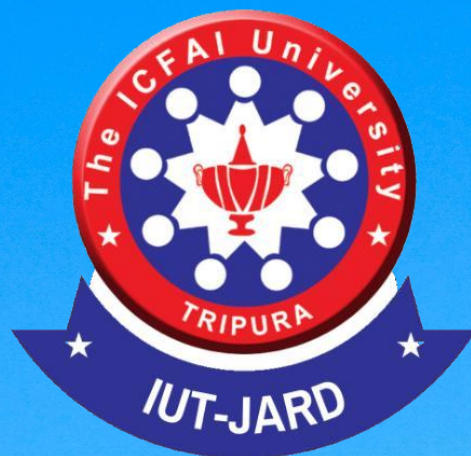


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MESSAGE FROM THE DESK OF EDITOR IN CHIEF

The Chief Editor and Editors of the advanced research journal of Management, Engineering, Law, Paramedical Science, Nursing, Basic Science, Education, Physical Education and Yoga, Special Education, Clinical psychology and Liberal Arts i.e. IUT Journal of Advanced Research and Development (JARD) would take it as their duty to express the deep gratefulness to the contributors and readers of current volume.

We feel proud to bring the present issue of the online IUT Journal of Advanced Research and Development. We consider that the contribution in this multidisciplinary will help in the inclusive and sustainable growth process. Keeping in tune with this dignified idea, the current issue of IUT-JARD has addressed some current issues covering diversified field.

This issue needs an integrative and a holistic approach to the solution. Finally, the information contains in this journal volume has been published by the IUT obtains by its authors from various sources believed to be reliable and correct to the best of their knowledge, and publisher is not responsible for any kind of plagiarism and opinion related issues.



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CORRELATION ANALYSIS OF FIDELITY BOND INSURANCE AND FRAUD IN THE NIGERIAN BANKING SECTOR (2012-2021)

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Abstract

The fidelity bond insurance is a policy that provides cushion against the effect of loss resulting from frauds, forgeries, unethical and dishonest acts of employees on the performance of the organization. However, the extent to which compliance with the insurance is related to frauds in the banking sector has not being clearly described in past studies. Thus, the study described the relationship between fidelity bond insurance and fraud in the Nigerian deposit money banks (DMBs) for the period, 2012-2021. Descriptive statistics and as well as both parametric (Pearson Product Moment) and non-parametric (Spearman rank-order and Kendall's tau b) correlation techniques were employed in analyzing the annual secondary data obtained from the annual reports of the Nigeria Deposit Insurance Corporation. The descriptive statistics indicates the average level of compliance with the fidelity bond insurance by DMBs as 50.34 per cent while the minimum and the maximum rate was 25.00 and 88.00 percent respectively. Also, the average number of staff of DMBs involved in fraud was 523 with its minimum and maximum standing at 231 and 899 respectively. Furthermore, the average frequency of fraud cases in DMBs was 52,147 while it ranges from 3380 to 211713. Both parametric and non-parametric correlation tests confirms a negative relationship (correlation) between compliance with fidelity bond insurance and each of frequency of fraud occurrence and number of staff involved in fraud in DMBs in Nigeria. The study concludes that fidelity bond insurance reduces the fraud cases in terms of frequency of occurrence and staff involvement in the Nigerian banking sector. There should be implementation of stricter measures against non-compliance with the insurance policy. The Regulatory Authorities should also provide rewards and commendation for consistent and full compliance by the banks with the insurance policy in order to encourage higher compliance rate in the Nigerian banking sector.

Keywords: Banking Sector, Compliance, Correlation Tests, Deposit Money Banks, Fidelity Bond Insurance, Nigeria Deposit Insurance Corporation.

1. Introduction

Fraud is a big industry and is pervasive of all economies, sectors, countries and nations of the world. As the world and human activities get more sophisticated, so do complications arise from the network of human activities capable of distorting the normal order of doing things. For instance, due to the fallibility of human nature, organization staff may be involved in certain dishonest and fraudulent activities that could undermine the growth of the organisation. Thus, implementing intermediation function of linking customers with capital deficit to customers with capital surplus, banks and bank workers come in contact with both customers and non-customers, and this contact engenders the risk of fraud (Adeyemo, 2012). Thus, insurance policy called fidelity bond insurance is usually put in place to provide cushion against the effect of loss resulting from fraud and dishonest acts by employees on the performance of the organization. Fidelity insurance protection is appropriate for all banks because it insures against certain risks that contain the potential for significant loss.

Banking industry is the most controlled and regulated industry in Nigeria; still, this did not stop fraud from eating deep into every unit and department in the banking sector (Olaoye et al., 2014). The frequency of fraud occurrences, population of staff involved, amounts of loss, as well as amount of money involved in fraud have been on the increase in corporate organisations like banks and this has badly affected the firms' bottom line. Banking sector like other sectors of the economy is not immune against fraud. Bank fraud entails the fraudulent use of one's position within or outside of the bank for personal enrichment by deliberately misusing or misappropriating the bank's financial resources and other assets and obtaining funds from bank customers through fraudulent representation (Akelola, 2012). Fraud can be committed by employees, customers or others, operating independently or in conjunction with others inside or outside the bank and the effect of fraud on the banking sector could be devastating thus causing liquidation (Ogunleye, 2010). The Central Bank of Nigeria, Nigeria Deposit Insurance Corporation (NDIC) and other regulatory authorities charged with the responsibility of ensuring the safety and soundness of the banking system have institutionalised different policies and frameworks to curb the menace of fraud in the financial system. For instance, Section 35 of the NDIC Act No 16, 2006 requires the insured banks in Nigeria to render to NDIC monthly returns on frauds, forgeries or outright theft occurring during such month and notify the Corporation of any staff dismissed or terminated on account of such malpractices (Ogunleye, 2010).

The relationship between fidelity bond insurance and frauds in the banking sector has not being clearly described in past studies. Past studies on the subject of fraud in the banking in industry in Nigeria are mostly impact assessment which include empirics like forensic auditing and financial crime (Akenbor and Oghoghomeh (2013)); forensic audit on fraud detection and prevention in the Nigerian banking sector (Uniamikogbo et al (2019)); forensic accounting and fraud mitigation (Aigienohuwa et al (2017)); fraud and bank deposit (Offiong et al (2016)). Past descriptive studies include the form of conceptual review (Adeyemo (2012)) and as well quantitative descriptive analysis (Olaoye et al (2014)). None of these past studies analysed fraud in relation with fidelity bond insurance in Nigeria. Problems that cannot be accurately and clearly described cannot be easily solved. Hence, the descriptive approach employed in this study. The existence of a consistent increase in the number of cases of frauds in DMBs in Nigeria prompted the need to consider means of curbing the menace. Considering fraud as a problem in the Nigerian banking industry, this study describes the problem of fraud in the industry using quantitative approach. Specifically, this study aims to (i) describe the level of compliance with fidelity bond insurance by DMBs, frequency of fraud occurrence, staff involvement in fraud, total amount involved in fraud, as well as total actual loss resulting from fraud in the DMBs in Nigeria; (ii) analyse the relationship between compliance with fidelity bond insurance and frequency of fraud occurrence in DMBs in Nigeria; (iii) examine the relationship between compliance with fidelity bond insurance and number of staff involved in fraud in DMBs in Nigeria.

The outline of this paper is as follows. In addition to the Introduction in section one, section two reports the conceptual, theoretical and empirical literature reviewed. The research methods are clearly described in section and data are presented, described and analysed in section four. Finally, conclusion and recommendations are subject matters of section five.

2. Literature Review

2.1 Conceptual Review

2.1.1 Fraud

Bank fraud involves an act of dishonesty, deceit and imposture (Ogunleye, 2010). Fraud involves an intentional and unlawful misrepresentation which causes prejudice, most often misappropriation, which is the removal of cash, or asset to which the fraudsters is not entitled as well as false accounting in which records and numbers reported are to give and create false impression (Ogunleye, 2010). Fraud could be grouped into classes like management fraud, insiders fraud (employee fraud or non-management fraud), outsiders fraud, outsiders/insiders fraud (Adeyemo, 2012).

There is no curse without causes and as such the major causes of bank frauds enumerated by Ogunleye (2010) have been classified into two factors namely: institutional or internal factors and environmental or societal factors. According to the author, the institutional causes of frauds include excessive workload, poor staffing, inadequate or lack of staff training, poor management culture, frustration, inadequate infrastructure, poor accounting and internal control systems; while environmental causes of frauds include poor and warped social values, the penchant to get rich quick, slow and tortuous legal process, lack of effective deterrent or punishment and redundancy on the part of the individual bank to report frauds.

Bank managements do embark on unethical acts and frauds due to certain reasons which could be due: to hide illiquidity; to evade sanctions for breach of the regulatory lending limits; to hide capital deficiency; to minimise payment of premium to NDIC, cash reserve obligation to the CBN and tax to the relevant Tax Authorities; to present healthy credit portfolio and hide the weaknesses in risk assets; to meet up with peer standards and industry performance benchmarks and paint rosy pictures of their state of affairs before the investing public and potential depositors; and to shrink deposits and reduce their loan portfolio; to obtain arbitrage income from round-tripping of foreign exchange which are acquired from the CBN with fictitious documentation (Ogunleye, 2010). Furthermore, the influence of power, personal gain and self-control, loss aversion and risk acceptance, rationalization, and emotion are the drives or propensity to commit fraud (Ikechi&Nwadiubu, 2020).

According to Ogunleye(2010), measures to guard against fraud could either be direct controls or indirect controls. The author noted that some of the direct controls include: timely and periodic reconciliation of bank accounts, cash in hand, inventory and other items of value; dual signatories and authorization limits; segregation of duties; and management review. The indirect controls measures include: physical security/access controls (like the use of security tags, CCTV cameras or other surveillance equipment); effective internal audit; pre-employment screening; conducive working environment; fraud policy; prompt fraud resolution; fraud training; whistle-blowing policy; controls over the information technology environment; and insurance policy (Ogunleye, 2010). Other precautionary measures that should be taken to guard against fraud in the Nigerian banking industry include effective corporate governance, strong internal control mechanisms; strong financial regulation and supervision; continuous system of evaluation and mitigation of any irregularities; healthy co-operation between government and private enterprise (Ikechi&Nwadiubu, 2020).

2.1.2 Fidelity Bond Insurance

Fidelity bond insurance cover is a type of insurance subscribed to by an employer to protect against losses caused by employees through embezzlement or theft and it is a type of insurance that protects an employer against losses caused by employees through dishonest practices (NDIC Annual Report, 2021). The minimum fidelity insurance Coverage required is 15% of DMB's paid-up capital as at December 31 of the preceding year. Sections 33, 35, and 36 of the NDIC Act No 16 of 2006 mandate licensed DMBs in Nigeria to render statutory returns on the cases of fraud and forgeries in their institutions to the NDIC. The provisions also require banks to have fidelity bond insurance against potential losses that may arise from the fraudulent and dishonest activities of their employees.

Fidelity insurance cover also called fidelity bond, fidelity bond insurance or fidelity guarantee is an insurance policy designed to mitigate the effect of the potential losses on institutions occasioned by forgeries, theft, misappropriation, embezzlement, dishonest, unethical acts, fraud and other intentional wrongful acts by the employees of the institutions. The policy covers policyholders for losses that they incur as a result of fraudulent acts by specified individuals. They are a form of insurance taken up by a business to cushion the effect of losses caused by the dishonest acts of its employees-full and/or contract staff. The policy which protects businesses against fraud committed by employees is called first-party fidelity insurance while the one that covers employees engaged on contract basis is called third-party fidelity insurance.

2.2 Theoretical Review

2.2.1 Fraud Triangle Theory

This is one of the pioneer theories of fraud. It was propounded by Cressey in 1953. The theory states that for there to be fraud three elements: pressure, opportunities and rationalization must meet. According to the author, pressure is non-sharable financial need/problem and opportunity relates to the ability to execute a fraud scheme without being caught secretly resolve the financial pressure and perceived rationalization and justification of the illegal act relates to rationalization. The six sub-division of pressure are violation of ascribed obligations, problems resulting from personal failure, business reversals, physical isolation, status gaining, and employer-employee relations (Cressey, 1953). The meeting of the need yet unmet which put pressure on individual; the opportunity to satisfy cool down the pressure in an illegal way and go scot-free ('violation of the position of financial trust' (Cressey, 1973, p.30); and the mental attitude of justification of the said behavior without any form of mental condemnation of the intentional wrongful act (forgeries, theft, embezzlement, fraud) will result enjoy the commission of fraudulent act. Rationalisation entails the "verbalizations which enable them to adjust their conceptions of themselves as trusted persons with their conceptions of themselves as users of the entrusted funds or property" (Cressey, 1973, p.30).

2.2.2 The Potato Chip Theory of Fraud

The Potato Chip Theory of Fraud states that committing fraud and getting away with it can be addictive and so, once an employee starts stealing, he tends to continue because he cannot stop at just one fraud because fraud, by likening fraud perpetrators to a person that eats a potato chip, but never satisfied (Offiong et al., 2016; Ikechi&Nwadiubu, 2020). The theory accounts for repeated cases of fraud in an organization because once a fraudster succeeds in cheating, he becomes addicted, and it will be difficult for them to stop because they feel that they will not be caught(Ikechi&Nwadiubu, 2020). The theory

recognizes the power of addiction inherent in successfully execute scheme of crime and fraud in an organization. Like sweet potato chips, once a bank employee, without being caught, successfully defraud the bank or its customers, such an employee will graduate to higher frequency, bigger magnitude of fraud in the organization.

2.2.3 Fraudster as Employee Theory

The most important asset of any organization is the human asset and such asset (human capital) is expected to contribute positively to the performance of the organization. However, employees who are not trustworthy but fraudulent will do otherwise to the organization. And as such (Ikechi&Nwadiubu, 2020), the employee who commits fraud against the company he or she works for should not be considered an employee because fraudsters masquerading as employees use their positions to find weaknesses in the internal controls and exploit them to commit fraud. The authors observe these people are not out to better the company, other employees, shareholders, customers, or partners but they are only out to line their pockets with ill-gotten gains, and they have ceased to be employees (Ikechi&Nwadiubu, 2020). The theory consider employee as asset if they are contributing to the growth and survival organization but fraudulent individuals who works in the organization are mere liabilities and problems to the organization.

2.3 Empirical Review

Adeyemo (2012) in a descriptive study, examined the nature, causes, effects and remedy for bank frauds in Nigeria. From the review, the study concludes that reduction in the temptation to commit fraud and increase in the chances of fraud detection are key to the preclusion, uncovering and retribution of fraud offenders. Thus, a positive work environment and sound internal control system are instrumental to achieving the two keys, the study affirmed.

Akenbor and Oghoghomeh (2013) investigated forensic auditing and financial crime in Nigerian banks with a focus on employees of banks in Port-Harcourt, Rivers State, Nigeria. Frequencies count, percentages, Pearson product moment correlation techniques were used in the analysis. And findings therefrom reveal that the proactive approach to forensic auditing helps in the reduction of the risk of financial crimes in Nigerian banks.

Applying ordinary least squares (OLS) regression method, Offiong et al (2016) examined the effect of frauds on bank deposit level in Nigeria (1994-2013). The study concludes that the number of fraud cases and the amount of fraud loses have significant effects on banks deposit levels in Nigeria unlike the number of staff involved which was found to exert no significant relationship with the level of bank deposits in the country.

Aigienohuwa et al (2017) assessed the effectiveness of forensic accounting and fraud mitigation in the Nigerian banking industry. From the questionnaire survey, the study revealed that forensic accounting significantly reduces fraud in the banking industry and also helped to improve the internal control system of banks.

Uniamikogbo et al (2019) analysed the impact of forensic audit on fraud detection and prevention in the Nigerian banking sector between 2012 and 2016. From the regression analysis, the study revealed that forensic audit has a significant negative impact on number of fraud cases, number of staff involved in

bank fraud, and actual amount of bank losses through fraud in the Nigerian banking sector. Further evidence from the study however, indicates forensic auditing not to significant impact on expected fraud losses in the Nigerian banks.

3. Methods

The study aims to examine the relationship between fidelity bond insurance compliance and frauds in Nigerian banking sector. To achieve this aim, already existing data were employed in the study in line with the ex-post facto research design. The study was based on the raw data obtained from NDIC annual reports for various years. The correlation and descriptive statistical tests were applied to the annual time series data for the period 2012 to 2021. Both parametric (Pearson product moment correlation) and non-parametric (Spearman rank-order, and Kendall's tau b) correlation tests techniques were applied to the data.

Frequency of fraud occurrences and staff involvement in fraud are the two indicators of fraud examined while compliance with fidelity bond insurance by banks is measured as the quotient of the number of DMBs that fully complied with fidelity bond insurance to the total number of DMBs in operation (Table 1). The descriptive statistical test involves the description and characterization of the variables of study (fraud compliance with fidelity bond insurance by banks) and using measures like mean, minimum, maximum, kurtosis, skewness, standard deviation, Jacgue-Bera. Thereafter, the relationship between bank fraud and fidelity bond insurance was investigated through correlation tests. Tabular presentation of these results were employed. The statistical tool used in the analysis of the annual time series data is the Eviews version 10.

4. Results and Discussion

4.1 Presentation and Description of Data

4.1.1 The Level of Compliance with Fidelity Bond Insurance by Deposit Money Banks (DMBs) in Nigeria

The ten (10) year details of compliance with the fidelity insurance coverage by DMBs is presented in Table 1.

Table 1: DMBs' Level of Compliance with Fidelity Bond Insurance for the Period, 2012-2021

Years	No of DMBs in operation	No of DMBs that rendered returns	No of DMBs that fully complied with fidelity bond insurance	% compliance with fidelity bond insurance
2012	20	20	7	35.00
2013	24	24	6	25.00
2014	24	24	21	88.00
2015	24	22	12	50.00
2016	25	25	17	60.00
2017	27	25	18	72.00
2018	27	26	14	51.85
2019	27	27	12	44.44
2020	30	29	13	44.83
2021	32	31	10	32.26

Source: NDIC Annual Reports (2012-2021).

Table 1 presents the DMBs' level of compliance with fidelity bond insurance for the Period 2012-2021. In 2012, the total number of DMBs in Nigeria stood at 20 and they all rendered the required returns to NDIC but in terms of compliance with the fidelity bond insurance, only 7 out of the 20 of the DMBs fully complied, thus representing 35 per cent compliance rate (7/20) in the year. However, in 2013, the fidelity bond insurance' compliance rate by the 24 DMBs in operation fell to 25 per cent, representing about 31.43% decrease in compliance level. Furthermore, between 2012 and 2021 the highest compliance rate of 88% was recorded in 2014, wherein 21 out of the 24 DMBs in Nigeria fully complied with the fidelity bond insurance. From the 25% in 2013, there was increase of 252% in the Fidelity Bond Insurance' compliance rate compared with the 2014's 88% compliance rate.

In 2015, 22 out of the 24 DMBs in Nigeria rendered returns to NDIC while 12 of the 24 fully complied with the fidelity bond insurance, resulting in 50% compliance rate in the year. In relation to the 2015's compliance rate (50%), an increase of 20% in compliance level was experienced in 2016 with the year's compliance rate of 60%. The 2017 statistics shows that out of the 27 DMBs in operation in Nigeria, only 25 rendered the required returns to NDIC and 18 of them, fully complied with the fidelity bond insurance. The 72% compliance rate in 2017 is about 20% increase from 2016's compliance rate of 60%. There had been consistent increase in DMBs' level of compliance with the fidelity bond insurance from year 2015 to 2017 but the rate declined to 51.85% in 2018. Specifically, in 2018, 26 out of the 27 DMBs in operation in Nigeria rendered returns to NDIC and only 14 of them fully complied with the insurance. Compared with 72% compliance rate in 2017, the 2018's compliance rate (51.85%) is a 27.99% decrease compared with the preceding year's rate.

Table 1 indicates a further decline from 2018's fidelity bond insurance' compliance rate by DMBs of 51.85% to 44.44% in 2019, thus representing a 14.29% decrease from the preceding year's rate. In 2020, there were 30 DMBs in operation in Nigeria and 29 of them rendered returns to NDIC and also only 13 of the 30, fully ensured compliance with the Insurance cover. This resulted in 44.83% compliance rate with the Fidelity Bond Insurance expected by DMBs in Nigeria. The 44.83% compliance rate in 2020 indicates a slight increase of about 0.88% decrease from the 2019's compliance rate (44.44%). Compared with the 2015-2017 consistent rise in the fidelity bond insurance' compliance rate by DMBs, there were persistent decrease, in the periods, 2019-2021. Specifically, 32.26% compliance rate was recorded in 2021 because of the 32 DMBs operational in Nigeria, only 10 of them ensured complete compliance with the fidelity bond insurance cover.

4.1.2 Description of Fraud Cases in Deposit Money Banks in Nigeria

Table 2 contains the number of fraud cases, total number of DMBs staff involved in fraud, total amount involved, total actual loss, and fraud cases per fraudulent staff between 2012 and 2021.

Table 2: The Number of Fraud Cases, Number of Banks’ Employees Involved, Total Amount Involved, Total Actual Loss, and Fraud Cases per Fraudulent Staff for the Period, 2012 to 2021

Years	Total No of fraud cases in DMBs	Total amount involved (N’M)	Total actual loss (N’M)	Total No. of DMBs Staff	Fraud Cases Per Fraudulent Staff*
2012	3380	18045	4516	531	6
2013	3786	21795	5756	682	6
2014	10621	25,608	6,192	465	23
2015	12279	18,021	3,170	425	29
2016	16751	8,682	2,397	231	73
2017	26182	12,011	2,370	320	82
2018	37817	38,923	15,150	899	42
2019	52754	204,651	5,463	835	63
2020	146183	120,786	5,334	474	308
2021	211,713	51,483	7,193	365	580

Source: Adapted from NDIC Annual Reports (2012-2021) Note: * rounded-up to a whole number.

Table 2 presents frauds in DMBs in Nigeria from 2012 to 2021. The Table (2) shows that the number of fraud cases was 3780 in 2013, resulting in 12.01 per cent increase when compared with the 3380 cases reported in 2012. Also reported in 2014 was 10621 fraud cases in DMBs, hence a rise of 180.53 percent in comparison with the preceding year’s cases of 3786. Compared with the 10621 fraud cases in 2014, the 2015 witnessed an increase of 15.61 per cent given the year’s fraud cases in DMBs standing at 12279. Furthermore, in 2016, the number of fraud cases was 16751, resulting in 36.42 per cent increase when compared with the 12279 cases reported in 2015. The number of fraud cases in DMBs was 126182 in 2017, signifying a rise of 56.30 percent when compared with the 2016’s cases (16751). In relation to 2017’ statistics, a further increase of 44.44 percent was witnessed in fraud cases in 2018 when the figure was 37817 cases. The number of fraud cases in DMBs in Nigeria standing at 146183 in 2020 implies an increase of 177.10 per cent when compared with the 52754 fraud cases of 2019. Finally, in 2021, the number of fraud cases was 211,713, indicating a 44.83 per cent rise when compared with the 146,183 fraud cases of 2020. In the study period (2012-2021), 2021 recorded the highest number of reported fraud cases with 211,713 incidences while the lowest number of incidence of 3380 was reported in 2012. Generally, these statistics also suggest the existence of a consistent increase in the number of cases of frauds in DMBs in Nigeria in the study period.

Furthermore, Table 2 indicates that there is an increase total number of staff of the DMBs involved in fraud to the tune of 28.44 percent in 2013 when the total number stood at 682 in comparison with the 531 staff in 2012. Likewise, the total number of DMBs staff that perpetrated fraud in 2018 was 899 resulting in 180.94 percent when compared with 2017’s figure of 320. However, a persistent decline in the total number of DMBs staff involved in fraud was witnessed in the years 2014, 2015 and 2016 at the rate of 31.82%, 8.60% and 45.65% respectively compared with their respective immediate preceding year’s figure. Similarly, a three-year consistent decline in the total number of DMBs staff involved in fraud was reported in the years 2019 to 2021 at the respective rate of 7.12%, 43.23% and 23.00% compared with their respective immediate preceding year’s figure. The breakdown of frauds perpetrated by staff of DMBs in Nigeria in the study period (2012-2021) shows that the categories of staff involved include supervisors and managers; officers, accountants and executive assistants; clerks and cashiers; typists,

technicians and stenographers; messengers, drivers, cleaners, security guards and stewards; full/staff; and temporary staff.

Also Table 2 indicates that, 2018 has the highest number of DMBs staff involved in fraud with 899 members of staff while the lowest number of fraudulent staff of 231 was reported in 2016. The number fraud cases per fraudulent staff posted a minimum of 6 fraud per fraudulent staff in both 2012 and 2013 while the highest fraud per fraudulent staff of 580 was reported in 2021.

Moreover, the highest total amount involved in fraud of ₦204651million was reported in 2019 while the least amount total amount involved of ₦8682 million was reported in 2016. In the study period, ₦2370million and ₦15150million was the minimum and maximum total actual loss resulting from fraud in 2016 and 2018 respectively. Between 2012 and 2021, the average amount involved and actual loss involved in fraud stood at ₦52000.5 million and ₦5754.1 million respectively.

4.2 Descriptive Statistics

Table 3: Descriptive Statistics

Descriptive Statistics:	Fidelity Bond Insurance Compliance Rate	Number of DMBs' Staff Involved in Fraud	Frequency of Fraud Occurrence in DMBs
Mean	50.33800	522.7000	52146.60
Maximum	88.00000	899.0000	211713.0
Minimum	25.00000	231.0000	3380.000
Std. Dev.	19.01061	218.8023	70291.24
Skewness	0.653493	0.553190	1.505921
Kurtosis	2.662960	2.147167	3.768485
Jarque-Bera	0.759087	0.813083	4.025736
Probability	0.684174	0.665949	0.133605
Observations	10	10	10

Source: Author's computation using Eviews 10

Table 3 contains the descriptive statistics on DMBs' level of compliance with fidelity bond insurance, frequency of fraud occurrence and staff involvement in fraud cases in DMBs in Nigeria. The average fidelity bond insurance compliance rate by the DMBs in the study period was 50.34 percent while the minimum rate was 25.00 per cent. The highest compliance rate by DMBs stood at 88.00 per cent. The skewness of the compliance rate is around zero and its kurtosis is almost 3. Both skewness and kurtosis are pointing to the normality which is formally confirmed by the Jarque-Bera (J-B)'s normality test. The compliance rate's mean value which exceeds its standard deviation indicates the compliance rate to be relatively stable around its mean.

In the Table 3 also reported is the mean number of banks' staff involved in fraud of 523, which exceeds the standard deviation (218.8023). This implies that staff involvement did not exhibit wide dispersion from its mean. The total number of DMBs' staff involved in fraud ranges between a minimum of 231 and a maximum of 899 staffers. Number of staff involved in fraud is also normally distributed given its J-B

value (0.8131083) and the associated p-value (0.665949) exceeding 0.05 level of significance. The series' skewness is around zero while its kurtosis (2.147167) is platykurtic in nature.

Furthermore, in the period of the study (2012-2021), the average frequency of fraud occurrence in DMBs in Nigeria was 52146.60 while its minimum and maximum was 3380 and 211713 respectively. Also, the series (frequency of fraud occurrence) has the characteristics of being leptokurtic (kurtosis>3); positively skewed (skewness>0); and normally distributed (J-B's p-value>0.05).

4.3 Correlation Analysis of the Relationship between Compliance with Fidelity Bond Insurance by Banks and Cases of Fraud in the Nigerian Banking Sector

Table 4: Pearson Product Moment, Spearman rank-order, and Kendall's tau b Correlation Tests

Correlation Coefficients:	Pearson product moment correlation	Spearman rank-order correlation	Kendall's tau b correlation
Variables:	Compliance with Fidelity Bond Insurance	Compliance with Fidelity Bond Insurance	Compliance with Fidelity Bond Insurance
Compliance with Fidelity Bond Insurance	1.0000	1.0000	1.0000
No of Staff Involved	-0.3116	-0.3818	-0.2444
No of Fraud Cases	-0.3250	-0.0424	-0.1111

Source: Author's computation using Eviews 10

Table 4 contains the results of both parametric (Pearson product moment) and non-parametric (Spearman rank-order, and Kendall's tau b) techniques of correlation tests conducted to determine the relationship between fidelity bond insurance compliance and fraud in the Nigerian banking sector. Specifically, Table 4 reports that the parametric Pearson product moment correlation test produced a coefficient of -0.3116 for the correlation between fidelity bond insurance compliance and number of staff involved in frauds in the Nigerian banking sector. In the same vein, -0.3250 was the coefficient of the Pearson product moment correlation between fidelity bond insurance compliance and number of fraud cases in DMBs in Nigeria. These imply that, an increase in banks' level of compliance with fidelity bond insurance, is associated with a decrease in the frequency of occurrence (by 32.50 percent) and number staff (by 31.16 percent) involved in fraud in banks in Nigeria.

On the non-parametric end, the Spearman rank-order correlation test also agree in submission with the parametric Pearson correlation test by reporting -0.3818 and -0.0424 as the respective correlation coefficient of fidelity bond insurance compliance with each of number of DMBs' staff involved in frauds; and the number of fraud cases in DMBs in Nigeria. These suggest that, an increase in banks' level of compliance with fidelity bond insurance is associated with a decline in the frequency of occurrence (by 4.24 percent) and number staff (by 38.18 percent) involved in fraud in banks in Nigeria.

Furthermore, the non-parametric Kendall's tau b reported a coefficient of -0.2444 as the correlation between fidelity bond insurance compliance and number of DMBs' staff involved in frauds while -0.1111 was the correlation coefficient of the link between fidelity bond insurance compliance and number of fraud cases in DMBs in Nigeria. These suggest that, an improvement increase in banks' level of compliance with fidelity bond insurance, is associated with a reduction in the frequency of occurrence (by 11.11 percent) and number staff (by 24.24 percent) involved in fraud in banks in Nigeria.

5. Conclusion and Recommendations

The study described the relationship between level of compliance with fidelity bond insurance and frauds in Nigerian banking sector between 2012 and 2021 using descriptive statistical test as well as both parametric (Pearson product moment) and non-parametric (Spearman rank-order, and Kendall's tau b) techniques of correlation. From descriptive statistics, the study found the average fidelity bond insurance compliance rate by the deposit money banks; number of staff involved in fraud and frequency of occurrence of fraud in deposit money banks to be 50.34 percent, 523 staffers, and 52147 respectively. Findings from both parametric and non-parametric techniques of correlation tests indicate a negative correlation between compliance with fidelity bond insurance and each of frequency of occurrence and number of staff involved in fraud in deposit money banks in Nigeria. This suggest that, an increase in banks' level of compliance with fidelity bond insurance, is associated with a decline in the frequency of occurrence and number staff involved in fraud in banks in Nigeria.

The study argues that an improvement in banks' level of compliance with fidelity bond insurance has the potential inducing a reduction in the frequency of occurrence and number staff involved in fraud in the Nigerian banking industry. Therefore, there is the need for stricter measures against non-compliance with the mandatory fidelity bond insurance as well as rewards and commendation for consistent and full compliance by the deposit money banks in order to ensure higher compliance rate that help in the reducing the incidence of fraud among deposit money banks in Nigeria.

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ASSESSMENT OF FOOD HYGIENE PRACTICE AMONG FOOD VENDORS IN AHMADU BELLO UNIVERSITY CAMPUSES ZARIA

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Abstract

This study assessed the food hygiene practice among food vendors in Ahmadu Bello University Campuses in Zaria, Nigeria. The result was motivated as a result of unsatisfactory nature of food hygiene practice on the campuses and the role it plays in the etiology of food and water borne diseases prevalence in ABU Zaria. Descriptive survey method was employed to the food handlers in Ahmadu Bello University Campuses Zaria. In the study data was obtained through the use of questionnaire distributed to a total of 105 food vendors on the campuses using simple random sampling while 105 were completely filled and returned by the respondent. The study revealed that the respondent who have no formal education (4%) and are mostly female (60%) with the span of age between 26-35 years (45.3%). Hygiene practice regarding cooking and serving of meal were unhygienic as respondents wash their hand when dirty (10.7%) and washed used plate only when customers finish eating (93.3%) also some of them use pot with cover to preserve and store food instead of refrigerators. The source of water is mostly from the borehole since is the available mean in Ahmadu Bello University, Zaria. As regard personal and environmental hygiene majority are engage in poor hygiene practice, dust bin is empty daily. More doors and windows have no net that will prevent insect from entering the dining hall to contaminate the food. Appropriate recommendations are finally offered in the area of health education by the university health care service to educate food vendors on how to improve hygiene practice and guidelines on rules and regulation covering licensing and inspection procedure on food preparation and handling in all campuses of Ahmadu Bello University, Zaria.

Keywords: Hygiene, food, environment, health

1. Introduction

According to Griffith, (2002), Food is essential to provide energy and to supply materials from which all synthesis chemical and bodily structure. Also energy is required even at rest, when no voluntary physical activities are being undertaken. It is necessary for cellular activities for the functioning of the organ of the body and for growth and maintenance of tissue in has resulted in a proliferation of food vendors and hawkers to urban area have led to the need to feed the large number of working people away from their place of residence. In many countries street vendors prepare the first meal of the day for the law income workers, in Thailand, for the law income workers in Thailand for example 20% of household eat most or all of their meal outside or bring the cooked home. The Food and Agriculture organization of the United Nation (FAO) estimate that up to 30% of house hold food expenditure, were devoted to prepare food purchased outside the house hold (Simon 2004). Through there is an old adage “Prevention is better than cure” “there seem to be strong imbalance in the medicine of modern society. We have plenty of new technique for performing intricate operation but few for teaching people on how to keep out of harm away. We all know that disease cost the country many millions of pounds a year in drugs and medical

care of pound a year in drug and medical care in lost. Productivity and sickness benefits and a large proportion of bill are caused by infections disease.

Arnold (2001) noted that it has now become part of the modern way of life to eat in restaurants, canteens, and hotels. So that one infected person employed in the preparation of food can pass his or her infection on the large number of others, such infection can be prevented from spreading. First by adequate reporting, second by temporary excluding the infected person from handling food. It is therefore necessary to ensure that all food handlers are not only fit for employment in food industry, but that they are free from intermitted infectious and contagious disease. As nothing is more dangerous to people than other people, we all harbor germs in our nose and throat, in our bowel and in our hands. Such germs may be spread from one person to another through air, via common object or by direct touch, since most infectious agent originate in people those engage in handling food, must be trained and encourage to maintain the hygiene possible standard of hygiene. Equally the environment must be kept spotlessly clean at all times World Health Organization (WHO, 2020).

Food hygiene deals with the prevention of contamination of food stuffs at all stages of production, collection, transportation, storage, preparation, sale and consumption. Food borne illness is defined as a disease, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food. This process of kitchen safety includes proper storage of food items prior to use, maintaining a clean environment when preparing the food, and making sure that all serving dishes are clean and free of bacteria that could lead to some type of contamination. The food storage aspect of food hygiene is focused on maintaining the quality of the food, so that it will be fresh when used in different recipes. Food safety according to World Health Organization, (WHO, 2019) is a scientific discipline describing handling, preparation, and storage of food in ways that prevent foodborne illnesses. This includes the number of routines that should be followed to avoid potentially severe health hazards. Food can transmit diseases from one person to the other as well as serve as a growth medium for bacteria that can cause food poisoning. Debates on genetic food safety include such issues as impact of genetically modified food on health of further generations and genetic pollution of environment, which can destroy natural biological diversity.

Keeping a sanitary workplace will also cut down on the chances of some type of foodborne illnesses from developing when people consume a prepared food. Food contamination occurs most commonly from excreta on people's fingers, flies etc. (i.e. faeco-oral transmission). Food contamination may also occur by skin infection especially the hands of food-handlers (staphylococcal food poisoning), consumption of diseased animals (tape worm, brucellosis etc) or chemicals used as pesticides on crops. Every person is at risk of foodborne illness.

It is a widespread and growing public health problem both in developed and developing countries; the effect being more devastating in developing countries. Consumers have a reasonable expectation that the foods they purchase have been produced and processed under hygienic condition and that the food has not been adulterated by addition of any biological, chemical, or physical hazard. These expectations are regularly enforced by regulations that govern production, processing, distribution and retailing of foods and drugs in any country.

2. Statement of the Problem

According to National Agency for Food Drug Administration and Control (NAFDAC 2021) Food poisoning does not necessarily happen by accident. It is usually cause by the failure of food handlers and vendors to observe standard hygiene practice in the handling of foods. Consequently, people are increasingly being affected by food borne disease such as diarrhea, botulism, typhoid fever, dysentery etc. it causes considerable morbidity with serious tragic consequences. Food poisoning has resulted in illness and loss of considerable working day with resultant socio-economic consequences. Valuable time, man power and health care resources which could be used on more deserving causes are lost in treating food poisoning which could have been prevented. It is commonly assumed that food hygiene coasts a fortune whereas the reverse is the case.

Despite the effort of food regulatory agencies in monitoring and controlling the activities of food vendors, the incidences of food borne diseases continue to be the increase with attendance negative consequences. The researcher observed food handlers in Ahmadu Bello University campuses, Lack food safety, consequently when preparing the food, they don't take care of their personal-hygiene such as covering hair during cooking and cleaning table after serving regularly. They don't care about the temperature of boiling the ingredient in the food therefore in Ahmadu Bello University Campuses lack that knowledge of boiling ingredient because in the process of boiling they boil all the calories in the ingredient/nutritional values which result to **some** effect or diseases in the customers.

3. Research Question

The basic questions to be addressed are:

1. What are the methods used by Ahmadu Bello University Zaria Food vendors to preserve food?
2. What are the methods used by food vendors in Ahmadu Bello University Zaria to store food?
3. What are the sources of water mostly used by the food vendors cooking in the campuses of Ahmadu Bello University, Zaria?
4. What are the methods used by Ahmadu Bello University Zaria to take care of Environmental hygiene?

4. Objective of the Study

The major Objective of this study is to assess food hygiene and practice among food vendors in Ahmadu Bello University Zaria Campuses. Specific Objectives are:

1. To examine the method of preservation of food among food vendors in Ahmadu Bello University-Zaria.
2. To evaluate the common method of storing food among the food vendors in Ahmadu Bello University-Zaria
3. To determine the sources of water supply mostly used by food vendors in cooking food in Ahmadu Bello University-Zaria.
4. To determine food preservation techniques used among the food vendors In Ahmadu Bello University Zaria.

5. Hypothesis

There is no significant relationship between food hygiene and practice among the food vendors in Ahmadu Bello University, Zaria Campuses.

6. Methodology

The population comprises of food vendors in all cafeterias at Samaru, Kongo and Shika Campuses of Ahmadu Bello University Zaria, Kaduna State. A total number of 84 registered food vendors in all campuses of Ahmadu Bello University, Zaria was obtained from the Association of cafeteria in Campuses via the students' Representative council (SRC). The distribution is as follow; Samaru campus has a total 42 food vendors, 34 in Kongo and 8 in Shika respectively.

7. Data Presentation and Analysis

The data collected were presented as shown in the tables below, these include: socio-demographic characteristics, food and water hygiene, prevention, preparation, and storage of food as well as cooking and serving of food.

Table 1. Did you receive any training on Preparation of food?

Response	Frequency	Percentage (%)
Yes	72	68.6
No	33	31.4
Total	105	100

This revealed that most of the food vendors received training on preparation of food with a highest frequency of 72 (68.6%) of the total survey and 33 (31.4%) are not trained.

Table 2: Distribution of category of services rendered by respondent

Response	Frequency	Percentage %
Full service restaurant	55	52.3
Cafeteria	30	28.6
Local bukateria	20	19.0
Total	105	100

The table above shows that 55 respondents are into the full service restaurant representing 46.7% and 34.3% operate cafeteria, while 19% representing a frequency of 20 respondents operate as local bukateria.

Table 3: indication of the sources of water supply for cooking

Response	Frequency	Percentage %
Pipe borne water	47	44.8
Stream	10	9.5
Borehole water	34	32.4
Water tank	14	13.3
Total	105	100

This showed that 44.8% of respondents use pipe borne water for cooking, while 32.4% of those interviewed use borehole water. However, 13.3% of the food vendors use water tank and only 9.5% representing a frequency of 10 respondents use water tank respectively.

Table 4: Indication of the types of water served customer to drink

Response	Frequency	Percentage%
Sachet water	85	81.0
Boiled water	-	-
Tap water	14	13.3
Well water	6	5.7
Total	105	100

This showed that majority of customer served are given sachet water to drink, with a frequency of 85 (81.0%) of total food vendors, 14% served customers tap water to drink, while 5.7% served customers with well water to drink and none of the respondent served boiled water as drink water.

Table 5: Indication of where respondents store water for use

Response	Frequency	Percentage%
Metal container	46	43.8
Plastic container with cover	36	34.3
Other container with cover	23	22.0
Total	105	100

This showed how food vendors stored their water for cooking with respondent storing water in plastic container with cover as the highest with a percentage of 34.3% of total food vendors survey while 43.8% of respondent store their water in metal container with cover and 22.0% respondents store theirs in other container with cover.

Table 6: Indication of where respondent keep raw food items

Response	Frequency	Percentage %
On the floor	26	24.8
Put on shelf	60	57.1
On carpet	12	11.4
Left outside	7	6.7
Total	105	100

This showed that 57.1% of food vendors representing the highest number of respondents with a frequency of 60 keep their food on shelf followed distantly by those that kept on the floor at 24.8%.

Table 7: Indication of where respondent store cooked food.

Respondent	Frequency	Percentage%
In pot with cover	4	3.8
In refrigerator	24	22.9
In food warmer	73	69.5
In other container	4	3.8
Total	105	100

This showed that majority of respondents stored their cooked food in food warmer with a frequency of 73 food vendors representing 69.5% of the total analyzed, 22.9% store their food in refrigerator, while the remaining 3.8% uses with cover to store their cooked food and 3.8% store theirs in container.

Table 8: Type of water used to wash utensils for cooking

Response	Frequency	Percentage%
Soap water	46	43.8
Used/dirty water	-	-
Clean water	31	29.5
Soapy and clean water	28	26.7
Total	105	100

This revealed that 43.8% of food vendors utilized soap and clean water to wash their utensils, while 29.5% used cleaned water, 26.7% utilized soap and clean and none of the respondent use dirty water.

Table 9: Practice of food hygiene by hand washing before handling food

Response	Frequency	Percentage%
Very often	40	38.1
Often	45	42.9
When dirty	12	11.4
When convenient	8	07.6
Total	105	100

This indicated that most of the food vendors often wash their hands before handling food with frequency of 40 representing 38.1% of total respondents.

Table 10: Clothes worn by respondent during cooking and serving of food.

Response	Frequency	Percentage%
Attractive clothes	29	27.6
Apron	40	38.1
House clothes	11	10.5
Apron and cap	25	23.8
Total	105	100

This showed that predominance of food vendors used apron during cooking with the highest frequency of 40 and a percentage of 38.0%. 23.8% and 10.5% of respondent use house and attractive clothes during cooking.

Table 11: Indication of available of toilet near canteen.

Response	Frequency	Percentage%
Yes	34	32.4
No	71	67.6
Total	105	100

This showed that 32.4% of respondent have toilet close to their canteens, while 67.6% of them do not have within their canteen.

Table 12: Practice of food hygiene by plate washing.

When are plate washed	Frequency	Percentage%
When much are enough to wash	20	19.0
As soon as customers finish eating	85	81.0
When it's convenient	-	-
Total	105	100

This showed that the highest percentage, 81.0% of food vendors wash their plates as soon as customer finish eating, while a frequency of 20 representing 19.0% only wash their plate when they are much and enough to wash and none of them wash it is convenient.

Table 13: Practice of hygiene when any respondent is having cough or catarrh.

Response	Frequency	Percentage%
Use of toilet tissue to clean	31	29.5
Used of handkerchief to clean	40	38.1
Stop coming to shop to let go	18	17.1
Go somewhere to do	16	15.2
Total	105	100

This showed that most of the respondent uses handkerchief to prevent catarrh and cough when handling food with a frequency of 40 representing 38.1% of food vendors while 29.5% uses toilet tissue to clean and 17.1% of them stop coming to shop until they are well. However, 15.2% of respondents go somewhere to blow their cough or catarrh.

Table 14: Practice of hygiene by preventing flies from perching on food.

Manner of prevention	Frequency	Percentage%
Use of insecticides	57	54.3
Drive them with broom	-	-
Use of door and window net	48	45.7
Total	105	100

This showed that majority of respondent preventing flies from perching on foods by using insecticides to kill flies, representing 54.3% of the respondent analyzed, while 45.7% uses door and window net to prevent flies.

Table 15: Distribution of respondent on what to do with leftover foods.

Response	Frequency	Percentage%
Throw it away	48	45.7
Store in refrigerator and reheat	23	21.9
Give it out	24	22.9
Store in pot and reheat	10	09.5
Total	105	100

The above table indicated that 45.7% of respondents representing a frequency of 48 food vendors throw away their leftover foods, followed by 22.9% give it out and 21.9% store their leftover in refrigerator and reheat, while 9.5% of them store it in the pot and reheat.

8. Discussion of Findings

In the analysis of data on assessment of food hygiene and practice among the food vendors in Ahmadu Bello University Campuses, a lot of unhygienic practices were discovered. The finding of this work showed that majority of respondent (4%) had no formal education, due to lack of knowledge and ignorance about food hygiene. They are likely to have been practicing unhygienic procedures as they can only practice what they know. The research also showed that a number of those interviewed (10.7%) washed their hands only when dirty and also a number of (2.7%) washed hand when it is convenient to do so. This is contrary to the rules of hygiene where by washing of hand should be done at interval and not when the hands are assumed dirty. This has proved that food handlers are the major sources that aid to contaminate and transfer infection to customer, as a result of poor food handling such infection include cholera, diarrhea, typhoid fever, etc. Similarly, good number of food vendors washed the dirty dishes only when it is convenient as shown in table 17, this could be due to lack of assistance in washing while serving meals to customers, this is not ideal, according to Okolie (2003), such dirty utensils can attract flies to perch on them. For flies are important vectors in carrying microorganisms, if such are use later it could spread food born disease to people. While most of the respondent use door and window net to prevent flies (37.3%), some (62.7%) use insecticides on exposed food can cause a very fatal food poisoning that may lead to death. Arnold, (2001) stated that chemical treatment of food either in its raw or uncooked stated can lead to food contamination and poisoning. It was experienced in the year 2013, when ‘killer beans’ was sold in the market. Killer beans were named thus, because beans in its, raw stated were chemically treated leading to poisoning of the customer from the various food vendors.

The finding also showed that some of the respondent stored their cooked foods in pots with covers, however, if the pot is not properly covered it will constitute a major sources of danger, rodents and pest

may gain entry into such containers and contaminate the food (Onwuna, 2013) also when such food is kept for long time toxic chemical from containers may reach food in quantities beyond permissible units, which can cause damage to body cells and can lead to the body cells becoming cancerous. About 21.3% of respondent stored their uncooked food on the floor inside the restaurants. Storing of food in such place may lead to persistent odour inside the restaurant, which will invariably attract rodents and pest which according to Brush (2009), may be carriers of a number of diseases that may be transferred to food through their urine. Faeces or saliva as they grow on these stored foods. This may lead to further food contamination.

9. Conclusion

In conclusion this study has demonstrated that the practice of food hygiene among food vendors as assessed in Ahmadu Bello University Campuses was poor, in adequate and unsatisfactory which implies the food vendors are predisposed to transmission of food born disease which pose a great challenge to health care providers of the university and to Nation at large.

10. Recommendation

Base on the finding of the study, the following recommendation are made:

1. There should be development of health education program by school health care provider to educate food handlers on how to improve food hygiene practice and to device other feasible and culture approach measurers to promote food hygiene.
2. Guidelines on rules and regulations covering licensing and inspection procedures on food vending should be developed by school authorities in conjunction with food vendors.
3. There should be motivation of vendors through given of award to improve their operation, regular inspection by student' representative council (SRC) who are required by given technical advice and strategy foe hygiene practice.
4. Encourage a strong relationship among the school authorities, the food vendors' student' representative which would lead to operation of policy guidelines for their regulation of food hygiene among food vendors on the campuses.
5. Periodic medical examinations should be conducted among food vendors by the university health services unit to assess the healthy status of food vendors in ABU Zaria so as limit disease transmission from food vendors to students.
6. Punishment of food vendors who are found guilty of not adhering to the regulation of food hygiene practice as recommended by the University

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MOMPREENURSHIP IN INDIA: A PERSPECTIVE ON MOTHERHOOD PENALTY

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Abstract

Economic prosperity of any nation is greatly influenced by the growth in its entrepreneurial domain. Industrial advancements and economic progression by propelled by the entrepreneurs. Behind a society's vigor and success, entrepreneurs have a significant role to play. However, the concept of entrepreneurship has never been in the domains of gender-neutrality. Historical Narrative of the entrepreneurial activities and the resultant organization structure has been uniquely masculine. These disparities in role expectations from men and women have their roots in gender stereotypes. Gender stereotyping basically refers to the socially accepted or believed unusual tenets of male and female. This gender role spillover has negative influence on the women participation in workforce. According to GEM report 2021/22, a significant entrepreneurial intention gap among male and female has not been witnessed at the global scale, however in terms of TEA (Total Early-stage Entrepreneurial Activity); only two out of five initial stage entrepreneurs were found to be women. The present study would shed light on present status of mompreneurs and the challenges faced by 'mumpreneurs' in India.

Key words: Mompreneur, gender-neutrality, role spillover, masculine etc.

1.1 Introduction

Economic prosperity of any nation is greatly influenced by the growth in its entrepreneurial domain. Industrial advancements and economic progression by propelled by the entrepreneurs. Behind a society's vigor and success, entrepreneurs have a significant role to play. The influx of new, innovative ideas has a pivotal role to play in boosting economic growth of any nation (Cook et al. 2022). The same has been proposed by the Endogenous Growth Theory (1980's), which states that it is the internal factors such as investment in innovation, human capital etc., that contribute or boost economic progression and not due to factors that arises from external sources to an economy (Romer, 1994). However, the concept of entrepreneurship has never been in the domains of gender-neutrality. Historical Narrative of the entrepreneurial activities and the resultant organisation structure has been uniquely masculine. "Entrepreneurship has been a "man's" domain" (Bird & Brush, 2002, p.41). They are often regarded as the 'Captain of the Industry' i.e., as captains they are well-equipped in coordinating manufacturing and distribution related tasks (Schumpeter (1934)). Although, the term 'Captain' does not necessarily infer 'Male', however, in the year 1934 it largely reflects the masculine aspect. Collins and Moore, in the year 1962, penned down a book 'The Enterprising Men', which caters to empirical investigation into executives and innovators, who were male. Furthermore, McClelland (1961), a renowned American psychological theorist, also described an entrepreneur as "the man who organizes the firm (business unit) and/or increases its production capacity". This goes to show that the concept of entrepreneurship is more



of a gender biased phenomenon; more masculine in nature (García& Welter (2013)). These disparities in role expectations from men and women have their roots in gender stereotypes. Gender stereotyping basically refers to the socially accepted or believed usual tenets of male and female (Liñán et al. (2022)). Social or gender stereotyping stems from the social roles male and female occupy in the society. Social role theory (Eagly& Wood (2012)) states that as per to the norms associated with the social positions they play; men and women behave differently. Boundaries in social roles are fixed in a manner such that it is less likely for men to engage in household chores than women and serve as their children’s care takers. In contrast, men were assumed to be play a more masculine role and engage in waged jobs which demands physical strength, impulsivity and aptitude to lead (Wong, A. et al. (2016)). Matthaei (2001) in his study referred it to gender polarization, where sex-based division of labor was rigid and men were assigned ‘Paid work’ in an economy and their female counterpart were confined to ‘Unpaid work’ within the boundaries of their home. In India, the burden of care jobs shared by women in comparison to men is nearly 8 times (Table 1). This has a detrimental effect on women participation in labour force. Taking up ‘Care’ or ‘Pink Collar jobs’ by women has matter of discretion, but these responsibilities are bestowed on them by the society and patriarchal norms (Matthaei (2001)). For decades, role of women has been content with 3 k’s: Kitchen, kids and Knitting (Deepalakshmi (2019)). Becker’s Work-effort hypothesis (1985) states that since mothers have to devote considerable amount of time in taking care of their ‘pink-collar’ responsibilities, they “spend less effort on each hour of market work than married men” (Becker (1985), p. S33)

Table 1: Unpaid care burden based on gender

REGION	TIME DEVOTION TOWARDS CARE JOBS (<i>in minutes</i>)		GENDERED BURDEN
	Men	Women	
Overall	40	335	8.4x
Rural	42	344	8.2x
Urban	33	317	9.6x

Source: Nikore (2022)

This gender role spillover has negative influence on the women participation in workforce. Gender role spillover refers to how gender-specific expectations are absorbed into work environments” (Greer et al. (2001)). According to GEM report 2021/22¹, a significant entrepreneurial intention gap among male and female has not been witnessed at the global scale, however in terms of TEA (Total Early-stage Entrepreneurial Activity); only two out of five initial stage entrepreneurs were found to be women. Moreover, as per a study by WIPO (World Intellectual Property Organization), global parity in innovation and creativity among male and female is likely to be achieved in 2061 i.e., 38 years from now. Gendered differences or biasness has been well captured in the Global Social Norms Index 2023 by UNDP². The report, based on 170 nations, highlights that 46 percent believes that “Men should have more right to a job than women” and 43 percent of people supports the assertion that “Men make better business

¹ GEM Global Entrepreneurship Monitor. (n.d.). GEM Global Entrepreneurship Monitor. <https://gemconsortium.org/report/gem-202122-womens-entrepreneurship-report-from-crisis-to-opportunity>

² 2023 GENDER SOCIAL NORMS INDEX. (n.d.). In <https://hdr.undp.org/system/files/documents/hdp-document/gsni202302pdf>



executives than women do”. Such attitudes impede gender equality. However, for economic resilience and independence, the role of women need not be confined to ‘pink collar jobs. They can play a pivotal role in boosting family economy as well (Dhamayanti et al. (2022)). To quote Pt. Jawaharlal Nehru “In order to awaken the people, it is the Women who has to be awakened. Once she is on the move, the household moves, the village moves, the country moves as a whole, and thus, we build the India of tomorrow” (Deepalakshmi (2019), p.51).

1.2 Mompreneurship

The term ‘Mompreneurship’, a portmanteau of two words ‘Mother or mom’ and entrepreneurship, is an important aspect in the field of female entrepreneurship. The term was first coined in 2002 in the book “Mompreneur: A mother’s practical step-by-step Guide to Work-at-Home Success” by Cobe and Parlapiano. Ekinsmyth(2011, p. 105) defined mompreneur as “an individual who discovers and exploits new business opportunities within a social and geographical context that seeks to integrate the demands of motherhood and business-ownership”. Jean and Forbes (2012) defined mompreneur as women who manages the role of being a mother, while being an entrepreneur. The concept of motherhood penalty has become often related to working moms. Motherhood penalty basically relates to decline in human resource or manpower owing to women quitting job, splitting their energies between life and work and resorting to adverse career choices in life on becoming a parent (Kelley et al. (2020)).

Motherhood penalty is not only restricted to wage disparity between male and femaleas highlighted in most previous researchers (Kricheli-Katz (2012), England et al. (2016), Sun, Z. (2022)). They are often judged as being less ‘competent, dependable and authoritative’ (Correll et al. 2007). When responsibility to fulfill multiple roles arises, a split in attention can be witnessed and thereby none of the responsibilities or roles receive its due share of attention (Vercruyssen& Van de Putte (2013), Kelley et al. (2020)). Mothers often fail to fit in the perspective of ‘Ideal worker’- one who is ready to dedicate overwhelming effort at workplace, even if it demands sacrifice in other concerns (Ridgeway &Correll (2004)).

³Work-life interface, intersection of work and private life, can produce positive (work-family enrichment) as well as negative outcomes (work-life interference). Despite these hurdles, many successful mumpreneurs have emerged over the years in India. The following is the list of such successful mompreneurs.

Table 2: List of Mompreneurs in India (Non-exclusive list)

Sl. No.	Mompreneur	Product/Service
1.	FalguniNayar	Nykaa
2.	Ghazal Alagh	Mamaearth
3.	Vineeta Singh	‘SUGAR’- beauty brand
4.	Suman Dash	Vastradi-Ethnic SambhalpuriSaree
5.	Suchi Mukherjee	Limeroad- Virtual Scrapbook
6.	Mani Pavitra	Pampered Kids
7.	MeenaBindra	BIBA

Source: Jumpstart Magazine ((4 Successful Indian Mompreneurs You Should Know About, 2022)), Marketing Mind ((Top 10 Successful Mompreneurs in India, 2019))

³Work-life interface.(n.d.).Psychology Wiki. https://psychology.fandom.com/wiki/Work-life_interface

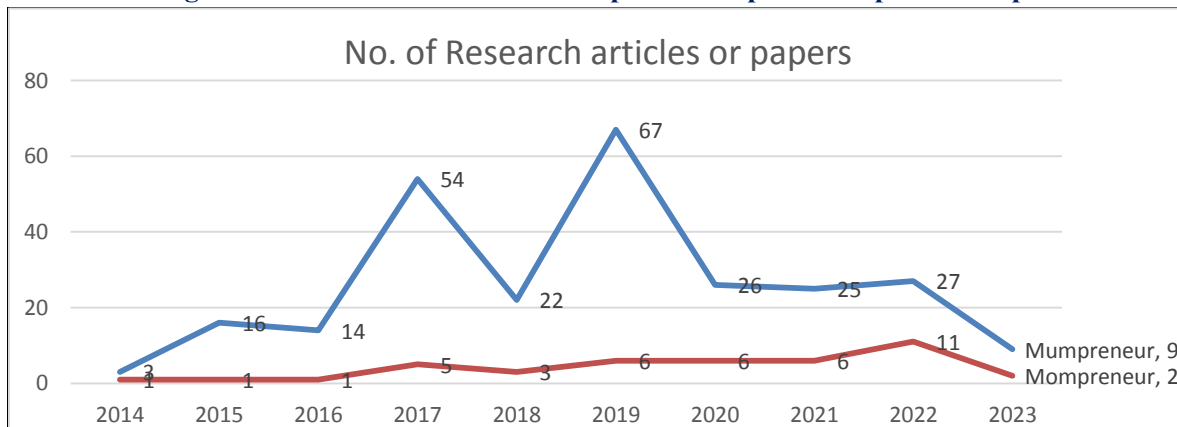


The thrive to be a mumpreneur can result from many push and pull factors (Nel et al. 2010). The steady growth of mompreneurs around the world can attributed to the need for financial independence, availability of lucrative market opportunities, flexi-work hours, desire to take up challenges, quipped with necessary skills to be an entrepreneur, being one’s own boss etc. (Jean and Forbes (2012), Deepalakshmi (2019)).

1.3 Significance of the Study

Scholars and academicians have begun to recognise the concept of entrepreneurship from both economic and social viewpoint. Previous literatures have pointed out that for a sustainable economic prosperity at domestic and global level is achievable, when entrepreneurship domain is opened to all citizens, regardless of their gender (Nel et al. 2010). In such a scenario, thrust on ‘mompreneurship’ is of paramount importance (Steyaert& Katz (2004)). Mompreneurship or mumpreneurship has received its due share of attention over the last few years and often hailed as a new-age feminism (Dhaliwal, A. (2022)). Paramount interest in the field of entrepreneurship has been on explaining the reasons behind entrepreneurial exits. Reasons behind entrepreneurial exits can be categorized into two: Intentional exits (underperformance, favoring paid employment etc.) and personal reasons (negative outcomes from work-family interface). ‘Mother penalty’ has been one of the personal reasons for working moms or enterprises held by mothers to resort to ‘Stay-at-home’ motherhood. Moreover, research in this subset of female entrepreneurship has been limited (table 2). In addition to this, there is dearth of data with respect to mompreneurs in the country as well as for regional areas. The present study would throw light on the motivation behind mompreneurship and various challenges and enrichment experienced being a mompreneur.

Fig 1: Research in the field of ‘Mompreneurship or Mumpreneurship’



Source: Dimensions database

1.4 Objectives of the Study

The present study attempts to shed light on the following objectives:

- a. To determine the motivation factors behind mompreneurship.
- b. To determine the outcome (enrichment or interference) of work-life interface among mompreneurs.



1.5 Research Questions

1. What are the motivating factors behind mompreneurship?
2. Do mompreneurs experience work-life enrichment from their work-life interface?
3. Do mompreneurs experience work-life interference from their work-life interface?

1.6 Research Methodology

The present study is basically exploratory in nature. The research has attempted to delve deeper into the subject matter as limited studies pertain to the same. Moreover, there has been dearth of data from secondary sources to substantiate the understanding of the concept in the region taken up for the study. In the study, the researcher adopted a qualitative approach at data collection, using a semi-structured interview (appendix 1). The rationale behind such approach is: firstly, the present study is basically exploratory research, with an attempt to draw insights on the subject matter, which is a relatively new in the domain of research in the region. Secondly, such approach allows researchers to have face-to-face dialogue and receive spontaneous response from the respondents (Bokkens 2021). The interview protocol developed for the present study has been adopted for Bokkens 2021, given in (appendix 2). 50 mompreneurs were approached in the city of Guwahati for in-depth interviews. Contact details of the potential respondents were obtained based on snowballing technique. However, only 20 of them agreed to be a part of the study (Response rate 40 percent). The questions for the interview were adopted from Jean and Forbes (2012, p.119) for motivation behind mompreneurs and from Fisher et al. (2009, p.451) for enrichment and interference in work-life interface.

1.7 Findings and Discussion

The following section highlights the findings of the study. The demographic profile of the respondents for the survey is given as below:

Table 3: Demographic Characteristics of Respondents

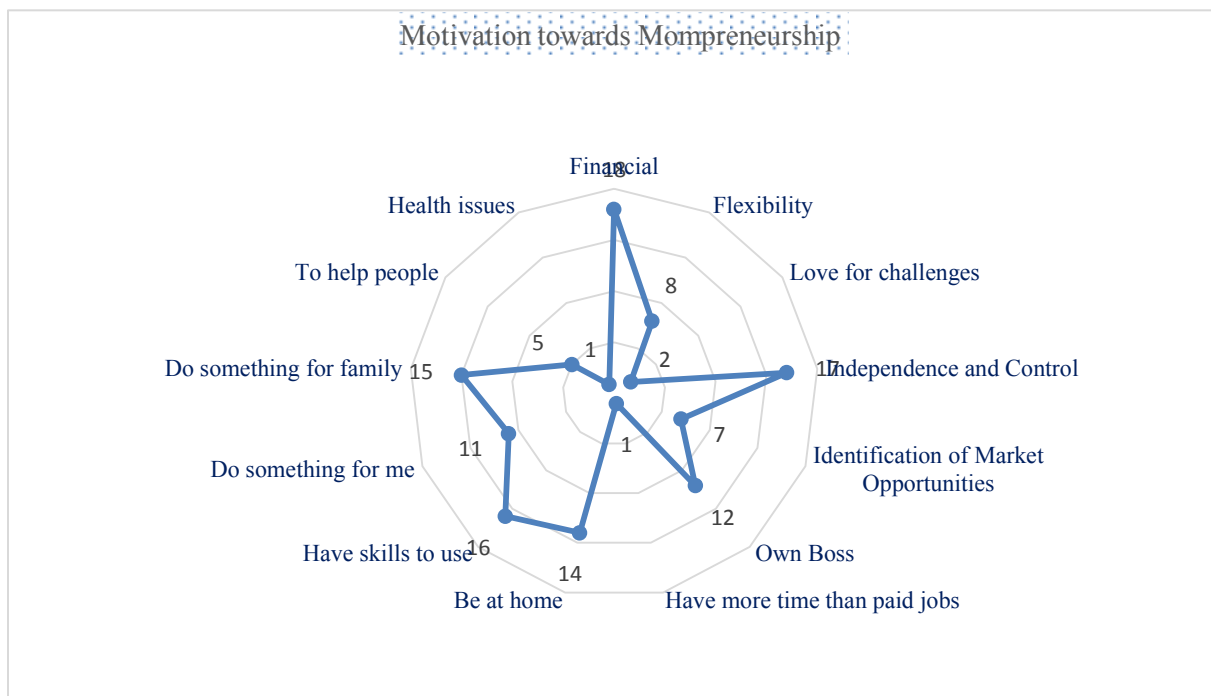
Sl. No.	Demographic Variables	Categories	No. of respondents
1.	Age	20-30	3
		30-40	2
		40-50	11
		50-60	4
2.	Family Size	Up to 3 members	7
		Up to 4 members	8
		Up to 5 members	5
3.	Educational Qualification	Up to 8 th standard	7
		8 th - 12 th Standard	10
		Graduation	3
4.	No. of children	1	8
		2	9
		3	3

Source: Primary Survey



Based on the inductive interviews being made for the study, the following findings are recorded by the

Fig. 2: Motivation towards Mompreneurship (Radar Graph)



Source: Primary Survey (adopted from Jean and Forbes (2012, p.119))

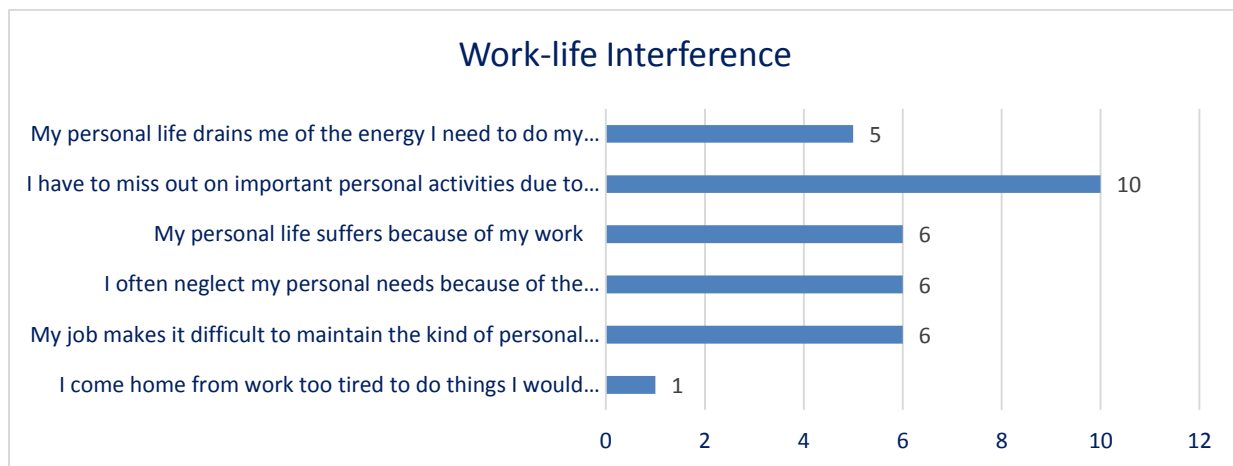
researcher (Radar graph fig. 2). Desire to gain economic strength (financially sound) has been the primary motive behind the respondents to step into the domain of entrepreneurship. Out of the total respondents, 18 have voted for the same. Followed by other motivations: willingness to gain financially independent and control (17^{*4}), to employ their inherent skills in business (16^{*}), to contribute something towards family (15^{*}), not to leave home (14^{*}), be one’s own boss (12^{*}), do something for once own life (11^{*}), to have flexibility in work hours (8^{*}), desire to help others (5^{*}), have identified an untapped opportunity (7^{*}), once willingness to take up challenge (2^{*}) and inability to work outdoors owing to health problems (1^{*}).

The interviewees have also reported various inferences in their work-life interface. 10 of the total respondents have reported to missing out personal life owing to number of hours devoted towards work. Other experiences of interferences in their work-life interface are: maintaining personal relations in life (6), ignoring or overlooking of personal needs (6) and suffering in private life due to work (6) and feeling of tired and exhaustion due to work hours (6) (Stacked Bar fig. 3).

⁴ * No. of respondents out of 20



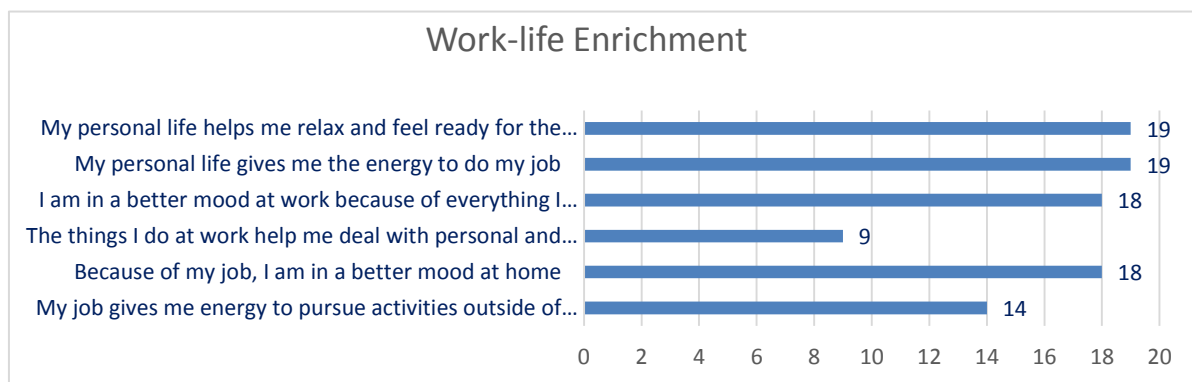
Fig. 3: Responses to Work-life Interference



Source: Primary Survey (adopted from Fisher et al. (2009, p.451))

The work-life interface has also resulted in various experiences of enrichment among the respondents. 19 out of 20 respondents have voted for ‘feeling of relaxation’, ‘gaining energy’ and ‘experiencing good mood’ due to their work engagements. 9 of the total respondents agreed that work life has actually assisted in handling domestic matters at home. Moreover, 14 out of 20 respondents have agreed to leveraging energy harnessed in one’s workplace to cater to other important matters in their life) (Stacked Bar fig. 4).

Fig. 4: Responses to Work-life Enrichment



Source: Primary Survey (adopted from Fisher et al. (2009, p.451))

Conclusion

The study attempted to through light on the motivations developed by mompreneurs in starting up a business and also determine the various work-life interface interferences and enrichment experienced by them. An in-depth semi-structured interview approach has been employed by the researcher in gaining insights into the aforesaid objectives. A total of 20 mompreneuers in Guwahati City were approached for



the survey. Based on this inductive approach, the researcher found that longing to gain financial strength has been the key motive behind the interviewees to step into the domain of entrepreneurship. Out of the total respondents, 18 have voted for the same. Followed by other motivations: readiness to gain financially autonomy and control, to employ their inherent skills in business, to contribute something towards family, not to leave home, be one's own boss, do something for once own life, to have flexibility in work hours, desire to help others, have identified an untapped opportunity, once willingness to take up challenge and inability to work outdoors owing to health problems. The study also highlighted various work-life interferences: Missing out personal life owing to number of hours devoted towards work, maintaining personal relations in life, ignoring or overlooking of personal needs and suffering in private life due to work and feeling of tired and exhaustion due to work hours. The work-life interface has also given rise to in various enrichment among the respondents in their work-life interface: 'feeling of relaxation', 'gaining energy' and 'experiencing good mood' due to their work engagements, assistance in handling domestic matters at home and leveraging energy harnessed in one's workplace to cater to other important matters in their life.

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INFORMATION AND COMMUNICATION TECHNOLOGY INFRASTRUCTURES AND EXPORT PERFORMANCE OF MANUFACTURING FIRMS IN SUB SAHARA AFRICA

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Abstract

This study investigated the impact of information and communication technology (ICT) adoption on the export performance of manufacturing firms in Sub-Saharan Africa (SSA). The research utilized a probit regression analysis based on data from the World Bank Enterprise Survey, which encompassed 20 SSA countries and a total of 8,910 manufacturing firms. The findings of the study provided compelling evidence that the adoption of ICT has a significant positive effect on the export performance of manufacturing firms in SSA. The results demonstrated that the usage of ICT tools such as email and webpages played a crucial role in enhancing the export activities of these firms. Furthermore, the adoption of ICT facilitated efficient access to information and reduced transaction costs, thereby creating seamless connections between buyers and exporters. These findings underscored the immense potential of ICT in bolstering the export capabilities of manufacturing firms in SSA. As such, it is imperative for policymakers and stakeholders to prioritize and invest in the integration of ICT within the operational processes of these firms. This study addresses a critical gap in the existing literature by shedding light on the ICT-exporting relationship in SSA and providing valuable practical implications for policymakers and enterprises operating in the region.

1 Introduction

Exporting is highly valued by countries because it plays a crucial role in driving economic growth and promoting development. Export activities have significant advantages both at the level of individual firms and the overall economy. For firms, participating in export markets improves their managerial skills and capabilities, leading to increased sales, opportunities for expansion, better financial positions, and enhanced competitiveness ((Filatotchev, Liu, Buck, & Wright, 2009; Singh & Maiti, 2020). These benefits at the firm level contribute to broader macroeconomic outcomes such as socioeconomic development, efficient allocation of resources, optimal utilization of capacities, job creation, acquisition of foreign exchange, and rapid economic growth and transformation, as demonstrated by China's recent successes in manufacturing exports (Filipe Lages & Montgomery, 2004; Lo Turco & Maggioni, 2015;



Pinho & Martins, 2010). Consequently, countries prioritize exports as evidenced by the increasing proportion of exports relative to gross domestic product (GDP). Over time, the global share of export GDP has grown from 18.22% in 1980 to 25.91% in 2000 and reached 26.71% in 2020 (World Bank, 2021). It is as a result that the internationalization of firms, particularly through exporting, has garnered significant attention in recent years from researchers and other stakeholders across different spectrum of factors that contributes to or undermine the gains from exporting. For instance, access to finance (Kumarasamy & Singh, 2016) environmental information disclosure (Xie, Li, & Zhou, 2022); Women on board (Carbonero, Devicienti, Manello, & Vannoni, 2021); Environmental regulation (Shi & Xu, 2018); home country bribery (Lee & Weng, 2013); SO2 emissions trading (Liu, Ren, & Li, 2022) and many more. Thus, underscoring the strong scholarly attention towards firm exporting.

Information and communications technologies (ICT) comprise a broad array of tools used for facilitating communication between people, organizations, governments, and businesses. These technologies range from mobile devices and video conferencing to the Internet of Things. By leveraging the power of ICT, it is possible to improve efficiency in communication and reduce cost (Farhadi, Ismail, & Fooladi, 2012; OECD, 2004). The importance of participating in the export market with the aid information and communication technology (ICT) has generated increased literature contributions. Utilising ICT for export activities is essential for businesses in the age of globalisation since it increases their ability to compete in both domestic and international markets (Gomez-Sanchez, Manez Castillejo, & Sanchis-Llopis, 2023). The argument is that the introduction of ICT to a firm's operations can bring significant benefits: overcoming financial barriers to market entry, lowering production costs, improving comparative advantages, reducing marketing expenses, facilitating market research and networking capabilities, and enabling efficient connection between buyers and exporters with accessible information access. For example, the utilization of an extranet facilitates the sharing of internal information between a business and its clients, while the adoption of the Internet reduces transaction costs. Moreover, establishing a website alleviates traders' concerns and the extensive integration of advanced ICT enhances the efficiency of transactions, resulting in a smoother process. Studies by Basu & Fernald (2007); Puri (2007); Rangan & Sengul (2009); Singh & Maiti (2020); Koutroumpis et al. (2020); Racela & Thourunroje (2020) all point to the significant cost savings and technological improvements made possible with ICT. The foregoing underscores continuous incorporation of ICT adoptions into the explanation of firm's internationalisation.

While this role of ICTs is vital to the discussion of firm export market participation, the investigation of ICTs contribution to general economic growth and development by the mainstream technological literature has only been argued at an excessively general level, while knowledge of its channels like firm export market participation is rare and, more importantly, for the SSA region, a region that has been characterised by a recent surge in both mobile phone and internet penetration. The scarcity of research on the ICT–manufacturing firm export market participation relationship represents a gap in the firm export discourse, particularly in SSA. The potential for ICT in Sub-Saharan Africa (SSA), especially with its recent increase in adoption, brings to the fore its potential contribution towards efficient access in the region. Significantly, ICT penetration in SSA has risen significantly over a consistent period. For instance, both mobile phone and internet penetration have increased tremendously over the last two decades. Internet penetration grew from 0.068% in 1996 to 30.04% in 2020 (World Bank, 2021). Its annual penetration rate (21%) over the past two decades (2001–2020) has seen it pass that of East Asia and the Pacific (EAS) (12%), Central Europe and the Baltics (CEB) (11%), Latin America and the Caribbean (LCN) (14%), the Middle East and North Africa (MENA) (20%), and slightly behind South



Asia (SAS) at 23% (World Bank, 2021). A similar trajectory also exists for mobile phone penetration. To this end, this study asks to what extent does ICT use affects firm exporting activity in SSA.

By investigating this ICT-exporting relationship, the study contributes to existing argument in the following ways: first, it would address a crucial research gap by focusing on the specific context of SSA, where there is a scarcity of literature on this topic. Secondly, by exploring the extent to which ICT use affects firm exporting activity in SSA, the study would contribute to a deeper understanding of the impact of ICTs on economic growth and development in this specific region. It would provide a more nuanced perspective on how ICT penetration, particularly in mobile phones and internet usage, is influencing trade and economic outcomes in SSA. Finally, the study would have practical implications for policymakers and businesses. If a positive association between ICT use and firm exporting is found, it would underscore the importance of investing in ICT infrastructure and encouraging its adoption among businesses. This knowledge could inform policy decisions aimed at promoting export-led growth and development.

The rest of the paper is organized as follows. The next section presents the literature review. Section 3 presents our data and explains our treatment effects framework, as well as our IV approach. Section 4 presents the results and several robustness checks. Section 5 concludes the study.

2 Literature review

The influential work of Posner (1961) has laid a solid foundation for subsequent research in the field, with scholars like Verspagen and Wakelin (1997) and Laursen and Meliciani (2002) building upon his findings. These studies emphasize that trade dynamics are primarily shaped by the ability to foster technological innovations and leverage technological interconnections. These factors are pivotal sources of competitive advantage, while considerations related to costs and prices play a relatively minor role in driving trade patterns. Additionally, Gomez-Sanchez et al. (2023) explored the direct effect of ICT on exports and proposes a new indirect effect that operates through imports. Using a dynamic generalized linear model, they found that different ICT components on export intensity are always positive, and previous experience in ICT use on import activity affects the firm's current export performance. Chaibi et al. (2015) conducted a study examining the relationship between e-skills, the usage of Information and Communication Technologies (ICT), and firm performance in Luxembourgian manufacturing and services firms. Their findings indicate that the utilization of e-applications has a positive impact on the likelihood of successful implementation of new projects. They also highlight an asymmetric effect of e-commerce and e-administration usage, aligning with previous literature in this field. This result of the role of ICT adoption is not unsimilar to Arvanitis and Loukis (2009) who in their comparative study found positive effects for physical capital, ICT capital, human capital for both Swiss and Greek firms' samples, with being Swiss firms more efficient than Greek firms in creating, using, and combining these production factors. Furthermore, Bertschek et al. (2013) examined the impact of broadband internet on the performance of German firms. They found that broadband internet has no impact on firms' labour productivity, but it has a positive and significant impact on their innovation activity. This result is similar to Gërguri-Rashiti et al. (2017) despite the differences in context especially the economies under investigation (transition economies) and dataset employed (Business Environment Enterprise Performance Survey (BEEPS)). Bianchi and Mathews (2016) contributed to this discourse by evaluating how internet could be used to increase export market growth for Chilean firms. Using a structural equation modelling, positive association between the use of internet marketing and export market growth



in Chile were found, indicating that firms that utilized internet marketing effectively had higher rates of export market growth compared to those that did not. Makanyeza and Ndlovu (2016), in a similar study to Bianchi and Mathews (2016), examined the effect of ICT usage on SMEs' exporting in Zimbabwe. The study used a multiple regression estimation technique to find that ICT use is a strong predictor of manufacturing SMEs' export success. However, in a contrary study to the above, Sun (2021) study found internet development to have a deleterious impact for SMEs export. Specifically, when analysing data collected between 1997 and 2014, it was determined that the internet has a significant, negative impact on exports by the top 5% or 25% of exporters. Contrary to Sun (2021), the relationship between financial sector development, internet use, and export value in China during the 2000-2018 period was demonstrated in the research conducted by Shetewy, Shahin, Omri and Dai (2022). Via the Gaussian Process Regression (GPR) they uncovered that an increase of between 6.82% to 18.8%, on average, in exports from pilot cities was caused by broadband related internet policies. In addition, Rifin and Naulu (2021) discussed the importance of ICT in a firm's ability to export their products, particularly in the era of globalization. The results showed that firms using email and website have a higher percentage of exporting their products compared to those who do not use email and website. The study also indicates that there is a relationship between ICT and where the firms sold their products, whether in domestic or international markets. Ashrafi et al. (2014) explored how Small and Medium Enterprises (SMEs) in Oman can achieve business value through effective management of Information and Communication Technologies (ICT). The study identified seven key factors that assess the business value of ICT adoption in SMEs, including organization and management practices, strategic, informational, transactional and organizational change benefits, impetus for ICT investment, and support from the government. Ahmad et al. (2011) in the case of Malaysia using a gravity model found that ICT infrastructure development serves as the key facilitating role in achieving higher levels of exports in Malaysia. To Cassetta et al. (2020), digital technologies promote internationalisation. Hagsten and Kotnik (2017) showed that basic ICT tools (such as a website) are more important for exporting than more advanced ones (such as the use of broadband or e-commerce) for 12 European countries. Kneller and Timmis (2016) found a strong positive causal impact of broadband use on the propensity to export business services for firms in the UK.

3 Data and methodology

To explore the connection between ICT adoption and export, we employed data from the World Bank Enterprise Survey (WBES) encompassing 20 Sub-Saharan African countries. The WBES utilizes a standardized core questionnaire and employs a consistent sampling methodology to collect data from businesses that are representative of their respective nations in the developing world. The WBES contain information for both service and manufacturing firms. Since the focus of this study is the manufacturing firms, this study restricts its observation to only the manufacturing firms. In aggregate, the dataset comprises an extensive sample of 8,910 firms after a meticulous data cleansing and outliers' removal.

3.1 Empirical methodology

To analyse the relationship between our dependent variable, which is measured as export propensity, we employed a probit regression model.



$$\text{Prob}(\text{EXPT}_{it} = 1) = \Phi(\alpha + \rho_1 \text{ICTWEB}_{it} + \rho_2 \text{ICTMAIL}_{it} + \gamma_1 \text{AGE}_{it} + \gamma_2 \text{SIZE}_{it} + \gamma_3 \text{OWN}_{it} + \vartheta \phi_{it} + \varepsilon_{it}) \quad \text{--- (1)}$$

The World Bank’s Enterprise Surveys are unique because they provide information on firm’s business environment along with standard information on production. In particular, the surveys collect information on exporting. The exporting variable (EXPT) used in this paper is presented in the WBES as “Percent of firms exporting directly or indirectly (at least 10% of sales).” It is a categorical variable and indicates whether the firm exported or not, with a binary representation of "Exported equalling 1" or "Not Exported equalling 0." Our ICTvariable is captured with *ICTWEB* and *ICTMAIL* that are also binary in nature. *ICTWEB* take the value of 1 if the firm own a website and 0 if otherwise. Similarly, *ICTMAIL* represent 1 if the firm employs E-mail in its operation and 0 if otherwise. We take into consideration the scale effect by adjusting for the firm's size (*SIZE*), which is measured by the logarithm of the number of employees. *OWN* represent ownership. We anticipate that larger firms will have significant advantages when it comes to engaging in export market. There is a well-established understanding that foreign-owned companies have distinct advantages compared to domestic firms when it comes to accessing resources and technology. As a result, foreign-owned firms are more inclined to engage in international trade. In this study, the variable representing foreign private ownership takes the value of 1 when private foreign individuals, companies, or organizations own more than 10% of the shares, and 0 otherwise. The variable "AGE" indicates the age of the firm. Previous research has presented a diverse range of findings concerning the impact of firm age. Some studies suggest that older firms, having successfully navigated competition, benefit from established networking connections, leverage scale effects, and encounter lower sunk costs, all of which contribute to increased participation in export activities. ϕ is the region-specific variable; $\alpha, \rho_1, \rho_2, \gamma_1 \dots \gamma_3, \vartheta$ are parameter estimates. ε is the error term; t is time (year) measurements respectively.

Table 1 Variables and descriptions

Acronym	Variable	Definition and measurement
EXPT	Firms export	a categorical variable and indicates whether the firm exported or not, with a binary representation of "Exported equalling 1" or "Not Exported equalling 0."
ICTWEB	Website usage	do you currently communicate with clients a supplier via your website.
ICTMAIL	E-mail usage	represent 1 if the firm employs E-mail in its operation and 0 if otherwise.
AGE	Firm age	Number of years the firm has been in business
SIZE	Firm size	logarithm of the number of permanent employees
OWN	Foreign ownership	A binary 1 when private foreign individuals, companies, or organizations own more than 10% of the shares, and 0 otherwise.

Source: Authors computation, 2023.



4 Empirical results

4.1 Descriptive statistics and correlation

Table 2 presents the descriptive statistics for all the variables employed in this study. It provides insights into the central tendencies, variabilities, and ranges of the variables, highlighting the differences in proportions and distributions among them. The mean for the export variable is 0.121, indicating that on average, only a small proportion of the respondents engage in exporting activities. In comparison, both ICTWEB and ICTMAIL have higher means of 0.691 and 0.407, respectively, suggesting that a larger proportion of the firms use a website and email in their operation. The standard deviations for all three variables indicate a relatively high degree of variability among the variables. The AGE variable has a mean of 26.441, indicating a relatively young sample overall, although the high standard deviation of 16.941 suggests a wide age range. The average SIZE of exporting firms in SSA is 78.456. However, the variable's large standard deviation of 285.049 suggests a significant variation in the organization sizes. Lastly, the foreign ownership has a mean of 0.162, suggesting that a relatively small percentage of the respondents' organizations are privately owned. A correlation matrix was used to assess if multicollinearity existed among the independent variables, and the results are shown in Table 3. The correlation matrix shows that the independent variables don't exhibit any notable multicollinearity.

Table 2 Descriptive statistics

Variable	Mean	Std. dev.	Min	Max
EXPT	0.121	0.327	0	1
ICTWEB	0.691	0.462	0	1
ICTMAIL	0.407	0.491	0	1
AGE	26.441	16.941	1	199
SIZE	78.456	285.049	1	8000
OWN	0.162	0.368	0	1

Source: Authors computation, 2023.

Table 3 provides insights into the relationships between the variables, allowing for a preliminary understanding of their associations and potential patterns prior to the main estimation of the study. Among these, EXPT exhibits a weak negative correlation with both ICTWEB (-0.150) and ICTMAIL (-0.139). This suggests that as internet usage for web browsing and email increases, exporting activities tend to decrease marginally. AGE, on the other hand, shows a weak positive correlation with EXPT (0.074), indicating that older respondents demonstrate slightly higher levels of exporting activities. Additionally, SIZE demonstrates a weak positive correlation with



Table 3 Correlation

	EXPT	ICTWEB	ICTMAIL	AGE	SIZ	OWN
EXPT	1					
ICTWEB	0.150***	1				
ICTMAIL	0.139***	0.504***	1			
AGE	0.074***	-0.245***	-0.218***	1		
SIZE	0.087***	-0.226***	-0.175***	0.249***	1	
OWN	0.115***	-0.205***	-0.215***	0.092***	0.130***	1

Note: ***P < 0.01, **P < 0.05.

Source: Authors computation, 2023.

EXPT (0.087), indicating that larger organizations tend to engage more in the export business. Lastly, OWN exhibits a weak positive correlation with EXPT (0.115) suggesting that organizations with high ownership tend to have slightly higher levels of exporting activity. Notably, the variables are not strongly correlated with each other leading us to conclude no multicollinearity exists which ensures stable and unbiased parameter estimates for our models going forward.

4.2 Baseline regression result

This study's second objective is to empirically investigate how ICT use affects manufacturing firms' export performance, measured by export intensity, in sub-Saharan Africa. This study employs the standard Probit model to accomplish this goal. The intuition for adopting the Probit model for this objective mainly lies in the binary nature of our dependent variable (export propensity EXPT). Table 4 presents the results.

Table 4 Result of the empirical investigation of the effect of ICT on manufacturing firms' export performance in SSA

Dependent Variable: Export Performance (**Export Propensity(EXPT)**)

Variables	Coeff.	Std. err	z	Prob.
ICTWEB	0.185	0.046	4.060	0.000***
ICTMAIL	0.215	0.049	4.380	0.000***
AGE	-0.086	2.250	-0.040	0.970
SIZE	0.111	0.017	6.670	0.000***
OWN	0.240	0.047	5.070	0.000***
Constant	-0.761	17.108	-0.040	
Log pseudolikelihood		-2844.68		
Wald chi ² (Prob.)		236.64 (0.000***)		
Regional dummies		Yes		

Note: ***P < 0.01; **P < 0.05; Coeff. represents marginal effects; Std. err represents the standard error; z is the z-statistics; Prob. is probability; LR is the likelihood ratio

Source: Authors computation, 2023.



The Wald test results, significant at the 5% level, indicate the rejection of the Wald null hypothesis. Consequently, all coefficients are deemed to be distinct from zero, demonstrating the overall significance of our model. Further, the relationship between website usage measure of ICT and the export performance of manufacturing firms is positive and conforms with the a priori expectation. Similarly, a positive relationship observed for the relationship between the Email usage measure of ICT and the export performance of manufacturing firms is consistent with the a priori expectation. Although the a priori expectation of the relationship between firm age and firm export performance is unclear, the study records a negative relationship. This negative sign is contradictory to the negative relationship returned for the relationship between firm size and export performance. Furthermore, the study records a positive sign consistent with the a priori expectation for the relationship between foreign ownership structure and the measure of export performance.

In terms of the magnitude, the marginal effect of 0.185 obtained for the relationship between website usage measure of ICT and export performance implies that a unit increase in website usage use raises the level of export performance of manufacturing firms by 18.5 percentage points. This result is significant at the 1 per cent level of significance. In resemblance, the marginal effect of email usage measure of ICT, another proxy of ICT, is 0.215, and it explains that a one percentage point increase in internet use will raise the level of manufacturing firms' export performance in SSA by about 21.5 percentage points. This result is also significant at the 1 per cent level of significance. The result is plausible because ICT have the capability to reduce operational cost and reduce information barriers between export market participants. The result also confirms the theoretical position of Hamill (1997), that proclaims that information and communication technology can help facilitate the flow of information and processing required to deal with market uncertainty. Thus, the use of information and communication technology (ICT) tools may not only help firms to reduce costs, it may also enable firms to take advantage of new markets and opportunities at a lower rate. As a result, firms who use ICT find it easier to choose to export their products and services. The result is consistent with the result of Makanyeza and Ndlovu (2016); Nath and Liu (2017); Shetewy et al. (2022). In terms of the control variables, the marginal effect of firm age is -0.086, although insignificant in probability. Firm size has a marginal effect of 0.111 and significant at 1% level of significance. The size of a firm, represented by the logarithm of its employee count, plays a crucial role in determining firms exports, as larger companies enjoy advantages such as reduced production expenses, economies of scale, and the capacity to overcome initial expenses associated with entering foreign markets, including meeting product standards, conducting market research, enhancing product quality, modifying packaging, implementing additional marketing strategies, and establishing valuable contacts and distribution channels. Further, foreign-owned is at a 1 per cent level of significance significantly related to the export performance of manufacturing firms in SSA. Given a marginal effect of 0.240, a 1 unit increase in foreign or private-owned firms would imply a 24.0 percentage point more likely to perform in the export market. Even though the result of this objective is not primarily for new firms, the result still reinforces the assumption of the theory of international new ventures attributed to Oviatt and McDougall (1994). The theory asserts that optimising the advancement of communication and information technologies is a critical driver of firms' internationalisation.

5 Conclusion



This study explores whether the usage of ICT has an impact on export propensity of manufacturing firms in sub-Saharan Africa. To research this issue, we employed the world bank enterprise survey dataset for 20 sub-Saharan countries which amounts to 8,910 firms and estimated our model using a probit regression estimation. The key findings of our study reveal that the adoption of information and communication technology (ICT) in manufacturing firms within Sub-Saharan Africa (SSA) has a noteworthy and beneficial effect on their export performance. This positive impact demonstrates that the ongoing development and widespread use of ICT present substantial opportunities for enhancing the export capabilities of manufacturing firms in SSA. As a result, our research underscores the critical importance of integrating and prioritizing ICT within the operational processes of manufacturing firms in SSA, as it is an essential factor in driving their success in international markets.

The findings of our study indicate a crucial need for policymakers and stakeholders in Sub-Saharan Africa (SSA) to prioritize and invest in the integration of information and communication technology (ICT) within the operational processes of manufacturing firms. To achieve this, policies should be geared towards enhancing access to ICT infrastructure, promoting digital literacy, and creating an environment that supports ICT adoption. Governments must take initiatives to develop and upgrade ICT infrastructure, especially in underserved regions.

Additionally, capacity-building initiatives and training programs must be implemented to enhance the workforce's digital skills, ensuring they can effectively use ICT tools. Policymakers should encourage collaboration among academia, industry, and government bodies to foster research and innovation in ICT for manufacturing firms. By prioritizing ICT integration and creating an enabling environment conducive to growth, SSA can leverage the immense opportunities presented by ongoing ICT development to boost international market competitiveness while driving economic growth through boosted export capabilities of manufacturing firms.

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NONNE-MILROY SYNDROME – A CASE REPORT AND REVIEW STUDY WITH CLINICAL ASPECTS

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Background: Introduction: *Lymphedema (tissue swelling caused by an accumulation of protein-rich fluid that's usually drained through the body's lymphatic system) in the legs and feet is a result of Milroy disease, which damages the lymphatic system (A network of tissues, veins, and organs known as the lymphatic system collaborates to transport lymph, a colourless, watery fluid, back into your circulatory system). Milroy illness can cause fluid to accumulate in the legs and feet before delivery and occasionally throughout the body (nonimmunehydrops). Lower limb edoema (swelling brought on by an increase in interstitial fluid above the normal lymphatic drainage's capability) after delivery, a fluid accumulation in the scrotum (hydrocele), and skin abnormalities are possible signs. Skin infections and certain cancers are more likely to occur in people with Milroy disease. Milroy illness (Milroy disease is a disorder that interferes with the lymphatic system's typical operation.) develops when the FLT4 gene(The vascular endothelial growth factor receptor 3 protein is made using instructions from the FLT4 gene (VEGFR-3),which regulates the development and maintenance of the lymphatic system) is malfunctioning. It has an autosomal dominant pattern of inheritance. Milroy disease is diagnosed based on the symptoms, a clinical examination, and further tests. Genetic tests could confirm the diagnosis. The goal of treatment is to control the symptoms.*

Key words:FLT4, VEGFR-3, Nonne-Milroy, ICT, ECM, HLTS, VLNT,

Conditional Description: Since birth or early childhood, Nonne-Milroy syndrome (a lymphatic system condition that affects growth and causes disfiguring swelling in the limbs), a rare primary lymphedema, has been associated with firm, non-pitting edoema of the lower extremities of the complete leg or may just affect the feet or toes. The lower limbs' duplex ultrasonography revealed intact blood vessels. Lymphoscintigraphy (The sentinel lymph node, which is the first node to receive lymph from a tumour, is located by lymphoscintigraphy; it may be removed and analysed for malignant cells.) showed lymphatic aplasia in both lower limbs. After ruling out alternative hereditary causes of primary edoema, the patient was diagnosed with either primary lymphedema or Nonne-Milroy syndrome. His chylous effusion was treated with bilateral pleurodesis (A procedure known as pleurodesis causes a little inflammation of the pleura around the lung and chest cavity) and tetracycline, and after a year of follow-up, there was no sign of recurrence.

Primary (Idiopathic: pertaining to or designating any illness or ailment that appears suddenly or for which there is no established cause) and secondary (acquired), the latter of which has a recognised pathogenic change, are the two main classifications of lymphedema. Lymphatic vessels can be either hypoplastic (a serious congenital cardiac condition where the left side of the heart is underdeveloped) or hyperplastic



(An increase in the number of cells in an organ or tissue) but are nonfunctional in primary lymphedema, which can occur alone, in conjunction with other clinical issues, or as part of a specific illness. Primary lymphedema is a congenital abnormality that results in aberrant interstitial protein-rich fluid buildup (abnormal increases in pressures may result in interstitial edoema or swelling of the extracellular matrix) whereas secondary lymphedema is a consequence of lymphatic blockage or disruption of the lymphatic arteries. The diagnosis of primary lymphedema was made since our patient had congenital lymphedema.

Case study: I discuss the case of a 7-year-old kid in India who had swollen lower limbs and his scrotum, with flare-ups and remissions of the symptoms. A congenital defect in lymphatic drainage may have been the cause of the vaginal edoema that appeared at 6 months of age. Milroy's illness and other potential causes of paediatric lymphedema are examined.

Since birth in India, a child male patient with age 7, In the mammary, axillary, infra-axillary, lower inter-scapular, and infra-scapular regions on the left side of his chest, as well as the infra-axillary and infra-scapular regions on the right, there was stony dullness with reduced vesicular breath sound. His ESR was not elevated, and his Mantoux and immunochromatographic card tests (ICT Immunochromatography (or lateral flow tests) Combining migration-based capillary flow separation of the sample molecules and reagents on a solid substrate. The identification and detection procedures are based on the antigen–antibody immune reaction) for filaria were also negative. The equilibrium of interstitial fluid is maintained in large part by lymphatics. In the sixth to seventh weeks of an embryo's life, the human lymphatic system begins to develop.



Growth factors, intercellular, and cell extra cellular matrix (ECM) (The body's cells and tissues are surrounded by a dense network of proteins and other molecules that provides structure and support) communication systems all work together to strictly regulate lymphangiogenesis (Lymphangiogenesis is the process through which new lymphatic vessels are created from already-existing ones). Due to inadequate lymphatic transit and drainage, interstitial protein-rich fluid builds up, which results in lymphedema. The vast majority of lymphedema patients may be identified with a careful history gathering, physical examination, and ultrasound. Due to its minimally invasive nature and safety for the



lymphatic endothelium (The endothelium, a monolayer of endothelial cells, constitutes the inner cellular lining of the blood vessels (arteries, veins, and capillaries), as well as the lymphatic system, making it in close proximity to the blood, lymph, and moving cells), isotopic lymphoscintigraphy (A potent diagnostic imaging technique, lymphoscintigraphy may be performed with low chance of unfavourable side effects. This exercise discusses the uses of lymphoscintigraphy in modern medicine and emphasises the function of the multidisciplinary team in the treatment of cancer patients who show concern for nodal involvement and lymphatic system flow pathology) is typically regarded as the gold standard for the diagnosis of lymphedema. Alternatives include direct lymphography, computed tomography, and magnetic resonance imaging. Primary (idiopathic) and secondary (acquired) lymphedema are the two main forms, with the latter having a recognised pathologic modification such blockage or injury to the lymphatics. Primary lymphedema can occur alone or in conjunction with other disorders. The diagnosis of primary lymphedema was made since our patient had congenital lymphedema. Primary lymphedema can have a variety of hereditary origins, including Turner's syndrome, Noonan syndrome, Yellow nail syndrome, Lymphedema-distichiasis syndrome, Hypotrichosis-lymphedema-telangiectasia syndrome (Hypotrichosis-lymphedema-telangiectasia syndrome (HLTS) is an uncommon disorder linked to scant hair, as the name implies (hypotrichosis), lymphedema, and telangiectasia, particularly on the palms of the hands symptoms, and many more. Milroy disease is a very uncommon kind of primary lymphedema that is often brought on by a FLT4/VEGRF3 gene mutation. In Milroy disease patients, the superficial lymphatics of the afflicted edematous regions are believed to be aplastic or hypoplastic. Chylothorax (Chylothorax is an uncommon but deadly illness when lymph from the gastrointestinal tract (chyle) builds up in the chest cavity) can appear in Milroy disease sufferers between the second and fourth decade of life. Patients with hereditary lymphedema may develop pleural effusions for unclear reasons. It is thought to be caused by a fundamental flaw in the growth of lymphatic vessels. However, it is unknown why thoracic involvement manifests later in life. Atypical Nonne-Milroy syndrome is the medical term for Nonne-Milroy illness with chylothorax, as in our case. Over time, the thoracic involvement and leg edoema often get worse. Long-term limb edoema is treated with non-operative methods include compression therapy, massages, specific exercise, and manual lymphedema drainage.

Diagnosis: Only conservative measures can be taken. Certain treatments for lymphedema disorders may possibly alleviate specific symptoms; no cure and it is usually congenital. Genetic counseling can be done. May have similar health conditions, delays, disorders, and physical traits associated with other lymphatic genetic diseases and chromosome #5 abnormalities.

Prognosis: A rare complication is the appearance of lymphangiosarcoma (Within a median of 10 years after mastectomy, lymphphangiosarcoma is characterised by skin alterations in the form of purple-colored elevated cutaneous lesions that proceed to ulceration in a lymphedematous arm.) or angiosarcoma (Angiosarcoma is a kind of cancer that develops in the lining of lymphatic and blood vessels. It frequently affects the skin and can take the form of an ever-expanding lesion that resembles a bruise. A uncommon kind of cancer called angiosarcoma develops in the lining of the blood vessels and lymph vessels) in patients with persistent lymphedema. Some patients may develop protein-losing enteropathy (The small intestine is continually being harmed, irritated, or swollen in enteropathy) and visceral involvement. Chylous ascites and chylothorax rarely occur. Milory disease does not normally affect life expectancy.

Clinical characteristic in observation : Lower-limb lymphedema, which manifests as pedal edoema before (or before) delivery or develops quickly after, is a hallmark of Milroy disease. Sometimes it shows up later in life. Usually bilateral, swelling can sometimes be asymmetrical. Edema severity can worsen



but sometimes occasionally get better, especially in the early years. Other symptoms of Milroy disease include hydrocele (37% of men), large veins below the knees (23%), upslanting toenails-A significant gene deficiency has recently been identified as the predominant cause of the uncommon autosomal dominant disorder known as primary congenital lymphoedema (Milroy disease). (14%) and papillomatosis- The term "papillomatosis" describes the condition in which dermal papillae protrude beyond the skin's surface, causing the epidermis to be irregularly undulating. (10%), and anomalies of the urethra in males (4 %). About 20% of those who are infected develop cellulitis, which can harm lymphatic vessels; males are substantially more likely to get the illness than females.

Diagnosis/Testing: A proband with congenital or infantile-onset lower-limb lymphedema and a lack of radioactive colloid uptake in the ilioinguinal (The sentinel lymph node (the first node to receive lymph from a tumour), which may be removed and examined for tumour cells, is found using lymphoscintigraphy. The ilioinguinal nerve is a mixed nerve that originates from the anterior rami of the T12 and L1 nerve roots), as well as by the discovery of a heterozygous pathogenic variant in FLT4 by molecular genetic testing, are considered to have Milroy disease.

Management:Treatment of manifestations- To enhance the limb's aesthetics, reduce its size, and lower the risk of problems, a lymphedema therapist may apply tailored stockings and massage. With the use of appropriately fitted compression hosiery, bandaging, and supportive shoes, edoema is frequently treatable. The use of toe gloves and proper skin care are also recommended. Standard therapy for urethral anomalies, hydroceles, and cellulitis.

Prevention of secondary complications- Good skin care, timely antibiotic treatment of infections, and preventive antibiotic use for recurring bouts can all minimise the frequency of cellulitis.

Surveillance- It is appropriate to follow up regularly at a clinic that specialises in treating lymphedema.

Agents/circumstances to avoid-Drugs that may induce leg edoema; prolonged periods of inactivity with the legs in a dependent posture.

Wounds to limbs Evaluation of relatives at risk- In order to determine whether relatives of an afflicted person may benefit from receiving appropriately fitting compression hosiery and counselling on how to lower their risk of developing cellulitis of the legs and feet, evaluation of the apparent asymptomatic at-risk relatives is necessary.

Establishing the Diagnosis:A proband with congenital or infantile-onset lower-limb lymphedema, a lack of radioactive colloid uptake in the ilioinguinal lymph nodes on lymphoscintigraphy, and/or identification of a heterozygous pathogenic variant in FLT4 (VEGFR3) by molecular genetic testing is considered to have Milroy disease. Depending on the phenotype, molecular genetic testing methods can combine gene-targeted testing (single-gene testing, multigene panel) and complete genomic testing (exome sequencing, genome sequencing). Genomic testing does not need the doctor to identify the gene(s) that are most likely implicated, whereas gene-targeted testing does. Individuals with the characteristic findings listed in Suggestive Findings are likely to be identified with Milroy utilising gene-targeted testing due to the disorder's wide phenotypic, as opposed to those whose phenotype(the observable physical properties of an organism) is similar to many other hereditary disorders.

Genetic Counselling:The hereditary form of Milroy disease is autosomal dominant. The majority of people with Milroy illness have a parent who is afflicted. There is a 50% chance that siblings will inherit a FLT4 pathogenic variation if one of the proband's parents (A *proband* is an individual who



is affected by a genetic condition or who is concerned they are at risk.) is afflicted and/or carries it. A heterozygous sibling may be more or less severely afflicted than the proband in Milroy illness due to intrafamilial variability and lower penetrance. Prenatal testing for a pregnancy at greater risk and preimplantation genetic testing are both options if the FLT4 pathogenic mutation has been found in an afflicted family member. The dorsum of the foot may enlarge during pregnancy, along with moderate pleural effusions that often go away and (very rarely) more severe edoema (foetal hydrops) in an afflicted foetus.

Diagnosis-Suggestive Findings

Milroy disease should be suspected in individuals with the following clinical features, radiographic findings, and family history.

Clinical features:

Lower-limb swelling that is: Usually (not always) bilateral Present at birth or develops soon after

Note: In neonates the swelling predominantly affects the dorsum of the feet; with age, the swelling may improve or progress to affect the below-knee region (rarely extending above the knees).

Large-caliber veins below the knees Upslanting and small, dysplastic toenails Deep interphalangeal creases of the feet Hydroceles in males

No internal clinically significant lymphatic issues (e.g., intestinal lymphangiectasia, pleural or pericardial effusions)

Radiographic findings: Typically, lymphoscintigraphy shows that there is little tracer absorption into the peripheral lymphatics. As a result, neither drainage channels nor absorption in the ilio-inguinal nodes are seen. This is a sign of Milroy disease and is referred to as "functional aplasia". Although the lymphoscintigraphic findings are distinctive and helpful for diagnosis, the test is not always necessary.

Lymphedema Medication: Retinoid-like Agents (Tretinoin, retinylpalmitate, retinaldehyde, isotretinoin, and tazarotene). Anthelmintics

(Anthelmintic is the term used to describe a drug used to treat infections of animals with parasitic worms) Topical Skin Products 9+ Antibiotics

Lymphoscintigraphy: About 20% of those who are affected develop cellulitis, with males significantly more likely to contract the infection than females [Brice et al 2005]. Milroy disease is frequently distinguished from other lymphatic conditions by the presence of cellulitis, which can harm the body's natural lymphatic vessels and increase the degree of swelling. In the toe web spaces, a radioactive colloid is injected, and the ilioinguinal nodes' uptake is periodically evaluated. To ascertain if there is a deficiency in radioactive tracer uptake, lymphoscintigraphy is done. Different patterns on lymphoscintigraphy can be seen in Milroy illness and other types of lymphedema [Connell et al 2013,



Sarica et al 2019]. Lymphoscintigraphy can identify whether there is a problem with lymphatic drainage in the limb that is "unaffected" in situations of unilateral edoema.

Surgical Intervention: VLNT together with therapeutic lipectomy proved to be a reliable technique in moderate cases of Milroy disease, providing an alternative path for lymph drainage, and reducing the lymph load and the excess of subcutaneous adipose tissues, thus improving patients' quality of life.

Observation in summary: As untreated lymphedema prolongs, it can develop into lymphangiosarcoma – a lymph-related cancer that limits a patient's life expectancy from a few months to two years. Untreated or mismanaged lymphedema can also lead to sepsis (Sepsis is the body's extreme response to an infection), a scary, potentially terminable infection that rapidly spreads throughout the entire body.

Patient Consent Statement: The author attests that they have all necessary patient permission form preparing manuscript. The patient has granted permission to use his photo. The patient is aware that his initials and name will not be published.

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ATTITUDE TOWARDS BLENDED LEARNING AMONG PROSPECTIVE TEACHERS OF WEST TRIPURA DISTRICT

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Abstract

Education in the emerging century is turned to learning centered approach, which differs significantly from the old conventional methods of learning. Learners of the present generation opt and focus on technically based learning. Caring for the flexibility to the students, modern teaching-learning method is also based on the blending the classes as per the learners requirement. It is also observed that, pandemic period has brought a great transformation, where blended learning is one of the leading trends in education, forcing maximum learners attracted towards blended mode of learning. Blended learning frames teaching learning process by blending traditional based classroom learning with online asynchronous learning, providing opportunities for learning online along with conventional methods through direct-indirect instruction, collaborative teaching and individualized computer assisted learning. The prospective teachers, who will be training the students of modern generation, must be trained and aware of effective virtual classroom methods. The present study is to examine the Prospective Teachers Attitude towards Blended Learning, and to find the differences with respect to the gender, stream, locality, type of institution, and educational qualifications respectively. The investigator employed descriptive survey method, and a sample of 190 prospective teachers of west district in Tripura were selected with stratified random sampling method. A standard Attitude towards Blended Learning Scale by Devaki and Deivam (2018) was used for the study, and the data was analyzed by using a t-test. The findings revealed significant difference among prospective teachers with respect to gender and their highest educational qualification, in their attitude towards Blended learning at 0.05 level of significance. No significant difference was found among prospective teachers with respect to their (i) stream, (ii) locality, and (iii) type of institutions. Examining the findings, the study suggests that, the institution/principals must motivate and organize workshops to get trained with novel ideas related to blended learning in the classroom situation.

Keywords: Teaching-Learning Method, Traditional Based Learning, Blended Learning, Attitude towards Blended Learning, Prospective Teachers.

Introduction

Traditional methods of teaching, the conventional ways of instructing are still applicable to a certain extent, where the teacher stands before the learner delivering the lecture, while learners listen, take notes, and remain passive throughout the teaching and learning process. The rapid development of internet based media and technology during the past two to three decades, have changed the education considerably in terms of flexibility, adaptability and accessibility of programs. The modern systems of education focused not only on the development of future professional competence in narrow professional fields, but also aimed to prepare for flexible professional work in the new intellectual environment in a



changing digital world. The world is becoming digital, and its inhabitants are getting used to digital technologies and use them effectively in a variety of sectors, including education. In such circumstances, the key points to be focused are, the access to knowledge, functioning in different environments at any place, any time, the ability to interact with this knowledge, and to use it in solving any problems. This development of information and technology has facilitated the integration between face to face and technology mediated learning environments, called blended learning.

Blended learning combines computer-assisted learning with traditional classroom learning, incorporating direct-indirect instruction, collaborative teaching and individualized computer assisted learning, providing full scope for blended classroom, where learners get an ample of time to interact with their teachers and thus get influenced by their personality, behavior and value systems. It is a kind of virtual classroom, which is achieved by combining different delivery modes, teaching models, and learning styles effectively, which provides learners an option to learn anywhere, anytime and from anyone. Blended Learning teaching is one innovative solution to modern classrooms in which modern technologies are integrated in the teaching and learning process and try to overcome some limitations in the conventional classrooms and it is effective pedagogy and potential to support teaching and enrich the learning experience. Blended approach studies how to join the best features of face to face and online instruction.

The blended approach helps prospective teachers to explore technology and use different tools or techniques for learning, along with managing video lectures, virtual classrooms, PPT, etc. Prospective teachers, who will be teaching the students in future, must be trained with the teaching concepts of blended mode, in person and online learning complementary, creating an integrated classroom to meet the needs of diverse learners. Blended learning of the teaching profession helps prospective teachers to become better teachers. With these things in mind, it is felt to examine the prospective teachers attitude towards blended learning. So it has been decided to study the “Attitude towards Blended Learning among Prospective Teachers of West Tripura District”.

Objectives of the study

1. To identify the Prospective Teachers level of Attitude towards Blended Learning.
2. To compare the Prospective Teachers Attitude towards Blended Learning with respect to: (i) Gender (ii) Stream (iii) Locality (iv) Type of Institution (v) Educational Qualification.

Hypotheses of the study

The Alternative Hypotheses are:

H₁: Male and female prospective teachers differ significantly in their attitude towards Blended Learning.

H₂: There is a significant difference between Science and Arts prospective teachers in their attitude towards Blended Learning.

H₃: There is a significant difference between the prospective teachers attitude towards Blended Learning residing in rural and urban areas.

H₄: Prospective teachers from government and private institutions differ significantly in their attitude towards Blended Learning.

H₅: Prospective teachers' attitudes towards Blended Learning differ significantly in terms of their educational qualification.



Review of Related Literature

An experimental study on Testing and Validating a Faculty Blended Learning Adoption Model by Boampang (2022), resulted that positive perception towards this model assists in recognizing the factors that influence in accepting or resisting to blended mode, and also helping the future faculty motivating for acceptance and usage. Abdullahi and et al. (2021) recommended technical college teachers, particularly RIME teachers should learn blended learning in teaching their students. Mahmood (2020) survey found blended learning having a significant relationship with academic self concept. Nayak and Panda (2018) findings concluded that effective blended learning environment is necessary to develop ones social skills with innovative pedagogical approaches and adequate training must be provided with respect to the changing technology. Jayanthi and Tholappan (2016) and Mathew (2013) studies found average level of awareness on blended learning strategy, and were not fully aware about the potentials of blended learning practices for classroom instruction.

Design and Methodology

Sample: Descriptive survey research method has been employed for the present study. A sample of 190 prospective teachers, belonging to urban and rural areas of west Tripura district was selected randomly for the present study.

Tool: A standard Attitude towards blended learning scale by Devaki and Deivam (2018) was used for the study.

Statistical Analysis

The data was analyzed using the Mean, SD, and ‘t’ test..

Analysis and Interpretation of Data

Prospective Teachers Attitude towards Blended Learning

Table 1: Attitude towards blended learning processed by the whole sample

Sample size	Mean	SD	Skewness	Kurtosis
190	175.52	19.49	-0.17	0.22

As indicated from the above table, the level of blended learning by the whole sample was found to be average. As per the standard deviation value, the scores in the units are dispersed to a high degree. The value of skewness and kurtosis shows that the distribution is slightly negatively skewed and leptokurtic and of course it approaches normal form.

Hypothesis - 1

Male and female prospective teachers differ significantly in their attitude towards Blended Learning.



Table-2: Comparison of male and female prospective teachers attitude towards blended learning.

Variable	N	Mean	SD	't' value
Male	76	172.42	17.68	1.985
Female	114	177.58	20.42	

$d_f=188$

P at 0.05 level is 1.97

Significant at 0.05

Table-2 indicates that, male and female prospective teachers differ significantly in their attitude towards blended learning. The difference is significant as the 't' calculated Value (1.985) is more than the 't' table value (1.97) at 0.05 level of significance. As seen from the mean scores of table-2, female prospective teachers have a better attitude towards blended learning than male prospective teachers.

There is a significant difference between male and female prospective teachers in their attitude towards Blended Learning at 0.05 level of significance. Thus, the hypothesis is accepted.

Hypothesis - 2

There is a significant difference between Science and Arts prospective teachers in their attitude towards Blended Learning.

Table-3: Comparison of Arts and Science prospective teachers towards blended learning

Variable	N	Mean	SD	't' value
Arts	102	176.77	24.01	1.64
Science	88	171.5	20.35	

$d_f=188$

P at 0.05 level is 1.97

Not significant at 0.05

From the table-3, no significant difference is found between arts and science prospective teachers in their attitude towards blended learning. The difference is not significant as the 't' value (1.64) is less than 't' value (1.97) at 0.05 level of significance. As seen from the mean scores in the above table, prospective teachers from arts stream have a better attitude towards blended learning than their counterparts.

Hypothesis is not accepted, as there is no significant difference between Science and Arts prospective teachers in their attitude towards Blended learning.

Hypothesis - 3

There is a significant difference between prospective teachers in their attitude towards Blended Learning residing in rural and urban areas.



Table-4: Comparison of rural and urban prospective teachers attitude towards blended learning.

Variable	N	Mean	SD	't' value
Rural	110	177.01	20.44	1.27
Urban	80	173.46	18.02	

$d_f=188$

P at 0.05 level is 1.97

Not significant at 0.05

From the above table-4, it is observed that prospective teachers from rural and urban teachers do not differ significantly in their attitude towards blended learning. The difference is not significant as the 't' value (1.27) is greater than 't' value (1.97) at 0.05 level of significance. As seen from the mean scores, prospective teachers from rural areas have a better attitude towards blended learning than their counterparts.

There is no significant difference between prospective teachers in their attitude towards Blended learning residing in rural and urban areas. Thus, the hypothesis is not accepted.

Hypothesis - 4

Prospective teachers from government and private institutions differ significantly in their attitude towards Blended Learning.

Table-5: Comparison of prospective teachers' attitude towards blended learning with respect to the type of institution.

Variable	N	Mean	SD	't' value
Government	80	176.16	20.62	0.38
Private	110	175.05	18.70	

$d_f=188$

P at 0.05 level is 1.97

Not significant at 0.05

From the above table no significant difference is found in the prospective teacher's attitude towards blended learning from government and private institutions. The difference is not significant as the 't' calculated value (0.38) is less than 't' table value (1.97) at 0.05 level of significance. As seen from the mean scores in the above table, prospective teachers from government institutions have a little better attitude towards blended learning.

Prospective teachers from government and private institutions do not differ significantly in their attitude towards Blended Learning. Thus, the hypothesis is rejected.

Hypothesis - 5

Prospective teachers' attitudes towards Blended Learning differ significantly in terms of their educational qualification.



Table-6: Comparison of UG and PG Prospective teachers attitude towards blended learning

Variable	N	Mean	SD	't' value
UG	73	172	17.85	2.04
PG	117	177.71	20.20	

$d_f=188$

P at 0.05 level is 1.97

Significant at 0.05

Table-6 reveals significant difference in the attitude towards blended learning of prospective teachers with PG and UG level as the highest qualification. The difference is significant as the 't' Value (2.04) is greater than 't' table value (1.97) at 0.05 level of significance. The mean scores in the table indicate prospective teachers from postgraduate prospective teachers have a better attitude towards blended learning than undergraduate prospective teachers.

Prospective teacher's attitudes towards Blended learning differ significantly in terms of their educational qualification. Thus, the hypothesis is accepted.

Discussion

From the first and fifth hypothesis, the study has examined a significant difference among the prospective teachers attitude towards blended learning, with respect to the gender and educational qualifications. The findings were supported by the studies investigated by the Khan (2016), Nayak and Panda (2018), Jayanthi and Tholappan (2016), and Khader (2016) on the basis of gender; and Kavitha and Jaisingh (2018), Upfold (2016), and Chen (2022) on the basis of educational qualifications. No significant difference was found among the prospective teachers attitude towards Blended learning with respect to their stream, locality, and type of institution. Alsalmi, Eltahir and Qatawneh (2019), Jayanthi and Tholappan (2016), Khan (2016) studies were supporting the findings of the present study.

Conclusion

The above findings conclude that prospective teacher's attitudes towards blended learning differ significantly in terms of gender and their educational qualification. Prospective teacher's attitude towards blended learning differs insignificantly with respect to the stream, locality, and type of institution. Surprisingly prospective teachers from arts stream; those residing in rural areas; getting trained from government institutions were found to have a little better attitude towards blended learning when compared to their counterparts.

Implications

To develop blended learning various programmes can be arranged in the institution. Principal can motivate the different subject teachers to practice novel ideas related to blended learning in the classroom situation. Parents can guide and motivate the prospective teachers to follow blended learning techniques in their study.

Suggestion for further Research

Based on the present study, a good number of new areas can be studied by future researchers.

1. Survey of difficulties faced by prospective teachers in learning concepts, terms, laws from different subjects and to suggest remedies through the application of different blended learning techniques.
2. A comparative study can be connected to Blended learning of teachers and prospective teachers.
3. Effectiveness of blended learning programme on the attitude towards blended learning among prospective teachers of west Tripura district.



4. A study can be made to study factors affecting blended learning.
5. Survey of the blended learning of gifted prospective teachers.

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THE IMPACTS OF COVID-19 SUICIDAL VULNERABILITY IN OLDER ADULTS

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Abstract

Background: *The effects of the corona virus disease 2019 (COVID-19) pandemic on suicide among older persons and suggests methods for a comprehensive strategy to avoid suicide. In both the global and local contexts of the COVID-19 pandemic, the elderly population over 65 was considered to be the group most at danger since they had the greatest mortality rate, particularly for those with pre-existing co morbidities. Was there a connection between the rise in suicide rates among this population and the worries, concerns, and fears associated with COVID-19? Family disputes, worry related to dying, acute despair, and helplessness brought on by loneliness and isolation all increased.*

Aim: *This is aim to examine the connections between elderly people's suicide and its potentially detrimental effects of COVID-19 on older people' risk of depression and suicide.*

Conclusion: *Because the older population lacks protective qualities including social support, connectedness with others, and engagement in extracurricular activities, the psychological effects of the COVID-19 crisis might lead to an increase in suicide rates both during and after the pandemic. The psychological impact on relationships and fear of social isolation, as stated above, can be contributing factors for suicidal ideation and suicide. While a Correlational link between feelings of loneliness, fear, and anxiety and a rise in suicidal rates is difficult to establish, these feelings can be precursors to suicidal ideation and suicide.*

Key Words: COVID-19, Pandemic, Ageism, Psychological, Suicidal Ideation, Vulnerabilities, loneliness, etc

Introduction: Suicide deaths among older adults occur at an alarming rate. This tragic phenomena is more prevalent in elderly men, especially those over the age of 80, especially when they are dealing with diseases like chronic pain and dependency on others, but it may also happen when they are lonely, feel abandoned, or have lost their sense of purpose in life. All of these issues are risk factors for suicide; some of them may be managed and their effects reduced, while others can just be too much for people and their families to handle. Ageist views view older folks as feeble and defenceless people who necessarily affect the quality of care that these people receive by associating old age with physical and cognitive deterioration. According to recent reports from the Centers for Disease Control and Prevention (CDC, 2020), those in their fifties and sixties have a higher risk of developing serious illnesses than those in their forties, and the World Health Organization advised strict social isolation for the elderly population to reduce mortality in severely affected nations like Italy, the United States, the United Kingdom, and Brazil (WHO, 2020).



Pandemics like the Covid-19 have been described as having significant psychological effects in addition to the physical consequences in death rates, among which anxiety, panic, adjustment problems, depression, chronic stress, and sleeplessness are some of the main symptoms. The primary issues raised were feelings of vulnerability, loneliness, and anxiety, which were made worse by the requirement of social isolation. Many people lived alone since their children had left the home, and younger family members were reluctant to visit.

Global Aging, Longevity and Suicide: Globally, suicide rates have decreased, while health care availability and quality have both increased. However, elderly adults continue to have the highest suicide rates in the world. Suicide rates often rise steadily with age, especially among men, and this pattern may persist even among ultra-centenarians. Globally, there were 16.17 elderly suicides per 100,000 people in the age range of 50 to 69 and 27.45 elderly suicides per 100,000 people in the age range of 70 or older in 2017. Epidemiological data show that the older population will nearly double in size in less than 30 years, and mononuclear families will make up an increasing percentage of households, so the worry about rising levels of social isolation, loneliness, and addiction—known risk factors for suicide—seems reasonable.

Instead of being a legitimate biological term, old age is a sociocultural one. In actuality, because a person's chronological age is not strongly correlated with their physical and mental skills, there is no clearly defined and widely accepted threshold that denotes old age. Unlike chronological age, which rises uniformly worldwide, biological age is influenced by changes in a person's DNA methylation, epigenetic state, and other body functions. 65 years of age is typically regarded as the entry point into old age. However, persons aged 65 to 74 years often have robust health and continue to profit from sufficient levels of social involvement and resource availability as in younger age, especially in high-income nations. Old age is more prevalent in low- and middle-income nations than chronological age. Old age appears to be defined by the end of socially active engagement.

Loneliness and Social Isolation- Psychological Consequences: In older persons, loneliness and social isolation are all too prevalent and frequently co-occur. Social isolation is characterized by the volume and regularity of one's social interactions, as opposed to loneliness, which pertains to subjective sensations. According to a widely recognized definition, social isolation is an objective condition that reflects people's social contexts and interactional patterns, whereas loneliness is described as the subjective sense of being alone. According to studies, social isolation and loneliness have diverse effects on health yet both might have negative effects through both common and unique mechanisms.

The COVID-19 pandemic's perceived social isolation has had a remarkable worldwide impact and serious psychological repercussions. Numerous factors have the potential to have an impact on people's mental health, including lifestyle changes, feelings of loneliness, job losses, financial hardship, and sadness over the loss of loved ones. It is crucial to provide exact and clear information about the issue and how to handle it in an uncertain environment. This paper explains why it is very necessary to take swift action in response to COVID-19's effects on mental health. Additionally, advice on how people can correctly and efficiently control their emotions is given.

Social isolation and loneliness are linked ideas that frequently coexist; isolation can cause loneliness, and vice versa (Shankar et al., 2011). In recent years, loneliness has become a social problem. It has been



connected to melancholy, anger, and an obsession with negative self-thoughts, as well as a 26% increased chance of dying young. According to research, this is an issue that has been becoming worse in developed nations, affecting around one-third of the population overall and 1 in 12 individuals severely. Additionally, it seems that everyone is equally at risk of loneliness and that socioeconomic class and money are not protective factors (Cacioppo et al., 2015; Holt-Lunstad and Smith, 2016).

Suicidal Ideation in Older Adults: According to studies, older individuals in many nations have suicide rates that are greater than or on par with those of young people. But elderly suicide is a subject that is largely ignored. In reality, suicide prevention facilities as well as professionals lack fundamental information and training about elder suicide. In the next decades, there will be a considerable global increase in the number of older persons due to the ageing population, and suicide rates are likely to rise in tandem.

Instead of being thought of as distinct behaviours, suicidal behaviours are viewed as a continuum. This continuum starts with suicidal thoughts, continues with suicide planning, and culminates with suicide attempts and successfully completed suicides. The most effective way to stop further attempted and completed suicides is to identify and treat suicidal ideation as soon as it arises. Suicidal thoughts, plans, and attempts are typically viewed as the prodrome for later suicide. There is evidence that social crisis is linked to an increase in an ageing society's suicide rate. For instance, during the SARS pandemic in Hong Kong in 2003, the rate of suicide among older individuals saw a significant upturn from a prior decreasing trend. Older individuals have been disproportionately impacted by the COVID-19 pandemic since the outbreak because they make up a disproportionate number of COVID-19 hospitalized patients and have a higher risk of developing serious complications and a higher mortality rate.

The pandemic containment measures have made older adults even more vulnerable; for instance, physical separation and restrictions on social interactions increased the risk of loneliness and social isolation, and the lockdown and suspension of public transportation made it more difficult for older adults to access healthcare. As a result, there are growing worries about older persons' mental health issues, suicide ideation, and actions during the COVID-19 epidemic. On the other hand, research on suicidal thoughts in general populations of many nations has been considerable. The prevalence of suicide thoughts is lower in older persons than in younger adults, according to previous research, which is a consistent result. However, imply that psychological crisis intervention services are less important for suicidal older persons since, in contrast to younger adults, older adults are more likely to utilize instantly deadly ways with greater forethought and resolve to complete suicides.

The COVID-19 epidemic can be contained thanks in large part to psychological crisis intervention. Evidence suggests that the majority of suicidal individuals do not seek assistance, with a lack of perceived need for therapy serving as one of the main obstacles. It is equally vital to look at both suicidal thoughts and mental health help-seeking behaviours among suicidal older individuals in order to support the design and development of suitable mental health services for older persons throughout the pandemic. Sadly, there is a dearth of information on the pandemic's suicidal older persons' habits towards seeking mental health assistance. During the COVID-19 epidemic, this study looked at the prevalence and correlates of suicide thoughts among older persons, as well as how these individuals evaluated their need for mental health treatment and how they went about getting it.



Ageism and COVID-19 Pandemic: In every country, the COVID-19 pandemic continues to have a significant negative impact on older persons in terms of their physical, psychological, and social well-being. More than 80% of the COVID-19-related deaths during the first wave of the pandemic were in long-term care institutions, which have had a particularly negative impact on residents (Royal Society of Canada, 2020). Significant media attention, official communications, and academic study were all sparked by the outbreak. Public discourse has the ability to reshape societal representations, establish norms and expectations that affect human experience (e.g., media coverage, government communication). It is crucial to look at how older persons were affected by the public debate that followed the COVID-19 outbreak. Research conducted before the epidemic showed that views and preconceptions about older people are promoted both consciously and unconsciously in public discourse.

Due to the growing awareness of population ageing, workforce ageing, and the need to promote rather than restrict older adults' participation and contribution to society, research examining the nature and effects of ageism, targeted at and experienced by older adults, has gained momentum in recent years. The widespread COVID-19 epidemic, however, has the potential to worsen ageism's manifestations and experiences in Western societies. We demonstrate how the pandemic's language has reinforced the widespread belief that older people are frail, has socially stigmatised ageing, and has fueled both benign and hostile ageism. Then, we consider how this could affect intergenerational relationships and suggest new directions for further study.

Age-related prejudices continue even though the great majority of older persons do not have physical, cognitive, or mental impairments. These prejudices frequently depict elderly persons as being mentally and physically frail. It's important to note that people might suffer from unfavourable misconceptions about older people and ageing. Experimental studies have demonstrated that older persons may experience a decline in physical capacity, slower walking speed, changed heart activity, worse cognitive function, and in some cases, a weakened will to live when exposed to unfavourable stereotypes (Roberston, 2016).

The Pan American Health Organization (PAHO, 2020) stated in 2020 that the health systems in the Caribbean and Latin America were not meeting the requirements of older people and that service delivery in these regions needed to be adjusted, particularly in light of the COVID-19 epidemic. The following is highlighted in the report:

“While everyone is at risk of contracting COVID-19, older persons are far more likely to experience severe disease following infection, with those over 80 years old dying at five times the average rate. A United Nations Report “The Impact of COVID-19 on Older Persons” suggests that this may be due to underlying conditions, which affect 66 per cent of those aged 70 and over. This is also the case in the Americas, where most COVID deaths occur in those aged 70 and over, followed by people between the ages of 60-69 years”.

According to Wand et al. (2020), older adults may be particularly prone to suicide in a pandemic context with social lockdown due to a larger perception of social isolation, physical distance, and loss of customary social opportunities, as well as a higher risk of anxiety and sadness (Santini et al 2020). These writers argue that cultural references may be the cause of older people's unfavourable impressions and emotional pain.



Unreliable social media claims that this generation is no longer useful to their families and society, and that health care facilities should be more focused on a younger population that can make a financial contribution to a nation's gross domestic product (GDP). People are less affected by the suicide death of an older person than by the loss of a younger person, especially if the younger person was a teenager or young adult. Due to these factors, suicide in older people is a problem that is frequently disregarded or overlooked and receives less attention than suicide in younger people (Crestani, Masotti, &Corradi et al (2019).

Age-Related Vulnerabilities: Numerous social, psychological, and environmental risks are associated with ageing. Older adults are more susceptible to the effects of a national crisis like a pandemic because of decreased sensory awareness, physical impairment, chronic medical conditions, and socioeconomic constraints, according to extensive research on the long-term effects of disasters on their physical well-being. The resource hypothesis contends that aged people's reduced socioeconomic level and diminished functional capabilities make them less likely to recover quickly. Similar to this, the exposure hypothesis contends that because older persons have a harder time recognizing triggers or warning signs, they are more likely to feel deprived as a result of their losses.

Many authors concur that senior suicide is deliberate; it is not an impulsive act and progresses quite slowly from having suicidal thoughts to actually killing oneself (Crestani, Masotti, &Corradi et al (2019). Unfortunately, the old person's incapacity to cope with pain and a failing mental and physical state is frequently disregarded and under-recognized in a society that is fighting a pandemic and that prioritises physical health above mental and psychological well-being. The aforementioned causes of the pandemic crisis, particularly social isolation, dread, and anxiety, can lead a person to believe that there is no other way to cope than to turn to suicide.

Crestani et al. (2019) claims that a variety of variables, including the technique's accessibility and availability, the effect of imitative elements, and the perception of each method as a whole in society, influence the choice of a self-destruction method. According to their research, the senior group utilizes more aggressive and fatal methods of suicide than do other groups, which supports the strong sense of resolve that motivates the gesture. They are less likely to survive physical damage since they are more frail than younger people, but less deadly tactics should not be undervalued because they may be just as effective in killing.

Since the COVID-19 pandemic is linked to anguish, worry, fear of transmission, depression, and sleeplessness in both the general population and among healthcare professionals, the psychological effects of the pandemic will likely last for years to come. In vulnerable populations, such as those with pre-existing psychiatric disorders and those who live in high COVID-19 prevalence areas, social isolation, anxiety, fear of contagion, uncertainty, chronic stress, and financial difficulties have contributed to the development or exacerbation of depressive, anxiety, substance use, and other psychiatric disorders.

The requirement of social distance has a significant influence on interpersonal connections among the elderly. Since physical contact was forbidden, it was believed that social connections between friends and family members would suffer as a result of this rule being imposed in many nations. In the end, loneliness resulted, which is a significant risk factor for anxiety and depressive disorders. When 'ageism' plays a



role in the stigmatisation of a minority community during a pandemic, social connection is even more crucial.

According to Nakhid-Chatoor (2020), the foundation of an aged person's mental health and wellbeing is the sort of attachment bond he or she has with important people in his or her life. In addition, Catalano & Hawkins (1996) assert that "a social link between the person and the socialising unit emerges when the socialising settings of family, school, church and other community institutions are constant. According to p. 156, this control or connection "inhibits deviant behaviours" and can considerably reduce "risk factors such family conflict, subpar family management techniques, and inadequate family bonding" (p. 152). Suicidal behaviour in adults has been associated to relationship issues or separation; for adolescents, suicidal behaviours were linked to conflict in the family and the breaking of relational ties (Frey & Cerel, 2015). According to these authors, family members who have attempted or succeeded in suicide have been shown to increase the risk of suicide and suicidal behaviours in other family members, both in adolescents and adults. This negative and imitative relationship persists even after people have been evaluated for psychiatric diagnoses and treatment.

Conclusion: Ageism is still prevalent throughout the pandemic, according to the American Psychological Association (2020), as arguments about rationing healthcare have portrayed the aged as 'sacrificial' in regions with little funding to fight the epidemic.

The absence of attachments at this period reflects the psychological impacts of social isolation, and the most crucial elements that can assist the elderly in managing their personal concerns are support networks and the financial and emotional assistance of their friends, family, and relatives. Both risk and protective variables are regarded to be major determinants and to play a significant part in preventing suicide. Therefore, the attachment bond is a tight relationship that may grow in the caring aspect and functions as a protective component by delivering a sense of security in times of danger and emotional suffering.

These ongoing relationships must be taken into account as crucial components in a world where many senior people have died, not just from the virus but also from emotional and mental health issues that have caused people over sixty to choose suicide as an alternative to fighting the feared sickness. This is a call to action and a warning sign for public and private mental health systems of care that more elderly support systems must be provided during this pandemic and that mental health professionals need to receive better training to recognize and treat symptoms when they are mentioned by family members or when they manifest in hospitals and clinics.

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- M.P.E.S

YOGA & NATUROPATHY

- Post Graduate Diploma in Yoga Therapy

CLINICAL PSYCHOLOGY

- M.Phil in Clinical Psychology

Ph.D



Programs Offered at ICFAI University Tripura

Science and Technology

Program	Duration	Eligibility	Career Prospects Employment Opportunities
B. Tech (CE, CSE, ECE, ME, EE)	4 Years	Pass in 10 + 2 (Phy/Chem/Math) with minimum 45%, (40 % in case of SC/ST/ OBC) aggregate marks	IT,ITEs, Manufacturing,Companies, Corporates, Telecom, Banks, Govt. Services
B. Tech - Lateral Entry (CE, CSE, ECE, ME, EE)	3 Years	Pass in 3 - year diploma course with minimum 45 % (40 % in case of SC/ ST/ OBC) aggregate marks	IT,ITEs, Manufacturing,Companies, Corporates, Telecom, Banks, Govt. Services
BCA	3 Years	Pass in 10 + 2 (any Discipline) examination	IT,ITEs, Corporates, Banks,Govt. Services, NGO's.
Integrated MCA	5 Years	Pass in 10 + 2 (any Discipline) examination	IT,ITEs, Corporates, Banks,Govt. Services, NGO's.
MCA	2 Years	Graduation in any discipline, with 40% and above aggregate marks.	IT,ITEs, Corporates, Banks, Govt. Services, NGO's,Research
M.Tech	2 Years	Valid GATE Scorer with B.Tech /B.E in Civil Engineering or B.Tech /B.E in Civil Engineering with 60% marks	Research, consultant to Pvt. Organization in the field of flood forecasting, flood inundation, flood disaster management, Entrepreneur.

Basic Science

Program	Duration	Eligibility	Career Prospects Employment Opportunities
B.Sc. Physics (Hons.)	4 Years	Pass in 10 + 2 with 40 % marks in Physics & pass in maths	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate
B.Sc. Chemistry (Hons.)	4 Years	Pass in 10 + 2 with 40 % marks in Chemistry	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate
B.Sc. Mathematics (Hons.)	4 Years	Pass in 10 + 2 with 40 % marks in Mathematics	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate
M.Sc. Physics	2 Years	Graduate with 45 %(40 % in case of SC/ST/ OBC) marks in Physics	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate
M.Sc. Chemistry	2 Years	Graduate with 40 % marks in Chemistry from a recognized University	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate
M.Sc. Mathematics	2 Years	Graduate with 40 % marks in Mathematics	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate

Liberal Arts

Program	Duration	Eligibility	Career Prospects Employment Opportunities
BA - English (Hons.)	4 Years	Pass in 10 + 2 (any Discipline) with 40 % marks in English	Jobs in Govt., Teaching in Schools/Educational Administrators/ Corporate, Banks, Telecom, Media, Journalism
MA - English	2 Years	Graduate in any Discipline with minimum 45 % (40% in case of SC/ST/ OBC) aggregate marks	Jobs in Govt., Teaching in Schools/Educational Administrators/ Corporate, Banks, Telecom, Media, Journalism/ Research
B.A - Psychology (Hons)	4 Years	Pass in 10 + 2 (any Discipline) with 50 % (45% in case of SC/ST/ OBC) marks	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate
MA - Psychology	2 Years	Graduate with 45 %(40 % in case of SC/ST/ OBC) marks in Psychology	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate
B.Sc.- Psychology (Hons)	4 Years	Pass in 10 + 2 (any Discipline, with Economics or Maths as a combination subject) with 50 % (45%in case of SC/ ST/ OBC) marks	Teaching in Schools/ Colleges/ Educational Administrator/ Corporate

Law

Program	Duration	Eligibility	Career Prospects Employment Opportunities
BBA-LLB Integrated	5 Years	Pass in 10 + 2 with minimum 45 % (40 % in case of SC/ST, 42% in case of OBC) aggregate marks	Corporates, Banking, Judiciary, Legal Practice, NGO's IPR
BA-LLB Integrated	5 Years	Pass in 10 + 2 with minimum 45 % (40 % in case of SC/ST, 42% in case of OBC) aggregate marks	Corporates, Banking, Judiciary, Legal Practice, NGO's IPR
LLB	3 Years	Graduate in any Discipline with minimum 45 % (40 % in case of SC/ST, 42% in case of OBC) aggregate marks	Corporates, Banking, Judiciary, Legal Practice, NGO's IPR
LLM	2 Years	Graduate with LLB degree (Recognised by BCI)	Corporates, Banking, Judiciary, Legal Practice, NGO's IPR, Research

Management & Commerce Studies

Program	Duration	Eligibility	Career Prospects Employment Opportunities
B.Com (Hons.)	4 Years	Pass in 10 + 2 examination in commerce or Science with 45% (40% in case of ST/ SC/OBC) marks	Banks, Financial Services, Corporates

Program	Duration	Eligibility	Career Prospects Employment Opportunities
BBA	4 Years	Pass in 10 + 2 (any Discipline) examination with minimum 40% marks	Banks, Financial Services, IT, Insurance, Telecom, Corporates, Consulting Companies.
MBA	2 Years	Graduate in any discipline with minimum 45 % (40 % in case of SC/ST/OBC) aggregate marks	Banks, Financial Services, IT, Insurance, Telecom, Corporates, Consulting Companies, Research
M.Com	2 Years	B.Com with 45%(40% in case of ST/SC/OBC) Marks	Banks, Financial Services, Corporates

Allied Health Sciences

Program	Duration	Eligibility	Career Prospects Employment Opportunities
Bsc. in Emergency Medical Technology	4 Years	Pass in 10 + 2 (Science Discipline) with 45% marks in PCB (5% relaxation for SC/ST/OBC Candidates)	Opportunity in Government /Private hospital having ICU/ITU/Critical care unit, Demand in disaster management team for both state/central government, army/navy/airforce. Eligible for Post graduation courses.
Bsc. in Cardiac Care Technology	4 Years	Pass in 10 + 2 (Science Discipline) with 45 %marks in PCB (5% relaxation for SC/ST/OBC Candidates)	Opportunity in Government /Private Hospitals in cardiology department, different cath- labs or diagnostic centers. Eligible for postgraduate courses.
Bsc. in Dialysis Therapy Technology	4 Years	Pass in 10 + 2 (Science Discipline) with 45 % marks in PCB (5% relaxation for SC/ST/OBC Candidates)	Opportunity in Government /Private hospitals, NRHM, NUHM, NGO, clinics/ healthcare setup offering dialysis treatment. Eligible for Post Graduation courses in dialysis.
Bachelor in Health Information Management	4 Years	Pass in 10 + 2 (any Discipline) with 45 % marks (5% relaxation for SC/ST/OBC Candidates)	Opportunity in Government / Private hospitals, diagnostic centers, NRHM/ NUHM, legal firms, Healthcare consultancy .Eligible for Post Graduate courses.
B.Sc. Medical Lab Technology (BMLT)	4 Years	Pass in 10 + 2 (Science Discipline) with 45% marks in PCB (5% relaxation for SC/ST/OBC Candidates)	Opportunity in Government /Private hospital having ICU/ITU/Critical care unit, Demand in disaster management team for both state/central government, army/navy/airforce. Eligible for Post graduation courses.
B.Sc. Medical Lab Technology (BMLT) (LE)	3 Years	Pass in 3 years diploma with 45% marks in aggregate (5% relaxation for SC/ST/OBC Candidates)	Opportunity in Government /Private hospital having ICU/ITU/Critical care unit, Demand in disaster management team for both state/central government, army/navy/airforce. Eligible for Post graduation courses.
Master in Medical Lab Technology (MMLT)	2 Years	Candidate must have passed degree, e.g. B.Sc. MLT/ B.Sc. Physiology/ Microbiology/ Biotechnology/ Biochemistry or equivalent B.Sc. Biosciences from a recognized University	Opportunity in Government / Private sector, Lab Technician, Medical Lab Incharge, Research and Development Manager (Laboratory), Technical Officer etc. Can pursue research or can flourish in academics as well

Education

Program	Duration	Eligibility	Career Prospects Employment Opportunities
B.Ed.	2 years	Graduate or post graduate in any discipline with minimum 50 % (45 % in case SC/ST/ OBC) aggregate marks	Teaching in Secondary level
MA - Education	2 years	Graduate in any discipline	Teaching in Schools/Educational Administrators/ Research
M.Ed.	2 years	B.Ed. (1/2 years)/ B.EL,ED/B.Sc.B.Ed./B.A B.Ed./ D.EL.Ed. /D.Ed. with a Bachelors degree. 50% marks at all the levels	Teaching in Teacher Education

Physical Education

Program	Duration	Eligibility	Career Prospects Employment Opportunities
B.P.Ed	2 years	Graduate or post graduate in any discipline with minimum 50 % (45 % in case SC/ST/ OBC) aggregate marks	Jobs in School/ College/ University, Physical Trainer
D.P.Ed	2 years	Pass in 10+2 or equivalent with 50% of marks in any stream	Jobs in School/ College/ Physical Trainer
B.P.ES	3 years	Pass in 10 + 2 examination or equivalent from any recognised education Board/ University	Jobs in School/ College/ University, Physical Trainer
B.P.ES(LE)	1 year	Pass in two years diploma in Physical Education	Jobs in School/ College/ University, Physical Trainer
M.P.ES	2 years	Candidates must have passed with at least 50% marks for Gen/OBC and 45% for SC/ST category. B.P.E.D (4yr. integrated)/B.P.E.D (1yr. or 2yr.)/B.P.E (3yrs.)/ B.sc (Physical Education)/ B.P.E.S (3yrs.)	Jobs in School/ College/ University, Physical Trainer/Sports/ Job in Govt. and Private sector as teacher, instructor, coach etc.

Yoga & Naturopathy

Program	Duration	Eligibility	Career Prospects Employment Opportunities
Post Graduate Diploma in Yoga Therapy	1 year	Any graduate	Yoga Teacher in Schools, Yoga Therapist/ Yoga Psychologist/ Yoga Inspector in MNC's, Health Club, Yoga Club

Special Education

Program	Duration	Eligibility	Career Prospects Employment Opportunities
B.Ed.Spl.Ed. (ID)	2 years	Graduate or post graduate in any discipline with minimum 50 % (45% in case SC/ST/ OBC) aggregate marks	Teaching in Secondary level and at special schools
D.Ed.Spl.Edu (ID)	2 years	Pass in 10 + 2 (any Discipline) with minimum 50% (45 % in case SC/ ST/ OBC) aggregate marks.	Special schools, Sarva Siksha Abhiyan/ Resource teacher in General School/ Integrated/ Inclusive setup
M.Ed.Spl.Ed(ID)	2 years	B.Ed. Spl. Ed (ID) / B.Ed. General with D.Ed. Spl. Ed (ID) with 50% marks (RCI).	Professional preparation of teacher educators- engaged in continuous professional development of teachers
Integrated B.A/ B.Com /B.Sc/ B.Ed. Spl.Ed.	4 years	Pass in 10 + 2 with 50% marks	Teaching in Secondary level and at special schools

Clinical Psychology

Program	Duration	Eligibility	Career Prospects Employment Opportunities
M. Phil in Clinical Psychology	2 years	M.A / M.Sc degree in the Psychology with 55% marks in aggregate, Preferably with special paper in Clinical Psychology .	Qualified professional & extensive inputs & widespread Clinical experience to acquire the necessary skills in the area of Clinical Psychology

Library And Information Sciences

Program	Duration	Eligibility	Career Prospects Employment Opportunities
B.Lib.I.Sc	1 Year	Graduate in any discipline	School/ College/ University/ district/ State / National Libraries, Bank, Govt. Services, NGO's, Research
M.Lib.I.Sc- Integrated	2 Years	Graduate in any Discipline	School/ College/ University/ district/ State / National Libraries, Bank, Govt. Services, NGO's, Research
M.Lib.I.Sc	1 Year	Graduate with B.Lib.I.Sc	School/ College/ University/ district/ State / National Libraries, Bank, Govt. Services, NGO's, Research

Nursing Science

Program	Duration	Eligibility	Career Prospects Employment Opportunities
GNM	3 years	10+2 with English and must have obtained a minimum aggregated score of 40% marks for the general candidates for any stream <ul style="list-style-type: none"> • 35% SC/St candidates marks required from any stream • Age should be 17-35 (and for SC/ST 5 years relaxation) • Boys & Girls both are eligible 	Hospitals(Government /Private), NUHM, NRHM, NRLM, Healthcare consultancy firm, Hospitality industry, Medico-legal consultancy firm, Insurance sector (Government/ Private)

P.hD

Program	Duration	Eligibility	Career Prospects Employment Opportunities
Ph.D	4 years	A two-year postgraduate degree or equivalent from a recognized Institution, with 55% marks or equivalent CGPA in concerned subject. or A regular, full time M.Phil degree from any recognized University	Faculty position, Scientist, Post-doc researcher

D* = Domicile: Students from North East States (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura). ND**= Non-Domicile: Students from states other than North East states.

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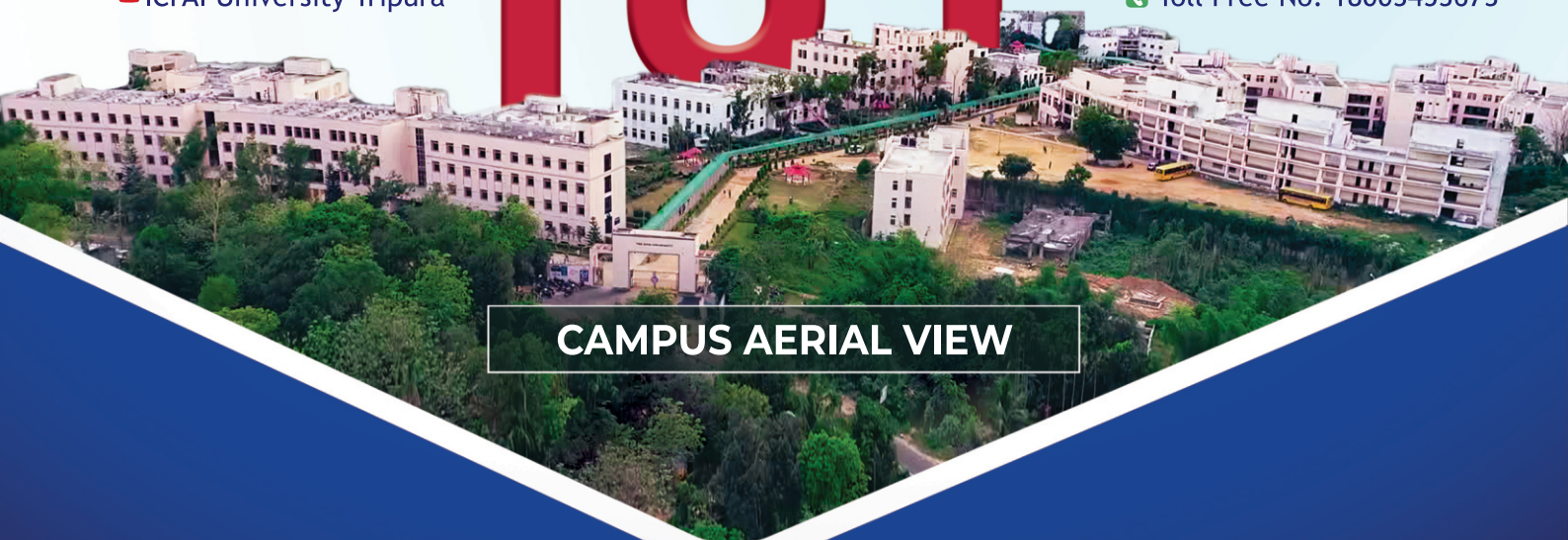
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