in HE participation across various dimensions, including gender, social groups, regional factors (rural and urban), and economic status. Although overall gender inequality has significantly decreased, the gap between rich and poor households remains substantial, pointing to ongoing challenges faced by marginalised groups, particularly tribal students. Punnaiah (2018) explores the challenges faced by tribal communities in Telangana state, highlighting the economic, political, and social changes they face. Despite constitutional safeguards, the STs remain stagnant. The study emphasises the need for universal and compulsory education, per Article 45 of the Indian Constitution, to enhance their capabilities and well-being. Igorevna (2018) conducted a descriptive and exploratory study utilising analysis, synthesis, field research, sociological research, and social design methods from 2010 to 2017 in the northern districts of the Krasnoyarsk Territory to enhance the adaptive environment for minority indigenous peoples in HE. They identified two models: specialised educational institutions using native languages and traditional lifestyles and integration into existing institutions with specialised adaptive systems.

One of the most relevant social issues in ST communities was gender discrimination. For example, Xiao et al. (2023) conducted a retrospective analysis of gender and ethnic diversity among senior HE academics and managers in England and Wales. They used employment records, diversity awards data, and mixed-effects modelling to assess trends and correlations between gender and ethnic diversity in senior academic and leadership positions. They found progress in advancing gender and ethnic diversity, but challenges persisted for certain racial groups. Ajagar (2023) conducted a convergent parallel mixed-method study on the educational aspirations of 120 ST students from five colleges in Sambalpur, Odisha. The findings revealed that female tribal students who were studying humanities had higher educational aspirations than their male and science counterparts. Additionally, students in private colleges exhibited greater aspirations than government college students. Key influencing factors included student characteristics, parental influence, peer and teacher influence, collegiate experiences, and personal performance.

Females were the most disadvantaged group among the tribal communities. For example, Rathore et al. (2018) conducted a qualitative study by employing in-depth interviews, case studies, document analysis, and observations to understand the challenges faced by female tribal students in accessing HE in India. They identified financial constraints, lack of infrastructure, societal expectations, gender disparities, and institutional discrimination as significant obstacles/barriers. They also highlighted government initiatives such as scholarships and quota systems, which were discussed as significant supports for tribal students. Deore et al. (2020) studied the challenges and obstacles faced in tribal HE, focusing on the social dilemmas caused by the lack of such opportunities within tribal families. The research used census data and analysed literacy rates from 2001 to 2011 over a decade. The findings suggest that, despite these obstacles, establishing higher education institutions in Nandurbar is a crucial initiative. The study also highlighted the need for educators to understand tribal customs and teachers' motivation in tribal education. The expansion of higher education facilities positively impacts literacy rates and societal welfare. Majumdar and Sikdar (2017) conducted a qualitative study collecting data from various secondary sources to analyse tribal women's participation in HE and their challenges in India. They found significant regional disparities in female enrolment, with the highest in Uttarakhand (49.5%) and the lowest (below 10%) in several other regions. Tribal women face numerous obstacles, such as limited income sources, poverty, and higher work participation rates, their low status, which hinder their educational progress. The study emphasised the crucial role of education in empowering tribal women, fostering economic independence, and driving social transformation. Das and Roy (2023) conducted a qualitative study by collecting data through interviews with female ST students in rural Bishnupur (WB) to investigate the challenges female ST students face in accessing higher education. They found the impact of parents' education and occupation on students' awareness and attainment, identified barriers at various educational stages leading to dropouts, and discussed linguistic, motivational, and socio-economic challenges such as low family income, lack of guidance, and early marriage.

The researchers focused on sociocultural issues in tribal society. Smith et al. (2023) interviewed 18 Aboriginal and Torres Strait Islander male students and alums aged 18-30 in Australia. The study highlighted the complex relationship between individual aspirations, cultural identity, and social contexts in elite Australian HE, emphasising the importance of supporting Indigenous students' unique needs. Fong et al. (2021) conducted a study through

secondary data sample of 1,393 self-identifying Indigenous students across 22 institutions to explore the relationships between Indigenous cultural development, sense of belonging, support for student success, and academic performance among Indigenous students in tribal community colleges in the United States. They indicated that institutional support for Indigenous cultural development does not directly influence Indigenous students' Great Point Average (GPA). Still, it indirectly enhances their sense of belonging and perceptions of support for student success. Daripa (2017) conducted a mixed-methods study involving surveys, interviews, focus groups, observations, and document analysis with various stakeholders on tribal education in India. They found that tribal communities face socio-economic, cultural, and educational barriers, hindering their participation in HE. The research emphasised the need for government initiatives, inclusive policies, and targeted interventions to promote equal opportunities for tribal students.

Some researchers also investigated the adjustment problem of tribal students at HE. Actovin et al. (2023) conducted a qualitative on purposively selected 12 northeastern tribal students enrolled in Pondicherry University to explore the social adjustment problems faced by tribal students migrating to cities for higher education. Data were collected through in-depth, face-to-face interviews, and thematic analysis was used to identify critical challenges. They found that adjusting to urban culture, maintaining connections with their community, dealing with discrimination, and facing economic challenges were significant issues. These difficulties led to psychological distress and impacted their academic performance. Sing et al. (2023) conducted a cross-sectional survey on 310 Bengali medium ST students using Bell's Adjustment Inventory from Purba Medinipur District to explore social adjustment patterns, focusing on family dynamics. They identified that female ST students face more significant adjustment challenges than males. Results also revealed that students from nuclear families showed higher adjustment difficulties than those from joint families. Gavit (2016) surveyed 600 college students (Tribal and Non-Tribal) from the South Gujarat region to examine the impact of student type, gender, and faculty type on psychological adjustment. The results revealed significant differences in psychological adjustment between Tribal and Non-Tribal college students, with Tribal students exhibiting better psychological adjustment than non-tribal college students. Additionally, the study found no significant difference in psychological adjustment between male and female students.

2.4.3. Studies on Cognitive Challenges and Supports of ST Students in HE

Several studies discussed the cognitive challenges and supports of tribal HE students in HE. For example, Sarkar and Mete (2022) surveyed 50 ST students purposively by applying the 'Metacognitive Attitude Scale' to examine the effect of metacognitive strategies among ST students in West Bengal. They found that metacognitive training, particularly for learning-disabled and low-achieving students, effectively improves behaviour more than traditional attention control training, highlighting the significant role of metacognitive strategies in enhancing student outcomes in HE. Govindharajan (2014) conducted a study on 60 undergraduate ST students by employing the 'Metacognitive Awareness Inventory' to examine how metacognitive awareness and learning strategies impact the academic success of ST students in a distance learning environment. The study findings indicated that metacognitive awareness and learning strategies significantly affect student achievements in an online English course. Specifically, the evaluation strategy, a subscale of metacognitive awareness, emerged as a positive predictor of academic success. Walton et al. (2020) surveyed 527 Indigenous students to identify the essential supports and obstacles related to Indigenous university student persistence and recommend how to improve persistence levels. They found that persistence in education is influenced by social engagement, cognitive factors, and cultural connections, with strong faculty relationships, Indigenous support, academic assistance, and self-directed learning being key.

One of the most significant cognitive challenges is language barriers. Few researchers have investigated the language barriers of tribal students; Behera (2015) conducted a mixed-methods study on 100 students from the Sundargarh district, using questionnaires, interviews, and focus group discussions to examine communication difficulties faced by tribal students in Odisha. The study found significant language barriers in communication with non-tribal teachers, peers, and administrative staff, highlighting language as a significant obstacle. The relationship between tribal students and teachers was crucial in overcoming these barriers, with effective communication and understanding from teachers improving students' comfort levels. Kirillina et al. (2021) conducted mixt-method research on full-time engineering students at the University of Sakha Republic to explore the impact of ethnic identity on English language learning. They investigated students' attitudes, perceptions, and language outcomes using qualitative and quantitative methods such as surveys, interviews, and language proficiency tests. They found the significance of considering cultural and ethnic backgrounds

in English language education, suggesting intercultural communication is vital for proficiency development, especially in diverse linguistic contexts like the Sakha Republic.

2.4.4. Studies on Pedagogical and Social Challenges and Support

Some studies discussed the challenges and support of tribal students at the HE level related to pedagogy and society. Trumbull and Nelson-Barber (2019) employed a primarily descriptive and analytical research design, focusing on the challenges of culturally responsive assessment for Indigenous students. They found the necessity of assessment practices that honour Indigenous knowledge systems and learning styles and the importance of respecting languages, cultures, and traditions in assessment design. Their findings highlight the importance of ongoing collaboration between educators, policymakers, and Indigenous communities to foster inclusive and equitable assessment practices. Liu et al. (2019) conducted narrative research by employing semi-structured interviews of three College English instructors from distinct ethnic minorities to grasp the primary challenges encountered in English as a Foreign Language (EFL) education at the tertiary level in these regions, focusing on financial, pedagogical, and cultural hurdles. They found financial scarcity the predominant challenge stemming from economic imbalances between minority and non-minority areas. Additionally, traditional teaching methodologies, predominantly teacher-centered, textbook-centered, and test-centered, posed significant obstacles to fostering language proficiency. Cultural challenges, such as integrating English culture into teaching and overcoming resistance from some minority students, were also noted. Joshi (2010) conducted a qualitative study utilising literature review, document analysis, and case studies to examine barriers and opportunities for tribal students pursuing higher education. The study revealed that tribals face significant challenges in accessing higher education, particularly for female students. To achieve gender parity, targeted policies, increased financial support, and diversification of educational opportunities are needed. Poverty, lack of resources, and societal expectations contribute to limited access. Continuous evaluation is crucial for improving educational outcomes. Lingam and Rao (2022) conducted a study based on secondary data from the 2016 Census of the Government of Telangana (SKS) and other sources of information concerning literacy and higher education to examine the status of indigenous populations in HE in Telangana and the challenges faced by different tribal groups. They found the factors affecting the aspirations, intentions, and achievements of diverse tribal students based on gender and community. The study highlighted the need for comprehensive development among diverse tribal groups, mainly due to high illiteracy rates and low educational

attainment. Education is crucial in enhancing ST's economic and social conditions in Telangana. Tripura (2020) conducted a study utilising interviews and descriptive analysis of literacy rates, enrolment data, and gender parity to investigate critical issues and challenges faced by the tribal students of Tripura. The study concluded that socioeconomic factors, medium of instruction, and attitude of parents, teachers, and peer groups are critical issues for tribal students across educational levels. Álvarez Valencia and Valencia (2023) conducted a study on Indigenous Students and University Stakeholders' Challenges and Opportunities in Colombia. The study found crucial insights into the obstacles Indigenous students encounter in HE. Using a qualitative method grounded in social semiotics, critical interculturality, and decolonial theory, the research underscores the importance of fostering critical intercultural dialogue. It also stresses the need to incorporate Indigenous perspectives and cultural resources into the curriculum and teaching methods to address these challenges effectively. Chakroborty (2022) conducted a study utilising a self-made questionnaire that randomly selected 150 ST students in West Bengal to examine different barriers ST students face in higher education (HE). The study found that ST students face curriculum, classroom environment, self-perception, peer relationships, teacher dynamics, and parental socioeconomic problems related to HE.

2.4.5. Studies on the combination of Pedagogical, Social, and cognitive Challenges and Support

Several studies have investigated the various challenges and supports of tribal students that were not any specific issues or aspects. These were the combination of the several aspects of tribal students. Datta and Mete (2022) surveyed 50 ST students by applying a self-develop five-point Likert scale to examine the barriers ST students face at the higher education level in Hooghly district. The study identified several barriers to ST students, including inadequate instruction, remote teachers, and tribal parents' indifferent attitudes. Barriers like college infrastructure, ST literacy awareness, poverty, hunger, and government scholarships were partially agreed upon, but teacher cooperation and high dropout rates were mainly disagreed upon. Roy (2021) conducted a case study on ST students in six General Degree colleges under Vidyasagar University in West Bengal to identify barriers in higher education. Data were collected from 140 students using a self-made questionnaire. The study revealed that significant challenges included linguistic issues, medium of instruction, poverty, parental indifference, inadequate infrastructure, insufficient teachers, poor college timing, high dropout rates, and ineffective reservations and scholarships. The study emphasised the need for

collaborative efforts to address these barriers, suggesting policies and programs to support Scheduled Tribe students and improve the teaching-learning process. Singh (2018) surveyed 300 college students randomly and purposively to investigate adjustment problems between SC and ST students. He found that scheduled tribe college students faced more problems compared to SC students in various aspects. These areas are such as health, physical development, finance, living conditions, employment, social and recreational activities, courtship, sex, marriage, social and personal psychological relations, morals, religion, home and family life, prospects, vocational and educational issues, and curriculum and teaching procedures. Baidya and Barik (2023) explored the educational challenges faced by a specific tribe in India, focusing on socioeconomic, academic, and personal factors. They suggested that revisions in the tribal education system are necessary to promote parity with mainstream society. Recommendations include literacy campaigns, positive attitudes, local language materials, female educators, scholarships, residential institutions, social protection, monitoring mechanisms, equal opportunities, and addressing household responsibilities. Ashraf and Anas (2018) purposively selected 30 students who pursued HE outside their region to assess higher education utilisation among the Irula tribe in Attappady, Kerala. They identified several barriers, including limited colleges, inadequate facilities, transportation issues, and few course options, hindering access to quality education. They also found that Irula students often chose specific courses like TTI/ITC, post-graduation, and B.Pharm, reflecting their interests and aspirations. Financial constraints were significant, with many students relying on government assistance or parental funding. Most students pursued education outside Attappady due to inadequate local facilities, highlighting the need for better infrastructure, expanded courses, financial support, and improved transportation within the region. They explored parental perspectives, noting some preference for better-equipped external institutions and others' reluctance to send children away. Chandel et al. (2023) conducted a qualitative study to explore ST students' challenges in HE by analysing secondary data with field experiences. They focused on government policies and programs in Madhya Pradesh aimed at improving educational outcomes for ST students. Despite numerous initiatives, ST students experience high dropout rates and low enrolment in HE. Challenges include socio-economic disadvantages and lack of access to quality education. They emphasised the need for improved implementation of educational policies and enhanced support systems to address these issues effectively.

2.5.0. Research Trends

2.5.1. Area/Domain-wise Distribution of the Reviewed Studies

In the context of the literature review, after thoroughly examining and analysing the available studies, the researcher identified 60 studies as primarily relevant to the broad area of the present study. These studies were categorised into seven domains, namely: studies conducted on tribal students' cognitive challenges and supports, pedagogical challenges and supports, social challenges and supports, the relationships between cognitive and pedagogical aspects, cognitive and social aspects, pedagogical and social aspects, and the combined interplay of the pedagogical, social, and cognitive domain. It was observed that the number of studies conducted on pedagogy, social, and cognitive aspects separately were 7 (12%), 17 (28%), and 8 (13%) respectively. Furthermore, studies investigating the relationships between cognitive and pedagogical aspects, cognitive and social aspects, pedagogical and social aspects, and the combined interplay of pedagogy, social, and cognitive domains were found to be 6 (10%), 11 (18%), 4 (7%), and 7 (12%) respectively. The domain-wise distribution of the reviewed literature is illustrated in Figure 2.2.

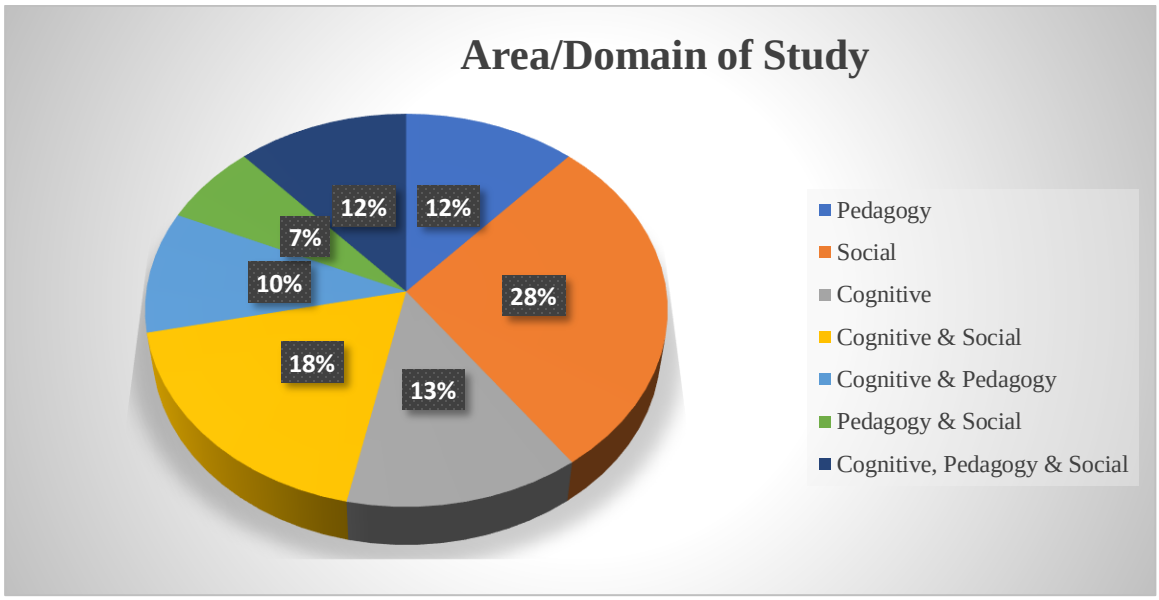


Fig. 2.2 Area/ Domain wise distribution of the reviewed studies

2.5.2. Methods and Design Distribution of the Reviewed Studies

An analysis of the selected literature in this study revealed several significant methodological approaches employed in the research. These included quantitative studies (encompassing

descriptive, cross-sectional, ex-post facto, and correlational surveys), qualitative methods (such as grounded theory, case studies, and exploratory research), review-based studies, and mixed-method approaches. As illustrated in the accompanying bar graph (Figure 2.3), the distribution of studies utilizing these methods was as follows: 24 (40%) employed qualitative research, 19 (32%) used quantitative studies, 10 (17%) utilized mixed methods, and 7 (11%) were review-based. This analysis indicates that cross-sectional surveys were the most frequently employed research method, suggesting their suitability and appropriateness for further investigations in this field.

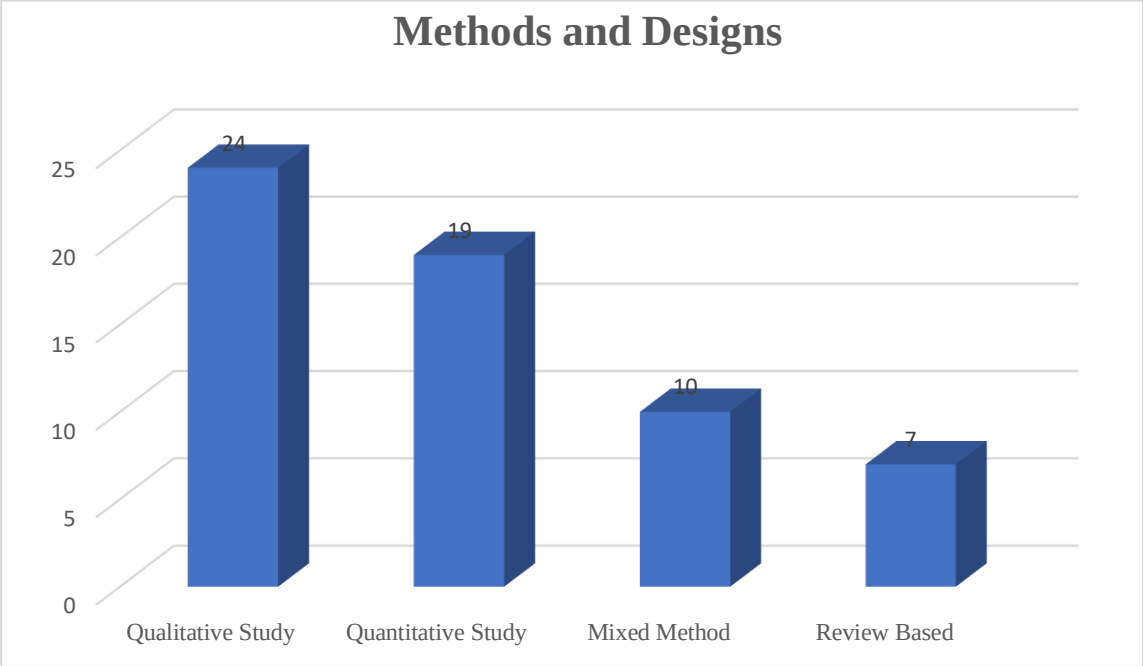


Fig. 2.3 Methods and Design Distribution of the Reviewed Studies

2.5.3. Location-wise Distribution of the Reviewed Studies

Furthermore, the pie chart (Fig. 2.4) illustrates the geographical distribution of the reviewed literature. The analysis indicates that 36 out of 60 (60%) studies were conducted in India. Conversely, only 24 relevant studies (40%) were conducted abroad, suggesting a need for increased research attention in this region.

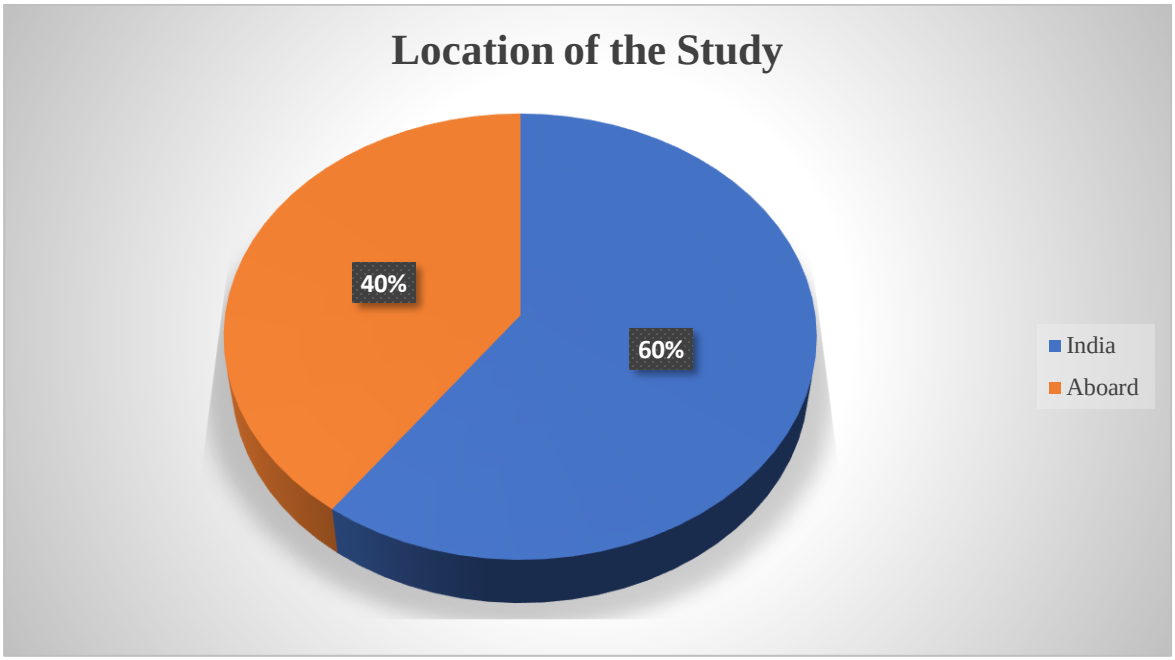


Fig. 2.4 Location-wise distribution of the reviewed studies

2.5.4. Year-wise Distribution of the Reviewed Studies

An examination of the publication years of the 60 studies, the chart in Figure 2.5 highlights some notable trends. Before 2011, only 2 relevant studies (3%) and 1 study (2%) between 2012 and 2014 were published. This number increased in 2015 onwards; there was a more significant rise: 12 studies (20%) were published in 2015-2017, 16 studies (27%) in 2018-2020, and 28 studies (48%) in 2021-2023. This shows that before 2014, research in this field was quite limited, with just three studies (5%). However, starting in 2015, there has been a steady increase in research activity. The period from 2021-2023 saw a robust growth, with 28 studies (48%) conducted globally.

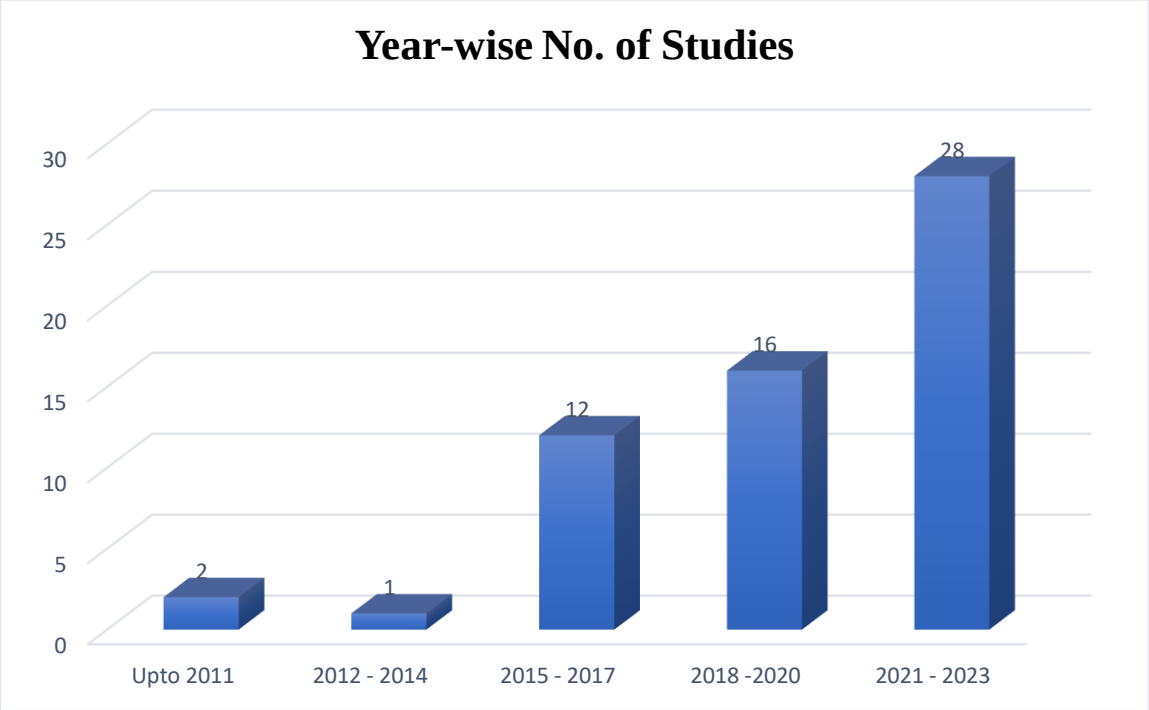


Fig. 2.5 Year-wise distribution of the reviewed studies

This indicates that the field is becoming increasingly popular and attracting more researchers. The growing number of studies suggests that this area holds significant importance and potential for research, making it one of the most promising fields to explore today.

CHAPTER-III

PROBLEM STATEMENT

CHAPTER-III
PROBLEM STATEMENT

3.1.0. Introduction

The current chapter provides the study's fundamental groundwork. It offers readers a clear understanding of the research purpose and its significance. This section thoroughly explains the researcher's assumptions, background, and positionality in this study, the study's rationale with research questions, and the knowledge gaps. This chapter also articulates the research problem, defines the key terms used, formulates objectives and hypotheses, and clarifies the research's delimitations.

3.2.0. Assumptions, Background, and Positionality of the Researcher in the Study

The researcher belongs to a Santal tribal family. As a member of the tribal community, he has faced many problems throughout his social and academic life. Being a research scholar, he observed and communicated with friends he experienced that tribal students struggled with several challenges or issues at the HE level, such as tribal students are not interested in pursuing HE, having a high dropout rate, gender stereotypes, neglected mainstream society, geographically remote areas, poor socio-economic conditions, several family issues, language barrier, inadequate guidance, lack of parental involvement, lack of encouragement, limited classroom engagement, fear of social integration, poor academic performance, and so on. These challenges give a comprehensive experience and understanding of the tribal community. These things motivated the researcher to explore the challenges and supports they faced throughout their educational careers. These challenges and supports are related to pedagogical, social, and cognitive at the HE level. The researcher chose this study because he wanted to learn more about these issues and prevent them positively. In this connection, the researcher studied educational barriers to higher education for SC and ST students in West Bengal during his post-graduate studies. However, it had some limitations; it was not specific only to ST and was not in-depth. Building on his previous experiences, the researcher aims to conduct in-depth research on this area to understand the issues comprehensively. His ultimate goal is to

support tribal teachers, students, parents, community members, and policymakers in enhancing the education and overall well-being of tribal students.

3.3.0. Rationale of the Study

Tribal communities are diverse cultural groups of Indigenous people; they have a long history, distinctive cultures, lifestyles, and geographical isolation from mainstream society (Soren, 2022). These communities often reside in remote and forested areas, maintaining their unique cultural traditions, languages, and customs that distinguish them from the mainstream population (Ravikumar, 2023; Sarkar, 2023; Shamshad, 2024). For this reason, they face multiple challenges ranging from poverty, malnutrition, land alienation, and lack of proper education to cultural mismatches in the education system and limited access to basic facilities, etc. (Kumar, 2024; Rajashekar & Nikhilavathi, 2023; Akkiraju, 2022). Kumar (2024) also reported that household responsibilities, economic hardships, unemployment, indebtedness, and ignorance are prevalent in many tribal areas. These are the general challenges faced by tribal communities in India. In the education context, they face various challenges in their educational journey (Kumbang, 2024). Several studies have discussed the challenges, and few have mentioned how to overcome or support them. For example, cultural mismatches between school and family environments (Sarkar, 2023), gender discrimination, and a lack of proper facilities for girls (Hdyitulah & Aman, 2023) hinder their academic progress. Many studies also explained that tribal students encounter high dropout rates (Primus et al., 2016; Lydster & Murray, 2018), low enrollment, and a lack of support (Chandel et al., 2023). They also face various challenges related to academic performance (Tierney et al., 2018; Chandel et al., 2023), social adjustment (Sarkar, 2023; Baidya & Barik, 2023; Tierney et al., 2018), socioeconomic conditions (Chanana, 1993; Baidya & Barik, 2023; Kishore & Babu, 2023), lack of institutional support (Tierney et al., 2018; Chanana, 1993; Gupta et al., 1985) and Gender-specific issues (Hdyitulah & Aman, 2023; Nair et al., 2016). Despite government initiatives like scholarships and coaching programs, inadequate government support (Chande et al., 2023), they struggle to achieve universal compulsory education for all, especially for Indigenous communities in India (Chaudhari, 2023; Ottaplackal et al., 2022).

Indian tribal students in HE also face several pedagogical challenges related to teaching-learning, institutional environment (Balaji, 2017), curriculum and teaching methods,

infrastructure, etc. (Brahmanandam & Bosu, 2015; Baidya & Barik, 2023). Few studies mentioned challenges, such as teacher absenteeism, lack of proficiency in local tribal languages, and insufficient infrastructure, further hindering effective teaching and learning (Raziq & Popat, 2023; Gangele, 2019) and lack of support from parents, teachers, and peers, hindering their educational progress (Tripura, 2020). Additionally, Chandel et al. (2023) state that high dropout rates, low enrollment, and inadequate support hinder tribal student's educational advancement, while linguistic issues, medium of instruction, and poor educational quality also negatively impact their academic progress (Roy, 2021; Hall et al., 2017).

Overcoming these pedagogical challenges requires specific pedagogical support to bridge the educational gap. These specific supports include incorporating socio-economic conditions and cultural heritage into the curriculum (Gandhi, 2022), where it is crucial to provide skills beyond general literacy to help them face modernisation effectively (Ranjan, 2014). Addressing constraints such as inadequate infrastructure, teacher quality, and access to learning materials is essential (Sarkar, 2023; Chandel et al., 2023). Ottaplackal and Anbu (2022) reported that implementing culturally sensitive curricula, multilingual education, and respecting tribal traditions can prevent pedagogic deterrence and reverse learning. Governmental initiatives like scholarship schemes, hostel facilities, tuition fees, free education, and infrastructure improvements can enhance educational outcomes (Roy & Roy, 2016; Damodaran, 2023). Additionally, community-based learning initiatives incorporating local knowledge and practices can provide valuable support for them (Jessy & Vijayanand, 2023). Integrating Indigenous pedagogies and cultural perspectives into HE can enhance learning experiences and promote the personal growth of tribal students (Paringatai, 2019).

Several studies have discussed the numerous social challenges tribal students face in HE that hinder improving their educational experiences and outcomes. Social challenges stem from historical marginalisation, socio-economic disadvantages, cultural isolation, and lack of access to quality education (Tilak & Choudhury, 2021; Raziq & Popat, 2022). They struggle with social recognition and respect, lack of proper communication facilities, financial crises, poor living conditions, employment, social activities, and educational adjustments (Singh, 2018). Educational issues like limited colleges and universities, inadequate institutional facilities, transportation problems, and few course options hinder access to quality higher education (Ashraf & Anas, 2018). They encounter more significant adjustment challenges to university culture, language constraints, religion, accommodation, present substantial

challenges, geographical remoteness, economic conditions, lack of infrastructure, and gender disparities (Sing et al., 2023; Rathore et al., 2018; Akter, 2017; Bramhane, 2023; Daripa, 2017; Sarkar, 2023). Tribal students also face workplace discrimination and abuse and struggle to balance work and household responsibilities, impacting their physical and mental health (Gurikar & Dalawai, 2024). Tilak and Choudhury (2021) emphasise the growing disparities in higher education participation among tribal students across multiple factors, such as gender, present residence, family structures, medium of instruction and socioeconomic status. Actovin et al. (2023) found significant issues adjusting to institutional culture and maintaining community connections. Parents' education, learning generations, and family income significantly influence social and cultural challenges (Sing et al., 2023; Rathore et al., 2018).

To address these challenges, tribal students need various social supports. Few studies mentioned that teachers' and peers' support within the campus (Walton et al., 2020), financial support, and government assistance, such as scholarships, quota systems, and ICT programs, significantly enhance the participation of tribal learners in HE (Nayak et al., 2020; Ashraf & Anas, 2018; Rathore et al., 2018). The socio-economic conditions, government schemes, reservation policies, inclusive policies, and programs have positively impacted their educational progress (Patra et al., 2021; Daripa, 2017). Bramhane (2023) shows that expanding educational scope, improving monitoring, and increasing coordination are recommended to enhance support for tribal students, especially girls. Community-based learning initiatives incorporating local knowledge and practices can provide valuable support (Jessy & Vijayanand, 2023).

Few studies explored cognitive challenges faced by tribal students in HE that hinder their academic performance and overall well-being (Primus et al., 2016; Kumar & Mohamad, 2023; Dingwall & Cairney, 2023; Lydster & Murray, 2018; Lewis et al., 2010). These challenges include learning, thinking, and problem-solving (Datta and Mete (2022), diverse intellectual abilities, insufficient cognitive engagement, cognitive conflicts, and language barriers (Idowu et al., 2024). These challenges are influenced by various demographic factors, such as gender, learner generation, family issues, parents' educations, academic levels, and institutional issues (Sarkar, 2023; Ramachandran & Reddy, 2022; Walton et al., 2020; Malik, 2020). The cognitive challenges are also exacerbated by high dropout rates, poor educational quality, lack of financial support, and language barriers (Rupavath, 2016; Panda & Ojha, 2021; Vallam, 2022). Additionally, there are significant gender-specific cognitive challenges, with male

learners focusing more on self-regulation and self-evaluation, while female students in rural areas face gender discrimination and household duties (Sarkar & Mete, 2022; Hdyitulah & Aman, 2023; Narayanasamy & Vasudevan, 2021).

Few studies have reported on the support systems for overcoming these challenges. For example, metacognitive awareness and learning strategies significantly enhance tribal students' support and achievement (Govindharajan, 2014). Critical cognitive factors include academic assistance, self-directed learning, practical teaching methods (Walton et al., 2020), and friendliness (John & Singh, 2014), reducing cognitive challenges. Various initiatives like mid-day meals, night schools, adult education centres, and curricula in Indigenous languages can provide additional support to tribal students for educational development (Shiva, 2020). Non-formal education interventions have also improved self-confidence, knowledge, and communication skills among tribal students (Konantambigi et al., 2008). Cognitive support through personality traits, emotional intelligence, teacher support, peer collaboration, and effective cognitive strategies further enhance academic outcomes (John & Singh, 2014; Pineda-Báez et al., 2019; Fong et al., 2021). Encouraging student participation through emotional support, bi-directional dialogue, and respect is also essential (Pineda-Báez et al., 2019). Including Indigenous perspectives and cultural resources in the curriculum and teaching methods is vital for effectively addressing these challenges (Álvarez & Valencia, 2023).

Based on the above discussion, along with an extensive literature review and research trend (Chapter II), it is evident that there is an increasing interest in research on the challenges and supports of tribal students in HE. Despite the abundance of research, these fields still need the special attention of researchers. The distribution of research across domains showed that tribal students face various challenges in their higher education. Their educational status, government initiatives, and limited support from institutions, parents, peers, etc., influence their academic performance in HE.

The tribal students face various pedagogical challenges in their institutions that are significantly influenced by demographic factors such as gender, family structure, generation of learners, medium of instruction, parents' educational qualifications, and family income. Various studies on tribal students in HE revealed that they face more pedagogical challenges in their classrooms. While few studies have been conducted on tribal students in HE, no study

has separately analysed perceived PC, specifically at undergraduate (UG) and postgraduate (PG) levels. Additionally, it has also been identified that several studies have examined different types of residence as a background variable, but no such study investigated ST students from hostel, mess, PG, own house, etc settings. Furthermore, few studies examined parents' educational qualifications as a significant factor influencing PC and PS. However, no study found a separate father's and mother's educational qualifications to understand their influence on PC and PS. The same scenarios are also observed in social and cognitive challenges and supports. Therefore, in-depth research is needed to explore the complex interplay between demographic factors such as gender, academic level, current residence, family structure, medium of instruction, generation of learners, parents' educational qualifications, family income, and the pedagogical, cognitive, and social challenges and supports. Research on the cognitive challenges and supports tribal students face in HE reveals that demographic factors such as gender and parental education influence their cognitive experiences. Similarly, studies on the social challenges and supports of tribal students indicate that factors like gender, medium of instruction, current residence, and family income impact their social challenges and supports. However, while a few studies have separately measured the impact of demographic factors on pedagogical, social and cognitive challenges and supports among tribal students in HE, no single study has comprehensively examined all of these factors together.

It is observed that though several studies were conducted on pedagogical, social and cognitive challenges and support separately or the relationship between any two of them, no comprehensive study attempt had been taken to explore the relationships among all three variables together, considering the demographic factors as background variables. So, a notable lack of comprehensive research addresses these aspects together. No studies have investigated the impact of overall support on overall, pedagogical, social, and cognitive challenges among tribal students in HE. Most studies were conducted in India and abroad, but no such research was found in West Bengal. A critical knowledge gap exists in understanding cultural factors. The researcher wanted to comprehensively study pedagogical, social, and cognitive challenges and supports concerning various demographics among trible students in HE. In light of these recognised research trends and knowledge gaps, the following research questions have emerged for investigation:

1. What are the prevalence rates of pedagogical, social, and cognitive challenges and supports among tribal students at the HE level?
2. What are the significant pedagogical, social, and cognitive challenges and supports that tribal students face in their HE?
3. How do demographic factors associate with the pedagogical, social, and cognitive challenges and supports among tribal students at the HE level?
4. How do pedagogical, social, and cognitive supports independently and collectively effect and predict overall challenges among tribal students in HE?

Therefore, a comprehensive investigation is required to explore the pedagogical, social, and cognitive challenges and supports faced by tribal students in higher education in West Bengal while considering various demographic factors to address the concerns mentioned and bridge the information gaps identified in previous studies.

3.4.0. Statement of the Problem

Based on an extensive literature review, research trends, the researcher's positionality, assumptions, and background of the study, the above rationale, identified research gaps, and research questions, the problem for the present study can be stated as "**Tribal Students in Higher Education: Exploring Their Pedagogical, Social, and Cognitive Challenges and Supports**".

3.5.0. Operational Definition of the Major Terms Used

The operational definitions of the major terms given in the statement of the problem are the following

Pedagogical Challenges: Pedagogical Challenges (PC) refer to the difficulties students face in the teaching and learning process, including factors such as academic performance, engagement levels, and perceptions of the effectiveness of instructional methods.

In the present study, PC refers to the pedagogical barriers (PB) that tribal students face in the teaching-learning process, including difficulties in communication with teachers in classroom

participation, comprehending the topics, adapting to modern technology-based learning methods, and lack of cultural relevance in the curriculum.

Pedagogical Supports: Pedagogical supports (PS) enhance the teaching and learning process, aiming to improve student outcomes and address diverse learning needs.

In the present study, the term PS indicates all the resources, techniques, and interventions teachers provide to enhance student learning and academic success. These supports address students' diverse needs through modifications in teaching strategies, additional learning materials, scaffolding, and promoting an inclusive learning environment. Vital elements of pedagogical support include differentiated instruction, personalised feedback, mentoring, the integration of technology, and opportunities for collaborative learning.

Social Challenges: Social Challenges (SC) refer to students' difficulties in interactions and social relationships. These challenges include aspects such as social integration, a sense of belonging, and the impact of cultural factors on their social interactions.

In this study, SC refers to the difficulties or social barriers (SB) tribal students encounter in their interactions and relationships within the educational environment, which can negatively impact their social integration and overall well-being. These challenges lead to feelings of isolation, discrimination, and diminished self-esteem, ultimately impacting the student's ability to thrive in the educational environment.

Social Supports: Social supports (SS) are resources and assistance provided to students by teachers, peers, and others in institutions to help them navigate social challenges and improve their social integrity and well-being.

In the present study, SS refers to relationships, resources, and help students get from their peers to overcome difficult times and improve their educational well-being. These resources, which offer practical, emotional, and informational support, can come from peers, teachers, family, and neighbours. Social supports give students a sense of connection and belonging, help them manage stress, and help them become more resilient. Social support in educational settings can include peer cooperation, mentorship, teacher guidance, and family involvement. These strategies help students succeed academically and personally by fostering a supportive environment.

Cognitive Challenges: Cognitive challenges (CC) are barriers related to cognitive processes, such as critical thinking skills, problem-solving abilities, academic performance, comprehension, etc., that influence learning, decision-making, and everyday functioning.

In this study, CC refers to the cognitive barriers (CB) students experience in processing, comprehending, and engaging with educational content and instructional methods due to various factors. CC has two aspects: language challenges (LC) and learning style challenges (LSC). This means that CC refers to the combination of LC and LSC.

Cognitive Support: Cognitive support (CS) refers to assistants, strategies, or accommodations designed to assist students in improving their thinking abilities and managing tasks effectively. These strategies aim to help students with cognitive difficulties achieve their goals.

In the present study, CS involves encouragement, positive reinforcement, classroom interactions, and assistance to help students overcome challenges and engage more effectively in learning. CS has two aspects: language support (LS) and learning style support (LSS) have two aspects. These supports may contribute to overcoming cognitive challenges.

Tribal Students: Tribals are members of indigenous groups that the Indian Constitution officially recognises as Scheduled Tribes (ST). These tribes, frequently found in isolated locations, represent various ethnic groups with unique social, linguistic, and cultural identities. In this study, tribal students refer to ST students studying at the higher education (Undergraduate and postgraduate level) enrolled in colleges and universities in West Bengal.

Higher Education: Higher education **(**HE) refers to the educational level at which students study after completing secondary school at colleges and universities. It includes undergraduate (UG/Bachelors), postgraduate (PG/Masters) and research (PhD) programs. In this study, tribal students who have completed at least one year of higher education (UG or PG) in general colleges and universities in West Bengal were included.

3.6.0. Objectives of the Study

The present research was undertaken to meet the following objectives:

1.1. To determine the level of overall challenges and support among tribal students in HE.

1.2. To assess the prevalence rates of PC, SC, and CC (LSC and LC) among tribal students in HE.

1.3. To evaluate the prevalence rates of PS, SS, and CS (LSS and LS) among tribal students in HE.

2.1. To compare the overall challenges (OC), PC, SC, and CC (LS and LC) among tribal students in HE regarding gender.

2.2. To compare the OC, PC, SC, and CC (LSC and LC) among tribal students in HE across the academic levels.

2.3. To explore the influence of family structure on OC, PC, SC, and CC (LSC and LC) among tribal students in HE.

2.4. To examine the variation in OC, PC, SC, and CC (LSC and LC) among tribal students in HE across present residence.

2.5. To explore the generation of learner influences OC, PC, SC, and CC (LSC and LC) among tribal students in HE.

2.6. To compare the OC, PC, SC, and CC (LSC and LC) among tribal students in HE with the medium of instruction.

2.7. To explore the influence of parent's educational qualification on OC, PC, SC, and CC (LSC and LC) among tribal students in HE.

2.8. To compare the OC, PC, SC, and CC (LSC and LC) among tribal students in HE across family income.

3.1. To assess the variations in OS, PS, SS, and CS (LSS and LS) among tribal students in HE across genders.

3.2.To compare the OS, PS, SS, and CS (LSS and LS) among tribal students in HE across academic levels.

3.3. To explore the influence of family structure on OS, PS, SS, and CS (LSS and LS) among tribal students in HE.

3.4. To examine the variation in OS, PS, SS, CS (LSS and LS) among tribal students in HE across present residence.

3.5. To explore how a generation of learners influences OS, PS, SS, and CS (LSS and LS) among tribal students in HE.

3.6. To compare the OS, PS, SS, and CS (LSS and LS) among tribal students in HE with the medium of instruction.

3.7. To explore the influence of parent's educational qualifications on OS, PS, SS, and CS (LSS and LS) among tribal students in HE.

3.8. To compare the OS, PS, SS, and CS (LSS and LS) among tribal students in HE across family income.

4.1. To explore the association between OC, PC, SC, LSC, LC and OS, PS, SS, LSS, and LS among students in HE.

4.2. To assess the effect of OS in explaining the variance in OC among tribal students in HE.

4.3. To determine the combined effect of PS, SS, and CS (LSS and LS) in explaining the variance in OC among tribal students in HE.

3.7.0. Hypotheses of the Study

The following hypotheses were formulated for testing based on research problems and objectives.

$H_0$1: Gender has no significant variations across OC, PC, SC, LC, and LSC among tribal students in HE.

$H_0$2: There is no statistically significant variation in OC, PC, SC, LC, and LSC of tribal HE students in WB across their academic levels.

$H_0$3: Family Structure does not significantly influence the OC, PC, SC, LC, and LSC among tribal students in HE.

$H_0$4: Present residence is not significantly associated with OC, PC, SC, LC, and LSC among tribal students in HE.

$H_0$5: OC, PC, SC, LC, and LSC do not vary significantly across generations of learners among tribal students in HE.

$H_0$6: There is no significant difference in OC, PC, SC, LC, and LSC among tribal students in HE across mediums of instruction.

$H_0$7: OC, PC, SC, LC, and LSC are not significantly associated with tribal students' parents' educational qualifications in HE.

$H_0$8: There is no statistically significant variation in OC, PC, SC, and CC among tribal students in HE across family income.

$H_0$9: There is no significant difference in OS, PS, SS, LSS, and LS among tribal students in HE across genders.

$H_0$10: There is no significant difference in OS, PS, SS, LSS, and LS among tribal students in HE across their academic levels.

$H_0$11: Family structures have not significant influence on OS, PS, SS, LSS, and LS among tribal students in HE.

$H_0$12: There are no significant variations in OS, PS, SS, LSS, and LS among tribal students in HE across their present residence.

$H_0$13: Generations of learners have no significant influence on OS, PS, SS, LSS, and LS among tribal students in HE.

$H_0$14: There is no significant difference in OS, PS, SS, LSS, and LS of tribal students in HE across mediums of instruction.

$H_0$15: Parents' educational qualifications have not significantly influenced OS, PS, SS, LSS, and LS among tribal students in HE.

$H_0$16: There is no statistically significant variation in OS, PS, SS, LSS, and LS among tribal students in HE across family income.

$H_0$17: There is no significant association between OC, PC, SC, LSC, LC and, OS, PS, SS, LSS, and LS among tribal students in HE.

$H_0$18: OS does not significantly explain the variance in OC among tribal students in HE.

$H_0$19: The combined effect of PS, SS, LS, and LSS does not significantly explain the variance in OC among tribal students in HE.

3.8.0. Delimitations of the Study

Due to the specific study objectives, time, resources, and other social constraints, the present study is delimited to the following areas:

1. The study is delimited to the state of West Bengal in India.
2. The study is delimited to the higher education level (UG and PG) in colleges and universities.
3. The study is delimited to tribal students (ST), especially those ST students who completed the first year of their UG and PG.
4. The study is delimited to the data collected from 11 Universities and their affiliated colleges in WB, such as Jadavpur University, Calcutta University, Shidhu Kanhu Birsha University, Sadhu Ram Chand University, West Bengal State University, University of

Gour Banga, University of North Bengal, Vidyasagar University, Kazi Nazrul University, Raiganj University, and Rabindra Bharati University.

5. The present study included 531 tribal students (ST) in HE as the participants.
6. The study is delimited to focus on three major variables: Pedagogical Challenges and Supports, Social Challenges and Supports, and Cognitive Challenges and Supports (CCS).
7. The primary variables are measured using two self-developed instruments: the "Perceived Pedagogical, Social, and Cognitive Barriers Scale" (PPSCBS) and "Perceived Pedagogical, Social, and Cognitive Support Scale" (PPSCSS) are used for data collection.
8. The study is delimited to the nine demographic variables: gender, academic level, family structure, present residence, generation of learners, medium of instruction, father's educational qualification, mother's educational qualification, and monthly family income.
9. Data are collected through both online (Google form) and offline modes.

3.9.0. Conceptual Framework

The researcher created a conceptual framework visually representing the interaction between PC, PS, SC, SS, CC, CS, and demographic factors among tribal students in HE. This framework is based on the theoretical and conceptual perspectives previously described in Chapter I. This is the study's conceptual framework:

3.9.1. Independent Variables: Demographic Factors, PC, SC, and CC.

3.9.2. Dependent Variable: PC, PS, SC, SS, CC, and CS.

3.9.3. Theoretical Links:

- ***Ladson-Billing's (1995) Culturally Relevant Pedagogy:*** Illustrates teaching methods that recognise and incorporate students' cultural backgrounds, making learning more accessible and meaningful for tribal students.
- ***Paulo Freire's Critical Pedagogy:*** promotes an interactive classroom environment for tribal students that actively challenges traditional teaching methods to engage in the teaching-learning process.
- ***Kolb's Experiential Learning Theory:*** Although not directly related to this study, it is relevant for designing the learning process. Emphasises learning through experience and reflection, highlighting the importance of active participation in the educational process.

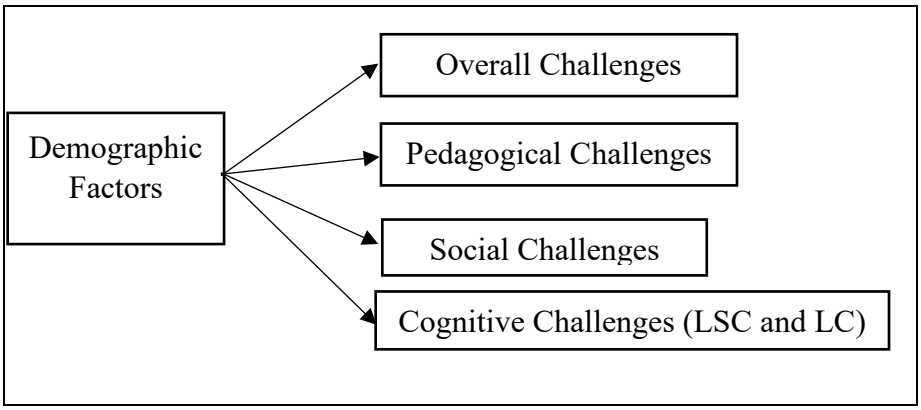
- ***Bandura's Social Learning Theory:*** Examine the cognitive processes in social learning through observation, imitation, and modelling of others' behaviours that influence tribal students' learning outcomes.
- ***Tinto's Social Integration Theory:*** Emphasizes the importance of social relationships, social integration, community engagement, and productive activities in promoting tribal students' well-being and education.
- ***Cultural Mismatch Theory (CMT):*** Explain how first-generation learners of tribal students often come from working-class homes, where the cultural mismatch between family environment and colleges and university environment are common factors that significantly influence their education.
- ***Vygotsky's Constructivist Learning Theory:*** This theory emphasises the sociocultural factors that influence the mental development and education of tribal students; collaborative learning, scaffolding, and reflective thinking are significant support systems for tribal students to enhance meaningful learning outcomes.

3.9.4. Hypothesized Relationships:

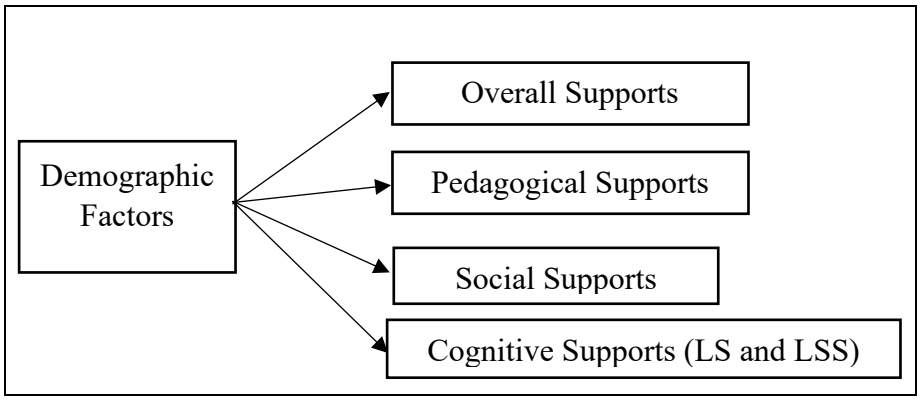
- **Prevalence Rates → PC, SC, CC, PS, SS, and CS:** These are the prevalence rates that explore the significant PC, SC, CC, PS, SS, and CS.
- **Demographic Factors → OC, PC, SC, CC, OS, PS, SS, and CS:** Demographic factors may influence OC, PC, SC, CC, OS, PS, SS, and CS.
- **OS, PS, SS, CS → OC:** OS, PS, SS, CS are hypothesised to influence OS.

3.9.5. Visual Representation:

- **Demographic Factors → PC, SC, CC (LSC and LC):**



- **Demographic Factors → PS, SS, CS:**



- **OS, PS, SS, CS → OC**

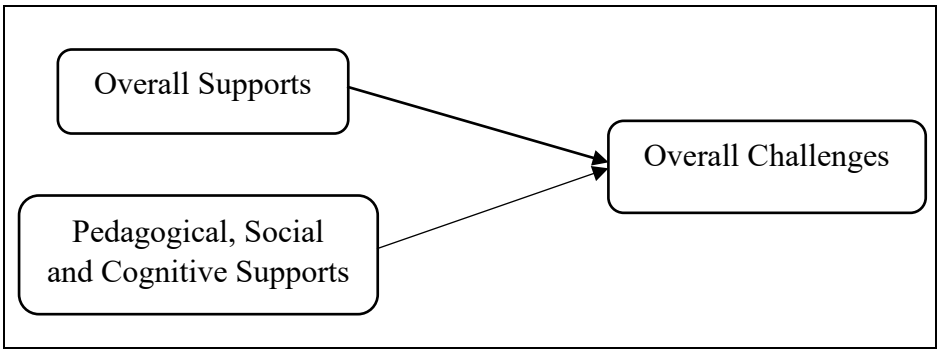


Figure 3.1.: Conceptual Framework of the Study

The researcher applies these conceptual frameworks to methodically examine the intricate relationships between essential variables and theoretical concepts in this study, offering a valuable understanding of the factors that influence the educational outcomes and success of tribal students in HE. The framework provided a structured approach to collecting, analysing, and interpreting data, which allowed for a thorough comprehension of the investigated topic.

CHAPTER-IV

METHODOLOGY OF THE STUDY

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4.1.0. Introduction

This chapter provides a detailed description of the methodology employed in the present study. Its main objective is to explain the research design, population, sample, and sampling technique. Furthermore, it also describes the study's key variables, data collection instruments and procedures, data cleaning and mining, statistics used for data analysis, various tools used for analysis and report writing, analysis design, and ethical considerations in this study.

4.2.0. Research Design

This study used a quantitative descriptive survey with a cross-sectional design. The researcher used a quantitative approach to collect and analyse numerical data to examine relationships between variables, test hypotheses, and draw generalizable conclusions (Ghanad, 2023). This method uses structured techniques such as surveys, experiments, and statistical analysis to gather measurable information, aiming for objective, reliable, and replicable results through standardised procedures and large sample sizes. Quantitative research, widely applied in social sciences, natural sciences, and economics, allows researchers to quantify phenomena, identify trends, and make predictions through statistical analysis (Khan et al., 2023). In particular, a cross-sectional survey, a descriptive research design, is used to gather data from a population or representative subset at a specific point in time, providing a snapshot of a population's characteristics, behaviours, or attitudes. This method is cost-effective, time-efficient, and often generalisable to a larger population (Ray, 2015).

4.3.0. Locale of the Study

The researcher selected West Bengal (WB) as a state of India for his research. WB has a diverse culture and an educationally developed state with several higher education institutions. Among them, the researcher selected 11 universities and their affiliated colleges. The researcher divided these universities into four clusters or regions: North, South, East, and West. The North region includes the University of North Bengal, the University of Gour Banga, and Raiganj University. The South region includes the University of Calcutta, Jadavpur University, and Rabindra Bharati University. The East region includes West Bengal

State University. The West region includes Vidyasagar University, Kazi Nazrul University, Sadhu Ram Chand Murmu University, and Sidhu Kanho Birsha University. These are government-sponsored universities.

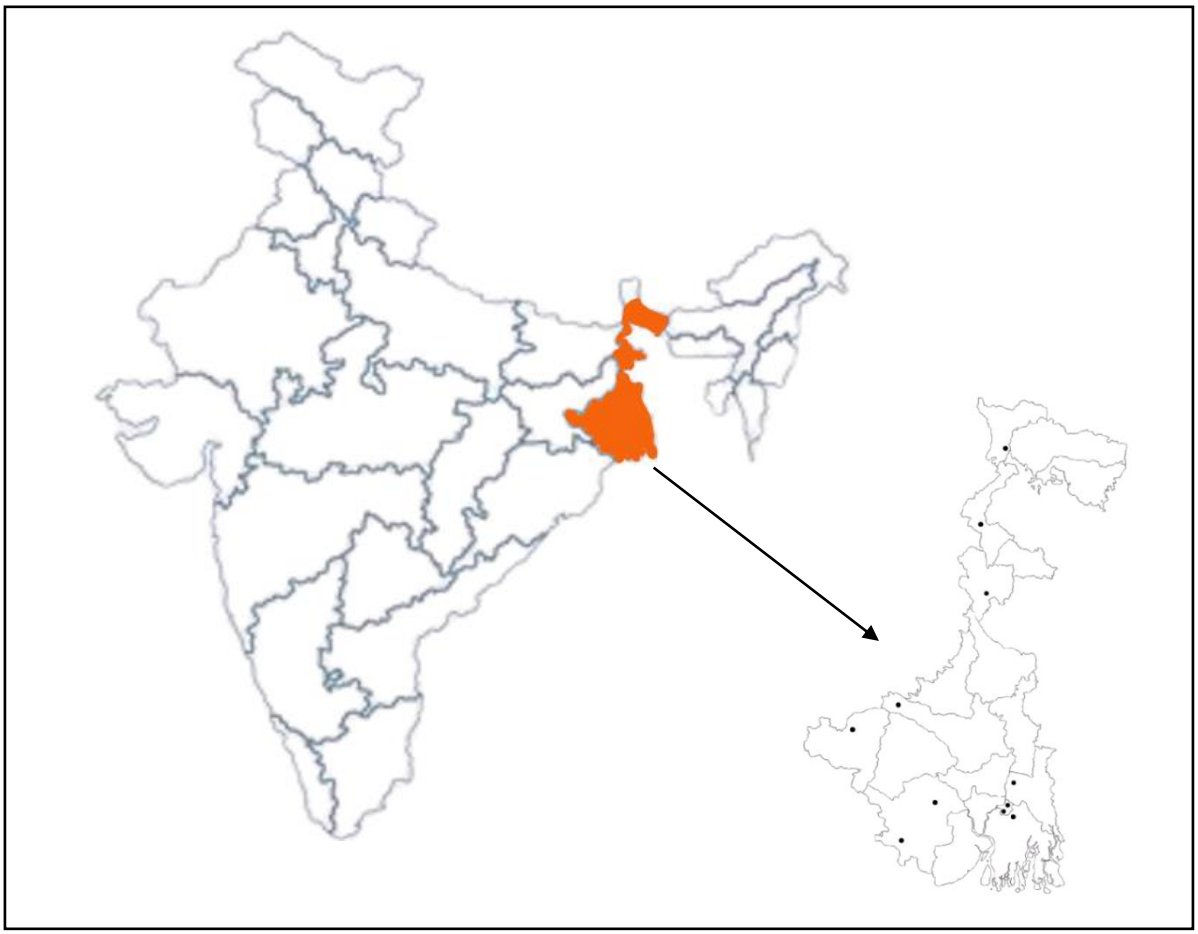


Fig. 4.1: Geographical location of the state of WB as the population for the study

4.4.0. Participants of the Study

4.4.1. Population

In the present study, the tribal students studying at the HE in WB were the target population. The students from the tribal community are the most backward, disadvantaged, and deprived group in WB. Tribal students comprise about 8.6% of the total population in India (Census of India, 2011). Tribal students constitute 5.8% of the population in WB (Census of India, 2011). The average literacy rate in WB in 2011 was 76.3%, while the literacy rate for Tribal students was 57.9%, indicating an 18.4% gap. The population of this study was UG and PG tribal students who had completed at least one year of their bachelor's or master's degree at HE

level at general universities and colleges in WB. However, the total enrollment of tribal students in the 2021-22 academic sessions at the HE level in WB was 95,706 (AISHE 2021-22).

4.4.2. Sample Size Determination

In survey research, the sample is an essential and representative subset of a broader population. The reliability and trustworthiness of any survey study depend on carefully selecting a suitable representative sample, which was difficult for the researcher. In the present study, the researcher initially determined the sample size before choosing a representative sample. The researcher employed Krejcie and Morgan's (1970) formula to select the appropriate sample size for the study. This formula is commonly used to determine accurate sample sizes in survey research. The primary objective of this formula is to ensure satisfactory representativeness and impartiality in the study (Ezugu & Akimbo, 2014). According to Krejcie and Morgan's (1970) formula, this study has a finite population size of 95,706 (e.g., the total enrolled tribal students in UG and PG at HE level); for this population, the minimum sample size is approximately 383. This sample size is chosen to provide a reliable representation of the larger population, allowing for meaningful insights into the experiences and perspectives of the target group of UG and PG tribal students at the HE level. The Krejcia and Morgan (1970) formula for sample size determination has been given below.

The formula for determining sample size

$s=X2NP(1-P)+d2(N-1)d2(N-1)+X2P(1-P)$

Where,

s = required sample size

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = the population size

P = the population proportion (assumed to be .50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (.05)

4.4.3. Sample Size of the Study

In the present study, the researcher collected 531 data from tribal students in HE who had completed at least their first year of UG or PG degrees. This sample size is standard by Krejcie and Morgan's (1970) sample size determination formula, which suggested that a minimum of 383 representatives. However, the researcher included 531 tribal students in this study.

4.4.4. Sampling Procedure

The researcher planned to collect data from all the universities across West Bengal. Due to several constraints, the researcher decided to collect data by dividing all the universities into four clusters: north, south, east, and west. For this reason, the researcher followed the cluster sampling technique. Accordingly, the researcher distributed the survey among the participants in each cluster.

In this study, the researcher employed a simple random lottery method to select universities after classifying clusters. There are 18 state universities in West Bengal considered for the lottery sampling, including 1. Aliah University, 2. University of Burdwan, 3. University Of Calcutta, 4. Jadavpur University, 5. University Of Gour Banga, 6. University Of Kalyani, 7. University Of North Bengal, 8. Netaji Subash Open University, 9. Presidency University, 10. Rabindra Bharati University, 11. Ramakrishna Mission Vivekananda University, 12. Sidhu Kanho Birsha University, 13. West Bengal State University, 14. Vidyasagar University, 15. Visva-Bharati University, 16. Kazi Nazrul University, 17. Raiganj University 18. Sadhu Ram Chand Murmu University.

The researcher randomly selected 11 universities to collect data for this. These universities are the University of Calcutta, Jadavpur University, University of Gour Banga, University of North Bengal, Rabindra Bharati University, Sidhu Kanho Birsha University, West Bengal State University, Sadhu Ram Chand Murmu University, Vidyasagar University, Kazi Nazrul University, and Raiganj University.

After that, the researcher purposively collected data from the participants studying in the selected 11 universities and their affiliated colleges. Here, the researcher collected 531 data from tribal students at HE in WB who had completed at least their first year of UG or PG degrees. The researcher then applied snowball sampling to reach the targeted participants and collect more data for the study. It is challenging for a single person to collect all the data alone, so the researcher gets help from his friends using two modes/ways such as offline and online.

Offline (Physical) mode: In this study, the researcher employed purposive sampling to collect data from tribal students. The researcher personally visited the universities and their colleges and hostels to communicate with tribal students and gather data from them. Only HE students who had completed at least one year and belonged to the tribal category were selected for the study.

Online Mode: The researcher used snowball sampling for online data collection. Information was gathered by sharing Google Form links across various platforms, including WhatsApp, Facebook, and LinkedIn groups. This method enabled the researcher to reach a wider audience.

Table No. 4.1: Online and Offline Mode of Data Collected

Data Collection Mode	Sample (N)	Percentage (%)
online Mode	149	28.06%
Offline (physical) Mode	392	73.81%
Total	531	100%

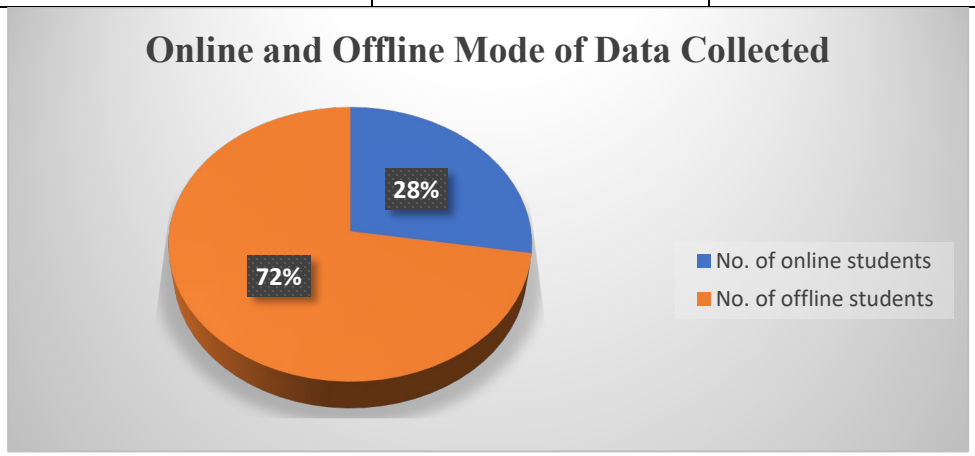
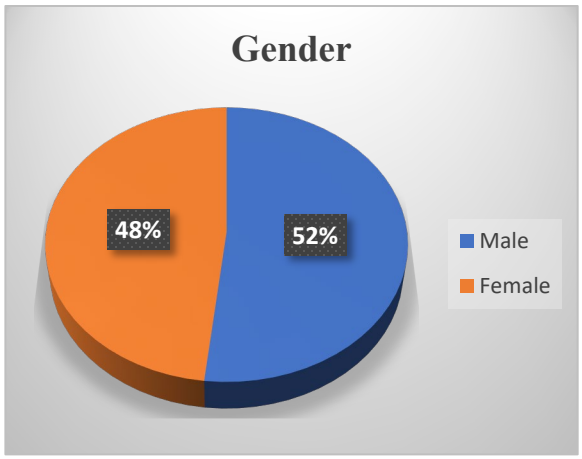


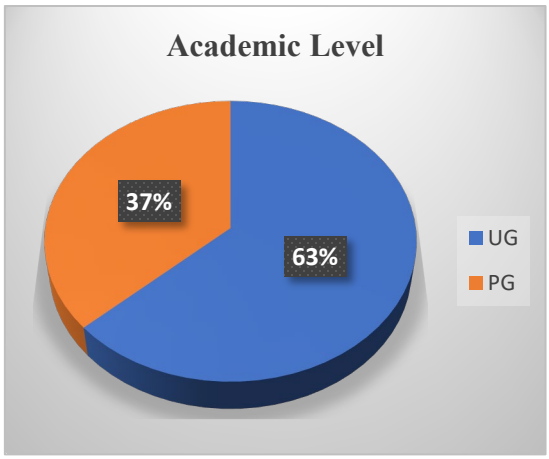
Fig. 4.2: Distribution of online and offline modes of data collected

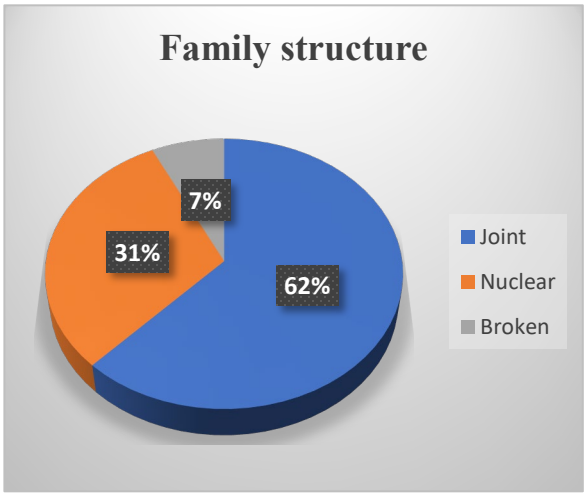
Table No. 4.2: Sample Distribution of the Study

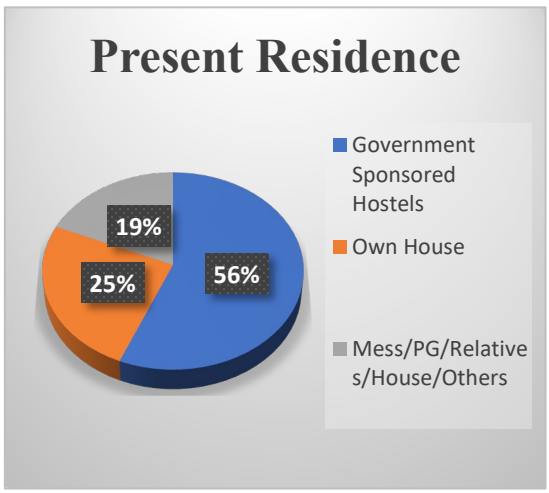
SN	Variables	Classification	Frequency (N)	Percentage (%)
1.	Gender	Male	275	51.8%
		Female	256	48.2%
2.	Academic Level	UG	336	63.3
		PG	195	36.7
3.		Joint	330	62.1%

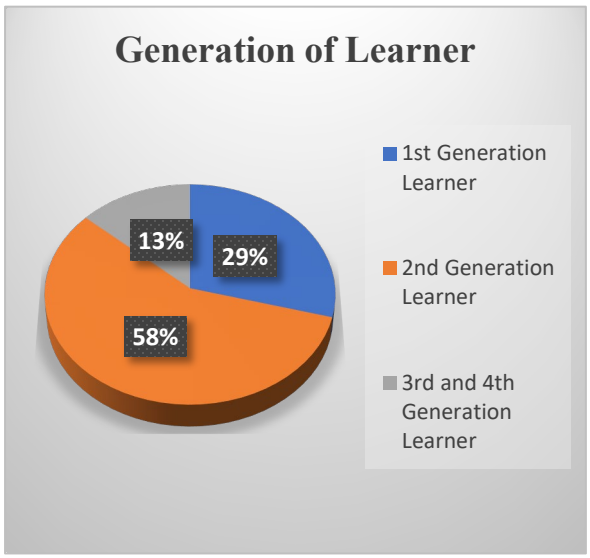
SN	Variables	Classification	Frequency (N)	Percentage (%)
	Family Structure	Nuclear	163	30.7%
		Broken	38	7.2%
4.	Present Residence	Government Sponsored Hostels	299	56.3%
		Own House	134	25.2%
		Mess/PG/Relatives/House/Others	98	18.5%
5.	Generation of Learner	1st Generation Learner	155	29.2%
		2nd Generation Learner	305	57.4%
		3rd and 4th Generation Learner	71	13.4%
6.	Mode of Instruction	Only Bengali	226	42.6%
		Only English	70	13.2%
		Bi-lingual	219	41.2%
		Tri-lingual	16	3.0%
7.	Father's Educational Qualification	Illiterate	67	12.6%
		Primary (i-v)	61	11.5%
		Upper Primary (vi-viii)	78	14.7%
		Secondary (ix-x)	138	26.0%
		Higher Secondary (xi-xii)	114	21.5%
		Graduate/ Postgraduate/ Others	73	13.7%
8.	Mother's Educational Qualification	Illiterate	141	26.6%
		Primary (i-v)	96	18.1%
		Upper Primary (vi-viii)	125	23.5%
		Secondary (ix-x)	104	19.6%
		Higher Secondary (xi-xii)	48	9.0%
		Graduate/ Postgraduate/ Others	17	3.2%
9.	Family Income	Up to 6174	299	56.3%
		6175-18496	111	20.9%
		18497-30830	44	8.3%
		30831-46128	30	5.6%
		46129-61662	21	4.0%
		61663 and above	26	4.9%

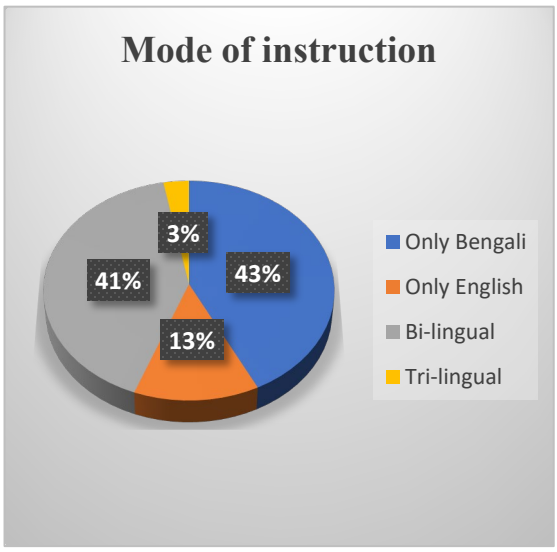

Gender
48%
52%
Male
Female


Academic Level
37%
63%
UG
PG


Family structure
7%
31%
62%
Joint
Nuclear
Broken


Present Residence
19%
25%
56%
Government Sponsored Hostels
Own House
Mess/PG/Relatives/House/Others


Generation of Learner
13%
29%
58%
1st Generation Learner
2nd Generation Learner
3rd and 4th Generation Learner


Mode of instruction
3%
41%
43%
13%
Only Bengali
Only English
Bi-lingual
Tri-lingual

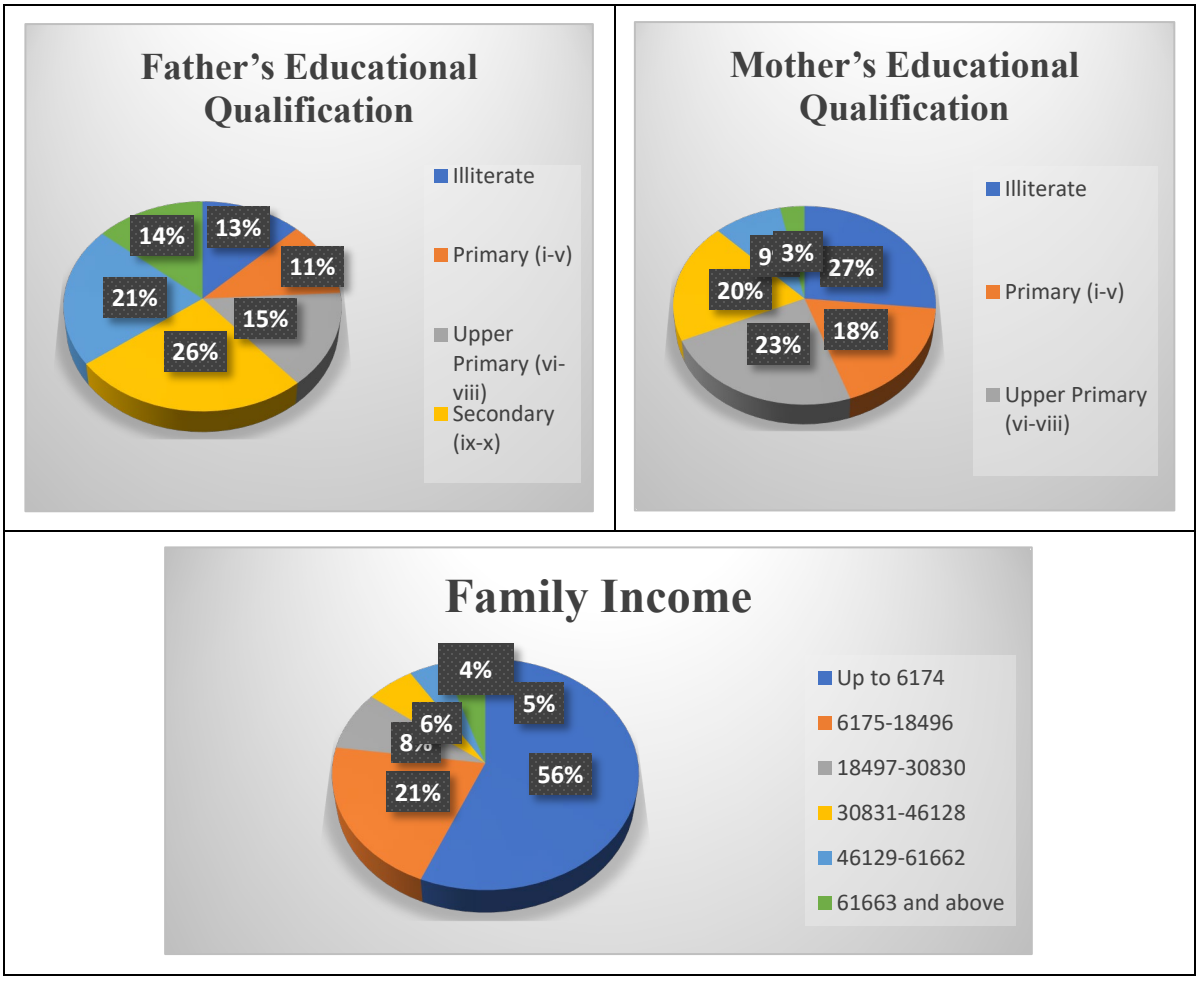


Fig 4.3: Sample distribution of the study

4.5.0. Description of the Variables

A variable is a measurable characteristic or attribute of research participants that can change or differ between individuals over time. According to Peecher & Solomon (2001), a variable is a quantifiable, observable, or manipulable characteristic, attribute, or component examined in the research. However, the researcher considered several variables in this study, which fall into three main categories: sociodemographic or independent, dependent, and Both (independent and dependent) variables. The study provides a detailed description of these variables below.

4.5.1. Demographic Variables (Independent Variables)

In the present study, demographic variables are treated as independent variables, which can influence dependent variables. The researcher manipulates and measures the independent

variables to determine how they relate to an observed event (dependent variables). A detailed explanation of these variables is given below.

1. **Gender:** Gender is an independent variable influencing the dependent variables**.** It has been categorised into two groups: Male and Female.
2. **Family Structure:** This independent variable was categorised and measured up to three labels: Joint, Nuclear, and Broken (separated, divorced, single parent). This classification was formulated based on Indian societal norms.
3. **Present Residence:** This variable denotes the student's current residence, specifying where they reside at the time of the study. It is categorised into three groups: Hostel, Own House, and Others (Relative's House, Mess, Rent House, Paying Guest).
4. **Academic Level:** This variable is an independent variable that also influences the dependent variables**.** It has been categorised into Undergraduate (UG) and Postgraduate (PG).
5. **Generation of Learner:** This variable is considered an independent variable and is classified into three categories: first-generation, Second-Generation, and third- and fourth-generation.
6. **Medium of Instruction:** This variable is included as an independent variable and classified into four categories: Only Bengali, Only English, Bi-lingual, and Tri-lingual.
7. **Parent's Educational Qualification**
    - **Father's Educational Qualification:** Father's educational qualification is an independent variable and categorised into six labels: illiterate, primary (grades I-V), upper primary (grades VI-VIII), secondary (grades IX-X), higher secondary (grades XI-XII), higher education (UG/PG/other).
    - **Mother's Educational Qualification:** This variable is an independent variable that also influences the dependent variables**.** It has been categorised into six groups: illiterate, primary (grades I-V), upper primary (grades VI-VIII), secondary (grades IX-X), higher secondary (grades XI-XII), and higher education (UG/PG/other).

8. **Family Income:** Family income (monthly), as an independent variable, is divided into seven categories: Up to 6,174, 6,175-18,496, 18,497-30,830, 30,831-46,128, 46,129-61,662, 61,663-123,321, and Above 1,23,322

4.5.2. Measured Variables (Dependent Variables)

Quantitative values, such as physical attributes like weight and height, represent measured or dependent variables. The measured variables are often referred to as outcome variables based on their role in the research. In the present study, overall challenges (OC), pedagogical challenges (PC), social challenges (SC), cognitive challenges (CC), overall supports (OS), pedagogical supports (PS), social supports (SS), and cognitive supports (CS) are considered as the dependent variables. A detailed description of the dependent variables has been given below.

1. **Overall Challenges:** In the present study, overall challenges are treated as a dependent variable (at the time of the mean difference test) and are continuous.
2. **Pedagogical Challenges:** In the present study, pedagogical challenges are called barriers. This variable was treated as a dependent variable (at the time of the mean difference test). It was continuous.
3. **Social Challenges:** This variable is called social challenges faced by the social experiences of tribal students in HE. It was continuous and treated as a dependent variable (at the time of the mean difference test).
4. **Cognitive Challenges:** The present study treats cognitive challenges as a dependent variable. This variable was continuous and divided into two categories: Language Challenges and Learning Style Challenges.

4.5.3 Both (Independent and Dependent) Variables

In the present study, Overall Support (OS), pedagogical support (PS), social support (SS), and cognitive support (CS) serve as independent and dependent variables. In the regression analysis, they are treated as independent variables, and they are considered dependent variables during the testing of mean differences. Details of these variables are given below.

1. **Overall Supports:** In the present study, this variable is treated as an independent variable when analysing its effects on OC. At the same time, it is treated as a dependent variable when testing mean differences concerning demographic variables.

2. **Pedagogical Supports:** In the present study, this variable is treated as an independent variable when analysing its effects on OC during regression analysis. At the same time, pedagogical support is treated as a dependent variable when testing means differences concerning various demographic variables.
3. **Cognitive Supports:** In the present study, Cognitive Support (CS) is treated as an independent variable when analysing its effects on OC during regression analysis. Additionally, Cognitive support is treated as a dependent variable when testing mean differences concerning various demographic variables.
4. **Social Supports:** In the present study, this variable is treated as an independent variable (at the time of regression analysis) and the dependent variable (at the time of testing mean differences). This variable is continuous.

4.6.0. Methods of Data Collection

To get pertinent data from the chosen participants, the researcher employed four instruments: a consent letter, a demographic profile sheet, and two questionnaires designed to assess challenges and support. Every participant was instructed to provide their responses for each item of the instruments. A comprehensive description of each instrument is provided below.

4.6.1. Informed Consent

The researcher provided a consent letter to inform participants about the research title, the investigator and supervisor, research purposes, research background, descriptions of tools, target participants, brief instructions, the confidentiality of responses, and asking for voluntary participation in the study and provide relevant data for the study.

4.6.2. Demographic Profile of the Participant

The demographic profile sheet collected participants' personal, social, and educational information, comprising 15 items. These items were as follows- 1. Name, 2. Gender (Male/Female/Others), 3. Age, 4. Family Structure (Joint/Nuclear/Broken), 5. Place of staying at present (Own House/Relative House/Mess/Hostel/Paying guest / Others), 6. Permanent Address, 7. Name of the Present Institution, 8. Course (UG/PG/Other), 9. Generation of Learning (1/2/3/4), 10. Language used for classroom instruction/ teaching (Bengali/English/Hindi/Bilingual/Tri-lingual), 11. Language Known, 12. Name of the Previous Institution, 13. Father's Educational Qualification (Illiterate/Primary/Upper Primary/Secondary/Higher Secondary/Graduation/Post Graduation/Others), 14. Mother's

Educational Qualification (Illiterate/Primary/Upper Primary/Secondary/Higher Secondary/Graduation/Post Graduation/Others), 15. Monthly Family Income (Up to 6,174/6,175-18,496/18,497-30,830/30,831-46,128/46,129-61,662/61,663-123,321/Above 1,23,322).

4.6.3. Perceived Pedagogical, Social, and Cognitive Barriers Scale (PPSCB Scale)

This Perceived Pedagogical, Social, and Cognitive Barriers Scale (PPSCB) scale is self-developed and constructed by Dr. L.L. Mohakud, A. Kisku, and S. Khan (2023). This five-point Likert scale consists of 19 items divided into three dimensions: (I) Pedagogical Barriers (PB) (5 items), (II) Social Barriers (SB) (4 items), and (III) Cognitive Barriers (CB) (10 items). The cognitive barriers have two sub-dimensions: Language Barriers (LB) and Learning Style Barriers (LSB). Every item has five choices: Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. The scoring procedure of the scale was straightforward with five choices; a score of 5 was assigned for Strongly Agree, 4 was assigned for Agree, 3 was assigned for Neutral, 2 was assigned for Disagree, and 1 was assigned for Strongly Disagree. The scale takes 30 to 40 minutes to respond to all the items. The high scores on the scale indicate high challenges/barriers and vice-versa. However, the Cronbach's Alpha reliability coefficient of the PPSCB scale was 0.933, and the Split-half reliability coefficient was 0.953. Experts' opinions and Exploratory Factor Analysis (EFA) ensured the scale's validity and usability.

Table No. 4.3 The Dimensions and their Respective Items and the Scoring Procedure for the PPSCB Scale

<table>
<tr><th colspan="6">Dimensions of the PPSCB Scale</th></tr>
<tr><th>Sl. No.</th><th colspan="2">Dimensions of the Scale</th><th>Item Number</th><th colspan="2">Items</th></tr>
<tr><td>I</td><td colspan="2">Pedagogical Barriers (PB)</td><td>1, 2, 3, 4, 5</td><td colspan="2">5</td></tr>
<tr><td>II</td><td colspan="2">Social Barriers (SB)</td><td>6, 7, 8, 9</td><td colspan="2">4</td></tr>
<tr><td rowspan="2">III</td><td rowspan="2">Cognitive Barriers (CB)</td><td>Language Barriers (LB)</td><td>10, 11, 12, 13, 14, 15</td><td colspan="2">6</td></tr>
<tr><td>Learning Style Barriers (LSB)</td><td>16, 17, 18, 19</td><td colspan="2">4</td></tr>
<tr><td colspan="4">Total items</td><td colspan="2">19</td></tr>
<tr><th colspan="6">Scoring Process</th></tr>
<tr><td>Strongly agree</td><td>Agree</td><td>Neutral</td><td>Disagree</td><td colspan="2">Strongly disagree</td></tr>
<tr><td>5</td><td>4</td><td>3</td><td>2</td><td colspan="2">1</td></tr>
</table>

4.6.4. Perceived Pedagogical, Social, and Cognitive Supports Scale (PPSCS Scale)

The researcher also employed "The Perceived Pedagogical, Social, and Cognitive Supports Scale" (PPSCS) in the current study. This self-developed scale was constructed by Dr. L.L. Mohakud, A. Kisku, and S. Khan (2023). This five-point Likert scale comprises 15 items designed to measure supports across multiple dimensions within educational settings. This scale has three dimensions: (I) Pedagogical Supports (PS) consists of 5 Items, (II) Social Supports (SS) consists of 4 items, and (III) Cognitive Supports (CS) consists of 6 Items, divided into two sub-scale: Language Supports (LS) and Learning Style Supports (LSS). Participants are asked to respond to each item with five choices: Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. The scoring procedure of the scale: 1 was assigned for Strongly Agree, 2 was assigned for Agree, 3 was assigned for Neutral, 4 was assigned for Disagree, and 5 was assigned for Strongly Disagree. The scale takes 15 to 20 minutes to respond to all the items. The low scores on the scale indicate high support or low challenge and vice-versa. However, the Cronbach's Alpha reliability coefficient of the PPSCS scale was 0.873, and the Split-half reliability coefficient was 0.826. Experts' opinions and exploratory factor analysis (EFA) ensured the scale's validity and usability.

Table No. 4.4 The Dimensions and their Respective Items and the Scoring Procedure for the PPSCS Scale

<table>
<tr><th colspan="6">Dimensions of the PPSCS Scale</th></tr>
<tr><th>Sl. No.</th><th colspan="2">Dimensions of the Scale</th><th colspan="2">Item Number</th><th>Items</th></tr>
<tr><td>I</td><td colspan="2">Pedagogical Supports (PS)</td><td colspan="2">1,7,8,9,14</td><td>5</td></tr>
<tr><td>II</td><td colspan="2">Social Supports (SS)</td><td colspan="2">2,4,5,6</td><td>4</td></tr>
<tr><td rowspan="2">III</td><td rowspan="2">Cognitive Supports (CS)</td><td>Language Supports (LS)</td><td colspan="2">11,15</td><td>2</td></tr>
<tr><td>Learning Style Supports (LSS)</td><td colspan="2">3,10,12,13</td><td>4</td></tr>
<tr><td colspan="5">Total items</td><td>15</td></tr>
<tr><th colspan="6">Scoring Process</th></tr>
<tr><td>Strongly agree</td><td>Agree</td><td>Neutral</td><td>Disagree</td><td colspan="2">Strongly Disagree</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td colspan="2">5</td></tr>
</table>

4.7.0. Data Collection Procedure

The data for this study are collected using two methods: offline and online. The researcher gets approval from the Research Advisory Committee (RAC) and the research supervisor's data collection bonafide and official authorisation letters. The data collection period is extended from April 26, 2023, to July 27, 2023.

4.7.1. Online Data Collection Method

The researcher created a Google form to collect information from the participants. These Google forms are shared with various online platforms or social media, including WhatsApp, Facebook, LinkedIn, etc, and request the participants to participate in the study. The researcher also contacts the known participants to participate in the research and sends the link to the Google form. The researcher requested that they share the link with their known participants to participate in the study. Participants were also encouraged to share the link with their peers. Data were collected using this method from April 26, 2023, to July 27, 2023.

4.7.2. Face-to-Face (Offline) Mode of Data Collection

In this offline method, the researcher personally visited various universities, colleges, and hostels to communicate with tribal students and gather data from them. Initially, he explained the research topic and purpose, inviting them to participate voluntarily. The questionnaires are then distributed, requesting that participants carefully read each item, respond accordingly, and return the completed forms.

4.8.0. Storage and Protection of Data

4.8.1. Data Screening

After completing the survey, participants' responses are examined to ensure full completion. Screening criteria included collecting completed consent, demographic information, and questionnaire items. Data is mined and cleaned before being integrated into a single MS Excel file and securely saved on the researcher’s computer.

4.8.2. Tabulation of Data

The data are systematically organised and tabulated for further analysis and interpretation to meet the study’s objectives. The raw data collected from 531 higher education tribal students are individually entered into an Excel sheet.

4.9.0. Data Analysis Techniques

The researcher used his PC to access the securely stored Excel spreadsheet while performing the statistical analysis. He also used SPSS-20 software to analyse the data with his supervisor.

4.9.1. Outliers

First, the researcher assessed data normality by using Skewness and Kurtosis statistics. Using SPSS, the interquartile ranges are identified with Tukey's hinges output values to examine and review outliers. Boxplots are created to find data values outside the +1.5 and -1.5 interquartile ranges (beyond the third and first quartiles, respectively) and extreme outliers outside the +3 and -3 interquartile ranges. Any outliers are removed in the final analysis and findings report.

4.9.2. Descriptive Data Analyses

The demographic variables of the study are described using primary descriptive statistical techniques such as frequency, percentage analysis, mean, and standard deviation. Specific descriptive analyses included demographic variables such as gender, family structure, present residence, academic level, learner generation, medium of instruction, parent's educational qualification, and family income. Additionally, the prevalence rate of pedagogical, social, and cognitive challenges and supports among tribal students are provided in Chapter V.

4.9.3. Parametric Analysis

Parametric statistics is used to test hypotheses and draw conclusions. It combines descriptive and inferential statistics. In this study, the researcher used parametric statistics because the data are normally distributed, as indicated by Skewness, Kurtosis, Kolmogorov-Smirnov, and Shapiro-Wilk test results (provided in Chapter V), and the sample size is large. This study applied parametric statistical techniques such as a t-test, One-way Analysis of Variance (ANOVA), Pearson correlation, and regression in SPSS-20. An independent sample t-test and one-way ANOVA test the significant mean difference in the dependent variables among tribal students concerning their demographic variables. Pearson Correlation analysis explored the relationship between OC, PC, SC, LC, LSC, OS, PS, SS, LS and LSS of tribal students in HE. Regression analyses are also performed to explore the effects of OS, PS, SS, LS, and LSS on OC among tribal students in HE. These parametric analyses collectively contribute to testing the research hypotheses.

4.9.4. Parametric Assumptions

The normality of the data is evaluated by examining the skewness and kurtosis statistics, which are used to assess the parametric assumptions. The outliers are also examined. The acceptable range for skewness is ±2, and kurtosis is ±7, as Bryne (2010) and Curran et al. (1996) stated. Similarly, Kline (2005) examined the range of variance for Skewness and Kurtosis, allowing for values between -3 and +3 for Skewness and between -10 and +10 for Kurtosis. Subsequently, data normality is evaluated using the Shapiro-Wilk test, anticipating that it would not produce any significant outcomes, hence allowing for the assumption of normality. After completion of the normality tests, a Q-Q plot is generated to represent the observed and predicted values. A practical normality test should exhibit values that are linearly aligned. A histogram and a box-and-whisker plot can be used to identify and analyse any outliers to assess the homogeneity of the variance. Each hypothesis is tested at a significance level of 0.05.

4.10.0. Tools Used for Report Writings

The researcher also utilised MS Word 2021 to compose the study report (thesis). In addition, he utilised various AI tools such as Chat-GPT-3.5 produced by OpenAI, SciSpeace, Quillbot, Grammarly, Consensus AI, etc., to improve linguistic proficiency, grammatical mistakes, summarise, rephrase, rewrite the content, generate appropriate citations, and eliminate grammatical errors, AI detector, and plagiarism.

4.11.0. Assumptions, Limitations, and Ethical Considerations

The study's validity has been communicated by discussing the assumptions, limits, and ethical considerations. This includes input mistakes, data precision, and any other possible challenges and pertinent information necessary for directing future research endeavours. Statistical assumptions regarding correlation analysis and normal distribution have been made in specific sections of this study, particularly in the sections that discuss correlation and statistical procedures.

4.11.1. Assumptions

The study is based on the assumption that participants would truthfully and accurately respond to the survey, correctly identifying themselves as tribal students at the HE level. Furthermore,

it was anticipated that this integrity and precision would safeguard participants' confidential data, including their demographic information and survey answers.

4.11.2. Limitations

This study exclusively relied on self-reported replies from participants, assuming the veracity and objectivity of these reports. In addition, the study participants were approached exclusively, perhaps restricting the amount of data acquired.

4.11.3. Ethical Considerations

During this survey investigation, ethical rules were rigorously maintained. The study sought to augment our comprehension of the associations between variables without asserting causation. The correlational study began after receiving approval from the Institutional Research Board (IRB) to guarantee adherence to ethical standards. Throughout all interactions with potential volunteers, the investigator consistently delivered explicit and thorough information regarding the study's objectives and subject matter, guaranteeing the absence of any coercion or undue influence in our communications. Before the research commenced, informed permission forms were administered, and participants' signatures were gathered according to the guidelines established by Jadavpur University, the Research Advisory Committee (RAC), and the broader scientific community. The rules of confidentiality and anonymity were strictly upheld, and no identifiable information was gathered that would need disclosure. Furthermore, during the study, much attention was given to ensuring precise data input, improving its overall validity, and making it more suitable for making well-informed assertions.

4.12.0. Design of the Study

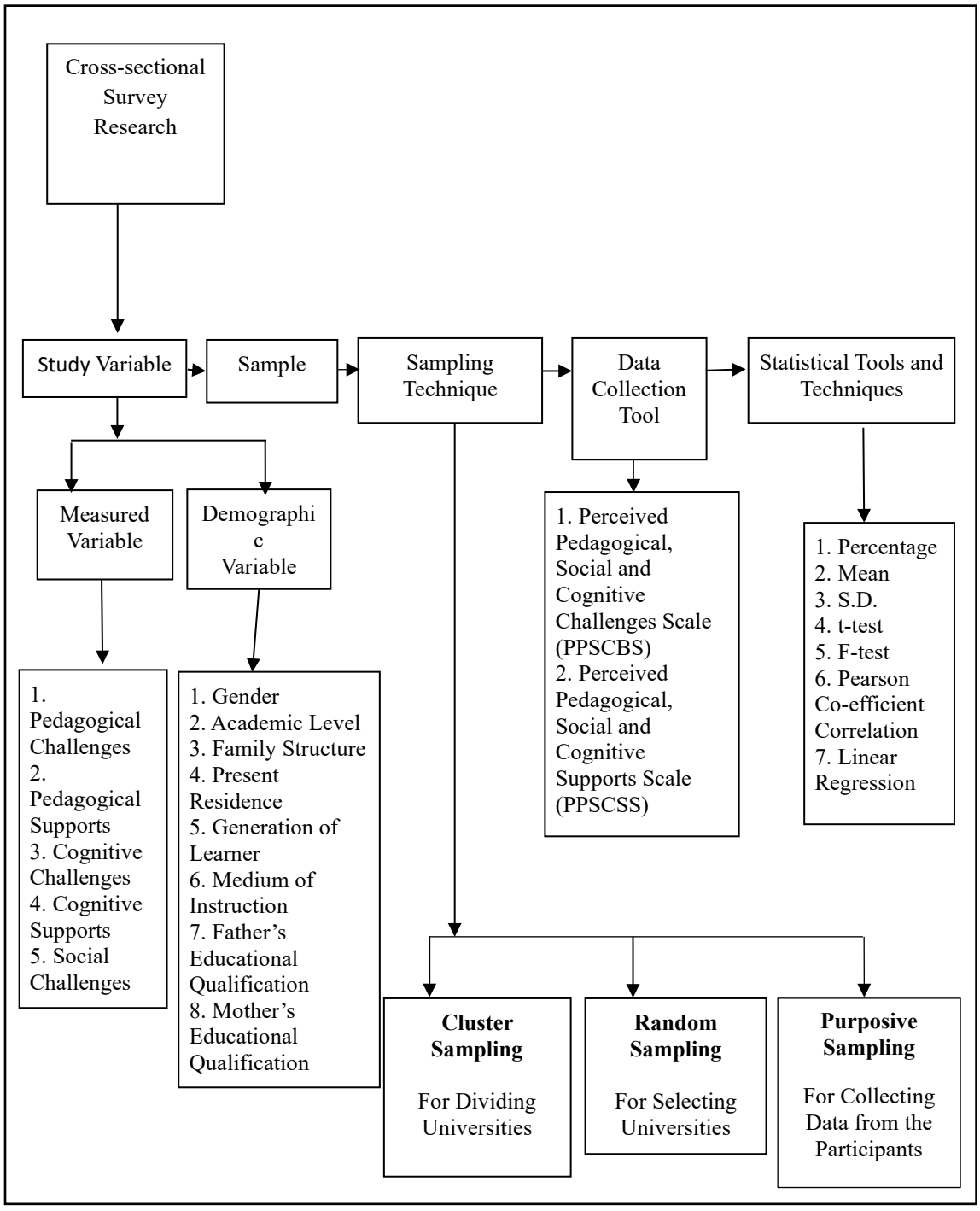


Fig 4.4: Design of the Study

4.13.0. Analysis Designs

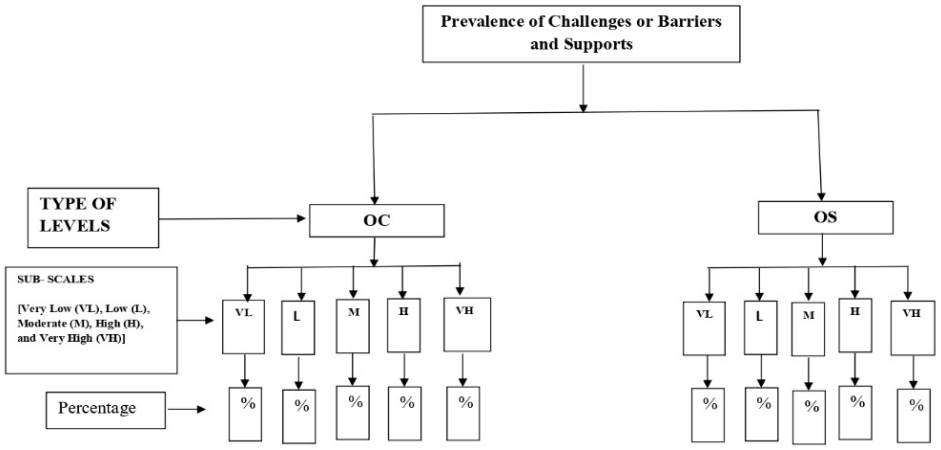


Fig. 4.5 Analysis Design 1

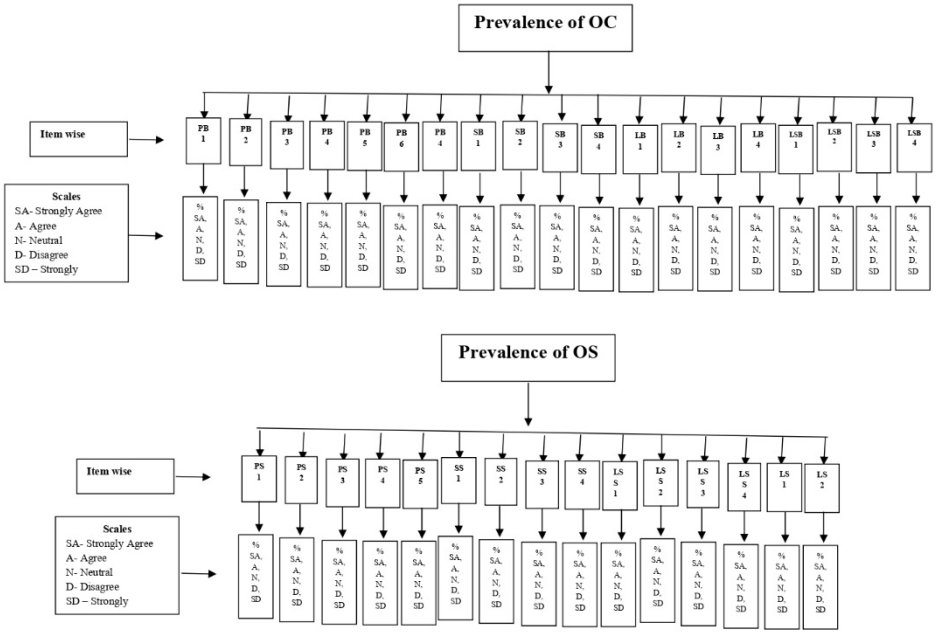
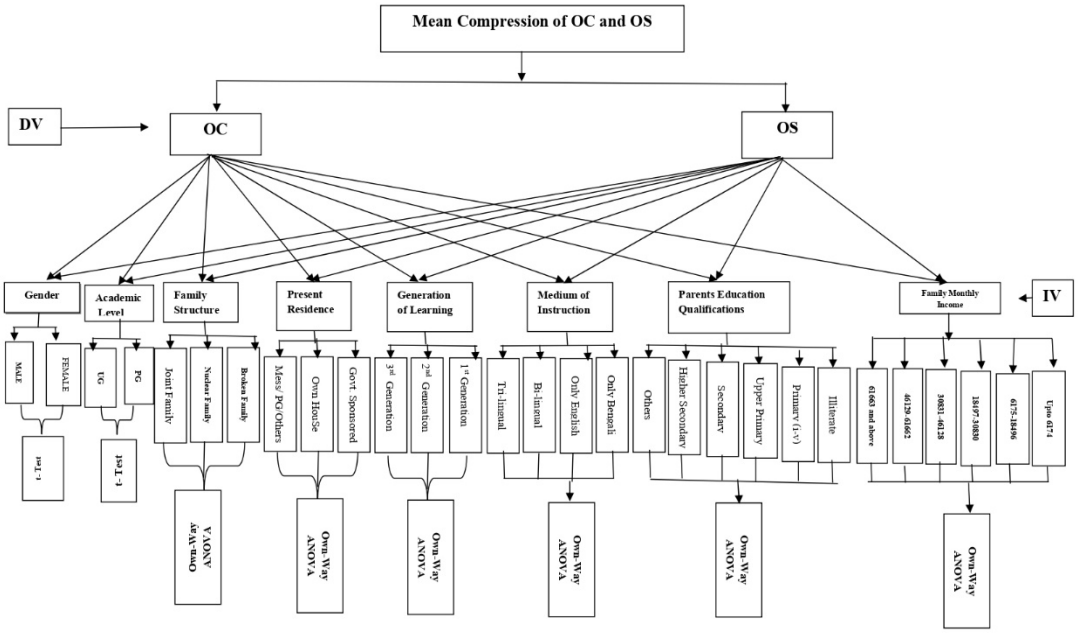


Fig. 4.6 Analysis Design 2



+

Fig. 4.7 Represents Analysis Design 3

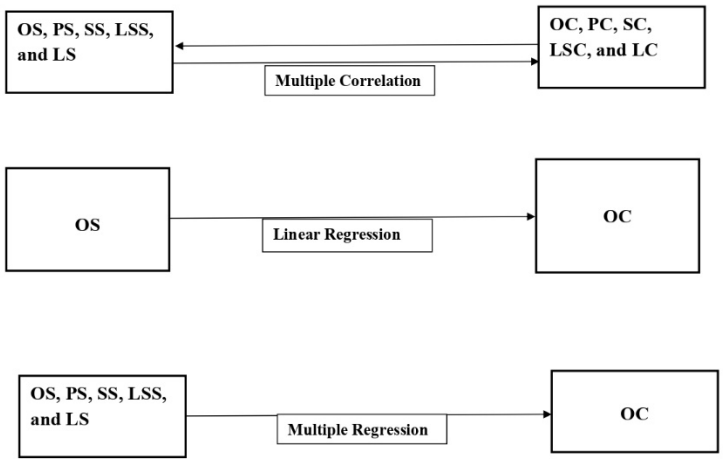


Fig. 4.8 Correlation and Regressions; Analysis Design 4

CHAPTER-V

ANALYSIS AND INTERPRETATION OF DATA

CHAPTER-V

ANALYSIS AND INTERPRETATION OF DATA

5.1.0. Introduction

This chapter analyses, interprets, and presents the collected data, employing statistical techniques to evaluate the information gathered. It is the backbone of the entire study, as data analysis and interpretation are crucial for formulating the research results or findings. Without this critical section, any research work would be incomplete.

5.2.0. Analysis and Interpretation

5.2.1. Data Normality of Pedagogical Challenges, Social Challenges, and Cognitive Challenges

Before proceeding to descriptive statistics and hypothesis testing, the researcher first evaluated the normality of the data for pedagogical, social, language, learning style challenges, and overall challenges. This evaluation was conducted using the Kolmogorov-Smirnov test, Shapiro-Wilk test, Skewness (SK), and Kurtosis (Ku). The results are shown in Tables 5.1.a and 5.1.b below.

Table No. 5.1a: Kolmogorov-Smirnov and Shapiro-Wilk Test for Data Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pedagogical Challenges	.082	531	.000	.967	531	.000
Social Challenges	.109	531	.000	.957	531	.000
Language Challenges	.117	531	.000	.969	531	.000
Learning Style Challenges	.080	531	.000	.982	531	.000
Overall Challenges	.088	531	.000	.972	531	.000
a. Lilliefors Significance Correction						

Table No. 5.1b: Skewness and Kurtosis Statistics for Data Normality

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Pedagogical Challenges	-.163	.106	-.952	.212
Social Challenges	.025	.106	-1.123	.212
Language Challenges	-.219	.106	-.810	.212
Learning Style Challenges	.114	.106	-.514	.212
Overall Challenges	.021	.106	-.985	.212

Interpretation

The Kolmogorov-Smirnov and Shapiro-Wilk tests evaluate whether the sample units follow a normal distribution. The results showed that the *P*-value (Sig.) was less than the 0.05 level of significance for Challenges, as well as for pedagogical, social, language, learning style challenges, and overall challenges, indicating that the data distribution deviates from normality. This suggests that the data distribution deviates from normality. Furthermore, the researcher calculated the distribution's Skewness (Sk) and Kurtosis (Ku) values. Data is considered normal in the Sk and Ku tests when the Sk statistic is 0 and the Ku statistic is 0.263. These values indicated a non-normality distribution. However, deviations from these values are often considered acceptable in social sciences. Empirical evidence suggests that deviations of 1 to 7 in these statistics can be considered normal or near normal. Curran et al. (1996) considered variations up to 2 for Sk and 7 for Ku, while Kline (2005) accepted variations up to 3 for Sk and 10 for Ku. In this study, the researcher followed the guidelines of Curran et al. (1996) and Kline (2005) and considered the distributions normal among the representatives.

5.2.2. Data Normality of Pedagogical Support, Social Support, and Cognitive Supports

Before proceeding to descriptive statistics and hypothesis testing, the researcher first checked the data normality among the representatives for Overall Support (OS), Pedagogical Support (PS), Social Support (SS), Learning Style Support (LSS), and Language Support (LS) through the Kolmogorov-Smirnov test, Shapiro-Wilk Test, Skewness (Sk), and Kurtosis (Ku). The test results are in the table below: 5.2. a and 5.2.b.

Table No. 5.2. a: Showing the Kolmogorov-Smirnov and Shapiro-Wilk Test Statistics

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
OS	.053	531	.001	.987	531	.000
PS	.080	531	.000	.978	531	.000
SS	.099	531	.000	.973	531	.000
LSS	.136	531	.000	.971	531	.000
LS	.258	531	.000	.894	531	.000
a. Lilliefors Significance Correction						

Table No. 5.2.b: Representing the Sk and Ku Statistics and its Standard Error

	Skewness		**Kurtosis**	
	Statistic	Std. Error	Statistic	Std. Error
Pedagogical Supports	-.149	.106	-.491	.212
Social Supports	.015	.106	-.368	.212
Language Supports	-.670	.106	.682	.212
Learning Style Supports	-.334	.106	-.069	.212
Overall Supports	-.021	.106	-.087	.212

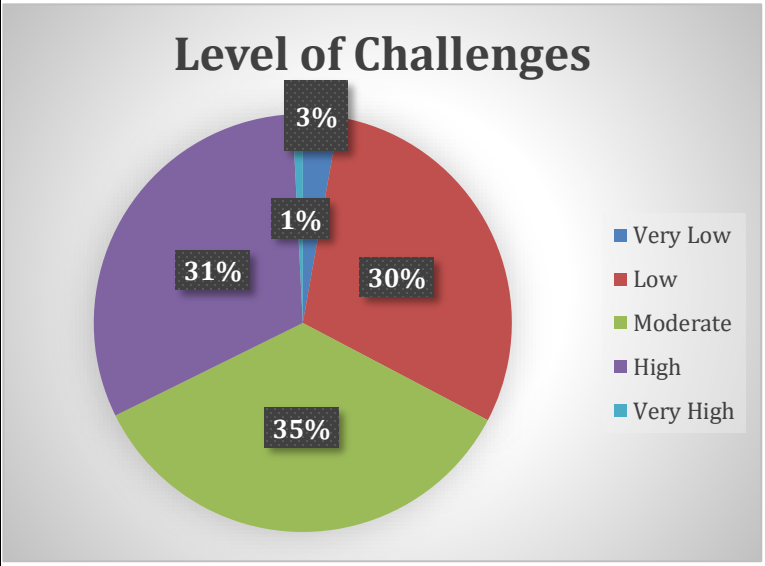
Interpretation

The basic assumption of the Kolmogorov-Smirnov and Shapiro-Wilk tests is that the data is normally distributed among the sample units. The test statistics indicate that the *p*-value (Sig.) is less than 0.05 for OS, PS, SS, LSS, and LS. A significant result in these tests rejects the normality assumptions and suggests that the data distribution is non-normal. Consequently, the researcher computed the Skewness (Sk) and Kurtosis (Ku) statistics. Data is considered normal in the Sk and Ku tests when the Sk statistic is 0 and the Ku statistic is .263. The deviation in these values indicates the non-normality of the data. However, some empirical evidence exists in social sciences where a statistical deviation ranging from 1 to 7 is considered normal or near to normal. Curran et al. (1996) considered up to 2 variations for Sk and 7 for Ku. Similarly, Kline (2005) suggested considering the variations between Sk and Ku to be 3 and 10. Following Curran et al. (1996) and Kline (2005), the researcher in this study assumed that the distribution among the representatives was expected because the Sk and Ku statistics for OS, PS, SS, LSS, and LS were all within the considered range of variation.

5.3.0. Level of Challenges and Supports Faced by Tribal Students in HE

Table No. 5.3.1 and Figure No. 5.1: Depicting the levels of challenges

Levels	f	%
Very Low	15	2.8
Low	159	29.9
Moderate	186	35.0
High	167	31.5
Very High	4	.8
Total	531	100.0

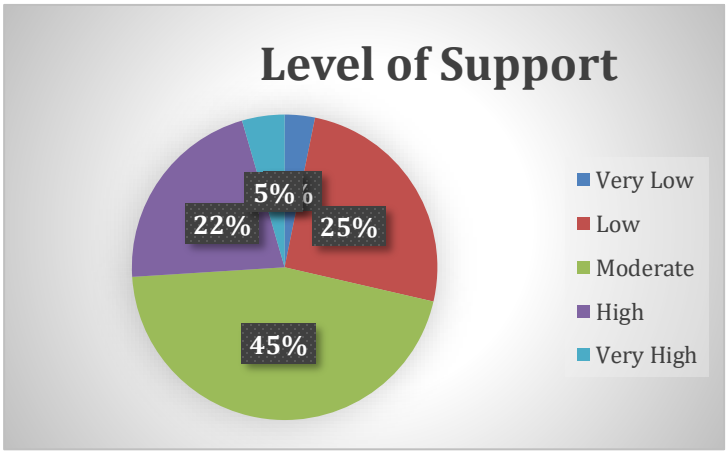


Interpretation

Based on the above table no. 5.3.1 and figure no. 5.1, 531 higher education tribal students: 15 students (2.8%) belong to the very low-level category; 159 students (29.9%) belong to the low level; 186 students (35%) belong to the moderate category; and 167 students belong to the high category; only four students (.8%) belong to the very high category.

Table No. 5.3.2 and Figure No. 5.2: Depicting the level of Support

Levels	f	%
Very Low	17	3.2
Low	135	25.4
Moderate	241	45.4
High	114	21.5
Very High	24	4.5
Total	531	100.0



Interpretation

Table no. 5.3.2 and figure no. 5.2 total 531 higher education tribal students, 17 students (3.2%) under a very low level, 135 students (25.4%) under a low level, 241 students (45.4%) are under

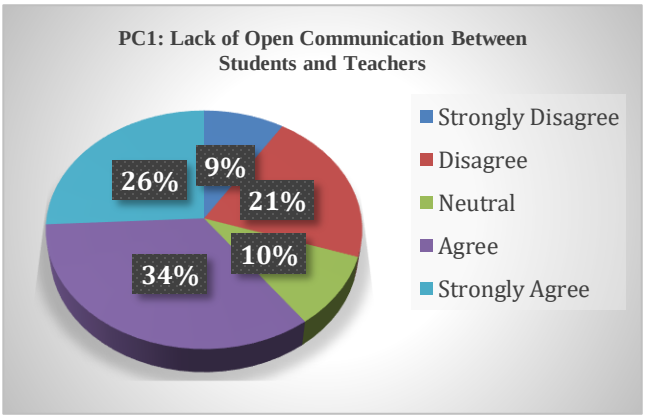
the moderate category, and 114 students (21.5%) under the high category, only 24 (4.5%) students belong to the very high level.

5.4.0. Prevalence Rates of PC, SC, and CC among Tribal Students in HE

5.4.1. Prevalence Rates of Pedagogical Challenges among Tribal Students in HE

Table No. 5.4.1 and Figure No. 5.3: Depicting the Lack of Open Communication Between Students and Teachers

Scales	f	%
Strongly Disagree	48	9.0
Disagree	112	21.1
Neutral	52	9.8
Agree	182	34.3
Strongly Agree	137	25.8
Total	531	100

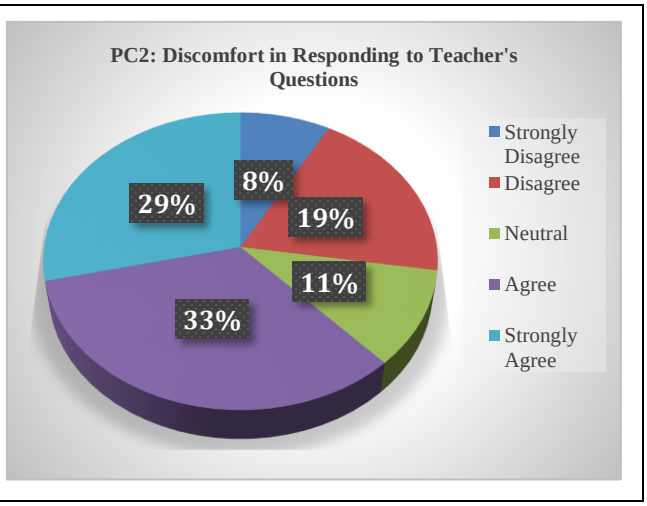


Interpretation

Table 5.4.1 and Figure 5.3 illustrate the challenges related to the 'lack of open communication between students and teachers' experienced by tribal students in higher education. Among the 531 respondents, 9.0% strongly disagree, 21.1% disagree, 9.8% remain neutral, 34.3% agree, and 25.8% strongly agree that they face challenges in this area. The data reveal that a significant proportion of students—60.1% in total—either agree or strongly agree that most tribal students struggle with open communication with their teachers.

Table No. 5.4.2 and Figure No. 5.4: Depicting Discomfort in Responding to Teacher's Questions

Scales	f	%
Strongly Disagree	43	8.1%
Disagree	103	19.4%
Neutral	56	10.5%
Agree	177	33.3%
Strongly Agree	152	28.6%
Total	531	100

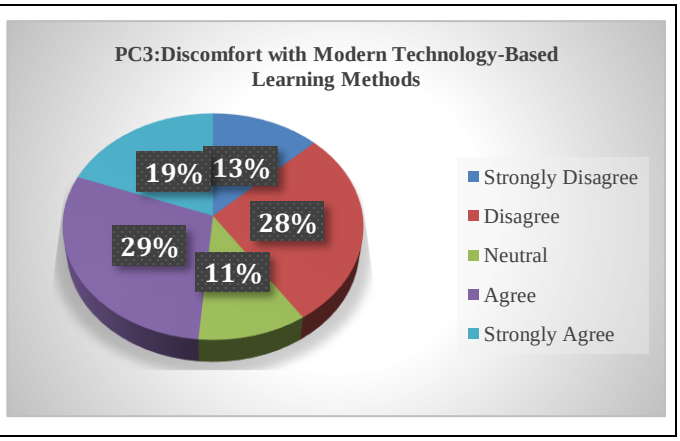


Interpretation

Table 5.4.2 and Figure 5.4 present the challenges associated with "discomfort in responding to teacher's questions" among tribal students in higher education. Among 531 respondents, 8.1% strongly disagree, 19.4% disagree, 10.5% are neutral, 33.3% agree, and 28.6% strongly agree that they face challenges in this area. The results indicate that most students—61.9% in total—either agree or strongly feel discomfort responding to teachers' questions, a prevalent issue among tribal students in higher education.

Table No. 5.4.3 and Figure No. 5.5: Depicting Discomfort with Modern Technology-Based Learning Methods

Scales	f	%
Strongly Disagree	68	12.8%
Disagree	148	27.9%
Neutral	57	10.7%
Agree	156	29.4%
Strongly Agree	102	19.2%
Total	531	100



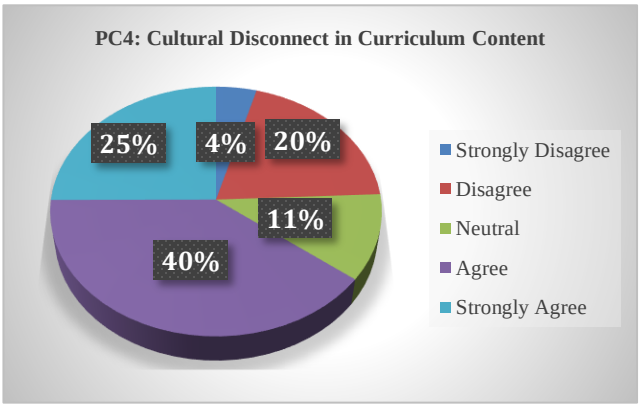
Interpretation

Table 5.4.3 and Figure 5.5 presented the challenges related to 'discomfort with modern technology-based learning methods' experienced by 531 tribal students in higher education. The findings indicate that 12.8% of the respondents strongly disagree, 27.9% disagree, 10.7%

remain neutral, 29.4% agree, and 19.2% strongly agree that they encounter challenges in this area. The results reveal that a significant proportion of students—48.6% in total—either agree or strongly that they experience discomfort with modern technology-based learning methods, which is a considerable challenge for many tribal students.

Table No. 5.4.4 and Figure No. 5.6: Depicting Cultural Disconnect in Curriculum Content

Scales	f	%
Strongly Disagree	23	4.3
Disagree	106	20.0
Neutral	59	11.1
Agree	210	39.5
Strongly Agree	133	25.0
Total	531	100

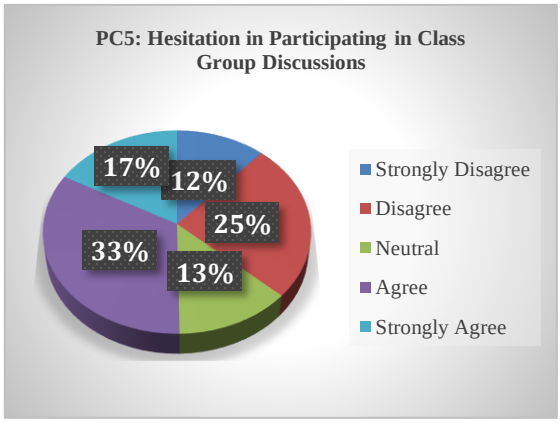


Interpretation

Table 5.4.4 and Figure 5.6 highlight the challenges related to the 'Cultural Disconnect in Curriculum Content' experienced by tribal students in higher education. Among the 531 respondents, 4.3% strongly disagree, 20.0% disagree, 11.1% are neutral, 39.5% agree, and 25.0% strongly agree that they face challenges in this area. The data indicate that a substantial portion of tribal students—64.5% in total—either agree or strongly agree that they experience difficulties understanding lesson content due to the lack of examples connected to their cultural background.

Table No. 5.4.5 and Figure No. 5.7: Depicting Hesitation in Participating in Class Group Discussions

Scales	f	%
Strongly Disagree	62	11.7
Disagree	133	25.0
Neutral	69	13.0
Agree	177	33.3
Strongly Agree	90	16.9
Total	531	100

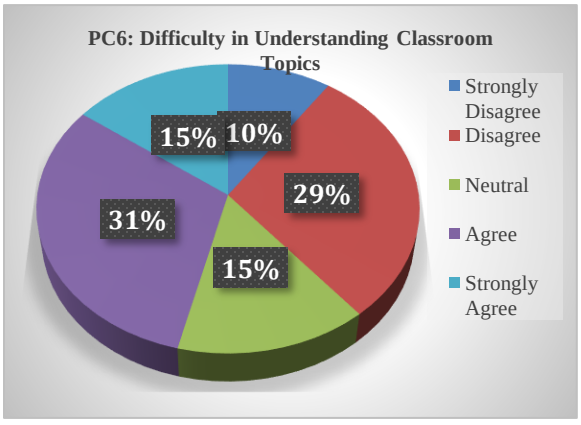


Interpretation

Table 5.4.5 and Figure No. 5.7 provide challenges related to the "Hesitation in Participating in Class Group Discussions" faced by tribal students in higher education. Among the 531 responses, 11.7% strongly disagree, 25.0% disagree, 13.0% are neutral, 33.3% agree, and 16.9% strongly agree that they face challenges in this area. This data shows that a notable proportion of respondents—50.2% in total—either agree or strongly agree that they experience hesitation in participating in class group discussions.

Table No. 5.4.6 and Figure No. 5.8: Depicting Difficulty in Understanding Classroom Topics

Scales	f	%
Strongly Disagree	51	9.6
Disagree	156	29.4
Neutral	79	14.9
Agree	166	31.3
Strongly Agree	79	14.9
Total	531	100



Interpretation

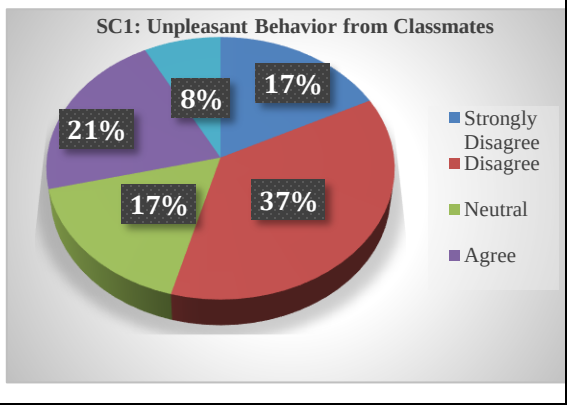
Above, Table 5.4.6 and Figure No. 5.8 illustrate the Challenges associated with tribal students' difficulty understanding classroom topics in higher education. Out of 531 respondents, 9.6% strongly disagree, 29.4% disagree, 14.9% neutral, 31.3% agree, and 14.9% strongly agree.

These results indicate that most students—46.2% in total—either agree or strongly agree that they were experiencing difficulty understanding classroom topics.

5.4.2. Prevalence Rates of Social Challenges among Tribal Students in HE

Table No. 5.4.7 and Figure No. 5.9: Depicting Unpleasant Behavior from Classmates

Scales	f	%
Strongly Disagree	93	17.5
Disagree	195	36.7
Neutral	90	16.9
Agree	112	21.1
Strongly Agree	41	7.7
Total	531	100

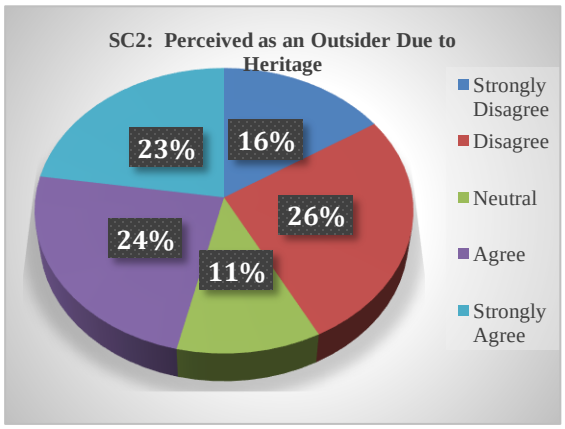


Interpretation

Above, Table 5.4.7 and Figure No. 5.9 illustrate the Challenges to unpleasant behaviour from classmates that tribal students face in higher education. Among the 531 respondents,17.5% strongly disagree, 36.7% disagree, 16.9% are neutral, 21.1% agree, and 7.7% strongly agree. These results show that 54.2% of students either strongly disagree or disagree, while most tribal students do not report facing unpleasant behaviour from their classmates.

Table No. 5.4.8 and Figure No. 5.10: Depicting Perceived as an Outsider Due to Heritage

Scales	f	%
Strongly Disagree	84	15.8
Disagree	141	26.6
Neutral	60	11.3
Agree	126	23.7
Strongly Agree	120	22.6



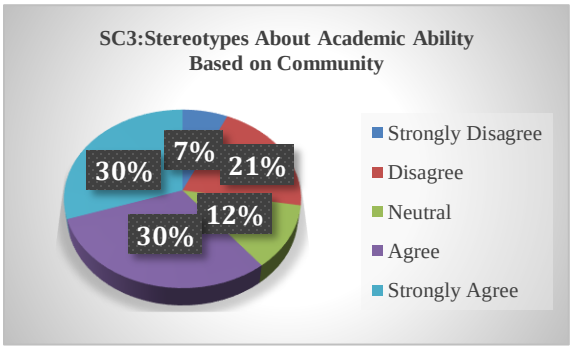
Interpretation

Above, Table 5.4.8 and Figure No. 5.10 illustrate the challenges to 'Perceived as an Outsider Due to Heritage' that tribal students face in higher education. Among the 531 respondents,

15.8% strongly disagree, 26.6% disagree, 11.3% are neutral, 23.7% agree, and 22.6% strongly agree. The results reveal a mixed experience among tribal students. While 42.4% of students disagree or strongly disagree with being perceived as outsiders due to their heritage, a significant portion—46.3%—either agree or strongly agree with this perception. This indicates that while some tribal students do not feel marginalised, nearly half experience a sense of exclusion within their educational institutions, which could impact their sense of belonging and overall academic experience.

Table No. 5.4.9 and Figure No. 5.11: Depicting Stereotypes About Academic Ability Based on Community

Scales	f	%
Strongly Disagree	36	6.8
Disagree	111	20.9
Neutral	62	11.7
Agree	162	30.5
Strongly Agree	160	30.1

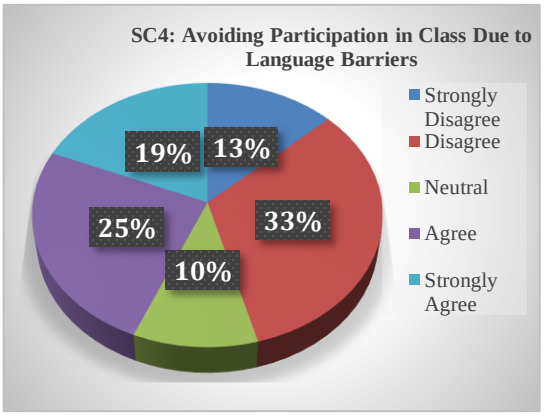


Interpretation

Above, Table 5.4.9 and Figure No. 5.11 illustrate the challenges related to 'stereotypes about academic ability based on community' that tribal students face in higher education. Among 531 respondents, 6.8% strongly disagree, 20.9% disagree, 11.7% are neutral, 30.5% agree, and 30.1% strongly agree. These results show that 60.6% of students either strongly agree or agree, while most tribal students' perception of stereotypes about academic ability based on community.

Table No. 5.4.10 and Figure No. 5.12: Depicting Avoiding Participation in Class Due to Language Challenges

Scales	f	%
Strongly Disagree	70	13.2
Disagree	173	32.6
Neutral	56	10.5
Agree	133	25.0
Strongly Agree	99	18.6
Total	531	100.0



Interpretation

Above, Table 5.4.10 and Figure No. 5.12 illustrate the Challenges related to avoiding participation in class due to language Challenges that tribal students face in higher. Among 531 respondents, 13.2% strongly disagree, 32.6% disagree, 10.5% are neutral, 25.0% agree, and 18.6% strongly agree.

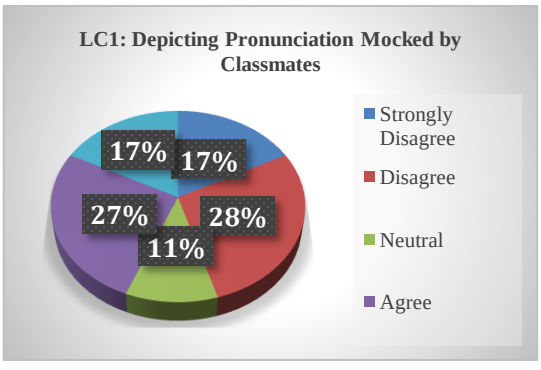
These results indicate that a significant portion of students—43.6% in total—either agree or strongly agree; on the other hand, 45.8% strongly disagree or disagree, while 10.5% remain neutral. This suggests that while many tribal students struggle with language Challenges affecting classroom participation, a substantial group does not face this challenge.

5.4.3. Prevalence Rates of Cognitive Challenges among Tribal Students in HE

5.4.3.1. *Language Challenges (LC)*

Table No. 5.4.11 and Figure No. 5.13: Depicting Pronunciation Mocked by Classmates

Scales	f	%
Strongly Disagree	92	17.3
Disagree	149	28.1
Neutral	57	10.7
Agree	141	26.6
Strongly Agree	92	17.3
Total	531	100.0



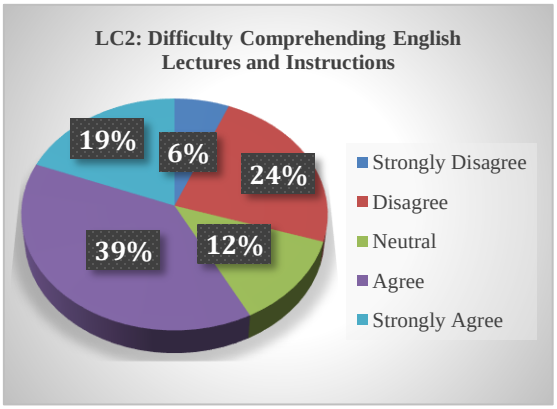
Interpretation

Table 5.4.11 and Figure No. 5.13 provide challenges related to pronunciation mocked by classmates faced by tribal students in higher education. Among 531 respondents, 17.3%

strongly disagree, 28.1% disagree, 10.7% are neutral, 26.6% agree, and 17.3% strongly agree. These results indicate that a substantial proportion of students—43.9% in total—either agree or strongly agree; conversely, 45.4% disagree or strongly disagree, while 10.7% remain neutral. This suggests that while many tribal students struggle with pronunciation and are mocked by classmates, a substantial group does not face this challenge.

Table No. 5.4.12 and Figure No. 5.14: Depicting Difficulty Comprehending English Lectures and Instructions

Scales	f	%
Strongly Disagree	33	6.2
Disagree	126	23.7
Neutral	66	12.4
Agree	205	38.6
Strongly Agree	101	19.0
Total	531	100.0

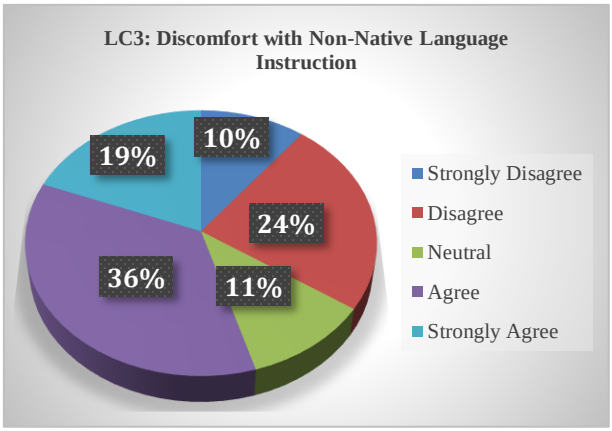


Interpretation

Table 5.4.12 and Figure 5.14 highlight the challenges related to the difficulty in comprehending English lectures and instructions faced by tribal students in higher education. Among the 531 respondents, 6.2% strongly disagree, 23.7% disagree, 12.4% are neutral, 38.6% agree, and 19.0% strongly agree. These results indicate that a substantial proportion of students—57.6% in total—either agree or strongly agree that they struggle to understand English lectures and instructions.

Table No. 5.4.13 and Figure No. 5.15: Depicting Discomfort with Non-Native Language Instruction

Scales	f	%
Strongly Disagree	56	10.5
Disagree	127	23.9
Neutral	58	10.9
Agree	189	35.6
Strongly Agree	101	19.0
Total	531	100.0

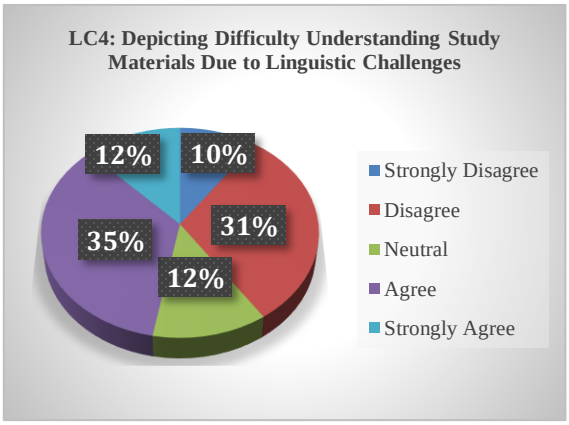


Interpretation

Table 5.4.13 and Figure 5.15 highlight the challenges related to the discomfort with non-native language instruction faced by tribal students in higher education. Among the 531 respondents, 10.5% strongly disagree, 23.9% disagree, 10.9% are neutral, 35.6% agree, and 19.0% strongly agree. These results indicate that a substantial proportion of students—54.6% in total—either agree or strongly agree that they are uncomfortable with non-native language instruction.

Table No. 5.4.14 and Figure No. 5.16: Depicting Difficulty Understanding Study Materials Due to Linguistic Challenges

Scales	f	%
Strongly Disagree	52	9.8
Disagree	163	30.7
Neutral	66	12.4
Agree	185	34.8
Strongly Agree	65	12.2
Total	531	100.0



Interpretation

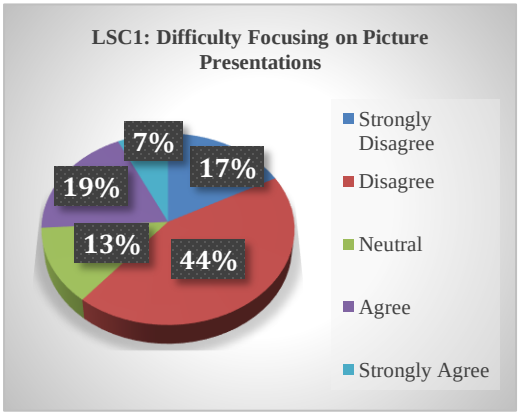
Table 5.4.14 and Figure 5.16 illustrate the challenges related to difficulty understanding study materials due to linguistic challenges that tribal students face in higher education. Among 531 respondents, 9.8% strongly disagree, 30.7% disagree, 12.4% are neutral, 34.8% agree, and 12.2% strongly agree. This indicates that a significant proportion of students—47% in total—

either agree or strongly agree that they experienced difficulty understanding study materials due to linguistic challenges.

5.4.3.2. *Learning Style Challenges (LC)*

Table No. 5.4.15 and Figure No. 5.17: Depicting Difficulty Focusing on Picture Presentations

Scales	f	%
Strongly Disagree	91	17.1
Disagree	233	43.9
Neutral	69	13.0
Agree	101	19.0
Strongly Agree	37	7.0
Total	531	100.0

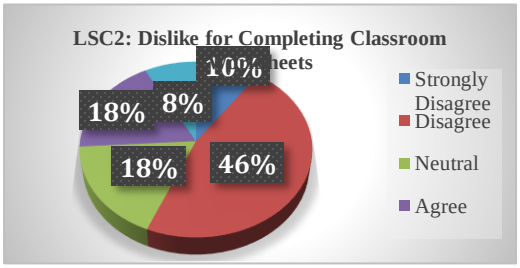


Interpretation

Table 5.4.15 and Figure no. 5.17 represent the challenges associated with difficulty focusing on picture presentations that tribal students face in higher. Among 531 respondents, 17.1% strongly disagree, 43.9% disagree, 13.0% are neutral, 19.0% agree, and 7.0% strongly agree. This indicates that a significant proportion of students—61% in total—either disagree or strongly disagree that they experience difficulty focusing on picture presentations.

Table No. 5.4.16 and Figure No. 5.18: Depicting Dislike for Completing Classroom Worksheets

Scales	f	%
Strongly Disagree	52	9.8
Disagree	247	46.5
Neutral	94	17.7
Agree	96	18.1
Strongly Agree	42	7.9
Total	531	100.0



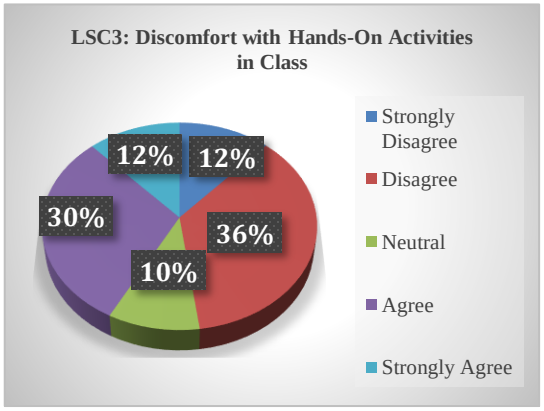
Interpretation

Table 5.4.16 and Figure 5.18 represent the challenges related to dislike for completing classroom worksheets that tribal students face in higher education. Among 531 respondents,

9.8% strongly disagree, 46.5% disagree, 17.7% are neutral, 18.1% agree, and 7.9% strongly agree. This result indicates that a significant proportion of students—56.3% in total—either disagree or strongly disagree that they dislike completing classroom worksheets.

Table No. 5.4.17 and Figure No. 5.19: Depicting Discomfort with Hands-On Activities in Class

Scales	f	%
Strongly Disagree	62	11.7
Disagree	192	36.2
Neutral	53	10.0
Agree	161	30.3
Strongly Agree	63	11.9
Total	531	100.0

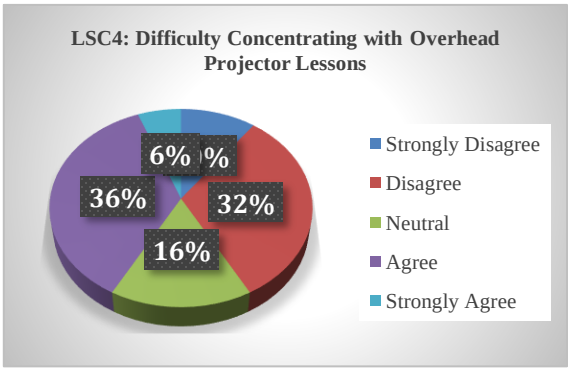


Interpretation

Table 5.4.17 and Figure no. 5.19 represent the challenges related to discomfort with hands-on classroom activities that tribal students face in higher education. Among 531 respondents, 11.7% strongly disagree, 36.2% disagree, 10.0% are neutral, 30.3% agree, and 11.9% strongly agree. These results indicate that a significant proportion of tribal students—42.2% in total—either agree or strongly agree that they feel uncomfortable with hands-on classroom activities. On the other hand, 47.9% of students either disagree or strongly disagree, suggesting that they do not experience this discomfort.

Table No. 5.4.18 and Figure No. 5.20: Depicting Difficulty Concentrating with Overhead Projector Lessons

Scales	f	%
Strongly Disagree	54	10.2
Disagree	169	31.8
Neutral	85	16.0
Agree	192	36.2
Strongly Agree	31	5.8
Total	531	100.0

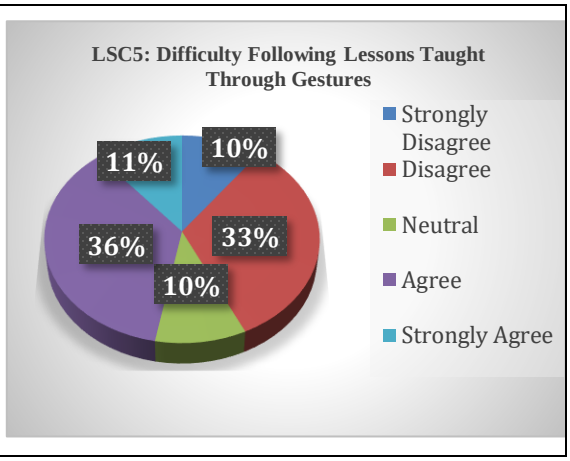


Interpretation

Table 5.4.18 and Figure 5.20 illustrate the challenges related to difficulty concentrating on overhead projector lessons that tribal students face in higher education. Among 531 respondents, 10.2% strongly disagree, 31.8% disagree, 16% are neutral, 36.2% agree, and 5.8% strongly agree. These results indicated that a considerable portion of students—42% in total—either agree or strongly agree that they struggle to concentrate during lessons delivered via overhead projector. Conversely, 42% of students disagree or strongly disagree, while 16% remain neutral. This indicates that tribal students are not experiencing difficulties with this medium of instruction.

Table No. 5.4.19 and Figure No. 5.21: Depicting Difficulty Following Lessons Taught Through Gestures

Scales	f	%
Strongly Disagree	54	10.2
Disagree	174	32.8
Neutral	53	10.0
Agree	191	36.0
Strongly Agree	59	11.1
Total	531	100.0



Interpretation

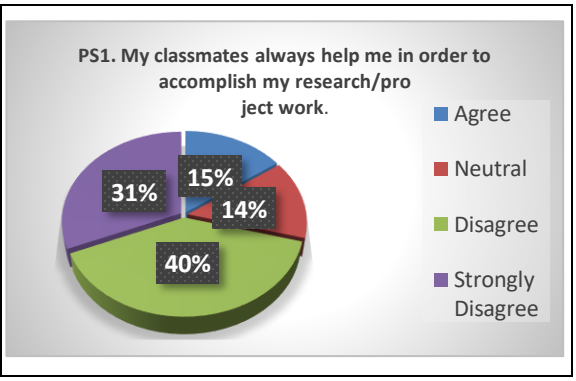
Table 5.4.19 and Figure 5.21 illustrate the challenges related to difficulty following lessons taught through gestures that tribal students face in higher education. Among 531 respondents, 10.2% strongly disagree, 32.8% disagree, 10% are neutral, 36.0% agree, and 11.1% strongly agree. This indicates that a significant proportion of students—47.1% in total—either agree or strongly agree that they find it challenging to follow lessons taught through gestures.

5.5.0. Prevalence Rates of PS, SS, and CS among Tribal Students in HE

5.5.1. Prevalence Rates of PS among Tribal Students in HE

Table No. 5.5.1 and Figure No. 5.22: Depicting the Distribution of Peer Support in Academic Collaboration for Project Work

Scales	f	%
Agree	80	15.1%
Neutral	75	14.1%
Disagree	210	39.5%
Strongly Disagree	166	31.3%
Total	531	100.0

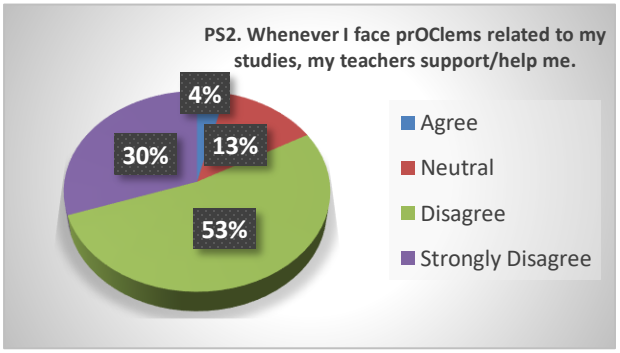


Interpretation

Table 5.5.1 and Figure 5.22 illustrate the 'Peer Support in Academic Collaboration for Project Work' tribal students receive in higher education. Among 531 respondents, 15.1% agree, 14.1% are neutral, 39.5% disagree, and 31.3% strongly disagree. This data indicates that a significant portion of students—70.8% in total—either disagree or strongly disagree. It is suggested that most tribal students do not feel supported by their classmates when completing research or project work.

Table No. 5.5.2 and Figure No. 5.23: Depicting Teacher Support in Academic Challenges

Scales	f	%
Agree	20	3.8%
Neutral	69	13.0%
Disagree	281	52.9%
Strongly Disagree	161	30.3%
Total	531	100.0

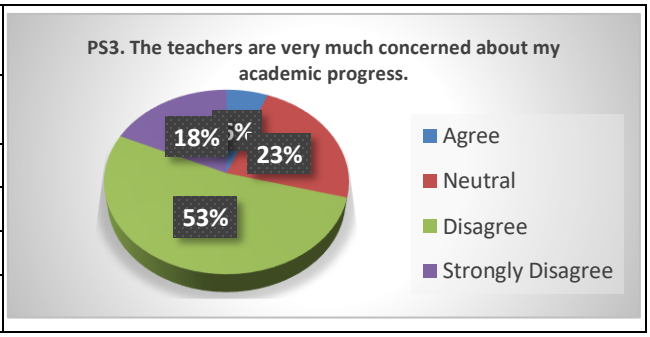


Interpretation

Table 5.5.2 and Figure 5.23 display the 'Teacher Support in Academic Challenges' of tribal in HE. Among 531 responses, 3.8% Agree, 13.0% Neutral, 52.9% Disagree, and 30.3% Strongly disagree. This data indicates that a significant portion of students – 83% in total – either disagree or strongly disagree. It is suggested that most tribal students do not get teacher support in their academic challenges.

Table No. 5.5.3 and Figure No. 5.24: Depicting Teachers' Engagement in Student Academic Development

Scales	f	%
Agree	32	6.0%
Neutral	123	23.2%
Disagree	280	52.7%
Strongly Disagree	96	18.1%
Total	531	100.0

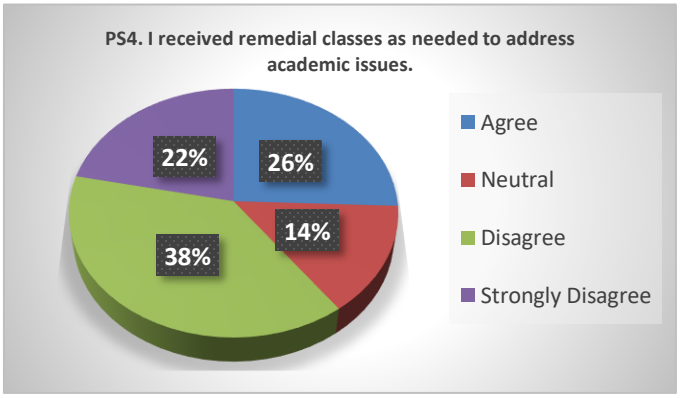


Interpretation

Table 5.5.3 and Figure 5.24 demonstrate the teachers' engagement in tribal students' academic development in HE. Among 531 responses, 6.0% Agree, 23.2% Neutral, 52.7% Disagree, and 18.1% Strongly Disagree. This means that most tribal students responded - 70.8% in total- either disagree or strongly disagree. It is suggested that teachers do not engage in tribal students' academic development.

Table No. 5.5.4 and Figure No. 5.25: Depicting Remedial Support for Academic Improvement

Scales	f	%
Agree	136	25.6
Neutral	76	14.3
Disagree	204	38.4
Strongly Disagree	115	21.7
Total	531	100.0

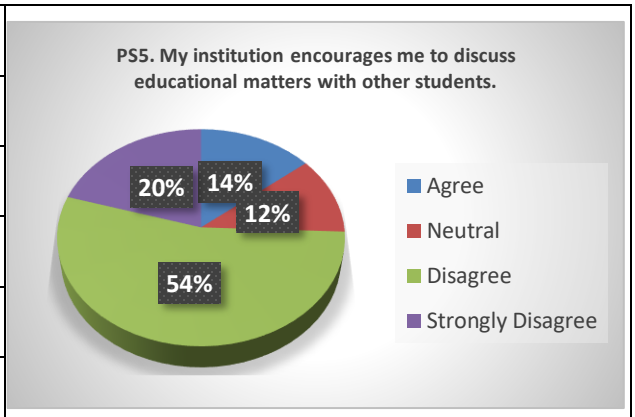


Interpretation

Table 5.5.4 and Figure 5.25 present the remedial support for the academic improvement of tribal students. Among 531 responses, 25.6% Agreed, 14.3% Neutral, 38.4% Disagreed, and 21.7% responded Strongly Disagreed. This data indicates that a substantial portion of tribal students respondents - 60.1% either disagree or strongly disagree, suggesting that most of the tribal students do not get the necessary remedial classes support for their academic improvement.

Table No. 5.5.5 and Figure No. 5.26: Represent Institutional Encouragement of Peer Learning and Collaboration

Scales	f	%
Agree	75	14.1
Neutral	61	11.5
Disagree	287	54.0
Strongly Disagree	108	20.3
Total	531	100.0



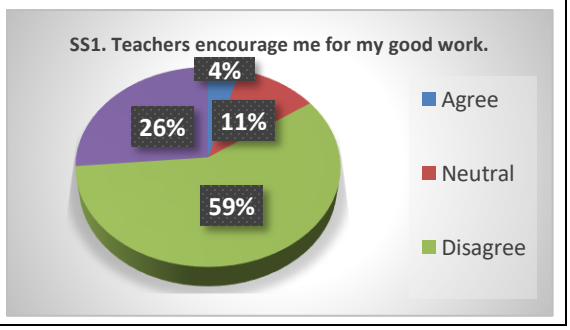
Interpretation

Table 5.5.5 and Figure 5.26 illustrate the Institutional Encouragement of Peer Learning and Collaboration. Among 531 respondents, 14.1% agree, 11.5% are neutral, 54.0% disagree, and 20.3% strongly disagree with the statement. This data shows that a significant portion—74.3% of tribal students—feel that their institution does not encourage peer learning and collaboration.

5.5.2. Prevalence Rates of SS among Tribal Students in HE

Table No. 5.5.6 and Figure No. 5.27: Representing Teacher Encouragement and Positive Reinforcement

Scales	f	%
Agree	23	4.3
Neutral	58	10.9
Disagree	310	58.4
Strongly Disagree	140	26.4
Total	531	100.0

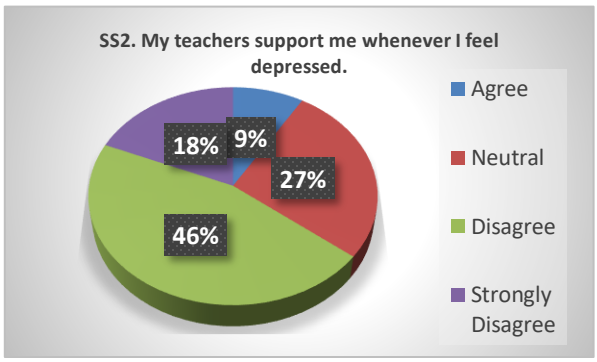


Interpretation

Table 5.5.6 and Figure 5.27 illustrate teacher encouragement and positive reinforcement for tribal students in HE. Among the 531 respondents, 4.3% agree, 10.9% are neutral, 58.4% disagree, and 26.4% strongly disagree. The results show that a significant portion—84.8% of tribal students- do not feel encouraged by their teachers to do good work, indicating a lack of positive reinforcement from teachers.

Table No. 5.5.7 and Figure No. 5.28: Depicting Emotional Support from Teachers in Times of Distress

Scales	f	%
Agree	46	8.7
Neutral	143	26.9
Disagree	243	45.8
Strongly Disagree	99	18.6
Total	531	100.0

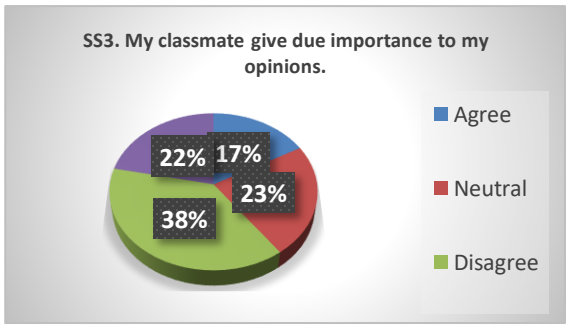


Interpretation

Table 5.5.7 and Figure 5.28 illustrate the emotional support from teachers in times of distress for tribal students in HE. Among the 531 respondents, 8.7% agree, 26.9% are neutral, 45.8% disagree, and 18.6% strongly disagree. A significant portion of tribal students (64.4%) feel a lack of emotional support from their teachers during times of distress.

Table No. 5.5.8 and Figure No. 5.29: Depicting Valuing Peer Opinions and Contributions

Scales	f	%
Agree	90	16.9
Neutral	122	23.0
Disagree	204	38.4
Strongly Disagree	115	21.7
Total	531	100.0

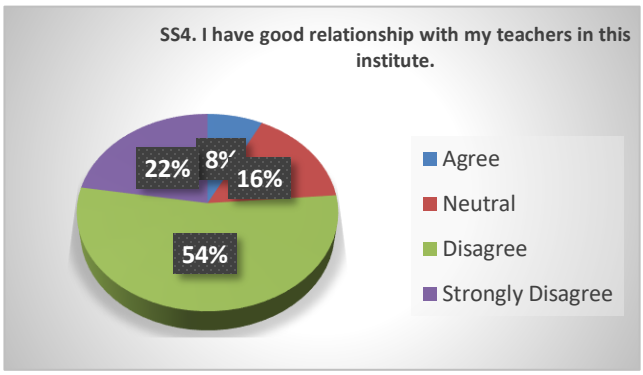


Interpretation

Table 5.5.8 and Figure 5.29 present the data on valuing peer opinions and contributions among tribal students in HE. Among the 531 respondents, 16.9% agree, 23.0% are neutral, 38.4% disagree, and 21.7% strongly disagree. This indicates that most tribal students (60.1%) feel their classmates do not value their opinions.

Table No. 5.5.9 and Figure No. 5.30: Represent Strength of Teacher-Student Relationships

Scales	f	%
Agree	40	7.5
Neutral	86	16.2
Disagree	286	53.9
Strongly Disagree	119	22.4
Total	531	100.0



Interpretation

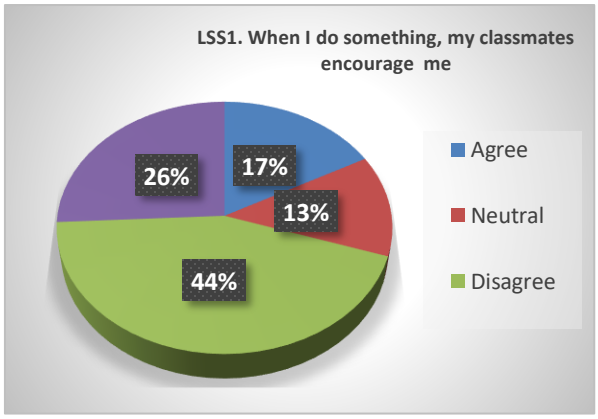
Table 5.5.9 and Figure 5.30 illustrate the strength of the teacher-student relationship. Among the 531 respondents, 7.5% Agreed, 16.2% were neutral, 53.9% Disagreed, and 22.4% Strongly Disagreed. The results suggest that most tribal students (76.3%) do not have a good relationship with their teachers.

5.5.3. Prevalence Rates of CS among Tribal Students in HE

5.5.3.1. *Prevalence Rates of LSS*

Table No. 5.5.10 and Figure No. 5.31: Depicting Distribution of Peer Encouragement and Motivation

Scales	f	%
Agree	91	17.1
Neutral	69	13.0
Disagree	234	44.1
Strongly Disagree	137	25.8
Total	531	100.0

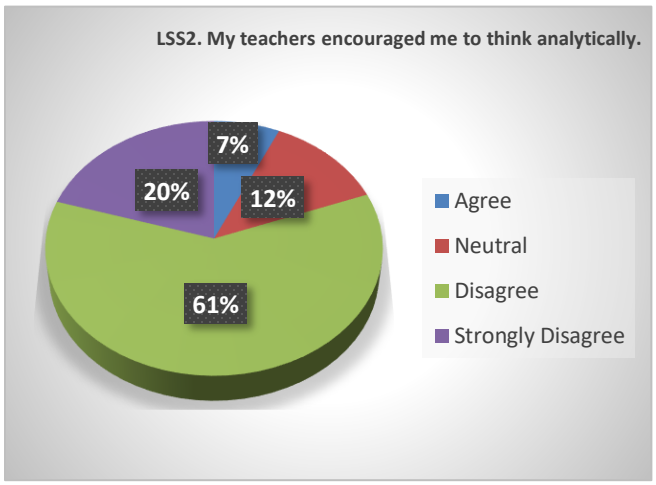


Interpretation

Table 5.5.10 and Figure 5.31 illustrate peer encouragement and motivation to tribal students in HE. Among the 531 respondents, 17.1% agree, 13.0% are neutral, 44.1% disagree, and 25.8% strongly disagree. This indicates that many tribal students (69.9%) do not feel encouraged and motivated by their peers when they accomplish something.

Table No. 5.5.11 and Figure No. 5.32: Depicting Encouragement of Analytical Thinking by Teachers

Scales	f	%
Agree	36	6.8
Neutral	66	12.4
Disagree	322	60.6
Strongly Disagree	107	20.2
Total	531	100.0

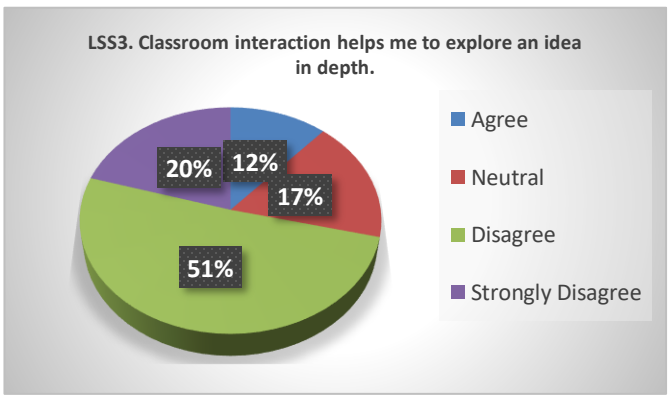


Interpretation

Table 5.5.11 and Figure 5.32 illustrate that teachers promote the analytical thinking of tribal students in HE. Among the 531 respondents, 6.8% agree, 12.4% are neutral, 60.6% disagree, and 20.2% strongly disagree with the statement. This indicates that most tribal students (80.8%) feel their teachers do not encourage them to think analytically.

Table No. 5.5.12 and Figure No. 5.33: Depicts the Depth of Understanding Through Classroom Interaction

Scales	f	%
Agree	61	11.5
Neutral	92	17.3
Disagree	270	50.8
Strongly Disagree	108	20.3
Total	531	100.0



Interpretation

Table 5.5.12 and Figure 5.33 illustrate the depth of understanding through classroom interaction. Among 531 respondents, 11.5% agree, 17.3% are neutral, 50.8% disagree, and 20.3% strongly disagree with the statement. This indicates that most of the tribal students (71.1%) do not find classroom interaction helpful in gaining a deep understanding of content.

Table No. 5.5.13 and Figure No. 5.34: Depicts the Organizational Support for Building Confidence and Self-Presentation Skills

Scales	f	%
Agree	66	12.4
Neutral	93	17.5
Disagree	248	46.7
Strongly Disagree	124	23.4
Total	531	100.0

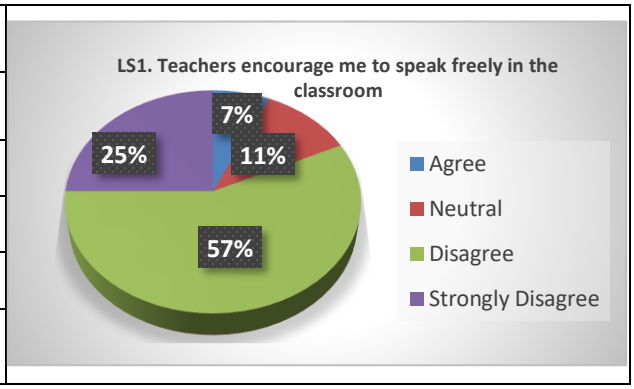
Interpretation

Table 5.5.13 and Figure 5.34 present the organizational support for building confidence and self-presentation skills among tribal students in HE. Among the 531 respondents, 12.4% agree, 17.5% are neutral, 46.7% disagree, and 23.4% strongly disagree. This indicates that most tribal students (70.1%) feel their organizations do not help them build confidence and self-presentation skills.

5.5.3.2. *Prevalence Rates of LS*

Table No. 5.5.14 and Figure No. 5.35: Depicts Teachers' Encouragement for Open Classroom Communication

Scales	f	%
Agree	36	6.8
Neutral	59	11.1
Disagree	303	57.1
Strongly Disagree	133	25.0
Total	531	100.0

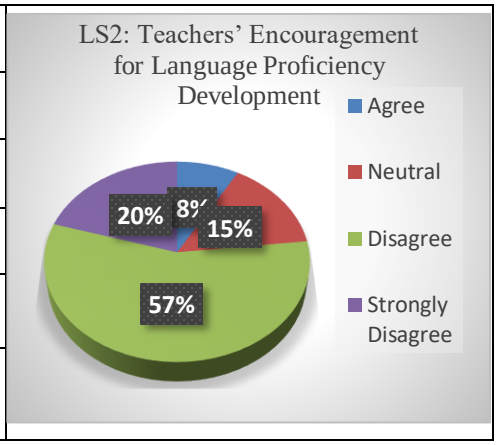


Interpretation

Table 5.5.14 and Figure 5.35 presented the Teachers' Encouragement for Open Classroom Communication of tribal students in HE. Among the 531 respondents, 6.8% Agreed, 11.1% were Neutral, 57.1% Disagreed, and 25.0% Strongly Disagreed. This result indicated that most tribal students (82.1%) do not feel teachers' encouragement for open classroom communication.

Table No. 5.5.15 and Figure No. 5.36: Depicts the Teachers' Encouragement for Language Proficiency Development

Scales	f	%
Agree	44	8.3
Neutral	79	14.9
Disagree	300	56.5
Strongly Disagree	108	20.3
Total	531	100.0



Interpretation

Table 5.5.15 and Figure 5.37 provide teachers' encouragement for language proficiency development among tribal students in HE. Among 531 respondents, 8.3% Agree, 14.9% are Neutral, 56.5% Disagree, and 20.3% Strongly Disagree. These results indicated that most of the tribal students (76.8%) do not feel teachers' encouragement for language proficiency development.

5.6.0. Mean Comparison of OC, PC, SC, LC, and LSC with Demographics among Tribal Students in HE

$H_0$1: Gender has no significant variations across OC, PC, SC, LC, and LSC among tribal students in HE.

Table No. 5.6.1: Gender-wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Gender	N	M	SD	MD	t	*P*
OC	Male	275	59.08	15.610	-.592	-.422	.673
	Female	256	59.68	16.702			
PC	Male	275	19.68	5.828	-.836	-1.621	.106
	Female	256	20.52	6.046			
SC	Male	275	12.26	4.244	-.183	-.488	.626
	Female	256	12.44	4.401			
LC	Male	275	12.89	3.867	.270	.770	.442
	Female	256	12.62	4.207			
LSC	Male	275	14.25	4.354	.157	.399	.690
	Female	256	14.10	4.698			

Interpretation

Table 5.6.1 presents the results of an independent samples t-test for OC based on gender. The result shows that the mean OC score of female tribal students (59.68) is slightly higher than that of male tribal students (59.08). The mean score difference of -0.592 is not statistically significant (t = -0.422, *p*= 0.673 > 0.05), indicating no significant differences in OC among tribal students based on gender.

Additionally, the mean PC score of female tribal students (20.52) is higher than that of male tribal students (19.68). The mean score difference of -0.836 is not statistically significant (t = -1.621, *p*= 0.106 > 0.05), indicating no significant differences in PC among tribal students based on gender.

The independent samples t-test also indicates that the mean SC score of female tribal students (12.44) is slightly higher than that of male tribal students (12.26). The mean score difference of -.183 is not statistically significant (t = -0.488, *p*= 0.626 > 0.05), indicating no significant differences in SC among tribal students based on gender.

Furthermore, the mean LC score of female tribal students (12.62) is slightly lower than that of male tribal students (12.89). The mean score difference of 0.270 is not statistically significant (t = 0.770, *p*= 0.442 > 0.05), indicating no significant differences in LC among tribal students based on gender.

Finally, the mean LSC score of male tribal students (14.25) is slightly higher than that of female tribal students (14.10). The mean score difference of 0.157 is not statistically significant (t = 0.399, *p*= 0.690 > 0.05), indicating no significant differences in LSC among tribal students based on gender.

$H_0$2: There is no statistically significant variation in OC, PC, SC, LC, and LSC of tribal HE students in WB across their academic levels.

Table No. 5.6.2: Academic level - wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Academic Levels	N	M	SD	MD	t	*P*
OC	UG	336	59.31	15.397	-.162	-.112	.911
	PG	195	59.47	17.369			
PC	UG	336	19.99	5.679	-.266	-.497	.619

Challenges	Academic Levels	N	M	SD	MD	t	*P*
	PG	195	20.25	6.384			
SC	UG	336	12.04	4.295	-.822	-2.122	.034
	PG	195	12.87	4.318			
LC	UG	336	12.66	3.895	-.273	-.751	.453
	PG	195	12.93	4.265			
LSC	UG	336	14.62	4.583	1.199	2.967	.003
	PG	195	13.42	4.315			

Interpretation

Table 5.6.2 presents the results of an independent samples t-test for OC, PC, SC, LC, and LSC based on the level of course. The results show that the mean OC score for PG-level tribal students (59.47) is slightly higher than for UG-level tribal students (59.31). The mean score difference of -0.162 is not statistically significant (t=-0.112, p=0.911>0.05), indicating no significant differences in OC among tribal students based on their academic level.

The analysis also reveals that the mean PC score for PG-level tribal students (20.25) is marginally higher than that for UG-level tribal students (19.99). The mean score difference of -0.266 is not statistically significant (t=-0.497, p=0.619>0.05), indicating no significant differences in PC among tribal students based on their academic level.

Additionally, the t-test indicates that the mean SC score for PG-level tribal students (12.87) is higher than that of UG-level tribal students (12.04). The mean score difference of -0.822 is statistically significant (t=-2.122, p=0.034<0.05), indicating significant differences in SC among tribal students based on their academic level.

Further analysis shows that the mean LC score for PG-level tribal students (12.93) is slightly higher than for UG-level tribal students (12.66). The mean score difference of -0.273 is not statistically significant (t=-0.751, p=0.453>0.05), indicating no significant differences in LC among tribal students based on their academic level.

Moreover, the t-test indicates that the mean LSC score for UG-level tribal students (14.62) is higher than that of PG-level tribal students (13.42). The mean score difference of 1.199 is statistically significant (t=2.967, p=0.003<0.05), indicating significant differences in LSC among tribal students based on their academic level.

$H_0$3: Family Structure does not significantly influence the OC, PC, SC, LC, and LSC among tribal students in HE.

Table No. 5.6.3: Family structure-wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Family structure	N	M	SD	df	F	*P*
OC	Joint Family	330	62.15	15.372	2/528	14.277	**.000**
	Nuclear Family	163	54.18	16.606			
	Broken Family	38	57.45	15.112			
	Total	531	59.37	16.133	530		
PC	Joint Family	330	20.82	5.687	2/528	7.211	**.001**
	Nuclear Family	163	18.69	6.357			
	Broken Family	38	19.68	5.292			
	Total	531	20.08	5.943	530		
SC	Joint Family	330	12.84	4.390	2/528	5.829	**.003**
	Nuclear Family	163	11.47	4.192			
	Broken Family	38	11.84	3.591			
	Total	531	12.35	4.317	530		
LC	Joint Family	330	13.55	3.741	2/528	18.149	**.000**
	Nuclear Family	163	11.38	4.231			
	Broken Family	38	11.79	3.891			
	Total	531	12.76	4.033	530		
LSC	Joint Family	330	14.95	4.390	2/528	14.972	**.000**
	Nuclear Family	163	12.64	4.395			
	Broken Family	38	14.13	4.575			
	Total	531	14.18	4.520	530		

Table No. 5.6.3.1: Shows family structure-wise multiple comparisons test (LSD)

Dependent Variable	(I) Family Structure	(J) Family Structure	Mean Difference (I-J)	Std. Error	Sig.
OC	Joint Family	Nuclear Family	7.967*	1.507	**.000**
		Broken Family	4.704	2.697	.082
	Nuclear Family	Broken Family	-3.263	2.836	.250
PC	Joint Family	Nuclear Family	2.122*	.562	**.000**
		Broken Family	1.131	1.006	.262

Dependent Variable	(I) Family Structure	(J) Family Structure	Mean Difference (I-J)	Std. Error	Sig.
	Nuclear Family	Broken Family	-.991	1.058	.350
SC	Joint Family	Nuclear Family	1.364*	.410	**.001**
		Broken Family	.994	.733	.175
	Nuclear Family	Broken Family	-.370	.771	.632
LC	Joint Family	Nuclear Family	2.174*	.374	**.000**
		Broken Family	1.765*	.669	**.009**
	Nuclear Family	Broken Family	-.409	.704	.561
LSC	Joint Family	Nuclear Family	2.307*	.422	**.000**
		Broken Family	.814	.755	.281
	Nuclear Family	Broken Family	-1.494	.794	.060

Interpretation

Table 5.6.3 presents the one-way ANOVA results for OC, PC, SC, LC, and LSC concerning the participants' family types: For OC**,** tribal students from joint families (62.15) have the highest mean score, compared to those from broken families (57.45) and nuclear families (54.18). This means that students from joint families have higher than students from broken and nuclear**.** And the one-way ANOVA results (F=14.277, *p*=.000<.05) show a significant difference in OC among tribal students across family types. Further, the multiple comparisons [see Table No. 5.6.3.1] on OC through the LSD test showed that the actual differences lie between tribal students from joint and nuclear families (*p*=.000<0.05).

Regarding PC, students from joint families (20.82) have the highest mean score, followed by those from broken families (19.68) and nuclear families (18.69). And the one-way ANOVA analysis (F=7.211, *p*=.001<.05) reveals a significant difference in PC based on family type. Further, the multiple comparisons [see Table No. 5.6.3.1] on PC through LSD test found that the actual differences lie between tribal students from joint and nuclear families (p = .000 < 0.05).

For SC, the mean score is highest for tribal students from joint families (i.e., 12.84), compared to broken families (11.84) and nuclear families (11.47). The significant difference in SC scores is indicated by a one-way ANOVA result of F=5.829 with *p*=.003<.05. Further, the multiple comparisons [see Table No. 5.6.3.1] on SC through LSD test showed that the actual differences lie between students from joint and nuclear families (*p*=.001<0.05).

Regarding LC, tribal students from joint families (13.55) have the highest mean score, while those from broken families score an average of 11.79, and those from nuclear families (11.38) score the lowest. And the one-way ANOVA results (F=18.149, *p*=.000<.05) show a statistically significant difference in LC concerning their family types. Further, the multiple

comparisons [see Table No. 5.6.3.1] on LC show that the actual differences lie between students from joint and nuclear families (p=.000<0.05), as well as between joint and broken families (p=.009<0.05).

Finally, for LSC, students from joint families (14.95) have the highest mean score, followed by those from broken families (14.13) and nuclear families (12.64). And the one-way ANOVA results (F=14.972, p=.000<.05) show a significant difference in LSC regarding their family types. Further, the multiple comparisons [see Table No. 5.6.3.1] on LSC show that the actual differences lie between tribal students from joint and nuclear families (p=.000<0.05).

$H_0$4: Present residence is not significantly associated with OC, PC, SC, LC, and LSC among tribal students in HE.

Table No. 5.6.4: Present Residence wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Present Residence	N	M	SD	df	F	*P*
OC	Government Sponsored Hostels	299	61.66	15.921	2/528	7.301	.001
	Own House	134	57.07	16.443			
	Mess/PG/Relatives House/Others	98	55.53	15.311			
	Total	531	59.37	16.133	530		
PC	Government Sponsored Hostels	299	21.23	5.926	2/528	13.384	.000
	Own House	134	18.75	5.566			
	Mess/PG/Relatives House/Others	98	18.41	5.772			
	Total	531	20.08	5.943	530		
SC	Government Sponsored Hostels	299	12.86	4.430	2/528	5.098	.006
	Own House	134	11.56	4.215			
	Mess/PG/Relatives House/Others	98	11.85	3.907			
	Total	531	12.35	4.317	530		
LC	Government Sponsored Hostels	299	13.27	3.995	2/528	5.526	.004

Challenges	Present Residence	N	M	SD	df	F	*P*
	Own House	134	12.05	4.088			
	Mess/PG/Relatives House/Others	98	12.18	3.883			
	Total	531	12.76	4.033	530		
LSC	Government Sponsored Hostels	299	14.30	4.176	2/528	3.902	.021
	Own House	134	14.71	5.128			
	Mess/PG/Relatives House/Others	98	13.09	4.511			
	Total	531	14.18	4.520	530		

Table No. 5.6.4.1: Shows present residence wise multiple comparisons test (LSD)

Dependent Variable	(I) Present Residence	(J) Present Place of Staying	Mean Difference (I-J)	Std. Error	Sig.
OC	Government Sponsored Hostels	Own House	4.581*	1.658	**.006**
		Mess/PG/Relatives House/Others	6.125*	1.856	**.001**
	Own House	Mess/PG/Relatives House/Others	1.544	2.119	.467
PC	Government Sponsored Hostels	Own House	2.474*	.604	**.000**
		Mess/PG/Relatives House/Others	2.819*	.676	**.000**
	Own House	Mess/PG/Relatives House/Others	.346	.772	.655
SC	Government Sponsored Hostels	Own House	1.303*	.445	**.004**
		Mess/PG/Relatives House/Others	1.016*	.499	**.042**
	Own House	Mess/PG/Relatives House/Others	.287	.569	.614
LC		Own House	1.215*	.416	**.004**

Dependent Variable	(I) Present Residence	(J) Present Place of Staying	Mean Difference (I-J)	Std. Error	Sig.
	Government Sponsored Hostels	Mess/PG/Relatives House/Others	1.084*	.465	**.020**
	Own House	Mess/PG/Relatives House/Others	-.131	.531	.805
LSC	Government Sponsored Hostels	Own House	-.411	.467	.379
		Mess/PG/Relatives House/Others	1.206*	.523	**.022**
	Own House	Mess/PG/Relatives House/Others	1.617*	.597	**.007**

Interpretation

Table 5.6.4.1 presents the One-Way ANOVA results for OC, PC, SC, LC, and LSC concerning the participants' present residence. The analysis reveals that the mean OC for tribal students residing in Government Sponsored Hostels (61.66) is higher compared to those living in their own houses (57.07) and Mess/PG/Relatives' houses/Others (55.53). The one-way ANOVA shows a significant difference in OC (F=7.301, p=.001<.05) among tribal students concerning their present residence. Further, the multiple comparisons [see Table No. 5.6.4.1] on OC show that the actual differences lie between students staying in Government Sponsored Hostels and those living in their own houses (p=.006<0.05) and those staying in Mess/PG/Relatives' houses/Others (p=.001<0.05).

Similarly, the One-Way ANOVA results reveal that the mean PC score is highest for students in Government Sponsored Hostels (21.23), compared to those residing in their own houses (18.75) and Mess/PG/Relatives' houses/Others (18.41), with a statistically significant difference PC served (F = 13.384, p= .000 < .05) in PC among tribal students concerning their present residence. Further, the multiple comparisons [see Table No. 5.6.4.1] on PC show that the actual differences lie between Government Sponsored Hostels and both their own houses (p=.000<0.05) and Mess/PG/Relatives' houses/Others (p=.000<0.05).

For SC, Government Sponsored Hostel (12.86) residents scored the highest mean, while students in Mess/PG/Relatives' houses/Others (11.85), and Own houses (11.56) have the lowest mean, with a significant difference indicated (F=5.098, p=0.006<0.05) in SC among tribal students concerning their present residence. Further, the multiple comparisons [see

Table No. 5.6.4.1] on SC show that the actual differences lie between students in Government Sponsored Hostels compared to those in their own houses (p=.004<0.05) and Mess/PG/Relatives' houses/Others (p=.042<0.05).

Additionally, the mean LC score is highest for those in Government Sponsored Hostels (13.27), followed by Mess/PG/Relatives' houses/Others (12.18), and lowest for those in their own houses (12.05), with a significant difference found (F=5.526, p=.004<0.05) in LC among tribal students concerning their present residence. Further, the multiple comparisons [see Table No. 5.6.4.1] on LC show that the actual differences lie between Government Sponsored Hostels and their own houses (p=.004<0.05) as well as Mess/PG/Relatives' houses/Others (p=.020<0.05).

Finally, the mean LSC score is highest for students in their own houses (14.71), compared to those in Government Sponsored Hostels (14.30) and Mess/PG/Relatives' houses/Others (13.09). The one-way ANOVA results (F=3.902, p=.021<.05) show a significant difference in LSC among tribal students regarding their present residence. Further, the multiple comparisons [see Table No. 5.6.4.1] on LSC show that the actual differences lie between Government Sponsored Hostels and Mess/PG/Relatives' houses/Others (p=.022<0.05) and between students in their own houses and those in Mess/PG/Relatives' houses/Others (p=.007<0.05).

$H_0$5: OC, PC, SC, LC, and LSC do not vary significantly across generations of learners among tribal students in HE.

Table No. 5.6.5: Learners generation wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Generation of learners	N	M	SD	df	F	*P*
OC	1st Generation of Learners	155	60.49	13.971	2/538	3.997	.019
	2nd Generation of Learners	305	59.96	16.758			
	3rd and 4th Generation of Learners	71	54.39	17.094			
	Total	531	59.37	16.133	530		

Challenges	Generation of learners	N	M	SD	df	F	*P*
PC	1st Generation Learners	155	20.08	4.960	2/538	1.741	.176
	2nd Generation of Learners	305	20.36	6.304			
	3rd and 4th Generation of Learners	71	18.90	6.241			
	Total	531	20.08	5.943	530		
SC	1st Generation of Learners	155	12.26	4.129	2/538	2.158	.117
	2nd Generation of Learners	305	12.60	4.405			
	3rd and 4th Generation of Learners	71	11.44	4.265			
	Total	531	12.35	4.317	530		
LC	1st Generation of Learners	155	13.43	3.533	2/538	5.477	.004
	2nd Generation of Learners	305	12.70	4.115			
	3rd and 4th Generation of Learners	71	11.55	4.430			
	Total	531	12.76	4.033	530		
LSC	1st Generation of Learners	155	14.72	4.642	2/538	6.193	.002
	2nd Generation of Learners	305	14.29	4.290			
	3rd and 4th Generation of Learners	71	12.51	4.875			
	Total	531	14.18	4.520	530		

Table No. 5.6.5.1: Shows generation of learners-wise multiple comparisons test (LSD)

Dependent Variable	(I) Generation of Learners	(J) Generation Learners	Mean Difference (I-J)	Std. Error	Sig.
OC	1st Generation of Learners	2nd Generation of Learners	.533	1.582	.736
		3rd and 4th Generation of Learners	6.096*	2.299	**.008**
	2nd Generation of Learners	3rd and 4th Generation of Learners	5.563*	2.114	**.009**
SC	1st Generation of Learners	2nd Generation Learners	-.345	.425	.417
		3rd and 4th Generation of Learners	.821	.617	.184
	2nd Generation of Learners	3rd and 4th Generation of Learners	1.167*	.568	**.040**
LC	1st Generation of Learners	2nd Generation of Learners	.731	.394	.065
		3rd and 4th Generation of Learners	1.883*	.573	**.001**
	2nd Generation of Learners	3rd and 4th Generation of Learners	1.152*	.527	**.029**
LSC	1st Generation of Learners	2nd Generation of Learners	.431	.442	.330
		3rd and 4th Generation of Learners	2.216*	.641	**.001**
	2nd Generation of Learners	3rd and 4th Generation of Learners	1.785*	.590	**.003**

Interpretation

Table 5.6.5 presents the One-Way ANOVA results for OC, PC, SC, LC, and LSC based on the participants' generation of learners:

For OC, 1st-generation learners have the highest mean (60.49), compared to 2nd-generation learners (59.96) and 3rd and 4th-generation learners (54.39). The one-way ANOVA results (F=3.997, *p*=.019<.05) show a significant difference in OC among tribal students regarding

their generation of learning. Further, the multiple comparisons [see Table No. 5.6.5.1] on OC show that the actual differences lie between 1st-generation learners and both 3rd and 4th-generation learners (p=.008<0.05), as well as between 2nd-generation learners and 3rd and 4th-generation learners (p=.009<0.05).

Further, for PC, 2nd-generation learners have the highest mean (20.36), followed by 1st-generation learners (20.08) and 3rd and 4th-generation learners (18.90). The one-way ANOVA results (F=1.741, p=.176>.05) show no significant difference in PC among tribal students regarding their generation of learning.

Additionally, for SC, 2nd-generation learners have the highest mean (12.60), compared to 1st-generation (12.26) and 3rd and 4th-generation learners (11.44). The one-way ANOVA results (F=2.158, p=.117>.05) show no significant difference in SC among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.6.5.1] on SC show that the actual differences lie between 2nd-generation learners and 3rd and 4th-generation learners (p=.040<0.05).

Furthermore, for LC, 1st-generation learners have the highest mean (13.43), followed by 2nd-generation (12.70) and 3rd and 4th-generation learners (11.55). And the one-way ANOVA results (F=5.477, p=.004<.05) show a significant difference in LC among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.6.5.1] on LC show that the actual differences lie between 1st-generation learners and 3rd and 4th-generation learners (p=.001<0.05), as well as between 2nd-generation learners and 3rd and 4th-generation learners (p=.029<0.05).

Regarding LSC, 1st-generation learners have the highest mean (14.72), followed by 2nd-generation learners (14.29) and 3rd and 4th-generation learners (12.51). And the one-way ANOVA results (F=6.193, p=.002<.05) show a significant difference in LSC among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.6.5.1] on LSC, significant differences are noted between 1st-generation learners and 3rd and 4th-generation learners (p=.001<0.05), and between 2nd-generation learners and 3rd and 4th-generation learners (p=.003<0.05).

$H_0$6: There is no significant difference in OC, PC, SC, LC, and LSC among tribal students in HE across mediums of instruction.

Table No. 5.6.6: Mediums of Instruction wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Medium of Instruction	N	M	SD	df	F	P
OC	Only Bengali	226	59.64	16.072	3/527	6.981	.000
	Only English	70	53.00	14.070			
	Bi-lingual	219	61.75	16.371			
	Tri-lingual	16	50.81	12.818			
	Total	531	59.37	16.133	530		
PC	Only Bengali	226	20.04	5.397	3/527	5.026	.002
	Only English	70	18.33	5.982			
	Bi-lingual	219	20.92	6.333			
	Tri-lingual	16	17.00	5.367			
	Total	531	20.08	5.943	530		
SC	Only Bengali	226	12.21	4.151	3/527	8.114	.000
	Only English	70	10.59	3.712			
	Bi-lingual	219	13.19	4.472			
	Tri-lingual	16	10.44	4.115			
	Total	531	12.35	4.317	530		
LC	Only Bengali	226	13.03	4.087	3/527	3.852	.010
	Only English	70	11.41	3.716			
	Bi-lingual	219	13.01	4.009			
	Tri-lingual	16	11.44	3.812			
	Total	531	12.76	4.033	530		
LSC	Only Bengali	226	14.36	5.039	3/527	4.880	.002
	Only English	70	12.67	3.896			
	Bi-lingual	219	14.63	4.036			
	Tri-lingual	16	11.94	3.855			
	Total	531	14.18	4.520	530		

Table No. 5.6.6.1: Mediums of instruction wise multiple comparisons test (LSD)

Dependent Variable	(I) Language Used for Instruction	(J) Language Used for Instruction	Mean Difference (I-J)	Std. Error	Sig.
OC	Only Bengali	Only English	6.637*	2.170	**.002**
		Bi-lingual	-2.116	1.504	.160
		Tri-lingual	8.825*	4.105	**.032**
	Only English	Bi-lingual	-8.753*	2.179	**.000**
		Tri-lingual	2.188	4.397	.619
	Bi-lingual	Tri-lingual	10.941*	4.109	**.008**
PC	Only Bengali	Only English	1.707*	.804	**.034**
		Bi-lingual	-.882	.557	.114
		Tri-lingual	3.035*	1.520	**.046**
	Only English	Bi-lingual	-2.589*	.807	**.001**
		Tri-lingual	1.329	1.628	.415
	Bi-lingual	Tri-lingual	3.918*	1.522	**.010**
SC	Only Bengali	Only English	1.622*	.579	**.005**
		Bi-lingual	-.984*	.401	**.015**
		Tri-lingual	1.770	1.095	.107
	Only English	Bi-lingual	-2.606*	.581	**.000**
		Tri-lingual	.148	1.173	.899
	Bi-lingual	Tri-lingual	2.754*	1.096	**.012**
LC	Only Bengali	Only English	1.617*	.547	**.003**
		Bi-lingual	.022	.379	.954
		Tri-lingual	1.593	1.035	.124
	Only English	Bi-lingual	-1.595*	.549	**.004**
		Tri-lingual	-.023	1.109	.983
	Bi-lingual	Tri-lingual	1.572	1.036	.130
LSC	Only Bengali	Only English	1.691*	.612	.006
		Bi-lingual	-.272	.424	.522
		Tri-lingual	2.425*	1.157	**.036**
	Only English	Bi-lingual	-1.963*	.614	**.001**
		Tri-lingual	.734	1.239	.554
	Bi-lingual	Tri-lingual	2.697*	1.158	**.020**

Interpretation

Table 5.6.6 presents the One-Way ANOVA results for OC, PC, SC, LC, and LSC concerning the participants' mediums of instruction:

It shows that the mean OC of students in the Bi-lingual mode of instruction (61.75) is the highest, compared to Only Bengali (59.64), Only English (53.00), and Tri-lingual (50.81). The one-way ANOVA results (F=6.981, p=.000<0.05) show a significant difference in the OC among tribal students based on their medium of instruction. Further, the multiple comparisons [see Table No. 5.6.6.1] on OC show that the actual differences lie between tribal students in Only Bengali and Only English (p=.002<0.05), Only Bengali and Tri-lingual (p=.032<0.05), Only English and Bi-lingual (p=.000<0.05), and Bi-lingual and Tri-lingual (p=.008<0.05).

However, the mean PC of students in the Bi-lingual medium of instruction (20.92) is the highest, compared to Only Bengali (20.04), Only English (18.33), and Tri-lingual (17.00). The one-way ANOVA results (F=5.026, p=.002<0.05) show a statistically significant difference in the PC among tribal students concerning their mediums of instruction. Further, the multiple comparisons [see Table No. 5.6.6.1] on PC show that the actual differences lie between tribal students in Only Bengali and Only English (p=.034<0.05), Only Bengali and Bi-lingual (p=.046<0.05), Only English and Bi-lingual (p=.001<0.05), and Bi-lingual and Tri-lingual medium of instruction (p=.010<0.05).

Moreover, the mean SC of students in the Bi-lingual medium of instruction (i.e., 13.19) is the highest, compared to Only Bengali (12.21), Only English (10.59), and Tri-lingual (10.44). The one-way ANOVA results (F=8.114, p=.000<0.05) show a significant difference in the SC among tribal students concerning their mediums of instruction. Further, the multiple comparisons [see Table No. 5.6.6.1] on SC show that the actual differences lie among tribal students, specifically between those in Only Bengali and Only English (p=.005<0.05), Only Bengali and Bi-lingual (p=.015<0.05), Only English and Bi-lingual (p=.000<0.05), and Bi-lingual and Tri-lingual (p=.012<0.05).

Further, the mean LC of students in the Only Bengali medium of instruction (13.03) is the highest, compared to Bi-lingual (13.01), Tri-lingual (11.44), and Only English (11.41). And the one-way ANOVA results (F=3.852, p=.010<0.05) show a significant difference in the LC of tribal students concerning their medium of instruction. Further, the multiple comparisons [see Table No. 5.6.6.1] on LC show that the actual differences lie among tribal students, specifically between those in Only Bengali and Only English (p=.003<0.05), only English and Bi-lingual (p=.004<0.05).

Additionally, the mean LSC of students in the Bi-lingual medium of instruction (14.63) is the highest, compared to Only Bengali (14.36), Only English (12.67), and Tri-lingual (11.94). The

one-way ANOVA results (F=4.880, p=.002<0.05) show a statistically significant difference in the LSC among tribal students concerning their medium of instruction. Further, the multiple comparisons [see Table No. 5.6.6.1] on LSC show that actual differences lie between tribal students in Only Bengali and Only English (p=.006<0.05), Only Bengali and Tri-lingual (p=.036<0.05), Only English and Bi-lingual (p=.001<0.05) and Bi-lingual and Tri-lingual (p=.020<0.05).

$H_0$7: OC, PC, SC, LC, and LSC are not significantly associated with tribal students' parents' educational qualifications in HE.

Table No. 5.6.7: Father's educational qualification-wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Father's Educational Qualification	N	M	SD	df	F	p
OC	Illiterate	67	57.36	13.669	5/525	6.391	.000
	Primary (i-v)	61	56.02	14.770			
	Upper Primary (vi-viii)	78	58.62	13.397			
	Secondary (ix-x)	138	59.18	16.149			
	Higher Secondary (xi-xii)	114	66.15	16.827			
	Graduate/ Postgraduate/ Others	73	54.59	17.899			
	Total	531	59.37	16.133	530		
PC	Illiterate	67	18.85	4.600	5/525	6.803	.000
	Primary (i-v)	61	19.13	5.071			
	Upper Primary (vi-viii)	78	19.56	5.088			
	Secondary (ix-x)	138	20.08	6.375			
	Higher Secondary (xi-xii)	114	22.69	5.893			
	Graduate/ Postgraduate/ Others	73	18.49	6.621			
	Total	531	20.08	5.943	530		
SC	Illiterate	67	11.73	3.860	5/525	6.329	.000
	Primary (i-v)	61	10.90	4.226			
	Upper Primary (vi-viii)	78	11.96	3.691			
	Secondary (ix-x)	138	12.33	4.405			
	Higher Secondary (xi-xii)	114	14.15	4.239			
	Graduate/ Postgraduate/ Others	73	11.74	4.601			
	Total	531	12.35	4.317	530		

Challenges	Father's Educational Qualification	N	M	SD	df	F	p
LC	Illiterate	67	12.45	3.787	5/525	2.950	.012
	Primary (i-v)	61	12.28	3.588			
	Upper Primary (vi-viii)	78	12.85	3.838			
	Secondary (ix-x)	138	12.98	3.869			
	Higher Secondary (xi-xii)	114	13.68	4.277			
	Graduate/ Postgraduate/ Others	73	11.52	4.429			
	Total	531	12.76	4.033	530		
LSC	Illiterate	67	14.33	4.952	5/525	4.120	.001
	Primary (i-v)	61	13.70	4.092			
	Upper Primary (vi-viii)	78	14.24	4.449			
	Secondary (ix-x)	138	13.79	4.247			
	Higher Secondary (xi-xii)	114	15.63	4.467			
	Graduate/ Postgraduate/ Others	73	12.84	4.631			
	Total	531	14.18	4.520	530		

Table No. 5.6.7.1: Father's educational qualifications wise multiple comparisons test (LSD)

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	MD	Std. Error	Sig.
OC	Illiterate	Primary (i-v)	1.342	2.785	.630
		Upper Primary (vi-viii)	-1.257	2.621	.632
		Secondary (ix-x)	-1.823	2.343	.437
		Higher Secondary (xi-xii)	-8.791*	2.423	**.000**
		Graduate/ Postgraduate/ Others	2.769	2.663	.299
	Primary (i-v)	Upper Primary (vi-viii)	-2.599	2.690	.334
		Secondary (ix-x)	-3.165	2.420	.191
		Higher Secondary (xi-xii)	-10.133*	2.497	**.000**
		Graduate/ Postgraduate/ Others	1.427	2.730	.601
	Upper Primary (vi-viii)	Secondary (ix-x)	-.566	2.229	.800
		Higher Secondary (xi-xii)	-7.534*	2.313	**.001**
		Graduate/ Postgraduate/ Others	4.026	2.563	.117
	Secondary (ix-x)	Higher Secondary (xi-xii)	-6.968*	1.992	**.001**

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	MD	Std. Error	Sig.
		Graduate/ Postgraduate/ Others	4.592*	2.278	**.044**
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	11.560*	2.359	**.000**
PC	Illiterate	Primary (i-v)	-.280	1.024	.784
		Upper Primary (vi-viii)	-.713	.964	.460
		Secondary (ix-x)	-1.229	.862	.154
		Higher Secondary (xi-xii)	-3.842*	.891	**.000**
		Graduate/ Postgraduate/ Others	.358	.979	.715
	Primary (i-v)	Upper Primary (vi-viii)	-.433	.989	.662
		Secondary (ix-x)	-.949	.890	.287
		Higher Secondary (xi-xii)	-3.562*	.918	**.000**
		Graduate/ Postgraduate/ Others	.638	1.004	.525
	Upper Primary (vi-viii)	Secondary (ix-x)	-.516	.820	.530
		Higher Secondary (xi-xii)	-3.129*	.850	**.000**
		Graduate/ Postgraduate/ Others	1.071	.942	.256
	Secondary (ix-x)	Higher Secondary (xi-xii)	-2.613*	.732	**.000**
		Graduate/ Postgraduate/ Others	1.587	.838	.059
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	4.200*	.867	**.000**
SC	Illiterate	Primary (i-v)	.830	.746	.266
		Upper Primary (vi-viii)	-.230	.702	.743
		Secondary (ix-x)	-.602	.627	.338
		Higher Secondary (xi-xii)	-2.418*	.648	**.000**
		Graduate/ Postgraduate/ Others	-.008	.713	.991
	Primary (i-v)	Upper Primary (vi-viii)	-1.060	.720	.142
		Secondary (ix-x)	-1.432*	.648	**.028**
		Higher Secondary (xi-xii)	-3.247*	.668	**.000**
		Graduate/ Postgraduate/ Others	-.838	.731	.252
	Upper Primary (vi-viii)	Secondary (ix-x)	-.372	.597	.534
		Higher Secondary (xi-xii)	-2.188*	.619	**.000**
		Graduate/ Postgraduate/ Others	.222	.686	.747
	Secondary (ix-x)	Higher Secondary (xi-xii)	-1.816*	.533	**.001**
		Graduate/ Postgraduate/ Others	.594	.610	.331
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	2.409*	.631	**.000**

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	MD	Std. Error	Sig.
LC	Illiterate	Primary (i-v)	.169	.707	.811
		Upper Primary (vi-viii)	-.398	.666	.550
		Secondary (ix-x)	-.530	.595	.373
		Higher Secondary (xi-xii)	-1.228*	.615	**.046**
		Graduate/ Postgraduate/ Others	.927	.676	.171
	Primary (i-v)	Upper Primary (vi-viii)	-.567	.683	.406
		Secondary (ix-x)	-.700	.614	.255
		Higher Secondary (xi-xii)	-1.397*	.634	**.028**
		Graduate/ Postgraduate/ Others	.758	.693	.275
	Upper Primary (vi-viii)	Secondary (ix-x)	-.132	.566	.816
		Higher Secondary (xi-xii)	-.829	.587	.158
		Graduate/ Postgraduate/ Others	1.326*	.651	**.042**
	Secondary (ix-x)	Higher Secondary (xi-xii)	-.697	.506	.169
		Graduate/ Postgraduate/ Others	1.458*	.578	**.012**
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	2.155*	.599	**.000**
LSC	Illiterate	Primary (i-v)	.623	.788	.429
		Upper Primary (vi-viii)	.085	.742	.909
		Secondary (ix-x)	.539	.663	.417
		Higher Secondary (xi-xii)	-1.303	.686	.058
		Graduate/ Postgraduate/ Others	1.493*	.754	**.048**
	Primary (i-v)	Upper Primary (vi-viii)	-.539	.761	.480
		Secondary (ix-x)	-.085	.685	.901
		Higher Secondary (xi-xii)	-1.927*	.707	**.007**
		Graduate/ Postgraduate/ Others	.869	.773	.261
	Upper Primary (vi-viii)	Secondary (ix-x)	.454	.631	.472
		Higher Secondary (xi-xii)	-1.388*	.655	**.034**
		Graduate/ Postgraduate/ Others	1.408	.725	.053
	Secondary (ix-x)	Higher Secondary (xi-xii)	-1.842*	.564	**.001**
		Graduate/ Postgraduate/ Others	.954	.645	.139
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	2.796*	.668	**.000**

Interpretation

Table 5.6.7 presents the One-Way ANOVA results for OC, PC, SC, LC, and LSC concerning the participants' fathers' educational qualifications:

The mean OC of students whose fathers have a Higher Secondary education (66.15) is the highest, compared to Secondary (59.18), Upper Primary (58.62), Illiterate (57.36), Primary (56.02), and Graduate/Postgraduate/Others (54.59). And the one-way ANOVA results (F=6.391, p=.000<0.05) show a significant difference in the OC among tribal students based on their father's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.7.1] on OC show that the actual differences lie between tribal students whose fathers were Illiterate and those with a Higher Secondary education (p=.000<0.05), between Primary and Higher Secondary (p=.000<0.05), between Upper Primary and Higher Secondary (p=.001<0.05), between Secondary and Higher Secondary (p=.001<0.05), between Secondary and Graduate/Postgraduate/Others (p=.044<0.05), and between Higher Secondary and Graduate/Postgraduate/Others (p=.000<0.05).

However, the mean PC of students whose fathers have a Higher Secondary education (22.69) is the highest, compared to Secondary (20.08), Upper Primary (19.56), Primary (19.13), Illiterate (18.85), and Graduate/Postgraduate/Others (18.49). And the one-way ANOVA results (F=6.803, p=.000<0.05) show a statistically significant difference in the PC among tribal students concerning their father's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.7.1] on PC show that the actual differences lie between tribal students whose fathers were Illiterate and Higher Secondary (p=.000<0.05), Primary and Higher Secondary (p=.000<0.05), Upper Primary and Higher Secondary (p=.000<0.05), Secondary and Higher Secondary (p=.000<0.05), Higher Secondary (xi-xii) and Graduate/Postgraduate/Others (p=.000<0.05).

Moreover, the mean SC of students whose fathers have Higher Secondary (14.15) is the highest, compared to Secondary (12.33), Upper Primary (11.96), Graduate/Postgraduate/Others (11.74), Illiterate (11.73) and Primary (10.90). And the one-way ANOVA results (F=6.329, p=.000<0.05) show a statistically significant difference in the SC among tribal students concerning their father's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.7.1] on SC show that the actual differences lie among tribal students whose fathers were Illiterate and Higher Secondary (p=.000<0.05), Primary and

Secondary (p=.028<0.05), Primary and Higher Secondary (p=.000<0.05), Upper Primary and Higher Secondary (p=.000<0.05), Secondary and Higher Secondary (p=.001<0.05), and Higher Secondary and Graduate/ Postgraduate/ Others (p=.000<0.05).

Further, the mean LC of students whose fathers have Higher Secondary (13.68) is the highest, compared to Secondary (12.98), Upper Primary (12.85), Illiterate (12.45), Primary (12.28) and Graduate/Postgraduate/Others (i.e., 11.52), which is the lowest. And the one-way ANOVA results (F=2.950, p= .012< 0.05) show a statistically significant difference in the LC among tribal students concerning their father's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.7.1] on LC show that the actual differences lie among tribal students whose fathers were Illiterate and those with a Higher Secondary education (p=.046<0.05), between Primary and Higher Secondary (p=.028<0.05), between Upper Primary and Graduate/Postgraduate/Others (p=.042<0.05), between Secondary and Graduate/Postgraduate/Others (p=.012<0.05), and between Higher Secondary and Graduate/Postgraduate/Others (p=.000<0.05).

Additionally, the mean LSC of students whose fathers have Higher Secondary (15.63) is the highest, compared to Illiterate (14.33), Upper Primary (14.24), Secondary (13.79), Primary (13.70), and Graduate/Postgraduate/Others (12.84). And the one-way ANOVA results (F=4.120, p=.001<0.05) show a statistically significant difference in the LSC among tribal students concerning their father's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.7.1] on LSC show that the actual differences lie among tribal students whose fathers were Illiterate and those who were Graduate/Postgraduate/Others (p=.048<0.05), between Primary and Higher Secondary (p=.007<0.05), between Upper Primary and Higher Secondary (p=.034<0.05), between Secondary and Higher Secondary (p=.001<0.05), and between Higher Secondary and Graduate/Postgraduate/Others (p=.000<0.05).

Table No. 5.6.8: Mother's educational qualification-wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Mother's educational qualification	N	M	SD	df	F	p
OC	Illiterate	141	57.68	13.851	5/525	4.223	.001
	Primary (i-v)	96	55.92	13.820			
	Upper Primary (vi-viii)	125	62.12	16.551			
	Secondary (ix-x)	104	62.29	18.157			
	Higher Secondary (xi-xii)	48	61.35	18.349			
	Graduate/ Postgraduate/ Others	17	49.18	15.529			
	Total	531	59.37	16.133	530		
PC	Illiterate	141	18.72	5.280	5/525	6.371	.000
	Primary (i-v)	96	19.08	5.275			
	Upper Primary (vi-viii)	125	21.18	5.630			
	Secondary (ix-x)	104	21.75	6.620			
	Higher Secondary (xi-xii)	48	20.96	6.894			
	Graduate/ Postgraduate/ Others	17	16.35	5.159			
	Total	531	20.08	5.943	530		
SC	Illiterate	141	11.65	3.968	5/525	4.008	.001
	Primary (i-v)	96	11.51	3.786			
	Upper Primary (vi-viii)	125	12.87	4.463			
	Secondary (ix-x)	104	13.38	4.683			
	Higher Secondary (xi-xii)	48	13.10	4.558			
	Graduate/ Postgraduate/ Others	17	10.53	3.907			
	Total	531	12.35	4.317	530		
LC	Illiterate	141	12.89	3.716	5/525	2.087	.066
	Primary (i-v)	96	12.21	3.702			
	Upper Primary (vi-viii)	125	13.18	4.045			
	Secondary (ix-x)	104	13.06	4.377			
	Higher Secondary (xi-xii)	48	12.60	4.584			
	Graduate/ Postgraduate/ Others	17	10.29	3.754			
	Total	531	12.76	4.033	530		
	Illiterate	141	14.42	4.448			

Challenges	Mother's educational qualification	N	M	SD	df	F	p
LSC	Primary (i-v)	96	13.11	4.597	5/525	2.720	.019
	Upper Primary (vi-viii)	125	14.89	4.672			
	Secondary (ix-x)	104	14.11	4.026			
	Higher Secondary (xi-xii)	48	14.69	4.632			
	Graduate/ Postgraduate/ Others	17	12.00	4.937			
	Total	531	14.18	4.520	530		

Table No. 5.6.8.1: Mother's educational qualifications wise multiple comparison test (LSD)

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
OC	Illiterate	Primary (i-v)	1.764	2.103	.402
		Upper Primary (vi-viii)	-4.439*	1.952	**.023**
		Secondary (ix-x)	-4.608*	2.054	**.025**
		Higher Secondary (xi-xii)	-3.673	2.656	.167
		Graduate/ Postgraduate/ Others	8.504*	4.080	**.038**
	Primary (i-v)	Upper Primary (vi-viii)	-6.203*	2.157	**.004**
		Secondary (ix-x)	-6.372*	2.249	**.005**
		Higher Secondary (xi-xii)	-5.438	2.810	.053
		Graduate/ Postgraduate/ Others	6.740	4.182	.108
	Upper Primary (vi-viii)	Secondary (ix-x)	-.168	2.109	.936
		Higher Secondary (xi-xii)	.766	2.699	.777
		Graduate/ Postgraduate/ Others	12.944*	4.108	**.002**
	Secondary	Higher Secondary (xi-xii)	.934	2.773	.736
		Graduate/ Postgraduate/ Others	13.112*	4.158	**.002**
	Higher Secondary	Graduate/ Postgraduate/ Others	12.178*	4.486	**.007**
PC	Illiterate	Primary (i-v)	-.367	.767	.633

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Upper Primary (vi-viii)	-2.460*	.712	**.001**
		Secondary (ix-x)	-3.034*	.749	**.000**
		Higher Secondary (xi-xii)	-2.242*	.969	**.021**
		Graduate/ Postgraduate/ Others	2.363	1.489	.113
	Primary (i-v)	Upper Primary (vi-viii)	-2.093*	.787	**.008**
		Secondary (ix-x)	-2.667*	.821	**.001**
		Higher Secondary (xi-xii)	-1.875	1.025	.068
		Graduate/ Postgraduate/ Others	2.730	1.526	.074
	Upper Primary (vi-viii)	Secondary (ix-x)	-.574	.770	.456
		Higher Secondary (xi-xii)	.218	.985	.825
		Graduate/ Postgraduate/ Others	4.823*	1.499	**.001**
	Secondary (ix-x)	Higher Secondary (xi-xii)	.792	1.012	.434
		Graduate/ Postgraduate/ Others	5.397*	1.517	**.000**
	Higher Secondary	Graduate/ Postgraduate/ Others	4.605*	1.636	**.005**
SC	Illiterate	Primary (i-v)	.142	.563	.801
		Upper Primary (vi-viii)	-1.220*	.523	**.020**
		Secondary (ix-x)	-1.723*	.550	**.002**
		Higher Secondary (xi-xii)	-1.452*	.711	**.042**
		Graduate/ Postgraduate/ Others	1.123	1.093	.305
	Primary (i-v)	Upper Primary (vi-viii)	-1.362*	.578	**.019**
		Secondary (ix-x)	-1.865*	.603	**.002**
		Higher Secondary (xi-xii)	-1.594*	.753	**.035**
		Graduate/ Postgraduate/ Others	.981	1.120	.382
	Upper Primary (vi-viii)	Secondary (ix-x)	-.503	.565	.374
		Higher Secondary (xi-xii)	-.232	.723	.748

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Graduate/ Postgraduate/ Others	2.343*	1.100	**.034**
	Secondary (ix-x)	Higher Secondary (xi-xii)	.271	.743	.716
		Graduate/ Postgraduate/ Others	2.846*	1.114	**.011**
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	2.575*	1.202	**.033**
LC	Illiterate	Primary (i-v)	.685	.531	.197
		Upper Primary (vi-viii)	-.290	.493	.556
		Secondary (ix-x)	-.164	.519	.752
		Higher Secondary (xi-xii)	.289	.670	.666
		Graduate/ Postgraduate/ Others	2.599*	1.030	**.012**
	Primary (i-v)	Upper Primary (vi-viii)	-.976	.544	.074
		Secondary (ix-x)	-.849	.568	.135
		Higher Secondary (xi-xii)	-.396	.709	.577
		Graduate/ Postgraduate/ Others	1.914	1.056	.070
	Upper Primary (vi-viii)	Secondary (ix-x)	.126	.532	.813
		Higher Secondary (xi-xii)	.580	.681	.395
		Graduate/ Postgraduate/ Others	2.890*	1.037	**.006**
	Secondary (ix-x)	Higher Secondary (xi-xii)	.454	.700	.517
		Graduate/ Postgraduate/ Others	2.764*	1.050	**.009**
	Higher Secondary	Graduate/ Postgraduate/ Others	2.310*	1.132	**.042**
LSC	Illiterate	Primary (i-v)	1.304*	.593	**.028**
		Upper Primary (vi-viii)	-.470	.551	.394
		Secondary (ix-x)	.313	.580	.590
		Higher Secondary (xi-xii)	-.269	.749	.720
		Graduate/ Postgraduate/ Others	2.418*	1.151	**.036**
	Primary (i-v)	Upper Primary (vi-viii)	-1.773*	.608	**.004**

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Secondary (ix-x)	-.991	.635	.119
		Higher Secondary (xi-xii)	-1.573*	.793	.048
		Graduate/ Postgraduate/ Others	1.115	1.180	.345
	Upper Primary (vi-viii)	Secondary (ix-x)	.782	.595	.189
		Higher Secondary (xi-xii)	.201	.761	.792
		Graduate/ Postgraduate/ Others	2.888*	1.159	**.013**
	Secondary (ix-x)	Higher Secondary (xi-xii)	-.582	.782	.457
		Graduate/ Postgraduate/ Others	2.106	1.173	.073
	Higher Secondary	Graduate/ Postgraduate/ Others	2.688*	1.265	**.034**

Interpretation

Table 5.6.8 represents the One-Way ANOVA results for OC, PC, SC, LC, and LSC concerning the participants' mother's educational qualifications:

The mean OC among participants based on their mother's educational qualifications shows that those in Secondary education (62.29) have the highest mean, followed by Upper Primary (62.12), Higher Secondary (61.35), Illiterate (57.68), and Graduate/Postgraduate/Others (49.18). And the one-way ANOVA results (F=4.223, p=.001<0.05) show a statistically significant difference in the OC among tribal students based on their mother's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.8.1] on OC show that the actual differences lie between tribal students whose mother's educational qualification is Illiterate and Upper Primary (vi-viii) (p=.023<0.05), Illiterate and Secondary (ix-x) (p=.025<0.05), Illiterate and Graduate/Postgraduate/Others (p=.038<0.05), Primary (i-v) and Upper Primary (vi-viii) (p=.004<0.05), Primary (i-v) and Secondary (ix-x) (p=.005<0.05), Upper Primary (vi-viii) and Graduate/Postgraduate/Others (p=.002<0.05), Secondary (ix-x) and Graduate/Postgraduate/Others (p=.002<0.05), and Higher Secondary (xi-xii) and Graduate/Postgraduate/Others (p=.007<0.05).

However, the mean PC of tribal students whose mothers have a Secondary education (21.75) is the highest, compared to those whose mothers have Upper Primary (21.18), Higher

Secondary education (20.96), Primary (19.08), Illiterate (18.72), and Graduate/Postgraduate/Others (16.35). And the one-way ANOVA results (F=6.371, p=.000<0.05) show a statistically significant difference in the PC among tribal students based on their mother's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.8.1] on PC show that the actual differences lie between tribal students whose mother's educational qualification is Illiterate and Upper Primary (p=.001<0.05), Illiterate and Secondary (p=.000<0.05), Illiterate and Higher Secondary (p=.021<0.05), Primary and Upper Primary (p=.008<0.05), Primary and Secondary (p=.001<0.05), Upper Primary and Graduate/Postgraduate/Others (p=.001<0.05), Secondary and Graduate/Postgraduate/Others (p=.000<0.05), Higher Secondary and Graduate/Postgraduate/Others (p=.005<0.05).

Moreover, the mean SC among tribal students whose mother's educational qualifications is Secondary (13.38) is the highest, compared to Higher Secondary (13.10), Upper Primary (12.87), Illiterate (11.65), Primary (11.51), and Graduate/Postgraduate/Others (10.53). And the one-way ANOVA results (F=4.008, p=.001<0.05) show a significant difference in SC among tribal students based on their mother's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.8.1] on SC show that the actual differences lie between tribal students whose mother's educational qualifications are Illiterate and Upper Primary (p=.020<0.05), Illiterate and Secondary (p=.002<0.05), Illiterate and Higher Secondary (p=.042<0.05), Primary and Upper Primary (p=.019<0.05), Primary and Secondary (p=.002<0.05), Primary and Higher Secondary (p=.035<0.05), Upper Primary and Graduate/Postgraduate/Others (p=.034<0.05), Secondary and Graduate/Postgraduate/Others (p=.011<0.05), and Higher Secondary and Graduate/Postgraduate/Others (p=.033<0.05).

Further, the mean LC of tribal students whose mother's educational qualifications are Upper Primary (13.18) is the highest, compared to Secondary (13.06), Illiterate (12.89), Higher Secondary (12.60), Primary (12.21), and Graduate/Postgraduate/Others (10.29). And the one-way ANOVA results (F=2.087, p=.066>0.05) show no significant difference in LC among tribal students based on their mother's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.8.1] on LC show that the actual differences lie between tribal students whose mother's educational qualifications are Illiterate and Graduate/Postgraduate/ Others (p=.012<0.05), Upper Primary and Graduate/Postgraduate/Others (p=.006<0.05), Secondary and Graduate/Postgraduate/Others (p=.009<0.05), and Higher Secondary and Graduate/Postgraduate/Others (p=.042<0.05).

Additionally, the mean LSC of students whose mother's educational qualifications are Upper Primary (14.89) is the highest, compared to Higher Secondary (14.69), Illiterate (14.42), Secondary (14.11), Primary (13.11), and Graduate/Postgraduate/Others (12.00). And the one-way ANOVA results (F=2.720, p=.019<0.05) show a statistically significant difference in LSC among tribal students based on their mother's educational qualifications. Further, the multiple comparisons [see Table No. 5.6.8.1] on LSC show that the actual differences lie between tribal students whose mother's educational qualification are Illiterate and Primary (p=.028<0.05), Illiterate and Graduate/Postgraduate/Others (p=.036<0.05), Primary and Upper Primary (p=.004<0.05), Primary and Higher Secondary (p=.048<0.05), Upper Primary and Graduate/Postgraduate/Others (p=.013<0.05), and Higher Secondary and Graduate/ Postgraduate/ Others (p=.034<0.05).

$H_0$8: There is no statistically significant variation in OC, PC, SC, and CC among tribal students in HE across family income.

Table No. 5.6.9: Family monthly income-wise mean comparison of OC, PC, SC, LC, and LSC

Challenges	Family Income	N	M	SD	df	F	*P*
OC	Up to 6174	299	57.45	15.026	5/525	9.872	.000
	6175-18496	111	62.93	14.786			
	18497-30830	44	70.27	15.068			
	30831-46128	30	62.47	20.493			
	46129-61662	21	54.62	18.613			
	61663 and Above	26	48.00	15.347			
	Total	531	59.37	16.133	530		
PC	Up to 6174	299	19.46	5.875	5/525	8.526	.000
	6175-18496	111	21.48	5.320			
	18497-30830	44	23.73	4.999			
	30831-46128	30	20.17	6.854			
	46129-61662	21	19.00	6.156			
	61663 and Above	26	15.85	5.372	530		
SC	Total	531	20.08	5.943	5/525	6.042	.000
	Up to 6174	299	11.84	4.154			

Challenges	Family Income	N	M	SD	df	F	*P*
	6175-18496	111	13.05	4.211			
	18497-30830	44	15.20	3.843			
	30831-46128	30	12.13	5.290			
	46129-61662	21	11.19	4.490			
	61663 and Above	26	11.50	3.992	530		
LC	Total	531	12.35	4.317	5/525	8.440	.000
	Up to 6174	299	12.56	3.835			
	6175-18496	111	13.68	3.695			
	18497-30830	44	14.66	3.809			
	30831-46128	30	12.83	4.579			
	46129-61662	21	11.00	4.899			
	61663 and Above	26	9.31	3.907	530		
LSC	Total	531	12.76	4.033	5/525	9.870	.000
	Up to 6174	299	13.59	4.086			
	6175-18496	111	14.72	4.226			
	18497-30830	44	16.68	4.497			
	30831-46128	30	17.33	5.851			
	46129-61662	21	13.43	4.874			
	61663 and Above	26	11.35	4.979			
	Total	531	14.18	4.520	530		

Table No. 5.6.9.1: Monthly family income-wise multiple comparisons test (LSD)

Challenges	(I) Familial Monthly Income	(J) Familial Monthly Income	MD (I-J)	Std. Error	Sig.
OC	Up to 6174	6175-18496	-5.473*	1.722	**.002**
		18497-30830	-12.818*	2.502	**.000**
		30831-46128	-5.012	2.968	.092
		46129-61662	2.836	3.499	.418
		61663 and Above	9.455*	3.169	**.003**
	6175-18496	18497-30830	-7.345*	2.761	**.008**
		30831-46128	.461	3.189	.885
		46129-61662	8.309*	3.688	**.025**
		61663 and Above	14.928*	3.377	**.000**

Challenges	(I) Familial Monthly Income	(J) Familial Monthly Income	MD (I-J)	Std. Error	Sig.
	18497-30830	30831-46128	7.806*	3.669	**.034**
		46129-61662	15.654*	4.110	**.000**
		61663 and Above	22.273*	3.834	**.000**
	30831-46128	46129-61662	7.848	4.409	.076
		61663 and Above	14.467*	4.152	**.001**
	46129-61662	61663 and Above	6.619	4.547	.146
PC	Up to 6174	6175-18496	-2.013*	.638	**.002**
		18497-30830	-4.262*	.927	**.000**
		30831-46128	-.702	1.100	.524
		46129-61662	.465	1.296	.720
		61663 and Above	3.619*	1.174	**.002**
	6175-18496	18497-30830	-2.250*	1.023	**.028**
		30831-46128	1.311	1.182	.268
		46129-61662	2.477	1.367	.070
		61663 and Above	5.631*	1.251	**.000**
	18497-30830	30831-46128	3.561*	1.360	**.009**
		46129-61662	4.727*	1.523	**.002**
		61663 and Above	7.881*	1.421	**.000**
	30831-46128	46129-61662	1.167	1.634	.476
		61663 and Above	4.321*	1.539	**.005**
	46129-61662	61663 and Above	3.154	1.685	.062
SC	Up to 6174	6175-18496	-1.202*	.469	**.011**
		18497-30830	-3.362*	.681	**.000**
		30831-46128	-.291	.808	.719
		46129-61662	.652	.952	.494
		61663 and Above	.343	.862	.691
	6175-18496	18497-30830	-2.160*	.751	**.004**
		30831-46128	.912	.868	.294
		46129-61662	1.855	1.004	.065
		61663 and Above	1.545	.919	.093
	18497-30830	30831-46128	3.071*	.999	**.002**
		46129-61662	4.014*	1.119	**.000**
		61663 and Above	3.705*	1.043	**.000**
	30831-46128	46129-61662	.943	1.200	.432
		61663 and Above	.633	1.130	.575

Challenges	(I) Familial Monthly Income	(J) Familial Monthly Income	MD (I-J)	Std. Error	Sig.
	46129-61662	61663 and Above	-.310	1.238	.803
LC	Up to 6174	6175-18496	-1.130*	.433	**.009**
		18497-30830	-2.104*	.629	**.001**
		30831-46128	-.278	.747	.710
		46129-61662	1.555	.880	.078
		61663 and Above	3.247*	.797	**.000**
	6175-18496	18497-30830	-.974	.694	.161
		30831-46128	.851	.802	.289
		46129-61662	2.685*	.928	**.004**
		61663 and Above	4.377*	.849	**.000**
	18497-30830	30831-46128	1.826*	.923	**.048**
		46129-61662	3.659*	1.034	**.000**
		61663 and Above	5.351*	.964	**.000**
	30831-46128	46129-61662	1.833	1.109	.099
		61663 and Above	3.526*	1.044	**.001**
	46129-61662	61663 and Above	1.692	1.144	.140
LSC	Up to 6174	6175-18496	-1.129*	.483	**.020**
		18497-30830	-3.090*	.701	**.000**
		30831-46128	-3.741*	.831	**.000**
		46129-61662	.163	.980	.868
		61663 and Above	2.246*	.888	**.012**
	6175-18496	18497-30830	-1.961*	.773	**.012**
		30831-46128	-2.613*	.893	**.004**
		46129-61662	1.292	1.033	.212
		61663 and Above	3.375*	.946	**.000**
	18497-30830	30831-46128	-.652	1.028	.526
		46129-61662	3.253*	1.152	**.005**
		61663 and Above	5.336*	1.074	**.000**
	30831-46128	46129-61662	3.905*	1.235	**.002**
		61663 and Above	5.987*	1.163	**.000**
	46129-61662	61663 and Above	2.082	1.274	.103

Interpretation

Table 5.6.9 presents the One-Way ANOVA results for OC, SC, PC, LC, and LSC among tribal students based on their family monthly income. The results indicate that tribal students with a

familial monthly income of 18,497-30,830 have the highest mean in OC (70.27), followed by those in the income brackets of 6,175-18,496 (62.93), 30,831-46,128 (62.47), up to 6,174 (57.45), 46,129-61,662 (54.62), with the lowest mean OC score in the 61,663 and above income group (48.00). And the one-way ANOVA results (F=9.872, *p*=.000<.05) show a significant difference in OC based on their familial monthly income. Further the multiple comparisons (see Table No. 5.6.9.1) on OC show that the actual differences lie between the following income groups: Up to 6174 and 6175-18496 (*p*=.002<0.05), Up to 6174 and 18497-30830 (*p*=.000<0.05), Up to 6174 and 61663 and Above (*p*=.003<0.05), 6175-18496 and 18497-30830 (*p*=.008<0.05),6175-18496 and 46129-61662 (*p*=.025<0.05),6175-18496 and 61663 and Above (*p*=.000<0.05), 18497-30830 and 30831-46128 (*p*=.034<0.05), 18497-30830 and 46129-61662 (*p*=.000<0.05),18497-30830 and 61663 and Above (*p*=.000<0.05), 30831-46128 and 61663 and Above (*p*=.001<0.05).

Further, the results indicate that tribal students with a family monthly income of 18,497-30,830 have the highest mean in PC (23.73), followed by those in the income ranges of 6,175-18,496 (21.48), 30,831-46,128 (20.17), up to 6,174 (19.46), and 46,129-61,662 (19.00), with the lowest mean PC score OC served in the 61,663 and above income group (15.85). And the one-way ANOVA results (F=8.526, *p*=.000<.05) show a significant difference in PC when considering familial monthly income. Further the multiple comparisons (see Table No. 5.6.9.1) on PC show that the actual differences lie between the following income groups: Up to 6174 and 6175-18496 (*p*=.002<0.05), Up to 6174 and 18497-30830 (*p*=.000< 0.05), Up to 6174 and 61663 and Above (*p*=.002< 0.05) 6175-18496 and 18497-30830 (*p*=.028<0.05),6175-18496 and 61663 and Above (*p*=.000< 0.05), 18497-30830 and 30831-46128 (*p*=.009< 0.05), 18497-30830 and 46129-61662 (*p*=.002< 0.05), 18497-30830 and 61663 and Above (*p*=.000< 0.05), 30831-46128 and 61663 and Above (*p*=.005< 0.05).

Additionally, the results indicate that tribal students with a family monthly income of 18,497-30,830 have the highest mean in SC (15.20), followed by those in the income ranges of 6,175-18,496 (13.05), 30,831-46,128 (12.13), up to 6,174 (11.84), and 61,663 and above income (11.50), with the lowest mean SC score OC served in the 46,129-61,662-income group (11.19). And the one-way ANOVA results (F= 6.042, *p*=.000<.05) show a significant difference in SC when considering familial monthly income. Further, the multiple comparisons (see Table No. 5.6.9.1) on SC show that the actual differences lie between the following income groups: Up to 6174 and 6175-18496 (*p*=.011<0.05), Up to 6174 and 18497-

30830 (p=.000<0.05), 6175-18496 and 18497-30830 (p=.004<0.05), 18497-30830 and 30831-46128 (p=.002<0.05), 18497-30830 and 46129-61662 (p=.000<0.05), 18497-30830 and 61663 and Above (p=.000<0.05).

Moreover, the results indicate that tribal students with a family monthly income of 18,497-30,830 have the highest mean in LC (14.66), followed by those in the income ranges of 6,175-18,496 (13.68), 30,831-46,128 (12.83), up to 6,174 (12.56), and 46,129-61,662 (11.00), with the lowest mean LC score OC served in the 61,663 and above income group (9.31). And the one-way ANOVA results (F=8.440, p=.000<05) show a significant difference in LC when considering familial monthly income. Further, the multiple comparisons (see Table No. 5.6.9.1) on LC show that the actual differences lie between the following income groups: Up to 6174 and 6175-18496 (p=.009<0.05), Up to 6174 and 18497-30830(p=.001<0.05), Up to 6174 and 61663 and Above (p=.000<0.05), 6175-18496 and 46129-61662 (p=.004<0.05),6175-18496 and 61663 and Above (p=.000<0.05), 18497-30830 and 30831-46128 (p=.048<0.05), 18497-30830 and 46129-61662 (p=.000<0.05), 18497-30830 and 61663 and Above (p=.000<0.05), 30831-46128 and 61663 and Above (p=.001<0.05).

Additionally, the results indicate that tribal students with a family monthly income of 30,831-46,128 have the highest mean in LSC (17.33), followed by those in the income ranges of 18,497-30,830 (16.68), 6,175-18,496 (14.72), up to 6,174 (13.59), and 46,129-61,662 (13.43), with the lowest mean LSC score OC served in the 61,663 and above income group (11.35). And the one-way ANOVA results (F=9.870, p=.000<.05) show no significant difference in LSC when considering familial monthly income. Further the multiple comparisons (see Table No. 5.6.9.1) on LSC show that the actual differences lie between the following income groups: Up to 6174 and 6175-18496 (p=.020<0.05), Up to 6174 and 18497-30830 (p=.000<0.05), Up to 6174 and 30831-46128 (p=.000<0.05), Up to 6174 and 61663 and Above (p=.012<0.05), 6175-18496 and 18497-30830 (p=.012<0.05),6175-18496 and 30831-46128 (p=.004<0.05),6175-18496 and 61663 and Above (p=.000<0.05), 18497-30830 and 46129-61662 (p=.005<0.05), 18497-30830 and 61663 and Above (p=.000<0.05),30831-46128 and 46129-61662 (p=.002<0.05), 30831-46128 and 61663 and Above (p=.000<0.05).

5.7.0. Comparison of OS, PS, SS, LSS, and LS across Demographics among tribal students in HE

$H_0$9: There is no significant difference in OS, PS, SS, LSS, and LS among tribal students in HE across genders.

Table No. 5.7.1: Gender-wise mean comparison of OS, PS, SS, LSS, and LS

Support	Gender	N	M	SD	MD	t	*P*
OS	Male	275	57.65	7.775	-.228	-.328	.743
	Female	256	57.88	8.257			
PS	Male	275	19.15	3.135	-.023	-.082	.935
	Female	256	19.18	3.354			
SS	Male	275	15.31	2.506	-.121	-.579	.563
	Female	256	15.43	2.290			
LSS	Male	275	15.36	2.390	.048	.219	.827
	Female	256	15.31	2.602			
LS	Male	275	7.83	1.341	-.132	-1.120	.263
	Female	256	7.96	1.371			

Interpretation

Table 5.7.1 represents the independent samples t-test for OS based on gender. The result shows that the mean OS score of female tribal students 57.88 is slightly higher than that of male tribal students 57.65. The mean score difference of -0.228 is not statistically significant (t = -0.328, *p*= 0.743 > 0.05). Hence, it indicates no significant differences in OS among tribal students based on their gender.

Additionally, the mean PS score of female tribal students 19.18 is higher than that of male tribal students 19.15. The mean score difference of -0.023 is not statistically significant (t = -0.082, *p*= 0.935> 0.05). Hence, it shows that no significant differences in PS among tribal students regarding their gender.

The independent samples t-test also indicates that the mean SS score of female tribal students 15.43 is slightly higher than that of male tribal students 15.31. The mean score difference of -0.121 is not statistically significant (t = -0.579, *p*= 0.563 > 0.05). However, the result revealed that no significant differences exist in SS among tribal students based on their gender.

Furthermore, the mean LSS score of male tribal students 15.36 is slightly higher than that of female tribal students 15.31. The mean score difference of 0.048 is not statistically significant (t = 0.219, *p*= 0.827 > 0.05). Hence, it indicates no significant differences in LSC among tribal students based on gender.

Finally, the mean LS score of female tribal students 7.96 is slightly higher than that of male tribal students 7.83. The mean score difference of -0.132 is not statistically significant (t = -1.120, *p*= 0.263 > 0.05). However, the result found that, there is no significant differences in LC among tribal students respecting their gender.

$H_0$10: There is no significant difference in OS, PS, SS, LSS, and LS among tribal students in HE across their academic levels.

Table No. 5.7.2: Academic level-wise mean comparison of OS, PS, SS, LSS, and LS

Support	Academic Level	N	M	SD	MD	t	*P*
OS	UG	336	58.53	7.580	2.076	2.900	.004
	PG	195	56.45	8.549			
PS	UG	336	19.58	3.057	1.134	3.825	.000
	PG	195	18.45	3.424			
SS	UG	336	15.41	2.432	.108	.500	.618
	PG	195	15.30	2.356			
LSS	UG	336	15.55	2.317	.589	2.529	.012
	PG	195	14.96	2.735			
LS	UG	336	7.98	1.331	.244	2.001	.046
	PG	195	7.74	1.388			

Interpretation

Table 5.7.2 represents the result of an independent samples t-test for OS, PS, SS, LSS, and LS based on the academic level. The results show that the mean OS score for PG-level tribal students 56.45 is slightly lower than UG-level tribal students 58.53. The mean score difference of 2.076 is statistically significant (t=2.900, *p*=0.004<0.05). Hence, it indicates a significant difference in OS among tribal students based on their academic level.

The analysis also shows that the mean PS score for PG-level tribal students, 18.45, is marginally lower than that of UG-level tribal students, 19.58. The mean score difference of 1.134 is statistically significant (t=3.825, p=0.000<0.05). Hence, there is a significant difference in PS among tribal students based on their academic level.

Additionally, the t-test shows that the mean SS score for UG-level tribal students 15.41 is higher than that of PG-level tribal students 15.30. The mean score difference of 0.108 is not statistically significant (t=0.500, p=0.618>0.05). Hence, the result found no significant differences in SS among tribal students concerning their academic level.

Moreover, the t-test indicates that the mean LSS score for UG-level tribal students 15.55 is higher than that of PG-level tribal students 14.96. The mean score difference of 0.589 is statistically significant (t=2.529, p=0.012<0.05). Hence, the result found that significant differences in LSS among tribal students based on their academic level.

Further analysis shows that the mean LS score for UG-level tribal students (7.98) is slightly higher than that of PG-level tribal students (7.74). The mean score difference of 0.244 is statistically significant (t=2.001, p=0.046<0.05), indicating significant differences in LS among tribal students respecting their academic level.

$H_0$11: Family structures have not significant influence on OS, PS, SS, LSS, and LS among tribal students in HE.

Table No. 5.7.3: Family structure-wise mean comparison of OS, PS, SS, LSS, and LS

Supports	Family structure	N	M	SD	df	F	*P*
OS	Joint Family	330	58.16	7.737	2/528	2.393	.092
	Nuclear Family	163	56.67	8.355			
	Broken Family	38	59.03	8.461			
	Total	531	57.76	8.004	530		
PS	Joint Family	330	19.32	3.174	2/528	3.001	.051
	Nuclear Family	163	18.69	3.293			
	Broken Family	38	19.87	3.402			
	Total	531	19.16	3.240	530		
SS	Joint Family	330	15.53	2.364	2/528	2.322	.099
	Nuclear Family	163	15.04	2.432			
	Broken Family	38	15.42	2.532			

Supports	Family structure	N	M	SD	df	F	*P*
	Total	531	15.37	2.403	530		
LS	Joint Family	330	15.33	2.483	2/528	1.340	.263
	Nuclear Family	163	15.21	2.572			
	Broken Family	38	15.95	2.180			
	Total	531	15.34	2.493	530		
LSS	Joint Family	330	7.98	1.349	2/528	2.052	.130
	Nuclear Family	163	7.73	1.347			
	Broken Family	38	7.79	1.417			
	Total	531	7.89	1.356	530		

Interpretation

Table 5.7.3 shows the family structure's mean score and standard deviation (SD) of OS, PS, SS, LSS, and LS.

Here, OS broken family (59.03), the mean scores highest, comparatively to the joint family (58.16) and lowest for nuclear family students (56.67). And the one-way ANOVA result revealed that those types of family structure are not statistically significant (F = 2.393, p =.092<0.05).

The above table also indicated that the mean scores for PS in joint, nuclear, and broken families are 19.32, 18.69, and 19.87, respectively. This indicates that the mean score for students from broken families is higher than that of students from joint families, while the mean score for students from nuclear families is lower. However, the one-way ANOVA result revealed that these variations are statistically insignificant (F = 3.001, *P* =.051).

In the joint family structure (15.53), the students' mean score for SS was higher than that of the broken family (15.42) and lower than that of the nuclear family (15.04). However, the one-way ANOVA result indicated that there was no significant difference within the three groups (F = 2.322, P =.099).

According to the LS table above, students from broken families have the highest mean score (15.95), followed by those from joint families (15.33), and nuclear family students (15.21) have the lowest score. The one-way ANOVA result showed that this variation did not differ significantly (F = 1.340, P =.263).

The LSS scores for students from joint, nuclear, and broken families are 7.98, 7.73, and 7.79, respectively. Students from a joint family have the highest mean score, whereas those from a broken family and a nuclear family have the lowest. However, one-way ANOVA results indicate this difference was insignificant (F = 2.052, P =.130).

$H_0$12: There are no significant variations in OS, PS, SS, LSS, and LS among tribal students in HE across their present residence.

Table No. 5.7.4: Present residence-wise mean comparison of OS, PS, SS, LSS, and LS

Supports	Present residence	N	M	SD	df	F	*P*
OS	Government Sponsored Hostels	299	55.80	7.902	2/528	25.105	.000
	Own House	134	61.27	6.929			
	Mess/PG/Relatives House/Others	98	58.98	7.875			
	Total	531	57.76	8.004	530		
PS	Government Sponsored Hostels	299	18.35	3.225	2/528	24.237	.000
	Own House	134	20.41	2.876			
	Mess/PG/Relatives House/Others	98	19.95	3.037			
	Total	531	19.16	3.240	530		
SS	Government Sponsored Hostels	299	14.83	2.304	2/528	23.144	**.000**
	Own House	134	16.46	2.185			
	Mess/PG/Relatives House/Others	98	15.53	2.480			
	Total	531	15.37	2.403	530		
LSS	Government Sponsored Hostels	299	14.81	2.583	2/528	17.732	**.000**

Supports	Present residence	N	M	SD	df	F	*P*
	Own House	134	16.25	2.104			
	Mess/PG/Relatives House/Others	98	15.70	2.289			
	Total	531	15.34	2.493	530		
LS	Government Sponsored Hostels	299	7.81	1.340	2/528	3.430	**.033**
	Own House	134	8.16	1.365			
	Mess/PG/Relatives House/Others	98	7.80	1.362			
	Total	531	7.89	1.356	530		

Table No. 5.7.4.1: Shows Present residence-wise multiple comparisons of OS, PS, SS, LSS, and LS

Dependent Variable	(I) Present residence	(J) Present residence	Mean Difference (I-J)	Std. Error	Sig.
OS	Government Sponsored Hostels	Own House	-5.473*	.797	.000
		Mess/PG/Relatives House/Others	-3.184*	.892	.000
	Own House	Mess/PG/Relatives House/Others	2.289*	1.019	.025
PS	Government Sponsored Hostels	Own House	-2.063*	.323	.000
		Mess/PG/Relatives House/Others	-1.601*	.362	.000
	Own House	Mess/PG/Relatives House/Others	.461	.413	.264
SS	Government Sponsored Hostels	Own House	-1.622*	.240	.000
		Mess/PG/Relatives House/Others	-.698*	.269	.010
	Own House	Mess/PG/Relatives House/Others	.925*	.307	.003
LSS		Own House	-1.437*	.251	.000

Dependent Variable	(I) Present residence	(J) Present residence	Mean Difference (I-J)	Std. Error	Sig.
	Government Sponsored Hostels	Mess/PG/Relatives House/Others	-.895*	.281	.002
	Own House	Mess/PG/Relatives House/Others	.542	.321	.092
LS	Government Sponsored Hostels	Own House	-.351*	.140	.013
		Mess/PG/Relatives House/Others	.010	.157	.949
	Own House	Mess/PG/Relatives House/Others	.361*	.179	.045
*. The mean difference is significant at the 0.05 level.					

Interpretation

Table 5.7.4 represents the One-Way ANOVA results for OS, PS, SS, LSS, and LS concerning the participants' present residence:

The analysis reveals that the mean OS for tribal students residing in their own houses (61.27) is higher compared to those living in Mess/PG/Relatives' houses/Others (58.98) and Government Sponsored Hostels (55.80). The one-way ANOVA shows a significant difference in OS ($F = 25.105$, $p = .000 < .05$) among tribal students concerning their present place of staying. Further, the multiple comparisons [see Table No. 5.7.4.1] on OS show that the actual differences lie between students staying in Government Sponsored Hostels and those living in their own houses ($p = .000 < 0.05$) and those staying in Mess/PG/Relatives' houses/Others ($p = .000 < 0.05$).

Similarly, the One-Way ANOVA results reveal that the mean PS score is highest for students in their own houses (20.41), compared to those residing in Mess/PG/Relatives' houses/Others (19.95) and Government Sponsored Hostels (18.35), with a statistically significant difference OC served ($F = 24.237$, $p = .000 < .05$) in PS among tribal students concerning their present residence. Further, the multiple comparisons [see Table No. 5.7.4.1] on PS show that the actual differences lie between Government Sponsored Hostels and both their own houses ($p = .000 < 0.05$) and Mess/PG/Relatives' houses/Others ($p = .000 < 0.05$).

For SS, students in their own houses (16.46) scored the highest mean, while those in Government Sponsored Hostels (14.83) have the lowest mean, and Mess/PG/Relatives'

houses/Others (15.53), with a significant difference indicated (F = 23.144, p = .000 < 0.05) in SS among tribal students concerning their present residence. Further, the multiple comparisons [see Table No. 5.7.4.1] on SS show that the actual differences lie between students in Government Sponsored Hostels compared to those in their own houses (p = .000 < 0.05) and Mess/PG/Relatives' houses/Others (p = .010 < 0.05), and own house and Mess/PG/Relatives' houses/Others (p = .003<0.05).

Additionally, the mean LSS score is highest for those in their own houses (16.25), followed by Mess/PG/Relatives' houses/Others (15.70), and lowest for those in Government Sponsored Hostels (14.81), with a significant difference found (F = 17.732, p = .000 < 0.05) in LSS among tribal students concerning their present residence. Further, the multiple comparisons [see Table No. 5.7.4.1] on LSS show that the actual differences lie between Government Sponsored Hostels and their own houses (p = .000 < 0.05) as well as Mess/PG/Relatives' houses/Others (p = .002 < 0.05).

Finally, the mean LS score is highest for students in their own houses (8.16), compared to those in Mess/PG/Relatives' houses/Others (7.80) and Government Sponsored Hostels (7.81). The one-way ANOVA results (F = 3.430, p = .033 < .05) show a significant difference in LS among tribal students regarding their present residence. Further, the multiple comparisons [see Table No. 5.7.4.1] on LS show that the actual differences lie between Government Sponsored Hostels and their own houses (p = .013 < 0.05), and between students in their own houses and those in Mess/PG/Relatives' houses/Others (p = .045 < 0.05).

$H_0$13: Generations of learners have no significant influence on OS, PS, SS, LSS, and LS among tribal students in HE.

Table No. 5.7.5: Generation of learner-wise mean comparison of OS, PS, SS, LSS, and LS

Supports	Generation of learner	N	M	SD	df	F	*P*
OS	1st Generation Learner	155	59.78	7.216	2/528	8.828	**.000**
	2nd Generation Learner	305	56.57	8.226			

Supports	Generation of learner	N	M	SD	df	F	*P*
	3rd and 4th Generation Learner	71	58.48	7.810			
	Total	531	57.76	8.004	530		
PS	1st Generation Learner	155	19.89	2.868	2/528	5.736	**.003**
	2nd Generation Learner	305	18.82	3.379			
	3rd and 4th Generation Learner	71	19.04	3.178			
	Total	531	19.16	3.240	530		
SS	1st Generation Learner	155	15.83	2.515	2/528	8.036	**.000**
	2nd Generation Learner	305	15.02	2.335			
	3rd and 4th Generation Learner	71	15.90	2.198			
	Total	531	15.37	2.403	530		
LSS	1st Generation Learner	155	15.89	2.272	2/528	8.099	**.000**
	2nd Generation Learner	305	14.97	2.562			
	3rd and 4th Generation Learner	71	15.70	2.405			
	Total	531	15.34	2.493	530		
LS	1st Generation Learner	155	8.17	1.349	2/528	4.856	**.008**
	2nd Generation Learner	305	7.76	1.378			
	3rd and 4th Generation Learner	71	7.83	1.195			
	Total	531	7.89	1.356	530		

Table No. 5.7.5.1 (B): Showing generation of learners-wise multiple comparisons OS, PS, SS, LSS, and LS

Dependent Variable	(I) generation of learners	(J) generation of learners	Mean Difference (I-J)	Std. Error	Sig.
OS	1st Generation Learner	2nd Generation Learner	3.207*	.778	**.000**
		3rd and 4th Generation Learner	1.302	1.130	.250
	2nd Generation Learner	3rd and 4th Generation Learner	-1.905	1.039	.067
PS	1st Generation Learner	2nd Generation Learner	1.067*	.317	**.001**
		3rd and 4th Generation Learner	.848	.460	.066
	2nd Generation Learner	3rd and 4th Generation Learner	-.219	.423	.604
SS	1st Generation Learner	2nd Generation Learner	.809*	.234	**.001**
		3rd and 4th Generation Learner	-.076	.340	.824
	2nd Generation Learner	3rd and 4th Generation Learner	-.885*	.312	**.005**
LSS	1st Generation Learner	2nd Generation Learner	.920*	.243	**.000**
		3rd and 4th Generation Learner	.186	.352	.598
	2nd Generation Learner	3rd and 4th Generation Learner	-.734*	.324	**.024**
LS	1st Generation Learner	2nd Generation Learner	.410*	.133	**.002**

Dependent Variable	(I) generation of learners	(J) generation of learners	Mean Difference (I-J)	Std. Error	Sig.
		3rd and 4th Generation Learner	.343	.193	.076
	2nd Generation Learner	3rd and 4th Generation Learner	-.067	.177	.706

Interpretation

Table 5.7.5 represents the One-Way ANOVA results for OS, PS, SS, LSS, and LS based on the participants' generation of learning:

For OS, 1st-generation learners have the highest mean (59.78), compared to 2nd-generation learners (56.57) and 3rd and 4th-generation learners (58.48). The one-way ANOVA results ($F = 8.828$, $p = .000 < .05$) show a significant difference in OS among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.7.5.1] on OS show that the actual differences lie between 1st-generation learners and 2nd-generation learners ($p = .000 < 0.05$).

Further, for PS, 1st-generation learners have the highest mean (19.89), followed by 3rd and 4th-generation learners (19.04) and 2nd-generation learners (18.82). The one-way ANOVA results ($F = 5.736$, $p = .003 < .05$) show a significant difference in PS among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.7.5.1] on PS show that the actual differences lie between 1st-generation learners and 2nd-generation learners ($p = .001 < 0.05$).

Additionally, for SS, 3rd and 4th-generation learners have the highest mean (15.90), compared to 1st-generation learners (15.83) and 2nd-generation learners (15.02). The one-way ANOVA results ($F = 8.036$, $p = .000 < 0.05$) show a significant difference in SS among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.7.5.1] on SS show that the actual differences lie between 1st-generation learners and 2nd-generation learners ($p = .001 < 0.05$) and between 2nd-generation learners and 3rd and 4th-generation learners ($p = .005 < 0.05$).

Furthermore, for LSS, 1st-generation learners have the highest mean (15.89), followed by 3rd and 4th-generation learners (15.70) and 2nd-generation learners (14.97). The one-way

ANOVA results (F = 8.099, p = .000 < 0.05) show a significant difference in LSS among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.7.5.1] on LSS show that the actual differences lie between 1st-generation learners and 2nd-generation learners (p = .000 < 0.05) and between 2nd-generation learners and 3rd and 4th-generation learners (p = .024 < 0.05).

Regarding LS, 1st-generation learners have the highest mean (8.17), followed by 3rd and 4th-generation learners (7.83) and 2nd-generation learners (7.76). The one-way ANOVA results (F = 4.856, p = .008 < 0.05) show a significant difference in LS among tribal students regarding their generation of learning. Further, the multiple comparisons [see Table No. 5.7.5.1] on LS show that the actual differences lie between 1st-generation learners and 2nd-generation learners (p = .002 < 0.05).

$H_0$14: There is no significant difference in OS, PS, SS, LSS, and LS of tribal students in HE across mediums of instruction.

Table No. 5.7.6: Mediums of Instruction wise mean comparison of OS, PS, SS, LSS, and LS

Supports	Mediums of Instruction	N	M	SD	df	F	p
OS	Only Bengali	226	58.86	8.141		3.153	.025
	Only English	70	57.91	8.093	3/527		
	Bi-lingual	219	56.55	7.625			
	Tri-lingual	16	58.19	9.130			
	Total	531	57.76	8.004	530		
PS	Only Bengali	226	19.74	3.237		5.685	.001
	Only English	70	19.36	2.829	3/527		
	Bi-lingual	219	18.50	3.227			
	Tri-lingual	16	19.19	3.728			
	Total	531	19.16	3.240	530		
SS	Only Bengali	226	15.64	2.461		1.849	.137
	Only English	70	15.07	2.747	3/527		
	Bi-lingual	219	15.17	2.162			
	Tri-lingual	16	15.63	2.895			
	Total	531	15.37	2.403	530		
	Only Bengali	226	15.54	2.553		2.899	.035
	Only English	70	15.73	2.334	3/527		

Supports	Mediums of Instruction	N	M	SD	df	F	p
LSS	Bi-lingual	219	14.97	2.437			
	Tri-lingual	16	15.81	2.613			
	Total	531	15.34	2.493	530		
LS	Only Bengali	226	7.94	1.396	3/527	.660	.577
	Only English	70	7.76	1.345			
	Bi-lingual	219	7.91	1.324			
	Tri-lingual	16	7.56	1.315			
	Total	531	7.89	1.356	530		

Table No. 5.7.6.1: Mediums of instruction-wise multiple comparisons of OS, PS, SS, LSS, and LS

Dependent Variable	(I) Language Used for Instruction	(J) Language Used for Instruction	Mean Difference (I-J)	Std. Error	Sig.
OS	Only Bengali	Only English	.949	1.088	.384
		Bi-lingual	2.310*	.754	**.002**
		Tri-lingual	.675	2.058	.743
	Only English	Bi-lingual	1.362	1.092	.213
		Tri-lingual	-.273	2.205	.901
	Bi-lingual	Tri-lingual	-1.635	2.060	.428
PS	Only Bengali	Only English	.386	.437	.378
		Bi-lingual	1.241*	.303	**.000**
		Tri-lingual	.556	.827	.502
	Only English	Bi-lingual	.855	.439	.052
		Tri-lingual	.170	.886	.848
	Bi-lingual	Tri-lingual	-.685	.828	.408
SS	Only Bengali	Only English	.566	.328	.085
		Bi-lingual	.464*	.227	**.042**
		Tri-lingual	.012	.620	.984
	Only English	Bi-lingual	-.102	.329	.757
		Tri-lingual	-.554	.664	.405
	Bi-lingual	Tri-lingual	-.451	.621	.467
LSS	Only Bengali	Only English	-.189	.339	.578
		Bi-lingual	.572*	.235	**.015**
		Tri-lingual	-.273	.641	.671

Dependent Variable	(I) Language Used for Instruction	(J) Language Used for Instruction	Mean Difference (I-J)	Std. Error	Sig.
	Only English	Bi-lingual	.761*	.340	**.026**
		Tri-lingual	-.084	.687	.903
	Bi-lingual	Tri-lingual	-.844	.642	.189
LS	Only Bengali	Only English	.185	.186	.319
		Bi-lingual	.034	.129	.793
		Tri-lingual	.380	.351	.280
	Only English	Bi-lingual	-.152	.186	.417
		Tri-lingual	.195	.376	.605
	Bi-lingual	Tri-lingual	.346	.352	.325

Interpretation

Table 5.7.6 shows One-Way ANOVA results for OS, PS, SS, LSS, and LS concerning the participants' mediums of instruction

It shows that the mean OS of students in the Only Bengali medium of instruction (58.86) is the highest, compared to Tri-lingual (58.19), Only English (57.91), and Bi-lingual (56.55). The one-way ANOVA results ($F = 3.153$, $p = .025 < 0.05$) show a significant difference in the OS among tribal students based on their mediums of instruction. Further, the multiple comparisons [see Table No. 5.7.6.1] on OS show that the actual differences lie between tribal students in Only Bengali and Bi-lingual ($p = .002 < 0.05$).

However, the mean PS of students in the Only Bengali medium of instruction (19.74) is the highest, compared to Only English (19.36), Tri-lingual (19.19), and Bi-lingual (18.50). The one-way ANOVA results ($F = 5.685$, $p = .001 < 0.05$) show a statistically significant difference in the PS among tribal students concerning their mediums of instruction. Further, the multiple comparisons [see Table No. 5.7.6.1] on PS show that the actual differences lie between tribal students in Only Bengali and Bi-lingual ($p = .000 < 0.05$).

Moreover, the mean SS of students in the Only Bengali medium of instruction (15.64) is the highest, compared to Tri-lingual (15.63), Only English (15.07), and Bi-lingual (15.17). The one-way ANOVA results ($F = 1.849$, $p = .137 > 0.05$) show no significant difference in the SS among tribal students concerning their mediums of instruction. However, the multiple comparisons [see Table No. 5.7.6.1] on SS show significant differences between Only Bengali and Bi-lingual ($p = .042 < 0.05$).

Further, the mean LSS of students in the Tri-lingual medium of instruction (15.81) is the highest, compared to Only English (15.73), Only Bengali (15.54), and Bi-lingual (14.97). The one-way ANOVA results (F = 2.899, p = .035 < 0.05) show a significant difference in the LSS of tribal students concerning their mediums of instruction. Further, the multiple comparisons [see Table No. 5.7.6.1] on LSS show that the actual differences lie between Only Bengali and Bi-lingual (p = .015 < 0.05) and between Only English and Bi-lingual (p = .026 < 0.05).

Additionally, the mean LS of students in the Only Bengali medium of instruction (7.94) is the highest, compared to Bi-lingual (7.91), Only English (7.76), and Tri-lingual (7.56). The one-way ANOVA results (F = .660, p = .577 > 0.05) show no significant difference in the LS among tribal students concerning their mediums of instruction.

$H_0$15: Parents' educational qualifications have not significantly influenced OS, PS, SS, LSS, and LS among tribal students in HE.

Table No. 5.7.7: Father's educational qualification-wise mean comparison of OS, PS, SS, LSS, and LS

Supports	Father's educational qualification	N	M	SD	df	F	p
OS	Illiterate	67	60.42	7.347	5/525	6.653	.000
	Primary (i-v)	61	58.98	7.671			
	Upper Primary (vi-viii)	78	60.06	7.283			
	Secondary (ix-x)	138	56.70	7.771			
	Higher Secondary (xi-xii)	114	54.99	7.558			
	Graduate/ Postgraduate/ Others	73	58.21	9.150			
	Total	531	57.76	8.004	530		
	Illiterate	67	20.03	2.876		5.555	.000
	Primary (i-v)	61	19.61	2.818			

Supports	Father's educational qualification	N	M	SD	df	F	p
PS	Upper Primary (vi-viii)	78	20.14	2.710	5/525		
	Secondary (ix-x)	138	18.88	3.441			
	Higher Secondary (xi-xii)	114	18.09	3.175			
	Graduate/ Postgraduate/ Others	73	19.16	3.602			
	Total	531	19.16	3.240	530		
SS	Illiterate	67	15.91	2.656	5/525	3.428	**.005**
	Primary (i-v)	61	15.79	2.491			
	Upper Primary (vi-viii)	78	15.87	2.332			
	Secondary (ix-x)	138	15.02	2.288			
	Higher Secondary (xi-xii)	114	14.86	2.090			
	Graduate/ Postgraduate/ Others	73	15.45	2.625			
	Total	531	15.37	2.403	530		
	Illiterate	67	16.24	1.978	5/525	7.891	**.000**
	Primary (i-v)	61	15.87	2.540			
	Upper Primary (vi-viii)	78	15.96	2.344			
	Secondary (ix-x)	138	15.07	2.354			

Supports	Father's educational qualification	N	M	SD	df	F	p
LSS	Higher Secondary (xi-xii)	114	14.32	2.476			
	Graduate/ Postgraduate/ Others	73	15.48	2.744			
	Total	531	15.34	2.493	530		
LS	Illiterate	67	8.24	1.244	5/525	2.644	**.023**
	Primary (i-v)	61	7.72	1.462			
	Upper Primary (vi-viii)	78	8.09	1.461			
	Secondary (ix-x)	138	7.72	1.388			
	Higher Secondary (xi-xii)	114	7.72	1.171			
	Graduate/ Postgraduate/ Others	73	8.11	1.380			
	Total	531	7.89	1.356	530		

Table No. 5.7.7.1: Father's educational qualifications wise multiple comparisons of OS, PS, SS, LSS, and LS

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
OS	Illiterate	Primary (i-v)	1.434	1.380	.299
		Upper Primary (vi-viii)	.354	1.299	.785
		Secondary (ix-x)	3.722*	1.161	.001
		Higher Secondary (xi-xii)	5.427*	1.201	.000

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Graduate/ Postgraduate/ Others	2.212	1.320	.094
	Primary (i-v)	Upper Primary (vi-viii)	-1.080	1.333	.418
		Secondary (ix-x)	2.288	1.199	.057
		Higher Secondary (xi-xii)	3.992*	1.237	.001
		Graduate/ Postgraduate/ Others	.778	1.353	.565
	Upper Primary (vi-viii)	Secondary (ix-x)	3.368*	1.105	.002
		Higher Secondary (xi-xii)	5.073*	1.146	.000
		Graduate/ Postgraduate/ Others	1.859	1.270	.144
	Secondary (ix-x)	Higher Secondary (xi-xii)	1.704	.987	.085
		Graduate/ Postgraduate/ Others	-1.510	1.129	.182
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-3.214*	1.169	.006
PS	illiterate	Primary (i-v)	.423	.561	.451
		Upper Primary (vi-viii)	-.111	.528	.833
		Secondary (ix-x)	1.146*	.472	.016
		Higher Secondary (xi-xii)	1.942*	.488	.000
		Graduate/ Postgraduate/ Others	.865	.537	.107

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
	Primary (i-v)	Upper Primary (vi-viii)	-.534	.542	.325
		Secondary (ix-x)	.722	.488	.139
		Higher Secondary (xi-xii)	1.519*	.503	.003
		Graduate/ Postgraduate/ Others	.442	.550	.422
	Upper Primary (vi-viii)	Secondary (ix-x)	1.257*	.449	.005
		Higher Secondary (xi-xii)	2.053*	.466	.000
		Graduate/ Postgraduate/ Others	.977	.517	.059
	Secondary (ix-x)	Higher Secondary (xi-xii)	.796*	.401	.048
		Graduate/ Postgraduate/ Others	-.280	.459	.542
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-1.077*	.476	.024
SS	Illiterate	Primary (i-v)	.124	.420	.769
		Upper Primary (vi-viii)	.039	.396	.922
		Secondary (ix-x)	.889*	.354	.012
		Higher Secondary (xi-xii)	1.051*	.366	.004
		Graduate/ Postgraduate/ Others	.458	.402	.255
		Upper Primary (vi-viii)	-.085	.406	.834
		Secondary (ix-x)	.765*	.365	.037

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
	Primary (i-v)	Higher Secondary (xi-xii)	.927*	.377	.014
		Graduate/ Postgraduate/ Others	.335	.412	.417
	Upper Primary (vi-viii)	Secondary (ix-x)	.850*	.337	.012
		Higher Secondary (xi-xii)	1.012*	.349	.004
		Graduate/ Postgraduate/ Others	.420	.387	.278
	Secondary (ix-x)	Higher Secondary (xi-xii)	.162	.301	.590
		Graduate/ Postgraduate/ Others	-.430	.344	.211
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-.592	.356	.097
LSS	Illiterate	Primary (i-v)	.370	.427	.387
		Upper Primary (vi-viii)	.277	.402	.491
		Secondary (ix-x)	1.166*	.360	.001
		Higher Secondary (xi-xii)	1.914*	.372	.000
		Graduate/ Postgraduate/ Others	.759	.409	.064
	Primary (i-v)	Upper Primary (vi-viii)	-.093	.413	.822
		Secondary (ix-x)	.796*	.371	.032
		Higher Secondary (xi-xii)	1.544*	.383	.000

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Graduate/ Postgraduate/ Others	.389	.419	.353
	Upper Primary (vi-viii)	Secondary (ix-x)	.889*	.342	.010
		Higher Secondary (xi-xii)	1.637*	.355	.000
		Graduate/ Postgraduate/ Others	.482	.393	.221
	Secondary (ix-x)	Higher Secondary (xi-xii)	.748*	.306	.015
		Graduate/ Postgraduate/ Others	-.407	.350	.245
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-1.155*	.362	.002
LS	Illiterate	Primary (i-v)	.517*	.238	.030
		Upper Primary (vi-viii)	.149	.224	.506
		Secondary (ix-x)	.521*	.200	.010
		Higher Secondary (xi-xii)	.520*	.207	.012
		Graduate/ Postgraduate/ Others	.129	.228	.571
	Primary (i-v)	Upper Primary (vi-viii)	-.368	.230	.110
		Secondary (ix-x)	.004	.207	.985
		Higher Secondary (xi-xii)	.002	.213	.992
		Graduate/ Postgraduate/ Others	-.388	.233	.097
		Secondary (ix-x)	.372	.191	.051

Dependent Variable	(I) Father's Educational Qualification	(J) Father's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
	Upper Primary (vi-viii)	Higher Secondary (xi-xii)	.370	.198	.062
		Graduate/ Postgraduate/ Others	-.020	.219	.928
	Secondary (ix-x)	Higher Secondary (xi-xii)	-.002	.170	.991
		Graduate/ Postgraduate/ Others	-.392*	.195	.045
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-.390	.202	.054

Interpretation

Table 5.7.7 representing the One-Way ANOVA results for OS, PS, SS, LSS, and LS concerning the participants' fathers' educational qualifications:

The mean OS of students whose fathers are Illiterate (60.42) is the highest, compared to Upper Primary (60.06), Primary (58.98), Graduate/Postgraduate/Others (58.21), Secondary (56.70), and Higher Secondary (54.99). The one-way ANOVA results ($F = 6.653$, $p = .000 < 0.05$) show a significant difference in the OS among tribal students based on their father's educational qualifications. Further, the multiple comparisons [see Table No.5.7.7.1] on OS show that the actual differences lie between tribal students whose fathers had Secondary and Illiterate ($p = .001 < 0.05$), Higher Secondary and Illiterate ($p = .000 < 0.05$), Primary and Higher Secondary ($p = .001 < 0.05$), Upper Primary and Secondary ($p = .002 < 0.05$), Upper Primary and Higher Secondary ($p = .000 < 0.05$) and Higher Secondary and Graduate/Postgraduate/Others ($p = .006 < 0.05$).

However, the mean PS of students whose fathers are Upper Primary (20.14) is the highest, compared to Illiterate (20.03), Primary (19.61), Graduate/Postgraduate/Others (19.16), Secondary (18.88), and Higher Secondary (18.09). The one-way ANOVA results ($F = 5.555$, $p = .000 < 0.05$) show a statistically significant difference in the PS among tribal students concerning their fathers' educational qualifications. Further, the multiple comparisons [see

Table No. 5.7.7.1] on PS show that the actual differences lie between tribal students whose fathers were Secondary and Illiterate ($p = .016 < 0.05$), Higher Secondary and Illiterate ($p = .000 < 0.05$), Primary and Higher Secondary ($p = .003 < 0.05$), Upper Primary and Secondary ($p = .005 < 0.05$) , Upper Primary and Higher Secondary ($p = .000 < 0.05$), Secondary and Higher Secondary ($p = .048 < 0.05$), and Higher Secondary and Graduate/Postgraduate/Others ($p = .024 < 0.05$).

Moreover, the mean SS of students whose fathers are Illiterate (15.91) is the highest, compared to Upper Primary (15.87), Primary (15.79), Graduate/Postgraduate/Others (15.45), Secondary (15.02), and Higher Secondary (14.86). The one-way ANOVA results ($F = 3.428$, $p = .005 < 0.05$) show a statistically significant difference in the SS among tribal students concerning their fathers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.7.1] on SS show that the actual differences lie among tribal students whose fathers were Secondary and Illiterate ($p = .012 < 0.05$), Higher Secondary and Illiterate ($p = .004 < 0.05$), Primary and Secondary ($p = .037 < 0.05$), Primary and Higher Secondary ($p = .014 < 0.05$) Upper Primary and Secondary ($p = .012 < 0.05$), and Upper Primary and Higher Secondary ($p = .004 < 0.05$).

Further, the mean LSS of students whose fathers are Illiterate (16.24) is the highest, compared to Upper Primary (15.96), Primary (15.87), Graduate/Postgraduate/Others (15.48), Secondary (15.07), and Higher Secondary (14.32). The one-way ANOVA results ($F = 7.891$, $p = .000 < 0.05$) show a statistically significant difference in the LSS among tribal students concerning their fathers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.7.1] on LSS show that the actual differences lie among tribal students whose fathers were Secondary and Illiterate ($p = .001 < 0.05$), Higher Secondary and Illiterate ($p = .000 < 0.05$), Higher Secondary and Illiterate ($p = .000 < 0.05$), Upper Primary and Secondary ($p = .010 < 0.05$), Upper Primary and Higher Secondary ($p = .000 < 0.05$), Secondary Higher Secondary ($p = .015 < 0.05$), and Higher Secondary and Graduate/Postgraduate/Others ($p = .002 < 0.05$).

Additionally, the mean LS of students whose fathers are Illiterate (8.24) is the highest, compared to Graduate/Postgraduate/Others (8.11), Upper Primary (8.09), Secondary (7.72), Primary (7.72), and Higher Secondary (7.72). The one-way ANOVA results ($F = 2.644$, $p = .023 < 0.05$) show a statistically significant difference in the LS among tribal students concerning their fathers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.7.1] on LS show that the actual differences lie among tribal students whose

fathers were Illiterate and Primary (p = .030 < 0.05), Illiterate and Secondary (p = .010 < 0.05), Illiterate and Higher Secondary (p = .012 < 0.05), and Secondary and Graduate/Postgraduate/Others (p = .045 < 0.05).

Table No. 5.7.8: Mother's educational qualification-wise mean comparison of OS, PS, SS, LSS, and LS

Supports	Mother's Educational Qualification	N	Supports				
			M	SD	df	F	p
OS	Illiterate	141	59.83	7.204	5/525	9.283	.000
	Primary (i-v)	96	59.98	7.281			
	Upper Primary (vi-viii)	125	57.49	8.203			
	Secondary (ix-x)	104	54.06	7.946			
	Higher Secondary (xi-xii)	48	55.60	8.439			
	Graduate/ Postgraduate/ Others	17	58.94	6.628			
	Total	531	57.76	8.004	530		
PS	Illiterate	141	19.97	2.733	5/525	9.384	.000
	Primary (i-v)	96	20.02	2.873			
	Upper Primary (vi-viii)	125	19.22	3.400			
	Secondary (ix-x)	104	17.74	3.373			
	Higher Secondary (xi-xii)	48	17.88	3.480			
	Graduate/ Postgraduate/ Others	17	19.59	2.526			
	Total	531	19.16	3.240	530		
SS	Illiterate	141	15.76	2.605	5/525	3.491	.004
	Primary (i-v)	96	15.88	2.282			
	Upper Primary (vi-viii)	125	15.21	2.326			
	Secondary (ix-x)	104	14.75	2.158			
	Higher Secondary (xi-xii)	48	14.94	2.409			

Supports	Mother's Educational Qualification	N	Supports				
			M	SD	df	F	p
	Graduate/ Postgraduate/ Others	17	15.53	2.427			
	Total	531	15.37	2.403	530		
LSS	Illiterate	141	16.09	2.017	5/525	11.135	.000
	Primary (i-v)	96	16.06	2.214			
	Upper Primary (vi-viii)	125	15.06	2.590			
	Secondary (ix-x)	104	14.10	2.668			
	Higher Secondary (xi-xii)	48	14.88	2.598			
	Graduate/ Postgraduate/ Others	17	15.88	1.933			
	Total	531	15.34	2.493	530		
LS	Illiterate	141	8.01	1.355	5/525	2.583	.025
	Primary (i-v)	96	8.02	1.392			
	Upper Primary (vi-viii)	125	8.00	1.403			
	Secondary (ix-x)	104	7.47	1.329			
	Higher Secondary (xi-xii)	48	7.92	1.182			
	Graduate/ Postgraduate/ Others	17	7.94	1.088			
	Total	531	7.89	1.356	530		

Table No. 5.7.8.1: Mother's educational qualifications wise multiple comparisons of OS, PS, SS, LSS, and LS

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
OS	Illiterate	Primary (i-v)	-.149	1.020	.884
		Upper Primary (vi-viii)	2.342*	.947	.014
		Secondary (ix-x)	5.772*	.996	.000
		Higher Secondary (xi-xii)	4.226*	1.288	.001

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Graduate/ Postgraduate/ Others	.889	1.979	.654
	Primary (i-v)	Upper Primary (vi-viii)	2.491*	1.046	.018
		Secondary (ix-x)	5.921*	1.091	.000
		Higher Secondary (xi-xii)	4.375*	1.363	.001
		Graduate/ Postgraduate/ Others	1.038	2.028	.609
	Upper Primary (vi-viii)	Secondary (ix-x)	3.430*	1.023	.001
		Higher Secondary (xi-xii)	1.884	1.309	.151
		Graduate/ Postgraduate/ Others	-1.453	1.993	.466
	Secondary (ix-x)	Higher Secondary (xi-xii)	-1.546	1.345	.251
		Graduate/ Postgraduate/ Others	-4.883*	2.017	.016
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-3.337	2.176	.126
PS	Illiterate	Primary (i-v)	-.049	.413	.905
		Upper Primary (vi-viii)	.756*	.383	.049
		Secondary (ix-x)	2.231*	.403	.000
		Higher Secondary (xi-xii)	2.097*	.521	.000
		Graduate/ Postgraduate/ Others	.383	.801	.632

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
	Primary (i-v)	Upper Primary (vi-viii)	.805	.423	.058
		Secondary (ix-x)	2.280*	.441	.000
		Higher Secondary (xi-xii)	2.146*	.551	.000
		Graduate/ Postgraduate/ Others	.433	.821	.598
	Upper Primary (vi-viii)	Secondary (ix-x)	1.476*	.414	.000
		Higher Secondary (xi-xii)	1.341*	.530	.012
		Graduate/ Postgraduate/ Others	-.372	.806	.644
	Secondary (ix-x)	Higher Secondary (xi-xii)	-.135	.544	.805
		Graduate/ Postgraduate/ Others	-1.848*	.816	.024
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-1.713	.880	.052
SS	Illiterate	Primary (i-v)	-.116	.314	.712
		Upper Primary (vi-viii)	.551	.292	.060
		Secondary (ix-x)	1.009*	.307	.001
		Higher Secondary (xi-xii)	.821*	.397	.039
		Graduate/ Postgraduate/ Others	.229	.610	.707
	Primary (i-v)	Upper Primary (vi-viii)	.667*	.322	.039
		Secondary (ix-x)	1.125*	.336	.001

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Higher Secondary (xi-xii)	.938*	.420	.026
		Graduate/ Postgraduate/ Others	.346	.625	.581
	Upper Primary (vi-viii)	Secondary (ix-x)	.458	.315	.147
		Higher Secondary (xi-xii)	.271	.403	.503
		Graduate/ Postgraduate/ Others	-.321	.614	.601
	Secondary (ix-x)	Higher Secondary (xi-xii)	-.188	.414	.651
		Graduate/ Postgraduate/ Others	-.779	.621	.210
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-.592	.670	.378
LSS	Illiterate	Primary (i-v)	.030	.315	.925
		Upper Primary (vi-viii)	1.028*	.293	.000
		Secondary (ix-x)	1.996*	.308	.000
		Higher Secondary (xi-xii)	1.217*	.398	.002
		Graduate/ Postgraduate/ Others	.210	.611	.732
	Primary (i-v)	Upper Primary (vi-viii)	.999*	.323	.002
		Secondary (ix-x)	1.966*	.337	.000
		Higher Secondary (xi-xii)	1.188*	.421	.005

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
		Graduate/ Postgraduate/ Others	.180	.627	.774
	Upper Primary (vi-viii)	Secondary (ix-x)	.968*	.316	.002
		Higher Secondary (xi-xii)	.189	.404	.640
		Graduate/ Postgraduate/ Others	-.818	.616	.184
	Secondary (ix-x)	Higher Secondary (xi-xii)	-.779	.416	.061
		Graduate/ Postgraduate/ Others	-1.786*	.623	.004
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-1.007	.672	.135
LS	Illiterate	Primary (i-v)	-.014	.178	.939
		Upper Primary (vi-viii)	.007	.165	.966
		Secondary (ix-x)	.536*	.174	.002
		Higher Secondary (xi-xii)	.090	.225	.688
		Graduate/ Postgraduate/ Others	.066	.346	.849
	Primary (i-v)	Upper Primary (vi-viii)	.021	.183	.909
		Secondary (ix-x)	.550*	.191	.004
		Higher Secondary (xi-xii)	.104	.238	.662
		Graduate/ Postgraduate/ Others	.080	.354	.822
		Secondary (ix-x)	.529*	.179	.003

Dependent Variable	(I) Mother's Educational Qualification	(J) Mother's Educational Qualification	Mean Difference (I-J)	Std. Error	Sig.
	Upper Primary (vi-viii)	Higher Secondary (xi-xii)	.083	.229	.716
		Graduate/ Postgraduate/ Others	.059	.348	.866
	Secondary (ix-x)	Higher Secondary (xi-xii)	-.446	.235	.058
		Graduate/ Postgraduate/ Others	-.470	.352	.183
	Higher Secondary (xi-xii)	Graduate/ Postgraduate/ Others	-.025	.380	.949

Interpretation

Table No. 5.7.8 representing One-Way ANOVA results for OS, PS, SS, LSS, and LS among tribal students based on their mothers' educational qualifications. Tribal students whose mothers are Primary have the highest mean in OS (59.98), followed by those with Illiterate (59.83), Graduate/Postgraduate/Others (58.94), Upper Primary (57.49), Higher Secondary (55.60), and Secondary (54.06). The one-way ANOVA results ($F = 9.283$, $p = .000 < .05$) show a significant difference in OS based on their mothers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.8.1] on OS show that the actual differences lie between Illiterate and Upper Primary ($p = .014 < 0.05$), Illiterate and Secondary ($p = .000 < 0.05$), Illiterate and Higher Secondary ($p = .001 < 0.05$), Primary and Upper Primary ($p = .018 < 0.05$), Primary and Secondary ($p = .000 < 0.05$), Primary and Higher Secondary ($p = .001 < 0.05$), Upper Primary and Secondary ($p = .001 < 0.05$), and Secondary and Graduate/Postgraduate/Others ($p = .016 < 0.05$).

For PS, tribal students whose mothers have a Primary education have the highest mean (20.02), followed by those are Illiterate (19.97), Graduate/Postgraduate/Others (19.59), Upper Primary (19.22), Higher Secondary (17.88), and Secondary (17.74). The one-way ANOVA results ($F = 9.384$, $p = .000 < .05$) show a significant difference in PS based on their mothers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.8.1] on PS

show that the actual differences lie between Illiterate and Upper Primary ($p = .049 < 0.05$), Illiterate and Secondary ($p = .000 < 0.05$), Illiterate and Higher Secondary ($p = .000 < 0.05$), Primary to Secondary ($p = .000 < 0.05$), Primary to Higher Secondary ($p = .000 < 0.05$), Upper Primary and Secondary ($p = .000 < 0.05$), Upper Primary and Higher Secondary ($p = .012 < 0.05$), and Secondary and Graduate/Postgraduate/Others ($p = .024 < 0.05$).

For SS, tribal students whose mothers are Primary have the highest mean (15.88), followed by Illiterate (15.76), Graduate/Postgraduate/Others (15.53), Upper Primary (15.21), Higher Secondary (14.94), and Secondary (14.75). The one-way ANOVA results ($F = 3.491$, $p = .004 < .05$) show a significant difference in SS based on their mothers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.8.1] on SS show that the actual differences lie between Illiterate and Secondary ($p = .001 < 0.05$), Illiterate and Higher Secondary ($p = .039 < 0.05$), Primary and Upper primary ($p = .039 < 0.05$), Primary and Secondary ($p = .001 < 0.05$), Primary and Higher Secondary ($p = .026 < 0.05$).

For LSS, tribal students whose mothers are Illiterate have the highest mean (16.09), followed by Primary (16.06), Graduate/Postgraduate/Others (15.88), Upper Primary (15.06), Higher Secondary (14.88), and Secondary (14.10). The one-way ANOVA results ($F = 11.135$, $p = .000 < .05$) show a significant difference in LSS based on their mothers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.8.1] on LSS show that the actual differences lie between Illiterate and Upper Primary ($p = .000 < 0.05$), Illiterate and Secondary ($p = .000 < 0.05$), Illiterate and Higher Secondary ($p = .002 < 0.05$), Primary and Upper Primary ($p = .002 < 0.05$), Primary and Secondary ($p = .000 < 0.05$), Primary and Higher Secondary ($p = .005 < 0.05$), and Secondary and Graduate/Postgraduate/Others ($p = .004 < 0.05$).

For LS, tribal students whose mothers are Primary have the highest mean (8.02), followed by Illiterate (8.01), Upper Primary (8.00), Graduate/Postgraduate/Others (7.94), Higher Secondary (7.92), and Secondary (7.47). The one-way ANOVA results ($F = 2.583$, $p = .025 < .05$) show a significant difference in LS based on their mothers' educational qualifications. Further, the multiple comparisons [see Table No. 5.7.8.1] on LS show that the actual differences lie between Illiterate and Secondary ($p = .002 < 0.05$), Primary and Secondary ($p = .004 < 0.05$), and Upper Primary and Secondary ($p = .003 < 0.05$).

$H_0$16: There is no statistically significant variation in OS, PS, SS, LSS, and LS among tribal students in HE across family income.

Table No. 5.7.9: Family monthly income-wise mean comparison of OS, PS, SS, LSS, and LS

Supports	Family Monthly Income	N	M	SD	df	F	*P*
OS	Up to 6174	299	57.83	7.910	5/525	.605	.696
	6175-18496	111	57.29	7.825			
	18497-30830	44	57.48	9.159			
	30831-46128	30	59.80	9.894			
	46129-61662	21	58.38	5.277			
	61663 and above	26	56.65	7.424			
	Total	531	57.76	8.004	530		
PS	Up to 6174	299	19.21	3.156	5/525	1.046	.390
	6175-18496	111	18.80	3.071			
	18497-30830	44	18.93	3.818			
	30831-46128	30	20.13	4.015			
	46129-61662	21	19.76	2.587			
	61663 and above	26	18.92	3.310	530		
SS	Total	531	19.16	3.240	5/525	.586	.711
	Up to 6174	299	15.42	2.461			
	6175-18496	111	15.30	2.326			
	18497-30830	44	15.48	2.328			
	30831-46128	30	15.33	2.893			
	46129-61662	21	15.76	1.868			
	61663 and above	26	14.69	1.975	530		
LSS	Total	531	15.37	2.403	5/525	.819	.536
	Up to 6174	299	15.31	2.461			
	6175-18496	111	15.23	2.572			
	18497-30830	44	15.14	2.841			
	30831-46128	30	16.20	2.683			

Supports	Family Monthly Income	N	M	SD	df	F	*P*
	46129-61662	21	15.33	2.221			
	61663 and above	26	15.38	1.791	530		
LS	Total	531	15.34	2.493	5/525	.714	.613
	Up to 6174	299	7.89	1.373			
	6175-18496	111	7.95	1.310			
	18497-30830	44	7.93	1.500			
	30831-46128	30	8.13	1.167			
	46129-61662	21	7.52	1.209			
	61663 and above	26	7.65	1.441			
	Total	531	7.89	1.356	530		

Interpretation

Table 5.7.9 presents the One-Way ANOVA results for OS, PS, SS, LSS, and LS among tribal students based on their family monthly income.

The results indicate that tribal students with a family monthly income of 30,831-46,128 have the highest mean in OS (59.80), followed by those in the income brackets of 46,129-61,662 (58.38), up to 6,174 (57.83), 18,497-30,830 (57.48), 6,175-18,496 (57.29), with the lowest mean OS score in the 61,663 and above income group (56.65). The one-way ANOVA results ($F = 0.605$, $p = .696 > .05$) show no significant difference in OS based on their family monthly income.

For PS, tribal students with a family monthly income of 30,831-46,128 have the highest mean (20.13), followed by those in the income ranges of 46,129-61,662 (19.76), up to 6,174 (19.21), 18,497-30,830 (18.93), 61,663 and above (18.92), and 6,175-18,496 (18.80). The one-way ANOVA results ($F = 1.046$, $p = .390 > .05$) show no significant difference in PS based on their family monthly income.

For SS, tribal students with a family monthly income of 46,129-61,662 have the highest mean (15.76), followed by those in the income ranges of 18497-30830 (15.48), up to 6174 (15.42), 6175-18496 (15.30), 30831-46128 (15.33), and the lowest mean SS score in the 61663 and

above income group (14.69). The one-way ANOVA results (F = 0.586, p = .711 > .05) show no significant difference in SS based on their family monthly income.

For LSS, tribal students with a family monthly income of 30,831-46,128 have the highest mean (16.20), followed by those in the income ranges of 61,663 and above (15.38), 46,129-61,662 (15.33), up to 6,174 (15.31), 6,175-18,496 (15.23), and the lowest mean LSS score in the 18,497-30,830 income group (15.14). The one-way ANOVA results (F = 0.819, p = .536 > .05) show no significant difference in LSS based on their family monthly income.

For LS, tribal students with a family monthly income of 30,831-46,128 have the highest mean (8.13), followed by those in the income ranges of 6,175-18,496 (7.95), up to 6,174 (7.89), 18,497-30,830 (7.93), 61,663 and above (7.65), and the lowest mean LS score in the 46,129-61,662 income group (7.52). The one-way ANOVA results (F = 0.714, p = .613 > .05) show no significant difference in LS based on their family monthly income.

5.8.0. Association between OS, PS, SS, LSS, LS and OC, PC, SC, LSC, LC among tribal higher education students in West Bengal

$H_0$17: There is no significant association between OC, PC, SC, LSC, LC and, OS, PS, SS, LSS, and LS among tribal students in HE.

Table no. 5.8.1: Correlation between OS, PS, SS, LSS, LS, and OC, PC, SC, LSC, and LC

		OC	PC	SC	LSC	LC
OS	Pearson Correlation	-.295**	-.304**	-.303**	-.168**	-.218**
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	531	531	531	531	531
PS	Pearson Correlation	-.285**	-.309**	-.313**	-.117**	-.220**
	Sig. (2-tailed)	.000	.000	.000	.007	.000
	N	531	531	531	531	531
SS	Pearson Correlation	-.215**	-.199**	-.211**	-.173**	-.148**
	Sig. (2-tailed)	.000	.000	.000	.000	.001
	N	531	531	531	531	531
LSS	Pearson Correlation	-.356**	-.366**	-.337**	-.220**	-.276**

		OC	PC	SC	LSC	LC
	Sig. (2-tailed)	.000	.000	.000	.000	.000
	N	531	531	531	531	531
LS	Pearson Correlation	-.022	-.031	-.044	-.004	.011
	Sig. (2-tailed)	.618	.476	.310	.928	.807
	N	531	531	531	531	531

Interpretation

Table 5.8.1 displays the correlation between OS, PS, SS, LSS, and LS with OC, PC, SC, LSC, and LC among tribal students in higher education.

The results show a low negative but significant correlation between OS and OC (r = -0.295, p = 0.000), OS and PC (r = -0.304, p = 0.000), OS and SC (r = -0.303, p = 0.000), OS and LSC (r = -0.168, p = 0.000), and OS and LC (r = -0.218, p = 0.000). Similarly, a low negative but significant correlation is found between PS and OC (r = -0.285, p = 0.000), PS and PC (r = -0.309, p = 0.000), PS and SC (r = -0.313, p = 0.000), PS and LSC (r = -0.117, p = 0.007), and PS and LC (r = -0.220, p = 0.000).

For SS, a low negative but significant correlation is OC served with OC (r = -0.215, p = 0.000), PC (r = -0.199, p = 0.000), SC (r = -0.211, p = 0.000), LSC (r = -0.173, p = 0.000), and LC (r = -0.148, p = 0.001). LSS also shows a low negative but significant correlation with OC (r = -0.356, p = 0.000), PC (r = -0.366, p = 0.000), SC (r = -0.337, p = 0.000), LSC (r = -0.220, p = 0.000), and LC (r = -0.276, p = 0.000).

In contrast, LS shows no significant correlation with OC (r = -0.022, p = 0.618), PC (r = -0.031, p = 0.476), SC (r = -0.044, p = 0.310), LSC (r = -0.004, p = 0.928), and LC (r = 0.011, p = 0.807). These results indicate significant negative correlations between various supports and challenges, except for the relationship between Language Supports (LS) and other obstacles, which are not substantial.

5.9.0. Effect and Potential Predictiveness of OS on Explaining the Variance in OC among the tribal students in HE

$H_0$18: OS does not significantly explain the variance in OC among tribal students in HE.

Table No. 5.9.1: Effect of OS on OC

Model Summary						
Model	R	R Square	Adjusted R2	SE of Estimate		
1	.295[a]	.087	.085	15.421		
ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11947.797	1	11947.797	50.241	.000[b]
	Residual	125801.359	529	237.810		
	Total	137749.156	530			
a. Dependent Variable: OC, b. Predictors: OS						
Coefficients						
Model		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	93.644	4.880		19.189	.000
	Overall Support	-.593	.084	-.295	-7.088	.000

Interpretation

Table 5.9.1 represents the regression analysis results where OC is the dependent variable, and OS is the independent variable among tribal HE students. The model summary indicates a multiple correlation coefficient of .295 (R), suggesting a moderate relationship between OS and OC. The R^2 value of .087 and Adjusted R^2 of .085 imply that approximately 8.7% of the variation in OC can be explained by OS. Further, the ANOVA results confirm that this regression model is statistically significant (F = 50.241, p = .000), indicating that OS is a significant predictor of OC.

Furthermore, the coefficients table shows that OS is a significant negative predictor of OC (β = -0.295, t = -7.088, p = .000). This suggests that an increase in OS leads to a significant decrease in OC among tribal HE students. The constant coefficient remains significant (t = 19.189, p = .000).

5.10.0. Combine Effect and Potential Predictiveness of PS, SS, LSS, LS on Explaining the Variance in OC among the tribal HE students in WB

$H_0$19: The combined effect of PS, SS, LS, and LSS does not significantly explain the variance in OC among tribal students in HE.

Table No. 5.10.1: Effect of PS, SS, LSS, and LS on OC

Model Summary				
Model	R	R Square	Adjusted R2	SE of Estimate
1	.420[a]	.176	.170	14.686

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	24299.704	4	6074.926	28.166	.000[b]
	Residual	113449.452	526	215.683		
	Total	137749.156	530			

a. Dependent Variable: OC, b. Predictors: (Constant), LS, SS, PS, LSS

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	88.130	4.763		18.501	.000
	PS	-.627	.302	-.126	-2.074	.039
	SS	-.200	.358	-.030	-.557	.578
	LSS	-2.543	.395	-.393	-6.446	.000
	LS	3.210	.582	.270	5.512	.000

Interpretation

Table 5.10.1 shows the regression analysis results, with OC as the dependent variable and LS, SS, PS, and LSS as the independent variables among tribal HE students. The model summary indicates a multiple correlation coefficient of .420 (R), indicating a moderate relationship between the predictors and OC. The R^2 value of .176 and Adjusted R^2 of .170 suggest that these supports can explain approximately 17.6% of the variation in OC.

The ANOVA results confirm the model's statistical significance (F = 28.166, p = .000), indicating that PS, SS, LSS, and LS are collectively significant predictors of OC.

The coefficients table reveals the individual impact of each predictor on OC. LSS is the strongest negative predictor of OC (β = -.393, t = -6.446, p = .000), indicating that as LSS increases, OC significantly decreases. LS is also a significant positive predictor of OC (β = .270, t = 5.512, p = .000). PS significantly negatively impacts OC (β = -.126, t = -2.074, p = .039). In contrast, SS does not significantly predict OC (β = -.030, t = -0.557, p = .578).

CHAPTER-VI

MAJOR FINDINGS AND CONCLUSION

CHAPTER-VI

MAJOR FINDINGS AND CONCLUSION

6.1.0. Introduction

The researcher reached the conclusive phase by examining and interpreting data from the previous chapter. This chapter concisely overviews the investigation's final or concluding elements. We have ensured that we have included all the essential aspects of the conclusion with great attention and caution. Otherwise, the research's practicality would be diminished, resulting in a loss of appeal. The content elements in this chapter are organised into five main categories: the study's significant findings, discussion and conclusion of the results, implications of the study, limitations, and suggestions for further study.

6.2.0. Major Findings of the Study

As per the analysis and interpretations, the following findings were drawn.

6.2.1. Pedagogical, Social, and Cognitive Challenges among Tribal Students in HE

Pedagogical Challenges

1. Most tribal students struggle with open communication with their teachers.
2. Most tribal students feel discomfort in responding to teachers' questions.
3. Most tribal students experience discomfort with modern technology-based learning methods.
4. Most tribal students experience difficulties understanding lesson content due to the lack of examples connected to their cultural background.
5. Tribal students experience hesitation in participating in class group discussions.
6. Most tribal students were experiencing difficulty understanding classroom topics.

Social Challenges

1. Most tribal students do not report facing unpleasant behaviour from their classmates.
2. Some tribal students experience being outsiders due to their heritage within their educational institutions.

3. Most tribal student's perceptions of stereotypes about academic ability are based on community.
4. Some tribal students struggle with language Challenges affecting classroom participation; a substantial group does not face this challenge.

Cognitive Challenges

Language Challenges

1. Most tribal students struggle with pronunciation and are mocked by classmates. A substantial group does not face this challenge.
2. Most tribal students struggle to understand English lectures and instructions.
3. Most tribal students are uncomfortable with non-native language instruction.
4. Most tribal students experienced difficulty understanding study materials due to linguistic challenges.

Learning Style Challenges

1. Most tribal students experience difficulty focusing on picture presentations.
2. Most tribal students dislike completing classroom worksheets.
3. Many tribal students feel uncomfortable with hands-on classroom activities; a substantial group does not experience this kind of discomfort.
4. Tribal students are not experiencing difficulties in concentrating on overhead projector lessons.
5. While many tribal students struggle to follow lessons taught through gestures, a substantial group does not face this challenge.

6.2.2. Pedagogical, Social, and Cognitive Supports among Tribal Students in HE

Pedagogical Supports

1. Most tribal students do not feel supported by their classmates when completing research or project work.
2. Most tribal students do not get teacher support in their academic challenges.
3. Teachers do not engage in tribal students' academic development.

4. Most tribal students do not get the necessary remedial classes to support their academic improvement.
5. Most tribal students feel their institution does not encourage peer learning and collaboration.

Social Supports

1. Most tribal students do not feel encouraged by their teachers to do good work, indicating a lack of positive reinforcement from teachers.
2. Most tribal students lack emotional support from their teachers during distress.
3. Most tribal students feel their classmates do not value their opinions.
4. Most tribal students do not have a good relationship with their teachers.

Language Support

1. Most tribal students do not feel the teacher's encouragement for open classroom communication.
2. Most tribal students do not feel the teacher's encouragement for language proficiency development.

Learning Style Support

1. Many tribal students do not feel encouraged and motivated by their peers when they accomplish something.
2. Most tribal students feel their teachers do not encourage them to think analytically.
3. Most tribal students do not find classroom interaction helpful in deeply understanding content.
4. Most tribal students feel their organisations do not help them build confidence and self-presentation skills.

6.2.3. Overall, Pedagogical, Social, and Cognitive Challenges Influence by Demographics among Tribal Students in HE

Overall Challenges

1. OC among tribal students show no significant differences based on gender.

2. OC among tribal students do not significantly differ based on academic level.
3. OC among tribal students differ significantly across different family structures.
4. A significant difference in OC among tribal students concerning their present residence.
5. OC among tribal students vary significantly according to their generation of learners.
6. The medium of instruction significantly differed in OC among tribal students.
7. OC among tribal students vary significantly depending on their father's educational qualifications.
8. OC among tribal students vary significantly based on their mother's educational qualifications.
9. OC among tribal students is significantly different based on their familial monthly income.

Pedagogical Challenges

1. PC among tribal students does not differ significantly by gender.
2. There are no significant variations in PC among tribal students related to their academic level.
3. Significant variations in PC are noted based on family structure.
4. There is a significant difference in PC among tribal students concerning their present residence.
5. There is no significant difference in PC among tribal students regarding their generation of learners.
6. Significant differences in PC among tribal students are observed based on the medium of instruction.
7. PC among tribal students shows a statistically significant difference related to their father's educational qualifications.
8. PC among tribal students shows a statistically significant difference concerning their mother's educational qualifications.

9. Significant differences in PC are observed when considering familial monthly income.

Social Challenges

1. There are no notable differences in SC among tribal students concerning their gender.
2. SC among tribal students shows significant differences based on academic level.
3. Family structure shows a significant influence on SC among tribal students.
4. SC among tribal students shows a significant difference concerning their present residence.
5. SC among tribal students have not significant differences across generations of learners.
6. SC among tribal students varies significantly concerning the medium of instruction.
7. Statistically significant differences are observed in SC among tribal students concerning their father's educational qualifications.
8. Significant differences in SC among tribal students are related to their mother's educational qualifications.
9. SC among tribal students varies significantly according to familial monthly income.

Language Challenges

1. There are no significant variations in LC among tribal students across genders.
2. There are no significant variations in LC among tribal students across the academic levels.
3. A statistically significant difference in LC is observed concerning family structure.
4. Significant differences in LC are found among tribal students concerning their present residence.
5. LC among tribal students differs significantly based on their generation of learners.
6. There are significant differences in LC among tribal students based on the medium of instruction.

7. LC among tribal students differs significantly based on their father's educational qualifications.
8. LC among tribal students does not differ significantly based on their mother's educational qualifications.
9. LC among tribal students differs significantly concerning familial monthly income.

Learning Style Challenges

1. LSC does not vary significantly among tribal students based on gender.
2. Significant differences in LSC are observed among tribal students based on their academic level.
3. Differences in LSC are significant when considering family structure.
4. LSC among tribal students exhibits a significant difference based on present residence.
5. A significant difference in LSC is noted among tribal students related to their generation of learners.
6. LSC among tribal students demonstrates a statistically significant difference concerning the medium of instruction.
7. LSC among tribal students exhibits a statistically significant difference in their father's educational qualifications.
8. LSC among tribal students shows a statistically significant difference concerning their mother's educational qualifications.
9. No significant difference in LSC is noted when considering familial monthly income.

6.2.4. Overall, Pedagogical, Social, Learning Style, and Language Supports Influenced by Demographics among Tribal Students in HE

Overall Support

1. No significant differences were found in OS among tribal HE students based on gender.

2. A significant difference existed in OS among tribal HE students based on their academic level.
3. Family Structure did not differ significantly in overall support among tribal HE students.
4. The present residence significantly influences OS among tribal HE students.
5. Significant differences in OS in generation learners among tribal HE students.
6. A significant difference existed in the OS among tribal HE students based on their medium of instruction.
7. There was a significant difference in the OS among tribal HE students based on their father's educational qualifications.
8. The results revealed a significant difference in OS among tribal HE students based on their mothers' educational qualifications.
9. No significant difference existed in OS based on their family monthly income among tribal HE students.

Pedagogical Support

1. No significant differences were found in PS among tribal HE students based on gender.
2. PS significantly differed among HE tribal students based on their course or academic level.
3. There were no significant differences in PS among tribal HE Students regarding their family structure.
4. A statistically significant difference was observed in PS among tribal HE students concerning their present residence.
5. Pedagogical supports varied significantly across generations of learners among tribal HE students in WB.
6. Significant differences were found in the pedagogical support of tribal HE students in WB across mediums of instruction.
7. Father’s educational qualifications significantly varied in PS among tribal HE students.

8. Significant differences were observed in PS among tribal HE students based on their mother's educational qualifications.
9. No significant differences in PS based on their family monthly income among tribal HE students.

Social Support

1. No significant differences existed in SS among tribal students based on gender.
2. No significant differences in SS among tribal HE students based on their academic level.
3. No significant results were found in SS among tribal HE students based on their family structure.
4. A significant difference was observed in SS among tribal HE students concerning their present residence.
5. A significant difference was found in SS among tribal HE students regarding their generation of learning.
6. No significant differences were observed in the SS among tribal HE students concerning their medium of instruction.
7. Social support was significantly associated with fathers' educational Qualifications of tribal HE students.
8. A significant difference was found in SS based on their mothers' educational qualifications among tribal HE students.
9. No significant differences in SS based on their family monthly income among tribal HE students.

Language Support

1. No significant differences were found in LS among tribal HE students based on gender.
2. Based on Tribal HE students' academic level, significant differences were found in LS.
3. No significant result was found in LS among tribal HE students based on their family structure.

4. A significant difference was observed in LS among tribal HE students regarding their present residence.
5. A significant difference existed in LS among tribal HE students regarding their generation of learning.
6. No significant differences were found in the LS among tribal HE students concerning their medium of instruction.
7. Language support was not significantly associated with fathers' educational qualifications of tribal HE students.
8. Mothers' educational qualifications significantly differed with LS among tribal students.
9. There were no significant differences in LS based on their family monthly income among tribal HE students.

Learning Style Support

1. No significant differences were found in LSS among tribal HE students based on gender.
2. Significant differences existed in LSS among tribal HE students based on their academic level.
3. There were no significant differences between tribal HE students and their family structure.
4. The present residence significantly influences LSS among tribal HE students.
5. A significant difference was observed in LSS among tribal HE students regarding their generation of learning.
6. Significant differences were observed in the LSS of tribal HE students concerning their medium of instruction.
7. The LSS showed a statistically significant difference among tribal HE students regarding their fathers' educational qualifications.
8. A significant difference was observed in LSS based on their mothers' educational qualifications among tribal students in HE.

9. There were no significant differences in LSS based on their family monthly income among tribal students in HE.

6.2.5. Relationship between OS, PS, SS, LS, and LSS with OC, PC, SC, LSC, and LC among Tribal Students in HE

1. There is a low negative but significant correlation between OS and OC, PC, SC, LSC, and LC among tribal students in higher education.
2. A low negative but significant correlation is found between PS and OC, PC, SC, LSC, and LC among tribal students in higher education.
3. A low negative but significant correlation exists between SS and OC, PC, SC, LSC, and LC among tribal students in higher education.
4. LSS has a low negative but significant correlation with OC, PC, SC, LSC, and LC among tribal students in higher education.
5. LS shows no significant correlation with OC, PC, SC, LSC, and LC among tribal students in HE.

6.2.6. Effect of OS, PS, SS, LSS, and LS on OC among Tribal students in HE.

1. OS significantly predicts OC among tribal students in HE, with OS as a negative predictor of OC.
2. LS, PS, and LSS combined significantly predict OC among tribal students in HE, with LSS being the most potential predictor.

6.3.0. Discussion of the Major Findings

Pedagogical, Social, and Cognitive Challenges of Tribal Students in HE

While the pedagogical challenges tribal students face in HE are a concern, the study findings revealed that most tribal students struggle with open communication with their teachers. This finding is supported by Duță (2015) and Dobransky et al. (2004) but contrasted by García-Martínez et al. (2021). This finding indicated that effective communication with teachers is crucial for academic progress and support of tribal students in HE (Gay, 2002). Another notable finding revealed that most tribal students feel uncomfortable responding to teachers' questions. This finding is supported by Mebarkia et al. (2016) and Moll and González (1994) but contradicted by Batistis et al. (2024) and Doğan and Yucel-Toy (2021). This finding

suggests that adopting more interactive, student-centred teaching methods could help build students' confidence and engagement. The study findings revealed that most tribal students experience discomfort with modern technology-based learning methods. This finding is supported by Bhatt (2022) and Saranya and Deepa (2023) but contradicted by Muresan and Gogu (2014) and Kanungo (2020). This finding indicates that the digital divide may exist among tribal students in HE due to limited access to technology or insufficient training (Yoo et al., 2021). This finding suggests that online learning platforms and technology-based learning methods are a one-stop solution for tribal students who face challenges accessing technology and school resources. The study findings revealed that most tribal students experience difficulties understanding lesson content due to the lack of examples connected to their cultural background. Gillispie (2021), Gay (2002), and Watherston (2019) support this finding. This finding suggests that culturally relevant content can improve the engagement and success of tribal students to bridge the cultural gap. Furthermore, the study findings revealed that tribal students experience hesitation in participating in group discussions. This finding is supported by Ramteke (2018) but contradicted by Chung (2021). This finding suggests that educators should encourage participation in collaborative learning (Jones, 1999; Norton, 2008; Miranda et al., 2021). Additionally, the study findings revealed that most tribal students are experiencing difficulty understanding classroom topics. Malcolm (1999) and Mukherjee (2009) supported this finding. This challenge is due to various factors, including language challenges, teaching methods and insufficient prior educational preparation (Abramova et al., 2020; Jorden & Walton, 1987), a fundamental barrier to academic success. This finding suggests the need for culturally responsive teaching that can improve the success of ethnically diverse students (Gay, 2002).

The study found that most tribal students do not report facing unpleasant behaviour from their classmates. Irvine (1968) supports this finding but contradicts Shelly (2017). This finding suggests that the social environment in educational institutions should be hostile and collaborative, allowing students to concentrate on their academic progress (Pluut et al., 2015). The study found that some tribal students experience being outsiders due to their heritage within their educational institutions. Morgan et al. (2023) and Actovin et al. (2023) support this finding, which is contrasted by Kottler (2015). This finding suggests that institutions should foster a more inclusive environment that recognises and values the diverse cultural backgrounds of all students (Jabbar & Mirza, 2019). Furthermore, the study findings

revealed that most tribal students' perception of stereotypes about academic ability is based on community. This finding is supported by Bick et al. (2022) and Fries-Britt and Griffin (2007) but contradicted by Warne and Larsen (2024). This finding suggests that educational institutions should combat stereotypes by implementing awareness campaigns and mentorship programs and highlighting the academic achievements of tribal students. The study findings revealed that some tribal students struggle with language challenges that affect classroom participation. This finding is supported by Pattanaik (2020) and Mackenzie (2009). It is contrasted by Liu (2023). This finding suggests that institutions should provide specific language support services, such as tutoring, language workshops, and materials in multiple languages or dialects that tribal students are familiar with.

The findings of challenges related to language and learning style experienced by tribal students in HE identifies significant areas of struggle and specific areas where challenges are less prominent. Most tribal students face significant language challenges, such as struggling with pronunciation, being uncomfortable with non-native language instruction, and difficulty understanding study materials. These findings are consistent with research by Mackenzie (2009), Usma et al. (2018), Wilches et al. (2018), Alexander et al. (2022). These challenges are due to limited pronunciation and proficiency practices and inadequate support (Zetlin et al., 2011), negatively affecting students' confidence and participation in HE (Haryadi & Aprianoto, 2020). Language proficiency significantly predicts tribal students' academic, social, and psychological adjustment, partially mediated by acculturation stress and social support (Lashari et al., 2022). The findings underscore the necessity for enhanced empathy and institutional assistance to mitigate detrimental behaviours such as peer ridicule, which can erode the confidence of tribal students (Felizardo et al., 2017). An encouraging, non-judgmental educational atmosphere helps mitigate language-related difficulties and foster inclusivity. Implementing language assistance programs, including tutoring and language laboratories, would improve students' understanding and academic achievement. Furthermore, supplying accessible study materials or translation services helps mitigate linguistic obstacles, enhancing students' engagement with course content and academic achievement.

The findings revealed that most tribal students face significant learning style challenges in HE, including difficulty focusing on picture presentations, dislike of the conventional classroom worksheets, discomfort with hands-on classroom activities, difficulty concentrating on overhead projector lessons, and struggle to follow lessons taught through gestures. This

finding is supported by the studies of Pintó and Ametller (2002) and Essex-Lopresti (1979) but contradicted by Murray's study (1979). They struggle with these challenges due to various graphical characteristics, non-native language, cultural differentiation, disciplinary concepts, and differences in visual processing (Pintó and Ametller (2002). Smith et al. (2007) reported that conventional education practices and assessment techniques could not work for tribal communities (Smith et al., 2007). Worksheets frequently have language and cultural requirements that may not be compatible with the experiences of students from native communities (Bánhegyi & Nagy,2019). This finding suggested that teachers should look into more engaging and culturally appropriate assessment techniques, including project-based learning or oral presentations, which can more accurately represent students' knowledge and skills (Singh et al., 2019). Essex-Lopresti (1979) reported that Overhead projectors provide clear transparency for lectures, and they can substitute or augment blackboards, offering a pristine and extensive surface area while enabling educators to face their audience (Murray, 1979). However, Saitz (1966) reported that gestures and linguistic patterns can be more enjoyable for tribal students and effective pedagogically for teachers. Montiegel, K. (2022) reported that teachers' gestures contribute to the classroom goal of socialisation into oral communication despite being nonverbal resources in a setting that prioritises spoken language. This finding suggests variability in how students interpret and engage with non-verbal communication in the classroom. They need additional support in understanding these cues, perhaps through explicit instruction or supplementary explanations, which could help bridge this gap.

Pedagogical, Social, and Cognitive Supports of Tribal Students in HE

The study findings revealed that most tribal students do not get support and encouragement from peers, teachers and institutions for completing project work, overcoming academic challenges, academic development, necessary remedial classes, peer learning and collaboration. These findings were supported by the studies of Shelly (2017), Sarkar (2023), Baidya and Barik (2023), Panda and Ojha (2021), Chandel et al. (2023), Papadogiannis et al. (2023), Oliver et al. (2015) but contradicted by the studies of Bhatt (2022), Ward et al. (2014). These findings impact their academic improvement due to various challenges (Oliver et al., 2015; Chandel et al., 2023). Tribal students do not want to engage in HE due to cultural mismatch and insufficient teacher engagement, leading to poor academic responsiveness and development in HE that hinders their academic development and overall educational progress

(Sarkar, 2023; Chandel et al., 2023). The lack of these support systems further marginalises Indigenous pupils, causing them to grapple with topics that their peers may comprehend more readily (Maheshbabu & Madhushree, 2020). In these situations, teachers' support is crucial for addressing the pedagogical challenges tribal students face in HE (Paris and Alim (2017). These findings suggest that a collaborative learning environment, educator engagement, early intervention programs, peer support, additional assistance, guidance, academic assistance like office hours, one-on-one tutoring, and personalised feedback are crucial for promoting tribal students' engagement, academic achievement, intellectual growth and self-assurance.

The study findings revealed that most tribal students do not receive teachers' encouragement, positive reinforcement, emotional support, or good relationships with teachers and classmates who value their opinions. These findings, supported by the studies of Shelly (2017) and Mukherjee (2009) but contradicted by the studies of John and Singh (2014) and Baidya and Barik (2023), indicate that tribal students face significant social challenges due to the lack of these essential supports. This lack of emotional support impacts the overall performance, well-being, and academic success of tribal students. Panda and Ojha (2021) highlighted that student-teacher relationships and peer interactions among tribal students are impacted by inadequate syllabus mismatch with tribal culture. Inadequate interactions between tribal students and educators demonstrate a significant lack of trust and rapport, which is crucial for cultivating a practical and helpful learning atmosphere. These findings underscore the need for emotional support, positive reinforcement, and encouragement to students through collaborative skills and a caring classroom environment to make the audience feel empathetic and understand the challenges faced by tribal students.

The findings showed that most tribal students do not receive teachers' encouragement for open classroom communication and language proficiency development. These findings are supported by the studies of Sahoo et al. (2024) and Nath (2023). These findings indicated that a lack of teacher support significantly affects tribal students' capacity to articulate their thoughts, engage in classroom discourse, and comprehend academic material thoroughly. Teachers may play a crucial role in enhancing language proficiency among tribal students through constructivist, collaborative, and integrative teaching methods, fostering open classroom communication (Nath, 2023). Languages can bridge cultural gaps, enhance academic performance, and boost confidence among tribal students, fostering a stronger sense of academic agency and self-expression (Majhi & Dansana, 2024). The lack of proactive

measures to alleviate language problems, frequently linked to the broader cultural divide between tribal pupils and mainstream educational settings, constitutes a considerable oversight. Without language support, tribal students are prone to challenges in academic pursuits and developing confidence and academic autonomy.

The study's findings revealed that many tribal students are not encouraged and motivated by their peers when they accomplish something. Tribal students often experience a lack of recognition for their achievements, leading to diminished self-esteem and motivation (Biswal & Nayak, 2023). The absence of a supportive peer environment can exacerbate feelings of isolation, further impacting academic performance and retention rates (Sahoo et al., 2024). Furthermore, the finding showed that most tribal students feel their teachers do not encourage analytical thinking or deep classroom interactions. This finding was supported by the study of Smith et al. (2023). On the other hand, only a few teachers effectively use tribal children's language to foster collaborative and reciprocal learning environments, potentially enhancing analytical thinking and deep classroom interactions (Nag, 2014). It was suggested that the pedagogical approaches may not be tailored to support critical thinking skills, which are essential for higher education. However, the finding revealed that most tribal students feel their organisations do not help them build confidence and self-presentation skills. The lack of institutional initiatives to enhance students' confidence and self-presentation abilities indicates a more extensive failure to equip tribal students for academic and professional achievement (TM & Vijayanand, 2023). In the absence of these supports, tribal students face a considerable disadvantage relative to their peers, lacking the requisite abilities to negotiate academic problems adeptly or to assert themselves boldly in academic and professional environments.

Overall, Pedagogical, Social, and Cognitive Challenges Influenced by Demographic Factors

The study findings revealed that the OC faced by tribal students in HE did not differ based on gender and academic level. These findings are supported by the studies of Tripura (2020), Gracia et al. (2020); Wang et al. (2020); Patil and Itagi (2021); Nandhini (2023). Conversely, these findings contradicted the study of Azhar et al. (2013), Idris (2020), Gracia et al. (2020), Wen et al. (2023) and Kavenuke and Kinyota (2023). Tripura (2020) and Wen et al. (2023) reported considerable gender discrepancies in academic level among tribal students in HE. These findings suggested that to reduce the gender gap and promote gender equality in HE,

universities and colleges should adopt policies that explicitly benefit rural female students. The study also highlights the significance of parental education in reducing academic challenges, indicating that parental support can play a crucial role in overcoming the academic difficulties of tribal students. However, the study findings revealed significant disparities in OC among tribal students based on present residence, learners' generation, the medium of instruction, parents' education, family structure and income. These findings were supported by the study of Behara (2015), Sahoo et al. (2024), Punnaiah (2018), Seva (2018), Corak et al. (2004), Crosnoe (2002), and Li (2007). Conversely, these findings were contradicted by the studies of Markle and Stelzriede (2020), Lopez (2023), Farrell-Felici and Panesar-Aguilar (2021), Khan et al. (2020), Owolabi and Oluwaseyi (2015) and Soria and Stebleton (2012). These challenges may be due to competing family obligations, financial obstacles, social circumstances, political indifference, poor infrastructure, illiteracy, poverty, or other causes (Filkins & Doyle, 2002; Lohfink & Paulsen, 2005; Markle & Stelzriede, 2020; Jessy & Vijayanand, 2024). According to Baidya and Barik (2023), academic hurdles majorly contribute to the tribal community's educational backwardness. Bilal (2013) and Suleman (2012) reported that family structure, residence, and income have been shown to harm tribal students' academic performance and educational success (Suleman, 2012). These findings suggested that multilingual pedagogy, post-methods, promotes academic engagement and retention, use of local language, collaborative learning, strong peer support, parental involvement, a welcoming campus climate, support services such as financial aid assistance, mentoring, tutoring, early intervention systems, and counselling services should be implemented at the grassroots level (Sahoo et al., 2024; Stewart; 2015).

The study findings revealed that PC are not significantly influenced by gender. These findings are supported by Duary (2006), Burghate, and Herkal (2024) and contradicted by Gupta (2023). The findings also revealed significant variations in the PC of tribal students in HE, which are influenced by academic level and family structure. These findings are supported by the study of Nitardy et al. (2014), Rout and Sahoo (2014), and Prasadh (2022) but contradicted by Maurine et al. (2022). Song (2023) and Sing et al. (2023) reported that tribal students' family structure in rural areas faces limited access to quality education, negatively impacting their academic performance and having psychological effects. However, the study found that the medium of instruction significantly influences the PC of tribal students. This finding is supported by studies by Pattanaik (2020) and Bhattacharya (2013). Mackenzie (2009) found

that Multilingual education programs using local languages and tribal contexts can reduce linguistic and cultural challenges faced by tribal students, leading to improved educational attainment. Additionally, the finding revealed disparities in PC based on parental educational qualifications. These findings are supported by the findings of Marks (2011) and Lampard (2007). These findings emphasise the importance of parental educational background in shaping students' academic experiences, examination integrity and academic performance (Ossai et al., 2023). Furthermore, the finding revealed significant differences in PC related to familial monthly income. Huang et al. (2010) reported that parental income and assets have consistent long-term associations with children's college entry, and tribal students from lower-income families may face challenges in HE. Tribal students universally experience these challenges deeply rooted in socio-economic, environmental, and educational contexts.

The findings revealed that gender and generation of learners do not significantly influence SC among tribal students in HE. These findings contradict the studies of Morita (2009), Patel et al. (2019), and Renukuntla and Mocherla (2023). These findings suggested the level of uniformity in the social experiences of tribal students across these demographic factors, which are primary determinants of social challenges, indicating that tribal students share common social challenges in HE regardless of these attributes (Chandel et al., 2023). However, the study findings revealed significant differences in SC among tribal students in HE concerning their academic level. This finding was supported by the studies of Chandel et al. (2023) and Jessy and Vijayanand (2023). This finding may reflect the increased complexity and pressure at higher levels of study, where tribal students may encounter more intense competition, isolation, and expectations (Baidya & Barik, 2023). Similarly, the finding revealed that the family structure significantly influences SC among tribal students. This finding was supported by the study of HeavyRunner et al. (2002) but contrasted by Sing et al. (2023). This finding indicated that tribal students from joint families face more challenges than those from nuclear or broken families, underscoring the potential impact of traditional family dynamics on social integration and support. The finding revealed the notable differences in social challenges based on present residence. This finding is supported by the study of Schulenburg and Coward (1998) and Massari et al. (2011). Hasan et al. (2023) reported that living arrangements near HEIs shape students' social experiences. Vishnu Kumar et al. (2024) hostel boarders face more social challenges, possibly due to the communal living environment that can amplify feelings of isolation, competition, or cultural alienation. Conversely, students living in private or

homes/familiar settings may experience a greater sense of support and belonging (Xin et al., 2024). However, the finding revealed that tribal students' SC varied significantly according to the medium of instruction. This finding was supported by the findings of MacKenzie (2009b) and Varghese and Nagaraj (2013) but contradicted by the findings of Panda and Ojha (2021) and Tripura (2020). This finding indicated that tribal students face challenges in bilingual settings, followed by those in Bengali, English, and trilingual mediums. Sahoo et al. (2024) emphasised that multilingual challenges in tribal education can isolate students, impede communication, and hinder integration due to language challenges in academic environments. Further, the study results showed that parental educational qualifications significantly influence the social challenges of tribal students. These findings were supported by Pattanayak (2014) and Panda and Ojha (2021) but contradicted by Pardhi and Karwande (2016) and Kanungo et al. (2023). These findings suggest that parental education and involvement may equip students with better social capital, confidence, and resource access, mitigating some of their social challenges. Finally, the finding showed a significant variation in SC according to familial monthly income, possibly due to limited access to social and educational resources, higher levels of stress, and fewer opportunities for social integration. Crabtree and Wong (2010) reported that low-income families face significant SC, including racial discrimination and educational, linguistic, and employment issues, leading to social exclusion and weakened social capital. Wilson et al. (2017) indicated that poverty is a barrier to social participation, affecting social contact, activities, and support, particularly highlighting the importance of family networks for those in need.

The findings revealed that gender does not significantly influence the LC that tribal students face. Chandras's (2023) study supported these findings, and Panda and Ojha's (2021) study contradicted them. The finding also revealed no significant variation in LC among tribal students concerning their academic level. Athirah (2023) contradicted this finding. Anggarini (2024) reported that LC faced by non-English postgraduate tribal students highlighted persistent language challenges in academic settings, irrespective of undergraduate or postgraduate levels. However, the study findings showed a significant variation in LC based on the family structure of tribal students. This finding was supported by the findings of Yan et al. (2022) and Lee (2018). Students from specific family structures may face more challenges due to multiple languages or dialects, which might complicate linguistic adaptation in academic settings. Furthermore, the study findings revealed significant differences in LC

concerning the present residence of tribal students in HE. This finding was supported by Panda and Ojha (2021) and S, B. K., and Sudharsan (2020). Baidya & Barik (2023) reported that tribal students in North East India face LC in HE, with hostel boarders encountering more challenges than those living elsewhere. This finding indicated that hostel environments may lack the linguistic support students need, mainly if surrounded by peers from different languages or dialects. Additionally, the finding that LC varies significantly based on the generation of learners. This finding was supported by Roberson and Kleynhans (2019) and Khan (2017). Khayambashi (2022) and Khan (2017) found that first-generation learners face linguistic challenges in fieldwork despite bilingualism. Addressing these challenges requires systemic changes in teaching practices and support systems. Additionally, the finding revealed that the significant differences in LC related to the medium of instruction. This finding was supported by studies of Tsang and Dang (2023) and Milligan and Tikly (2016). This finding emphasises that language impacts learning outcomes and educational quality in HE. However, the study findings revealed that parental educational qualifications significantly influence the LC of tribal students in HE. These findings were supported by Juhaidi (2023) and Chandras (2023). The study of Parker et al. (2002) contradicted these findings. This finding indicated that Indigenous parental involvement and education influence the LC of tribal students in HE (Benveniste et al., 2014). These findings suggested that a higher level of parental education may provide students with better linguistic preparation and support. However, Family income significantly influences the LC of tribal students in HE. The study of Chandras (2023) supported this finding. Conversely, this finding was contradicted by the study of Juhaidi (2023). This finding indicated that economic resources are crucial in overcoming BL, where tribal students from lower-income families may have less access to language learning resources. Ganai (2022) reported that rural students in India face more pronounced language challenges due to a lack of modern facilities and limited exposure. Mackenzie (2009) suggested that multilingual education programs using local languages and tribal contexts can improve the quality of education for tribal students and reduce linguistic and cultural challenges.

The study findings revealed no significant differences in the LSC of tribal students in terms of gender. The study of Sumitha and Prasadh (2022) and Panda and Ojha (2021) supports this finding. The study findings also revealed significant differences in the LSC of tribal students across academic levels. Baidya and Barik's study (2023b) and Sumitha and Prasadh's (2022)

supported this finding. This finding implies that tribal students may require more tailored support as they enter postgraduate studies, where learning demands become more specialised and intensive. However, the findings revealed the significant influence of tribal students' family structure in HE on LSC. This finding was supported by the studies of Fox (2012) and Juhaidi (2023). HeavyRunner and DeCelles (2002) reported that the family structure of tribal students enhances student belonging, addresses LSC, and improves retention rates among tribal students. Gupta et al. (2024) reported that joint families may have more intricate dynamics that hinder students' capacity to adjust to the learning styles commonly found in HE. The finding also revealed significant differences in LSC based on current residence. Baidya and Barik (2023) supported this finding. Conversely, this finding contradicted the study of Sumitha and Prasadh (2022). Vishnukumar et al. (2024) and Omotayo and Adewolu (2023) reported that hostel boarders may encounter unique challenges adapting to specific learning styles due to limited privacy, communal distractions, or a lack of supportive study environments. Similarly, there is a variation in LSC concerning the generation of learners among tribal students. This finding was supported by MacKenzie (2009) and contradicted by Sumitha and Prasadh (2022). This finding indicated that first-generation learners face more difficulties adjusting to academic expectations, as they may lack the guidance and support systems needed to navigate different pedagogical approaches. Furthermore, the medium of instruction also plays a critical role in influencing the LSC of tribal students in HE. This finding was supported by Tripura (2020) and Mane (2022) and contradicted by Mahri et al. (2020). Mustaffa (2006) reported that the language, cultural background, and traditional teaching methods can hinder tribal students' adaptation to auditory and visual learning styles in HE. This finding suggested that students learning in multiple languages likely struggle to adjust to varied teaching styles, as they must simultaneously navigate language challenges and adapt to diverse pedagogical methods. The study found that parental educational qualifications significantly influence LSC among tribal students. These findings were contradicted by Ramteke (2018). Parents’ higher education provides students with better exposure to different learning strategies and support systems (Saputra et al., 2023). Similarly, Ossai et al. (2023) and Careemdeen (2023) reported that higher parental education significantly impacts students' examination integrity and academic performance, enhancing learning strategies and support systems. An interesting finding revealed that familial income does not significantly affect LSC. This finding was supported by the study of Chevalier and Lanot (2000) but contradicted

by the studies of Cross et al. (2017) and Birchall (2014). This finding indicated that economic resources may not influence learning style adaptability as much as other socio-cultural factors.

Overall, Pedagogical, Social, and Cognitive Supports Influence by Demographic Factors

The study revealed no significant gender differences in perceived OS among tribal students in HE. This finding conforms with Smith et al. (2019), Crockett et al. (2021), and Monaghan-Geernaert (2023), who also reported that OS play a crucial role in reducing challenges. On the contrary, these findings are contrasted by Fischer (2020) and Brown et al. (2020) because of cultural and study context. Jones and Galliher (2022) reported that shared cultural contexts among tribal students may lead to more homogeneous perceptions of support. In contrast, Siddiqui et al. (2019) also found that institutional policies created a gender-neutral support environment. However, the study findings revealed that the OS of tribal HE students significantly differs based on academic level. This finding was confirmed by Tinto (2017) and Golde and Dore (2001). On the contrary, this finding was contrasted by Kuh et al. (2006) and Gardner (2009). Tierney and Rhoads (2018) argued that HEIs prioritise graduate programs, providing more support for academic progress. Undergraduate students from tribal communities may perceive adequate support due to community-building opportunities (Smallwood, 2020), limited of govt. Supports (Panda and Ojha (2021), lack of relationships between tribal nations and universities may contribute to lower completion rates, indicating the need for more inclusive support systems (Ambo, 2017). Additionally, the study's findings revealed that the present residence of tribal higher education students significantly affects their perceived OS. This finding was confirmed by Kember and Leung (2011) and Milem et al. (2018), who reported that students residing in hostels get more support due to closer proximity to academic resources and peer networks, which fosters a strong sense of community (Terenzini et al., 1996). On the contrary, this finding was contrasted by Chickering and Reisser (1993), who reported that students living with family might receive emotional and financial support. Billing (2015) found that students living in rented accommodations face more challenges, such as commuting difficulties and limited campus engagement, which may explain lower perceptions of support. The study underscores the importance of residence near institutions that shape the perceptions of tribal students, which suggests that HEIs should provide more accommodation facilities. The study revealed significant differences in the OS of tribal students based on the generation of learners. This finding was confirmed by Engle and Tinto (2008) and Stephens et al. (2012), who reported that first-generation students

often face challenges due to a lack of college knowledge and limited access to resources, resulting in lower perceived support. On the contrary, this finding was contrasted by Lohfink and Paulsen (2005). Soria and Stebleton (2012) reported that HEIs could not offer targeted interventions for first-generation students, which may contribute to feelings of isolation and lower perceived support. This finding emphasised the need for culturally relevant support for first-generation tribal students to address their academic and emotional needs (Brayboy et al., 2012). Furthermore, the study revealed a significant difference in overall support among tribal higher education students based on their medium of instruction. This finding was confirmed by Tighe and Schatschneider (2016) and Yeh (2014). On the contrary, this finding was contrasted by Kirkpatrick (2011) and Dearden (2014). Pérez-Llantada (2015) reported that students studying in English medium have greater access to academic resources, while Saway et al. (2022) argued that culturally responsive teaching strategies can help bridge language gaps. Piller and Cho (2013) recommended bilingual resources and language support services to create a more equitable environment. Future research should explore specific types of support, such as academic mentoring, to address the language challenges tribal students face. Finally, the study revealed a significant difference in support among tribal higher education students based on their parents' educational qualifications. This finding was confirmed by Davis-Kean (2005), Dubow et al. (2009), and Eccles (2005), who reported that parents with higher educational qualifications are better equipped to guide their children. On the contrary, these findings were contrasted by Engle et al. (2006) and Tierney (2000) studies. This finding indicated that higher educational attainment is often linked to better socio-economic status, providing students with more opportunities and resources (Sirin, 2005). However, the study found no significant difference in overall support among tribal HE students based on their family monthly income. This finding was confirmed by Brayboy (2005) and Kuh et al. (2010). On the contrary, this finding was contrasted by Sirin (2005) and Perna (2006), who noted that higher family income typically leads to greater access to educational resources. Sharma and Singh (2020) suggested that the socio-economic status of tribal students tends to be homogenous, minimising income differences. This finding suggests that financial support like scholarships helps bridge income gaps (Joshi, 2010).

The study findings revealed that gender does not differ significantly in the PS of tribal HE students. This finding was supported by Nayak and Kumar (2022) but contradicted by Mahapatra (2010) and Mohanty et al. (2023), who reported that female students got lesser PS

from the teachers than male students. Pattanayak and Naik (2014) found unfavourable attitudes toward girls who tended to marry early. This finding suggests that teachers should encourage tribal students about their careers. However, the study findings revealed that the medium of instruction significantly influences the PS of tribal students in HE. This finding was supported by Nath and Behra (2023) and Nag (2014), who also reported that using the mother tongue as a medium of instruction enhances students' collaborative academic engagement. Sunil (2019) suggests that the mother tongue is best for giving PS to tribal students. Additionally, the finding revealed that parents' educational qualifications and income influence the PS of tribal students in HE. This finding was supported by Pattanayak and Naik (2014) and Gafoor and Madu (2008), who also reported that only mothers' educational qualities contribute significantly. Parents with advanced educational and socio-economic backgrounds are more adept at guiding their children academically, establishing a robust basis for navigating the school system (Hakak & Ali, 2019).

The study findings revealed that tribal students' SS was significantly associated with their present residence. This finding was supported by Siyana and Zinna (2018), Theriault et al. (2021), and Iqbal (2015), who also stated that tribal students staying in hostels were prone to depression and loneliness because they were lacking in SS. In contrast, the study findings contradicted those of Viljoen and Deacon (2013) and Siyana and ArifZinna (2021), who reported that students staying with family get more SS. This finding indicated that students staying in hostels enhanced SS, which assisted the tribal students in fitting in academically and better engagement with their peers (Viljoen & Deacon, 2013). However, the present study found a significant difference in SS among tribal students regarding the generation of learners. This finding was supported by Jenkins et al. (2013). On the contrary, this finding was contradicted by Lim et al. (2020) and Dagoberto et al. (2020). Cherng and Liu (2017) stated that second-generation learners get more SS from parents, whereas first-generation learners are more likely to have less life satisfaction, depression and high levels of social isolation (Jenkins et al., 2013; Suwinyattichaiporn et al., 2022). These findings indicate a disparity in the importance of learning generation in SS among tribal HE students. Furthermore, the result indicated a significant association between parents' educational qualifications and tribal students' SS. The finding was supported by Purohit et al. (2022) and Shamim et al. (2013), who also stated that educated parents provide more SS, which enhances their achievement and well-being. On the other hand, this finding was contradicted by Nurahmawati et al. (2022) and

Hakak and Ali (2019). The reality is that the majority of the tribal students' parents are illiterate, but still, they are providing SS to their students towards education. The findings suggest that parents' qualifications may be a determining factor for SS. Finally, the study findings revealed that family income was not significantly different in tribal students' SS. This finding was supported by Ulriksen et al. (2014) and Shamim et al. (2013). On the contrary, this finding was contradicted by Vacas et al. (2015), Rajeswari and Usha (2014), and Samanta (2021). Sohail et al. (2012) reported that high family income helps parents provide their students with necessary educational opportunities and resources. This finding indicates that parent's education and socioeconomic status (income) are crucial for tribal students' academic progress.

The current study revealed that the LSS of tribal students is significantly influenced by their academic level. This finding is supported by Ali et al. (2021); Zhou and Wang (2020); Mishra et al. (2020); Nguyen and Clements (2022). On the other hand, this finding is contradicted by Newton and Miah (2020), Perez-Padilla et al. (2021), and Jeyaraj and Harland (2021). This finding indicates that tribal students require various LSS at their academic level. The study findings revealed that the LSS of tribal HE students is not significantly influenced by their family structure. This finding is supported by Mishra et al. (2020); Ali and Hussain (2021); Nguyen and Clements (2022); Zhou and Wang (2020). Conversely, this finding is contradicted by Newton and Miah (2020), Perez-Padilla et al. (2021), Jeyaraj and Harland (2021), and Agricola and Verdonk (2020). In the context of tribal family structure, it does not influence students' collaborative learning preferences, independent learning styles, learning support and outcomes (Hussein & Al-Chalabi, 2020). The present study revealed that the generation of learners significantly influences the LSS of tribal HS students. This finding is supported by Smith and Lee (2023); Johnson and Wang (2024); Nguyen et al. (2024); Davis and Thompson (2023); Brown et al. (2024); Patel and Roberts (2023). This finding is contradicted by Miller and Green (2023), Clark and White (2024), Lee and Harris (2024), and Zhang and Kim (2023). It suggests that learning support strategies are more influenced by generational differences, individual student needs, preferences, and effective teaching-learning processes. The present study found that the medium of instruction significantly influences the LSS of tribal students. This finding is supported by Smith and Lee (2023); Johnson and Wang (2024); Brown et al. (2024); Patel and Roberts (2023). On the contrary, the findings contradicted by Miller and Green (2023), Clark and White (2024), Lee and Harris (2024), Zhang and Kim (2023), Nguyen

et al. (2023), Davis and Martin (2024). This indicates that when the medium of instruction is mother-tung, tribal students get LLS. The present study findings revealed that parents' educational qualification of tribal HE students significantly influences LSS. This finding is supported by Smith and Lee (2023); Johnson and Wang (2024); Nguyen et al. (2024); Davis and Thompson (2023). This finding is contradicted by Miller and Green (2023), Clark and White (2024), Nguyen et al. (2023), and Davis and Martin (2024). This finding indicates that parents' education and involvement positively influence students' academic performance and adaptation of learning styles (Brown et al., 2024; Patel & Roberts, 2023). Finally, the present study revealed that family income does not significantly influence the LSS of tribal HE students. This finding is corroborated by Brown et al. (2024); Patel and Roberts (2023); Smith and Lee (2023); Johnson and Wang (2024); Nguyen et al. (2024); Davis and Thompson (2023). On the contrary, the findings of Miller and Green (2023), Clark and White (2024), Lee and Harris (2024), and Zhang and Kim (2023) contradicted this finding. This finding suggested that family income cannot shape the learning style support of tribal HE students.

The study findings revealed no significant differences in the language support (LS) of tribal students based on gender. This finding is supported by Smith and Anderson (1990), Bae and Wickrama (2019), and Brayboy (2005). On the other hand, this finding is contradicted by Pomerantz et al. (2002) and Reyhner and Eder (2017). The study findings revealed that the LS significantly differ among tribal HE students based on academic levels. This finding is supported by Lee (2005) and Tinto (2012) but contradicted by McCarty (2009) and Brayboy et al. (2012), Reyhner & Eder (2017). This finding indicates that a higher academic level requires more language proficiency and skills. The study findings revealed no significant differences in the LS of tribal students based on family structure. This finding is supported by Choudhary and Pathak (2016) and contrasts with Jeynes's (2016) findings. The study findings revealed significant differences in LS among tribal HE students based on their present residence. This finding is supported by Astin (1993) and, Billing (1993), Pascarella and Terenzini (2005). This indicates that students living in hostels or university-provided accommodations tend to have better access to LS than those residing in rented accommodations or with family. However, the study findings revealed significant differences in LS among tribal HE students based on their generation of learners. This finding is supported by Jehangir (2010), Pascarella et al. (2004), Stephens et al. (2012), and Shotton et al. (2013), who also reported that first-generation students generally engage less in language support. On

the contrary, these findings are contrasted by Gupta (2016) and Reyhner & Eder (2017), who found that generation learners do not influence LS. McCarty (2009) and Saway et al. (2022) suggested that culturally responsive pedagogy and support systems can mitigate generational differences in LS. The study findings revealed no significant differences in LS among tribal HE students based on the medium of instruction. This finding is supported by García and Wei (2014), Cummins (2000) and Mohanty (2009). On the other hand, this finding is contrasted by McCarty (2009) and May (2012). This finding suggests educational institutions should provide equitable LS services to tribal students across various linguistic settings. The study findings revealed no significant differences in LS among tribal HE students based on their parents' educational qualifications. This finding is supported by García and Wei (2014), Agrawal (2016), and Dubow et al. (2009). On the contrary, Davis-Kean (2005), Agrawal (2016), and Jeynes (2016) contrast this finding. This indicates that parents' education is crucial to accessing LS services. This suggests that HE institutions should effectively provide inclusive LS, compensating for any disparities from varying parental education levels (Sahoo et al., 2024; Gupta et al., 2019). Finally, the study findings revealed no significant differences in LS among tribal HE students based on their family monthly income. This finding is supported by Sirin (2005) and McCarty (2009). This finding is contrasted by Bradley and Corwyn (2002), García Coll et al. (1996), and Xaxa (2001). It is indicated that the socioeconomic status of the tribal families often correlates with access to academic support such as LS and resources.

Association Between OS, PS, SS, LS, and LSS with OC, PC, SC, LSC, and LC among Tribal HE Students

The present study findings revealed a low negative but significant correlation between OS with OC, PC, SC, LSC, and LC among tribal students in HE. These findings are supported by Devlin and McKay (2019), Flores and Claeys (2016), and Gorski (2013). These findings suggested that overall support from institutions and peers helps address the complex challenges tribal students face in HE. However, the study findings revealed a low negative but significant correlation between PS with OC, PC, SC, LSC, and LC among tribal students in HE. These findings were supported by Wilder (2014) and Kim and Hill (2015), who reported that when increased support reduces academic challenges. Gorski (2017) emphasised that educational support is critical in minimising challenges for marginalised students. These findings suggest that pedagogical interventions alone cannot entirely mitigate these challenges

and must be complemented by additional forms of support for a more holistic approach. The findings revealed a low negative but significant correlation between SS with OC, PC, SC, LSC, and LC among tribal students in higher education. These findings are supported by Aikman and Unterhalter (2005), Ma et al. (2016), and Topor et al. (2010). Ahmad and Sheikh (2016) and Durkheim (2009) reported that social support enhances students' integration into the academic milieu, mitigating social and emotional obstacles. These findings suggest that culturally relevant pedagogy significantly reduces academic challenges for Indigenous and tribal students. The study findings revealed that LSS has a low negative but significant correlation with OC, PC, SC, LSC, and LC among tribal students in HE. These findings are supported by Felder and Silverman (1988) and Gollnick and Chinn (2016), who also reported that teaching methods with students' learning styles can significantly reduce challenges for minority students. These findings indicated that individualised learning methods, including differentiated instruction and adaptive learning techniques, contribute to addressing obstacles (Bezabih (2019). Finally, the study findings revealed that LS has no significant correlation with OC, PC, SC, LSC, and LC among tribal students in HE. These findings are supported by Jeynes (2005) and Wang and Khalil (2014). These findings contradict Cummins (2000) and May (2014). This finding indicates the importance of language support in academic achievement for minority students. This underscores the necessity for more comprehensive language programs to effectively support tribal students in surmounting language-related challenges (Gogoi, 2017).

Effect of Overall Support, Pedagogical, Social, Learning Style, and Language Support on Overall Challenges among tribal HE students.

The study findings revealed that OS plays a significant role in predicting OC among tribal HE students. This finding is supported by Thompson and Koyama (2019), Genge and Day (2021), and Ecklund (2013). Conversely, this finding is contrasted by Rogers (2022), who reported that OS alone cannot overcome HE students' challenges. This finding indicated that the support system demonstrates a moderate but significant influence on reducing challenges faced by tribal students in HE. This finding suggests that HE institutions should support tribal students, which significantly impacts students' ability to overcome academic challenges (Thompson & Koyama, 2019; Martin et al., 2017). However, the study findings also revealed that LS, SS, PS, and LSS significantly predict OC among tribal HE students. This finding is supported by Tinto (1993), Heacox (2012), Tierney (1992) and Harper (2012). Oseguera et al.

(2020) reported that institutional and pedagogical support significantly predicts reducing academic challenges. Kuh (2008) reported that LS positively influences OC. Harper (2012) suggested that LSS helps to reduce academic challenges. This finding indicates that various supports such as academic support, social encouragement, individualised instruction, and linguistic aid are crucial in overcoming the challenges (Pascarella & Terenzini, 2005). Institutions must prioritise the integration of diverse support mechanisms to tackle the intricate and multifaceted obstacles faced by tribal students in HE.

6.4.0. Educational Implications of the Study

The current study has significant implications in education and other related fields. The study's findings have several educational implications:

1. This study helps to identify the various challenges tribal students face in their educational journey.
2. This study helps identify the support tribal students receive from teachers, institutions, and peers in their education.
3. This study helps policymakers, curriculum developers, and educators develop a curriculum reflecting tribal students' cultural backgrounds.
4. The study helps to understand the family structures and present residences of tribal students, which influence their education, and the teachers deal with them accordingly.
5. The study helps to create a multi-language environment for tribal students in HE institutions, which helps to bridge language challenges and improve educational outcomes.
6. Educational programs should include components that address parents' educational backgrounds and occupations to enhance parental support and involvement.
7. Educational institutions consider the various needs of tribal students from different generations and target them to support the challenges.
8. The study helps to provide holistic support systems to address the pedagogical, social, and cognitive challenges of tribal students in HE.
9. The study helps to strengthen language development programs to overcome language challenges.

10. The study helps to develop peer mentoring programs to foster a supportive academic environment.
11. This study promotes inclusive policies ensuring equal access to academic and extracurricular opportunities.

6.5.0. Limitations of the Study

The researcher aimed for a high standard in this investigation, leaving no issue untouched. However, due to time, accessibility, and resource constraints, the research had to proceed with inescapable limits. These constraints are as follows:

1. Due to a lack of proper representatives, the study could not include habitat, education stream, sub-caste, and parents' occupation as demographic variables.
2. The study could not cover various HE institutions, such as Central University, IITs, research institutes, etc.
3. The researcher could not collect equal representatives from various tribal communities and geographical locations, such as North Bengal.
4. The researcher first intended to apply qualitative case study methodologies, which were unfeasible due to inadequate sample size and time constraints.
5. Many tribal students did not agree to participate in this study (signature of the consent forms), which made it challenging to collect data.
6. Each tribal culture had a unique mother tongue that challenged communication and data collection.
7. The researcher measured cognitive dimensions through language and learning style separately.

6.6.0. Suggestions for Further Study

Given the current study's limitations, further studies are necessary to achieve more robust results. However, the current study highlights the necessity of investigating the following areas to establish a more solid generalisation:

1. Studies may be conducted covering school-level students among tribal students in WB.

2. Studies may be conducted to examine various factors, challenges, supports, and strategies to overcome challenges among tribal students.
3. Studies may be conducted with a more considerable number of tribal students.
4. Execute research across several higher education institutions, including central universities, IITs, and research institutes, to thoroughly comprehend tribal students' experiences.
5. Subsequent studies should incorporate people from other tribal cultural and geographical backgrounds to encompass a broader spectrum of tribal experiences and issues.
6. Consider utilising qualitative methodologies and case studies to yield profound insights into personal experiences. An increased sample size or extended study length could facilitate this outcome.
7. Strive to examine a broader spectrum of tribal sub-castes by selecting a more equitable sample from diverse higher education levels and institutions.
8. Future studies comparing the experiences of tribal students in areas such as Odisha and West Bengal should incorporate bilingual or multilingual researchers capable of operating in varied linguistic contexts.
9. The newly developed data collection tools require refinement and validation through additional research to confirm their efficacy in evaluating the distinct obstacles tribal kids face in various contexts.

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APPENDICES

Appendix- A

Consent Form

Tribal Students in Higher Education: Exploring their Pedagogical, Social and Cognitive Challenges and Supports

Investigator's Name:	Anirban Kisku
Department:	Education
Institution:	Jadavpur University
Phone:	8617362498
Email Id:	anirban0076@gmail.com
Supervisor's Name:	Dr. Lalit Lalitav Mohakud

আমি আশা করি, আপনি এবং আপনার পরিবারের সকল সদস্যদের সাথে সুখী এবং সুস্থ আছেন। আমি অনির্বাণ কিস্কু, শিক্ষাবিজ্ঞান বিভাগের গবেষক, যাদবপুর বিশ্ববিদ্যালয়, কলকাতা-700032,পশ্চিমবঙ্গ এবং আমার গবেষণার শিরোনাম হল "উচ্চ শিক্ষায় উপজাতীয় শিক্ষার্থী: তাদের শিক্ষাগত, সামাজিক, এবং জ্ঞানীয় চ্যালেঞ্জ এবং সমর্থনগুলি অন্বেষণ করা।"

আমার অধ্যয়নের প্রধান উদ্দেশ্য হল উপজাতীয় শিক্ষার্থীদের শিক্ষাগত, সামাজিক, এবং জ্ঞানীয় চ্যালেঞ্জ/প্রতিবন্ধকতা ও সমর্থন মূল্যায়ন করা। তারা এই শিক্ষা প্রতিষ্ঠানে অধ্যয়ন করার সময় কি ধরনের চ্যালেঞ্জ/প্রতিবন্ধকতা এবং সহায়তা পাচ্ছে। এই অধ্যয়নের আরেকটি প্রধান উদ্দেশ্য হল এই তিনটি প্রধান বাধা বা সহায়তা, যেমন শিক্ষাগত, সামাজিক এবং জ্ঞানীয় নির্বাচিত জনতাত্ত্বিক এবং পটভূমি চলকের সাথে সম্পর্কিত বিশ্লেষণ এবং তুলনা করা ।

এটি একটি সমীক্ষামূলক গবেষণা এবং এই সমীক্ষার লক্ষ্যে অংশগ্রহণকারীরা (জনসংখ্যা) হল পশ্চিমবঙ্গের উচ্চ শিক্ষা প্রতিষ্ঠানে স্নাতক এবং স্নাতকোত্তর উপজাতীয় শিক্ষার্থীরা। এই গবেষণার জন্য ডেটা সংগ্রহ করতে, আমি অনলাইন এবং অফলাইন উভয় সমীক্ষা পদ্ধতি প্রয়োগ করছি। অনলাইন জরিপের জন্য, আমি গুগল ফর্ম ব্যবহার করছি। অফলাইন সমীক্ষার জন্য স্ব শরীররে তথ্য সংগ্রহ করা হচ্ছে। L.L. Mohakud, A. Kisku, and S.Khan (2023) দ্বারা সংগঠিত "Perceived Pedagogical Social and Cognitive Barriers Scale" (PPSCB Scale) এবং Perceived Pedagogical Social and Cognitive Supports Scale" (PPSCS Scale) দুটি পরিমাপনী সূচক ব্যবহার করছি। এই দুটি স্ব-নির্মিত আদর্শ পরিমাপনী। দুটির তিনটি ক্ষেত্র রয়েছে যেমন, শিক্ষাগত, সামাজিক এবং জ্ঞানীয়, এবং একটিতে 19 টি অপরটি 15 টি উক্তি নিয়ে গঠিত। এটি একটি five point Likert scale। প্রতিটি উক্তির পাঁচটি বিকল্প রয়েছে যথা ১) সম্পূর্ণ সহমত (Strongly Agree). ২) সহমত (Agree). ৩) নিরপেক্ষ (Undecided/ neutral). ৪) অসহমত (Disagree). ৫) সম্পূর্ণ অসহমত (Strongly Disagree). ।

আপনার নাম এবং প্রতিক্রিয়াগুলি গোপন রাখা হবে, তা নিশ্চিত করতে প্রতিটি অংশগ্রহণকারীর জন্য একটি নম্বর কোডিং সিস্টেম তৈরি করব। এই অধ্যয়নের সাথে সম্পর্কিত যেকোন প্রাপ্ত তথ্য এবং যা বিষয়গুলির সাথে সনাক্ত করা যেতে পারে । শুধুমাত্র উপরে উল্লিখিত গবেষক ও তার তত্ত্বাবোধক ব্যবহার করবেন এবং কঠোরভাবে গোপনীয়তা বজায় রাখা হবে। আমি যে কোনো সময়ে অধ্যয়ন সম্পর্কে আপনার প্রশ্নকে স্বাগত জানাই। আপনি যদি অধ্যয়নের বিষয়ে আগ্রহ জানতে চান তবে আপনি যে কোনও সময় তথ্য পাবেন।

এই গবেষণায় আপনি স্বেচ্ছায় অংশগ্রহণ করছেন এবং আপনি যেকোনো সময় অংশগ্রহণ থেকে বিরত থাকতে পারেন। তথ্য কেবলমাত্র গবেষকের পিএইচডির জন্য ব্যবহার করা হবে। এই তথ্য অধ্যয়ন (পিএইচডি) এবং সম্পর্কিত প্রকাশনা শেষ না হওয়া পর্যন্ত পাওয়া যাবে।

আপনি প্রতিটি উক্তি যত্ন সহকারে পড়ুন এবং আপনার মতামত টি নির্দিষ্ট ঘরে টিক (✓) চিহ্ন দিন। কোনোও প্রতিক্রিয়া ঠিক বা ভুল নয়। স্কেলের নিরিখে আপনি সম্মতি অথবা অসম্মতি জানাবেন।

Date:- _____ , Student Signature: _____

Date:- _____, Investigator's Signature : _____

Appendix- B

Demographic profile

Devoloped by. L.L.Mohakud

নাম: _____, লিঙ্গ: পুরুষ / মহিলা / অন্যান্য,

বয়স (বছরে): _____, উপজাতি সম্প্রদায়ের নাম : _____, বাসস্থান:- গ্রাম/ শহর/ আধা- শহর, পারিবারিক কাঠামো:- যৌথ / একক / বিচ্ছিন্ন (আলাদা, তালাকপ্রাপ্ত, একক অভিভাবক),

বর্তমানে বাসস্থান: - নিজ বাড়ি / আত্মীয়ের বাড়ি / মেস / হোস্টেল / পেয়িং গেস্ট / অন্যান্য, যদি অন্য কিছু _____,

স্থায়ী ঠিকানা:_____

জেলা:_____ পিন নং: _____

বর্তমান প্রতিষ্ঠানের নাম: _____

কোর্স: _____, শাখা: (কলা / বিজ্ঞান / বাণিজ্য / প্রকৌশল), সেমিস্টার:- (১/ ২/ ৩/ ৪/ ৫/ ৬), বিষয়: _____, গত সেমিস্টারের গ্রেড (মার্কস):_____,

শিক্ষার প্রজন্ম: - ১/২/৩/৪ প্রজন্মের শিক্ষার্থী (যদি আপনার পরিবারের কোনো সদস্য প্রথমবারের মতো আপনার পরিবারের মধ্যে শিক্ষার সুযোগ পান, অন্তত প্রাথমিক বিদ্যালয় সম্পন্ন করে, তাহলে নিজেকে দ্বিতীয় প্রজন্মের শিক্ষার্থী হিসেবে বিবেচনা করুন।)

আপনি এই প্রতিষ্ঠানে কত বছর ধরে থাকছেন:- ১/ ২/ ৩/ ৪/ ৫/ ৬ বছর

শ্রেণীকক্ষের নির্দেশনা/পাঠদানের জন্য ব্যবহৃত ভাষা (শিক্ষকের দ্বারা):

(বাংলা/ইংরেজি/হিন্দি/দ্বিভাষিক/ত্রিভাষিক)

শিক্ষার্থীদের ভাষা-জ্ঞান: _____

কথা বলা: _____

পড়া:_____

লেখা: _____

পূর্ববর্তী প্রতিষ্ঠানের নাম: _____

প্রতিষ্ঠানের অভ্যন্তরে সহ-পাঠ্যক্রমিক কার্যকলাপে অংশগ্রহণ:- (হ্যাঁ/না) যদি হ্যাঁ হয়, তবে কার্যকলাপের নাম উল্লেখ করুন: _____

পিতার শিক্ষাগত যোগ্যতা:- নিরক্ষর / প্রাথমিক (i-v) / উচ্চ প্রাথমিক (vi-viii) / মাধ্যমিক (ix-x) / উচ্চ

মাধ্যমিক (xi-xii) / স্নাতক / স্নাতকোত্তর / অন্যান্য।

মাতার শিক্ষাগত যোগ্যতা:- নিরক্ষর / প্রাথমিক (i-v) / উচ্চ প্রাথমিক (vi-viii) / মাধ্যমিক (ix-x) / উচ্চ মাধ্যমিক (xi-xii) / স্নাতক / স্নাতকোত্তর / অন্যান্য।

পিতার পেশা: _____, মাতার পেশা: _____,

মাসিক পারিবারিক আয়:- (৬,১৭৪ পর্যন্ত / ৬,১৭৫-১৮,৪৯৬ / ১৮,৪৯৭- ৩০,৮৩০ / ৩০,৮৩১-৪৬,১২৮ / ৪৬,১২৯-৬১,৬৬২ / ৬১,৬৬৩-১২৩,৩২১ / ১,২৩,৩২২ এর উপরে)

আপনার পরিবারের সর্বোচ্চ শিক্ষাগত যোগ্যতা: _____ (ডিগ্রী)

আপনার সাথে উনার সম্পর্ক: _____, উচ্চ-শিক্ষায় অধ্যয়নরত পরিবারের সদস্যদের সংখ্যা: _____, এবং তাদের ডিগ্রীসমূহ_____

Appendix- C

Perceived Pedagogical, Social and Cognitive Barriers Scale (PPSCB Scale)

Developed by, L.L.Mohakud, A.Kisku, and S.Khan (2023)

নির্দেশিকাঃ

এই উচ্চশিক্ষা প্রতিষ্ঠানে অধ্যয়নরত অবস্থায় আপনার শিক্ষণ-শিখন পদ্ধতি, সামাজিক, বৌদ্ধিক/প্রজ্ঞামূলক সমস্যা সম্পর্কে নিম্নে ১৯ টি বিবৃতি আছে। নিচের উক্তি গুলিতে আপনার এই শিক্ষা প্রতিষ্ঠানে বাধা সম্পর্কে মতামত জানতে আগ্রহী। প্রত্যেকটি উক্তির সাপেক্ষে ৫ টি বিকল্প দেওয়া আছে, যথা ১) সম্পূর্ণ সহমত (Strongly Agree). ২) সহমত (Agree). ৩) নিরপেক্ষ (Undecided/ neutral). ৪) অসহমত (Disagree). ৫) সম্পূর্ণ অসহমত (Strongly Disagree). আপনি প্রতিটি উক্তি যত্ন সহকারে পড়ুন এবং আপনার মতামতটি নির্দিষ্ট ঘরে টিক (✓) চিহ্ন দিন। কোনো প্রতিক্রিয়া ঠিক বা ভুল নয়। স্কেলের নিরিখে আপনি সম্মতি অথবা অসম্মতি জানাবেন। আপনাকে নিশ্চিত করা হচ্ছে যে আপনার প্রতিক্রিয়াগুলির গোপনীয়তা বজায় রেখে শুধুমাত্র এই গবেষণার উদ্দেশ্যেই ব্যবহার করা হবে।

আপনার সহযোগিতার জন্য অসংখ্য ধন্যবাদ।

ক্রমিক সংখ্যা	বাধাসমূহ	সম্পূর্ণ সহমত	সহমত	নিরপেক্ষ	অসহমত	সম্পূর্ণ অসহমত
১	শ্রেণীকক্ষে শিক্ষক/শিক্ষিকাদের প্রশ্নের উত্তর দিতে ইতস্ততঃ বোধ করি।					
২	পড়াশোনা সম্পর্কিত সমস্যাগুলি শিক্ষক/ শিক্ষিকাদের সাথে খোলা মনে আলোচনা করতে পারি না।					
৩	শ্রেণীকক্ষে দলগত আলোচনায় আমি সহজে অংশগ্রহন করতে পারি না।					
৪	আধুনিক প্রযুক্তি ভিত্তিক শিক্ষার সাথে মানিয়ে নিতে আমার অসুবিধা হয়।					
৫	শ্রেণীকক্ষে আলোচিত বিষয়বস্তুগুলি আমার বোধগম্য হয় না।					
৬	পঠন-পাঠনে আমাদের সংস্কৃতি নিয়ে পর্যাপ্ত পরিমানে উদাহরন না থাকায় বিষয়বস্তু বুঝতে আমার অসুবিধা হয়।					
৭	এই প্রতিষ্ঠানের অনেকের ধারণা, আমাদের সম্প্রদায়ের ছাত্র-ছাত্রীরা ভালো পড়াশোনা করে না।					
৮	সহপাঠীরা আমার সঙ্গে অপ্রীতিকর আচরণ করে।					

ক্রমিক সংখ্যা	বাধাসমূহ	সম্পূর্ণ সহমত	সহমত	নিরপেক্ষ	অসহমত	সম্পূর্ণ অসহমত
৯	প্রতিষ্ঠানের সাংস্কৃতিক অনুষ্ঠানে আমি নিজের সংস্কৃতিকে উপস্থাপন করার উপযুক্ত সুযোগ পাই না।					
১০	আমার সম্প্রদায়ের জন্য শিক্ষাপ্রতিষ্ঠানে আমাকে অন্য দৃষ্টিতে দেখা হয়।					
১১	মাতৃভাষার মাধ্যমে পঠন-পাঠন না হওয়ায় শিক্ষাগ্রহণে আমার অসুবিধা হয়।					
১২	ভাষাগত সমস্যার জন্য শ্রেণীকক্ষের মধ্যে আমি নিজেকে লুকিয়ে রাখি।					
১৩	শ্রেণীকক্ষে যে সকল পুস্তক বা শিক্ষাসামগ্রী (study materials)ব্যবহৃত হয়, ভাষাগত কারনে তা বুঝতে অসুবিধা হয়।					
১৪	আমার উচ্চারণভঙ্গিকে সহপাঠীরা উপহাস করে।					
১৫	শিক্ষক/শিক্ষিকারা শ্রেণীকক্ষে ছবি উপস্থাপনের মাধ্যমে পড়ালে আমি মনোযোগ দিতে পারিনা।					
১৬	শ্রেণীকক্ষে প্রদত্ত worksheet সম্পন্ন করতে আমার ভালো লাগে না।					
১৭	শ্রেণীকক্ষে শিক্ষক/শিক্ষিকারা অঙ্গ-ভঙ্গিমার মাধ্যমে পড়ালে আমি সঠিকভাবে তা অনুসরণ করতে পারিনা।					
১৮	শ্রেণীকক্ষে বিভিন্ন হাতে-কলমে কাজ (hands on activity) করতে আমার অসুবিধা হয়।					
১৯	ওভারহেড প্রজেক্টররের মাধ্যমে পাঠদান অনুধাবন করতে আমার অসুবিধা হয়।					

Appendix- D

Perceived Pedagogical, Social and Cognitive Supports Scale (PPSCS Scale)

Developed by, L.L.Mohakud, A.Kisku, and S.Khan (2023)

নির্দেশিকাঃ

এই উচ্চশিক্ষা প্রতিষ্ঠানে অধ্যয়নরত অবস্থায় আপনার শিক্ষণ-শিখন পদ্ধতি, সামাজিক, বৌদ্ধিক/প্রজ্ঞামূলক সমাধান সম্পর্কে নিম্নে ১৫ টি বিবৃতি আছে। নিচের উক্তি গুলিতে আপনার এই শিক্ষা প্রতিষ্ঠানে বাধা সম্পর্কে মতামত জানতে আগ্রহী। প্রত্যেকটি উক্তির সাপেক্ষে ৫ টি বিকল্প দেওয়া আছে, যথা ১) সম্পূর্ণ সহমত (Strongly Agree). ২) সহমত (Agree). ৩) নিরপেক্ষ (Undecided/ neutral). ৪) অসহমত (Disagree). ৫) সম্পূর্ণ অসহমত (Strongly Disagree). আপনি প্রতিটি উক্তি যত্ন সহকারে পড়ুন এবং আপনার মতামতটি নির্দিষ্ট ঘরে টিক (✓) চিহ্ন দিন। কোনো প্রতিক্রিয়া ঠিক বা ভুল নয়। স্কেলের নিরিখে আপনি সম্মতি অথবা অসম্মতি জানাবেন। আপনাকে নিশ্চিত করা হচ্ছে যে আপনার প্রতিক্রিয়াগুলির গোপনীয়তা বজায় রেখে শুধুমাত্র এই গবেষণার উদ্দেশ্যেই ব্যবহার করা হবে।

আপনার সহযোগিতার জন্য অসংখ্য ধন্যবাদ।

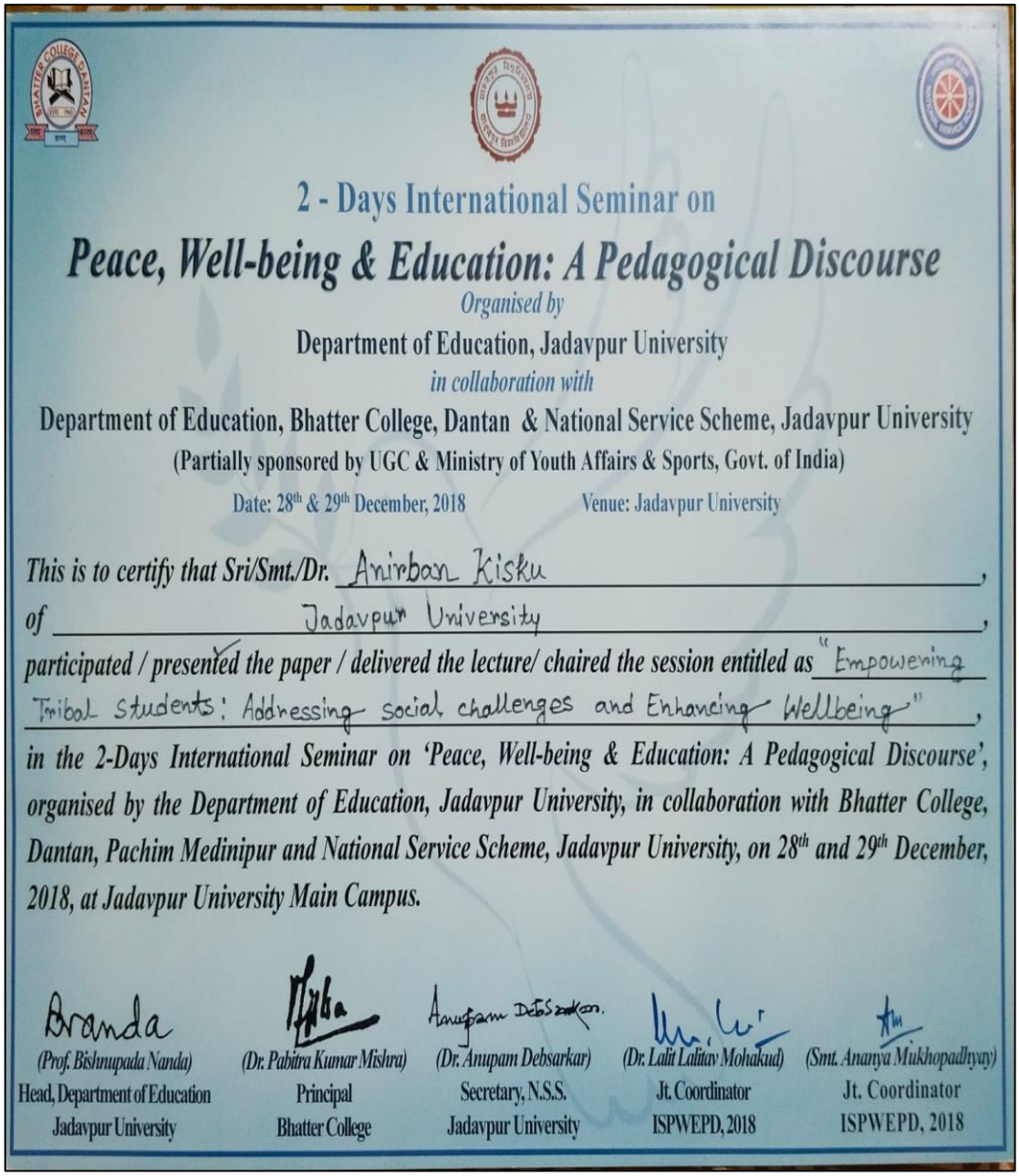
ক্রমিক সংখ্যা	বাধাসমূহ	সম্পূর্ণ সহমত	সহমত	নিরপেক্ষ	অসহমত	সম্পূর্ণ অসহমত
১	কোনো গবেষণা/প্রকল্প করতে সমস্যা হলে সহপাঠীরা আমাকে সাহায্য করে। My classmates always help me in order to accomplish my research/project work.					
২	শিক্ষক-শিক্ষিকারা ভালো কাজের জন্য আমাকে উৎসাহিত করেন। Teachers encourage me for my good work.					
৩	নতুন কিছু করতে গেলে সহপাঠীরা আমাকে উৎসাহিত করে। When I do something, my classmates encourage me.					
৪	মানসিকভাবে হতাশাগ্রস্ত হয়ে পড়লে আমি শিক্ষক/শিক্ষিকাদের পাশে পাই। My teachers support me whenever I feel depressed.					
৫	সহপাঠীরা আমার মতামতকে যথেষ্ট গুরুত্ব দেয়। My classmates give due importance to my opinions.					

ক্রমিক সংখ্যা	বাধাসমূহ	সম্পূর্ণ সহমত	সহমত	নিরপেক্ষ	অসহমত	সম্পূর্ণ অসহমত
৬	এই প্রতিষ্ঠানের শিক্ষক / শিক্ষিকাদের সঙ্গে আমার সম্পর্ক ভালো। I have good relationship with my teachers in this institute.					
৭	শিক্ষা সংক্রান্ত কোনো সমস্যার সম্মুখীন হলে শিক্ষক/শিক্ষিকারা আমার পাশে দাঁড়ান। Whenever I face problems related to my studies, my teachers support/help me.					
৮	শিক্ষক/শিক্ষিকারা আমার শিক্ষা বিষয়ক অগ্রগতির প্রতি বিশেষভাবে যত্নবান। The teachers are very much concerned about my academic progress.					
৯	শিক্ষা বিষয়ক সমস্যা সমাধানের জন্য, আমি প্রয়োজনীয় প্রতিকারমূলক ক্লাস (remedial class) পায়। I received remedial classes as needed to address academic issues.					
১০	বিশ্লেষণমূলক চিন্তা করতে, শিক্ষক/শিক্ষিকারা আমাকে উৎসাহিত করেন। My teachers encouraged me to think analytically.					
১১	শ্রেণীকক্ষে স্বচ্ছন্দভাবে কথা বলার জন্য শিক্ষক/শিক্ষিকারা আমাকে উৎসাহিত করেন। Teachers encourage me to speak freely in the classroom.					
১২	শ্রেণীকক্ষের পারস্পরিক আলোচনা আমাকে কোনো ধারনা গভীরভাবে অন্বেষণ করতে সাহায্য করে। Classroom interaction helps me to explore an idea in depth.					
১৩	আমার প্রতিষ্ঠান আত্মবিশ্বাসের সাথে নিজেকে উপস্থাপন করতে সাহায্য করে। My organization helps me to present myself confidently.					
১৪	অন্যান্য শিক্ষার্থীদের সঙ্গে শিক্ষাবিষয়ক বিবিধ আলোচনা করতে আমাকে উত্সাহিত করা হয়। My institution encourages me to discuss educational matters with other students.					

ক্রমিক সংখ্যা	বাধাসমূহ	সম্পূর্ণ সহমত	সহমত	নিরপেক্ষ	অসহমত	সম্পূর্ণ অসহমত
১৫	উচ্চারণভঙ্গিকে পরিমার্জন করার জন্য শিক্ষক/শিক্ষিকারা আমাকে উৎসাহিত করেন। The teachers motivate me to work on improving my pronunciation					

Appendix- E

Photo Copy of Paper Presentation Certificate-1



2 - Days International Seminar on

Peace, Well-being & Education: A Pedagogical Discourse

Organised by

Department of Education, Jadavpur University

in collaboration with

Department of Education, Bhatter College, Dantan & National Service Scheme, Jadavpur University

(Partially sponsored by UGC & Ministry of Youth Affairs & Sports, Govt. of India)

Date: 28th & 29th December, 2018 Venue: Jadavpur University

This is to certify that Sri/Smt./Dr. Anirban Kisku,

of Jadavpur University,

participated / presented the paper / delivered the lecture/ chaired the session entitled as "Empowering Tribal Students: Addressing social challenges and Enhancing Wellbeing",

in the 2-Days International Seminar on 'Peace, Well-being & Education: A Pedagogical Discourse', organised by the Department of Education, Jadavpur University, in collaboration with Bhatter College, Dantan, Pachim Medinipur and National Service Scheme, Jadavpur University, on 28th and 29th December, 2018, at Jadavpur University Main Campus.

(Prof. Bishnupada Nanda)	(Dr. Pabitra Kumar Mishra)	(Dr. Anupam Debsarkar)	(Dr. Lalit Lalitav Mohakud)	(Smt. Ananya Mukhopadhyay)
Head, Department of Education	Principal	Secretary, N.S.S.	Jt. Coordinator	Jt. Coordinator
Jadavpur University	Bhatter College	Jadavpur University	ISPWEPD, 2018	ISPWEPD, 2018

Photo Copy of Paper Presentation Certificate-2

GECE 2020

THE 1ST GLOBAL E-CONFERENCE ON EDUCATION-2020 | KOLKATA

Theme: "Human Cognition in Learning: An Educational Perspective"

CERTIFICATE OF PARTICIPATION

ANIRBAN KISKU

Ph.D. Scholar of Jadavpur University, Kolkata, has participated and presented a paper entitled "**Social Challenges and Supports in Higher Education: The Tribal Perspective**" in the 1st Global E-Conference on Education-2020, Kolkata, India, on the theme "Human Cognition in Learning: An Educational Perspective", organized by the Department of Education, Jadavpur University, Kolkata, India and the Department of Education, Dinabandhu Mahavidyalaya, Bongaon, North 24 Parganas, West Bengal, India on August 22-23, 2020.

DR. MUKTIPADA SINHA	DR. LALIT LALITAV MOHAKUD	SMT. BISWAJITA MOHANTY	DR. BISWAJIT GHOSH
Head, Department of Education	CONVENER, GECE-2020	CONVENER, GECE-2020	Principal, Dinabandhu
Jadavpur University	KOLKATA	KOLKATA	Mahavidyalaya

Appendix- F

Photo Copy of Paper Publication

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Social Adjustment Patterns of Tribal Students: Exploring Family Dynamics

Sankar Sing [a++*], Lalit Lalitav Mohakud [a#], Anirban Kisku [a++] and Sharif Khan [a#]

[a] Department of Education, Jadavpur University, Kolkata 700032, West Bengal, India.

Authors' contributions

This work was carried out in collaboration among all authors. Author SS managed the literature searches, reviewed the related literature, collected the data, and prepared the initial draft of the manuscript. Author LLM conceptualized and designed the study, translated and culturally adopted the research instrument in Bengali culture, has written the introduction section, and prepared the final draft of the manuscript. Author AK reviewed the related literature, collected the data, scored and tabulated, and prepared the references. Author SK performed the statistical analysis, interpreted the results, and wrote the methodology section. Finally, authors LLM and SK read and approved the final manuscript.

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Original Research Article

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ABSTRACT

This research delves into the intricate aspects of social adjustment among Scheduled Tribe students within the secondary school environment. The study explored the influences of family related factors (family dynamics) such as gender, family type, number of siblings, father's education and occupation, and familial monthly income on the social adjustment abilities of these students. Based on a cross-sectional survey conducted on randomly selected 310 bengali medium secondary school students from three subdivisions of Purba Medinipur District in West Bengal, the study revealed compelling insights. Bengali translated version of the Bell's Adjustment Inventory (Social

[++] Research Scholar;
[#] Assistant Professor;
**Corresponding author: E-mail: sankarsing1990@gmail.com;*

Adjustment Subscale) was used as research instrument. Data were analysed through independent samples t-test and one-way ANOVA. The gender-based analysis highlights that female (Mean=7.64) students within the Scheduled Tribe community face more significant adjustment challenges and exhibit lower social adjustment compared to their male counterpart (Mean=6.20) (P=.000). The influence of family type is also substantial, with students from nuclear families (Mean=7.22) encountering higher adjustment difficulties and more downward social adjustment than those from joint families (Mean=5.86) (P=.000). The examination of family size indicated that students with two siblings (in comparison to students who are single child, having one sibling and having three or more siblings) experience heightened adjustment difficulties and lower social adjustment (P=.025). Furthermore, the study underscored the role of socio-economic factors, revealing significant relationships between the father's occupation (P=.04) and educational qualifications (P=.05) with students' social adjustment abilities. While overall differences in familial monthly income did not prove statistically significant (P=.134), selected pairwise comparisons were also showed variations. Collectively, these findings contribute to a nuanced understanding of the factors shaping social adjustment among Scheduled Tribe students. The implications extend to the development of tailored interventions and support systems that address the unique needs of these students within the educational context.

Keywords: Social adjustment; secondary school students; tribal students; family dynamics.

1. INTRODUCTION

Adjustment, a significant aspect of human development, is an ongoing interaction between individuals and their environment [1], aiming to establish a harmonious relationship. It is the process by which a living organism maintains equilibrium between its physical, social, and psychological needs and the external factors influencing fulfilling them [2]. It's a state that fosters happiness and efficiency within an environment as individuals strive for psychological equilibrium and self-enhancement [3]. It is how or how to adapt to a new situation [4] and can be seen as an achievement, gauging conflict resolution, and a process of compromise during conflicts [5]. Although adjustment contains many aspects, such as social, educational, emotional, or psychological [6], and physical dimensions, the best part is social adjustment (SA), which is the prerequisite to the other aspects of adjustment [7]. As social beings, human beings need it to interact effectively with others. SA helps people face difficulties [8] and to understand social relationships well. Numerous studies highlight the significance of SA in various domains: peer relations, academics, family dynamics, happiness, and life satisfaction. The link between SA and academic success has been evidenced in Western countries and India [9,10]. Generally, sociable and prosocial children excel academically, while disruptive, aggressive individuals who perform poorly [11,12] often exhibit poor performance, withdrawal, shyness, and antisocial behavior, resulting in truancy and school absenteeism. Social withdrawal and inhibition are also tied to academic difficulties [9,10].

SA, involving interactions with parents, peers, and teachers, is pivotal in developing adaptive skills [13] and has garnered considerable attention from psychologists as a vital indicator of psychological well-being. Positive SA fosters healthy relationships, emotional well-being, and psychological health among students. As aligned with society's standards, values, and needs to gain acceptance [14], SA is a psychological process of coping with new norms and values. It is the ability to behave in a manner that fosters a healthy social life [15] and adapt to and thrive in diverse social situations. SA is a state of mind and behavior where one feels that one's needs have been or will be fulfilled [16]. The level of SA can be gauged by observing the extent to which a child displays acceptance in their relationships with other children and adults [17]. According to Packiaselvi and Malathi, SA comprises two aspects: general adjustment to other people and specific adjustment to a group [18]. It balances social relationships by appropriately applying social skills [19]. SA may occur by adjusting the self to the environment or changing the environment [20].

Social growth hinges on interactions with parents, peers, and teachers, reflecting oneself and others' adjustment [21]. In school, children learn to coexist and cooperate with peers and teachers from diverse backgrounds [22], boosting their SA skills, which impact their future

happiness, aspirations, motivation, well-being, and achievements. Tribal students are no exception. Recognizing the importance of SA skills in school, particularly for tribal students, highlights the role of diverse backgrounds in shaping one's future. Understanding the concept of tribes is essential in appreciating how tribal students learn to coexist in various school environments. Now, let's delve into the definition and characteristics of tribes as described by experts. A tribe comprises families sharing a common name, territory, language, and specific marriage and occupation taboos. They have an interchange and mutual obligations system and typically maintain an endogamous structure with political organization within their society. Tribal people, mainly indigenous, predominantly live in remote and inaccessible hilly and forest regions, maintaining a distinct culture that isolates them from mainstream society [23]. These communities exhibit significant variations in socio-economic factors, customs, rituals, food habits, language, and parenting styles compared to others [24]. Article 366 (25) of the Indian Constitution states Scheduled Tribes (ST) are groups recognized under Article 342 as Scheduled Tribes. Despite making up 8.6% of India's population, STs are often marginalized, with West Bengal's ST population at 5.8%, including 7.8% in rural and 1.5% in urban areas [Census Report, Govt. of India, 2011]. The unique cultural identities and complex social structures of tribal students, coupled with isolation, can lead to communication challenges and adjustment issues in schools, setting them apart from the broader society and contributing to feelings of aloofness. As secondary school marks a crucial phase of physical and mental growth for these students, their SA becomes paramount during this period [23]. They had more anxiety and adjustment issues than non-tribal students [24], and many lacked life skills.

Studies revealed several family [25,26] and school [26] related factors influence SA of school students, such as child nourishment, peer groups, economic conditions, caste systems, emotions, health, language, culture, education, behavior, morality, parenting factors [27-31]. Raju and Rhamtulla maintained parental occupation, caste, and gender are prominent among these factors [32]. Additionally, researchers have delved into the disparities in SA among tribal students, particularly examining family dynamics. Family dynamics encompass interactions shaped by individual traits, roles, culture, and external factors, impacting decision-making, conflict resolution, and emotions. These dynamics involve family type, parental backgrounds, income, siblings, collectivism, elder guidance, cultural values, economic implications, gender roles, parental involvement, language, cultural identities, community support, community resilience, etc. In tribal communities, as in others, these dynamics notably impact children's and students' interactions, relationships, and adjustment. These dynamics or factors also greatly influence the SA of tribal secondary-level students, affecting self-esteem, communication skills, and overall social competence [32]. Das and Deb discovered gender-based divergence in SA among tribal adolescents [19], and Jain and Yadav echoed this theme, emphasizing the relevance of gender in understanding adjustment dynamics [33]. These studies shed light on the multifaceted nature of SA among tribal students, considering various socio-demographic factors and gender-related nuances. Understanding and addressing these family-related influences is vital for promoting the well-being and SA of tribal secondary-level students [33]. Recognizing this complexity is essential for educators, counselors, and policymakers, as it affects academic performance, social development, and life outcomes, with family dynamics exhibiting substantial variation even within the same cultural or socio-economic context.

2. REVIEW OF RELATED LITERATURE

Investigation of SA among students, a compilation of studies reveals diverse findings. Das and Deb documented noteworthy differences in SA between tribal and non-tribal students in Tripura [19]. Akhtar underscored more pronounced adjustment-related issues among tribal students [24]. Auni et al., scrutinized Kenya's secondary school guidance and counseling programs, linking ineffective strategies to poor SA [34]. Kirtania explored 202 higher secondary students from West Bengal, noting the negligible impact of caste and parental factors on SA [Kirtania. P. (2019). Unpublished M. Phil Dissertation]. Osa-Edoh and Iyamu revealed that well-adjusted students perform better academically [35].

Chauhan and Taviyadi and Patel identified gender-based differences among higher secondary students in SA [36,37]. Ganai and Mir found no gender-based differences in adjustment [38]. Yellaiah noted gender-based disparities in emotional, social, and educational adjustment,

while Basu identified better adjustment among female, joint family, and English medium students [39,22]. Gehlawat found no significant difference in the emotional, social, and educational adjustment of boys and girls in secondary school [40]. It was found that male school students differ significantly in SA compared to female adolescents [37,17,18,39]. On the other hand, Muneer studied 350 tribal residential school students in Kerala and revealed that gender does not significantly affect SA [41].

Patial and Patial revealed various factors influence SA, such as motivational values, goals, past experiences, conflicts, frustrations, ego status, coping patterns like compromise, withdrawal, and attack, defense mechanisms, and attitudes that can be goal-directed, problem-solving, or self-centered [16]. Acharya examined 316 tribal girls from Odisha's Aspirational Districts, discovering significant disparities in SA across various socio-economic strata [42]. Tahir et al. (2022) found a strong link between the home environment and the SA of secondary school students in Kashmir [17]. Packiaselvi and Malathi found no significant differences in SA concerning mother tongue, gender, school location, family type, parents' educational qualifications, occupations, and monthly parental income [18]. Ghatak and Yellaiah reported no significant difference in SA between urban and rural adolescents [15,39].

The analysis of the related studies showed collectively that these studies emphasize the multifaceted nature of SA of school students influenced by gender, socio-economic status, counseling interventions, etc. Still, research has yet to explore how SA is affected by family dynamics among tribal students. Therefore, the present study aims to provide significant insights into the SA abilities of ST students in secondary school settings through a comprehensive analysis of family dynamics considering key variables such as gender, type of family, number of siblings, father's education and occupation, and family income. This investigation aims to determine if there are any significant variations in SA among ST students based on their family dynamics. Based on the objectives above, some null hypotheses were formulated for evaluation, which contend that there is no significant difference in the SA of ST students based on their family dynamics, including gender, type of family, number of siblings, father's education and occupation, and family income.

3. METHODOLOGY

3.1 Participants

All the Scheduled Tribe students studying in Bengali medium secondary schools in West Bengal constitute the target population of the study. The study participants were Scheduled Tribe (ST) students in Class VIII to X. They were 13 to 17 years old. For this study, the researchers followed a cross-sectional survey design to examine the SA patterns of randomly selected 310 students (114 girls and 196 boys) from Panskura-I, Panskura-II, and Tamluk subdivision of Purba Medinipur District in the state of West Bengal, India.

3.2 Measures

In this study, the researchers used a personal information sheet and the Bell's Adjustment Inventory (BAIo) of R. K. Ojha [43]. The original version of the BAIo was in English and had four sub-scales (Home Adjustment, Health Adjustment, Social Adjustment, and Emotional Adjustment) with 35 items each. For this study, only the SA sub-scale was used, which was translated and adapted into Bengali culture through a pilot study on a smaller representative group by Mohakud and Kirtania [44]. Content validity of the tool was ensured through experts' judgment. Also based on the expert's judgment, we considered only 15 items of this sub-scale for the final data collection measure. All the items had two options (Yes or No), with a score of 1 for 'Yes' and 0 for 'No'. The internal consistency reliability of the measure was high. A higher score on this scale indicates higher difficulty in adjustment and consequently lower social adjustment, and vice versa.

3.3 The Procedure of Data Collection

The researchers administered a cross-sectional survey among the participants to measure their social adjustment abilities. At first, the researchers identified the target population and then prepared a list of the target population. After that, the researcher selected some representative population groups using the mentioned sampling procedure. The researchers then visited the participants, explaining the purpose of the research and all legal research procedures and asking for voluntary participation. When they agreed, the researchers instructed the procedures clearly and then administered the

personal information sheet and the Social Adjustment Sub-Scale. They organized the filled-in instruments for further screening and scoring after the survey and stored the data in an Excel worksheet on the personal computer for final analysis. Finally, the researchers used descriptive statistics, such as Frequency, Mean, and Standard Deviation (SD), to analyze the data. They used independent sample t-test and One-Way ANOVA in SPSS to test hypotheses.

4. RESULTS

A set of data is normal if the Skewness (Sk) and Kurtosis (Ku) are zero (0) and .263, respectively. However, in social sciences, it is rare to find the same. Therefore, social science researchers empirically set a range to consider data normality. In the present study, the distribution of SA scores among the participants is considered normal as the Sk is .601 with a Standard Error (SE) of .175 and the Ku is -.678 with a SE of .348. which lies within the range considered by Curran et al. (Sk < 2, Ku < 7) and Kline (Sk < 3, Ku < 10) [45,46].

4.1 Gender, Family Type and Social Adjustment

The mean score of SA for females is higher than for males (see Table 1), which means female students had higher adjustment difficulty and lower SA than their counterparts. The mean difference is -1.44. Further, the independent samples t-test result revealed that the difference is statistically significant (p=.000<0.01).

While the type of family was the concern, the analysis revealed that the mean score of SA for students from nuclear families is higher than those from joint families, meaning students from nuclear families had more incredible adjustment difficulty and lower SA than students from nuclear families. The mean difference is -1.37. Further, the independent samples t-test result revealed that the difference is statistically significant (*P*=.000<0.01).

4.2 Number of Siblings and Social Adjustment

When we compared the mean scores of SA concerning the number of siblings among the ST students, the analysis revealed that the students having two siblings face the highest adjustment difficulty; consequently, they have the lowest SA, followed by having one sibling, single child, and the students having more than three siblings face lowest adjustment difficulty hence highest SA. Further, the ANOVA result revealed that the variances among the groups are statistically significant (*P*=.025<0.05), and the differences lie between having one sibling and having more than three siblings (*P*=.023), and between having two siblings and having more than three siblings (*P*=.006).

4.3 Fathers' Occupation and Social Adjustment

Concerning the students' SA based on their father's occupation, the analysis revealed that the tribal students whose fathers are businessmen face the most severe adjustment difficulty and consequently lowest SA, followed by the labourer, agriculture, others, service, and lowest adjustment difficulty and therefore highest SA for the tribal students, whose fathers are drives. Further, the ANOVA results revealed the variances among the groups are statistically significant (*P*=.04<0.04). The differences lie between agriculture and driver (*P*=.009), business and driver (*P*=.005), and labour and driver (*P*=.009).

4.4 Fathers' Educational Qualification and Social Adjustment

Table 4 shows the SA of tribal students concerning their fathers' educational qualifications. The tribal students whose father's educational qualification is Class XI and above face the highest adjustment difficulty, meaning they have the lowest SA, followed by Class IV, Illiterate. On the other hand, students whose father's educational qualification is between Class-V to Class-X face the lowest adjustment difficulty, which means the highest SA. Further, the ANOVA result revealed the variances in mean scores are statistically significant (*P*=.050). Additionally, the multiple comparisons through the LSD test showed that the differences lie between illiterate and Class-XI and Above (*P*=.010), up to Class-V and Class-XI and Above (*P*=.026), and Class-V to X and Class-XI and Above (*P*=.010).

4.5 Familial Income and Social Adjustment

When we focused on the SA of the tribal students concerning their familial monthly income, our analysis revealed that students belonging to the Rs. 6001/- to Rs. 12000/- familial monthly income group face the highest adjustment difficulty; consequently, they have lowest SA, followed by up to Rs. 3000/- income group, Rs. 3001/- to Rs. 6000/- income group and lowest adjustment difficulty and higher SA for above Rs. 12000/- income groups. Further, the ANOVA result revealed that the variances in SA among the income groups are statistically insignificant (P=.134>0.05), and SA does not vary significantly based on students' familial monthly income.

However, the multiple comparisons through the LSD test revealed a statistically significant difference in social adjustment between up to 3000 and above 12000 income groups (*P*=.039) and between 6001 to 9000 and above 12000 income groups (*P*=.006).

Table 1. Gender and family type-wise comparison of social adjustment

		N	Mean	SD	MD	SE_M	t	df	*P*
Gender	Male	196	6.20	2.28	-1.44	.16266			
	Female	114	7.64	2.10		.19667	-5.528		.000**
Type of family	Joint	111	5.86	2.29	-1.37	.2168		308	.000**
	Nuclear	199	7.22	2.19		.1553	-5.214		

***result is statistically significant at 0.01 level of significance*

Table 2. The comparison of SA mean scores concerning the number of siblings

Number of Siblings	N	Mean	df	F	*P*
Single Child	47	6.47			
Having one Sibling	74	7.01			
Having Two Siblings	102	7.12	3	3.15	.025*
More Than Three Siblings	87	6.18			
Total	310	6.73			

**result is statistically significant at 0.05 level of significance*

Table 3. The comparison of SA mean scores concerning fathers' occupations

Father's Occupation	N	Mean	df	F	*P*
Agriculture	161	6.86			
Service	33	6.24			
Business	20	7.50			
Labour	45	7.07	5/297	2.36	.04*
Driver	28	5.61			
Others	16	6.69			
Total	303	6.74			

**result is statistically significant at 0.05 level of significance*

Table 4. Mean comparison of SA based on fathers' educational qualifications

Father's educational qualification	N	Mean	df	F	*P*
Illiterate	121	6.60			
Up to Class-IV	52	6.62			
Class-V to X	99	6.57	3/306	2.638	.050*
Class-XI and Above	38	7.71			
Total	310	6.73			

**result is statistically significant at 0.05 level of significance*

Table 5. The comparison of SA mean score concerning familial income

Monthly Income	N	Mean	df	F	*P*
Up to Rs. 3000/-	187	6.8235			
Rs.3001/- to Rs.6000/-	71	6.7183			
Rs. 6001/- to Rs.12000/-	17	7.3529	3	1.874	.134
Above Rs. 12000/-	35	5.9429			
Total	310	6.7290			

5. DISCUSSION

Results revealed that male and female tribal students differ significantly regarding their SA, and female students had lower SA than males. This finding is corroborated by Deb and Walsh; Tripathy and Sahu; Roy, Hossain, and Shithee; Taviyad and Patel; Tahir et al.; Ghatak, and Yellaiah [47,48, 49, 37,17,15,39], however, it contradicts the findings of Gehlawat; Rehman and Singh; Raju and Rahamtulla [40,50,32]. These findings confirm the traditional gender stereotypes. It was also found that ST students from nuclear and joint families differ significantly regarding their SA, and students from nuclear families had lower SA than those from joint families. This finding is in line with the results of Akpan-Idiok and Ackley; Rehman and Singh; Roy, Hossain, and Shithee; Tripathy and Sahu Dey and Sultana [51,50,49,48,52]. However, the results of Sharma; Rani and Khajuria; Bhungaria and Kaji, and Sahar and Muzaffar contradicted this finding [53-56]. This research delves into the nuanced dynamics of SA among ST students, uncovering gender-based and family-based differences that have implications for their educational experiences. The findings not only shed light on the unequal SA opportunities for male and female students and those from different family types but also provide insights into traditional gender stereotypes and familial influences within the tribal educational context. This study also highlighted that number of siblings plays a significant role in determining the SA pattern of ST students. This outcome echoes earlier research by Sonawat, emphasizing the substantial influence of family size on students' SA abilities within tribal contexts [57]. Understanding this relationship can inform targeted interventions to improve the social well-being of tribal students in their educational experiences. Fathers' occupation significantly influences the SA of the tribal students. This finding aligns with Yeo et al. [58], but contradicts Raju and Rahamtulla [32]. These results highlight the importance of considering socio-economic factors, such as paternal occupation, for tailored support systems and improved SA among tribal students. Analysis also revealed that the social adjustment patters of tribal students is significantly influenced by the highest educational qualification of the father. These findings align with prior research [32], potentially reflecting complexities linked to higher levels of fathers' education that influence social and educational expectations. Addressing these patterns requires tailored interventions based on paternal educational backgrounds, considering factors contributing to students' social adjustment. Understanding these dynamics is crucial for devising effective strategies to enhance the well-being and SA of tribal students. Findings of the study also revealed that overall income is not a significant factor for social adjustment among the tribal studnts. However, when SA patters was compared among specific familial monthly income groups, some significant differences present were present there. These differences may arise due to sampling fluctuations. These differences may arise due to sampling fluctuations. No study was found to support this finding. However, the results of Desai and Kulkarni contradicted this finding [59]. These findings emphasize the importance of considering socio-economic factors when understanding social adjustment among tribal students, suggesting that the association might be more nuanced than a simple linear relationship. However, the potential influence of sample fluctuations on the observed differences underscores the need for a cautious interpretation of these significant variations.

6. CONCLUSION

This study examined the intricate dynamics of social adjustment among Scheduled Tribe students in secondary school settings. The research delved into the influences of gender, family type, number of siblings, father's education and occupation, and family income on the social adjustment abilities of these students. The study revealed noteworthy findings through a comprehensive analysis that shed light on the nuanced factors shaping tribal students' social adjustment experiences. The analysis of gender-

based differences unveiled that female tribal students exhibited higher adjustment difficulties and lower social adjustment than their male counterparts. This discrepancy aligns with prior research while challenging specific opposing findings.

Moreover, the influence of family type emerged as a significant factor, indicating that students from nuclear families faced greater adjustment challenges and lower SA than those from joint families. Exploring the effects of family size on social adjustment, the study found that students with two siblings faced the most significant adjustment difficulties and displayed lower social adjustment. This outcome resonates with earlier research, reinforcing the role of family structure in students' social well-being. Similarly, the influence of the fathers' occupations and educational qualifications on SA was evident, highlighting the complexity of socio-economic factors in shaping students' adjustment abilities. The investigation into familial monthly income indicated that while overall differences were not statistically significant, specific pairwise comparisons demonstrated variations. These findings underscore the multifaceted relationship between socio-economic status and social adjustment among tribal students.

This study contributes to a deeper understanding of social adjustment dynamics among Scheduled Tribe students, revealing the significance of gender, family dynamics, socio-economic factors, and their interactions in shaping students' social adjustment experiences. It is unwise to generalize these findings; however, further large-scale and in-depth research is required. Based on these it is recommended to implement gender-sensitive support systems to address the unique social adjustment challenges faced by female tribal students in secondary schools. It is also recommended to foster collaborative efforts with nuclear families, recognizing their students may experience greater social adjustment challenges, and provide support through initiatives like parent-teacher interactions. Families need to promote positive sibling relationships through school activities. It is also recommended to develop tailored interventions considering the influence of fathers' occupation and educational qualifications on social adjustment, including initiatives like scholarship programs and career counseling. We need to adopt a nuanced approach to socio-economic factors, acknowledging the impact of specific income groups on social adjustment, and design customized interventions to address their unique challenges. Teacgers needs to actively engage with tribal communities and parents to understand unique challenges and aspirations, ensuring that interventions align with cultural contexts for social adjustment of tribal students in secondary school settings.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Appendix- G

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Tribal Students in Higher Education: Exploring Their Pedagogical, Social, and Cognitive Challenges and Supports

By Anirban Kisku

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