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1.2 CONTENTS

Sr. No	Title Author	Page No
1	Assessing the Impact of the COVID-19 Pandemic on Employment Legislation and Workers' Rights in Mauritius Dr. Viraj Fulena Lecturer in Law, University of Technology, Mauritius Miss. Oorvashi Dewdane Independent Researcher, University of Technology, Mauritius	01-12
2	Standard Operating Procedures for Corruption Risk Assessment (CRA) Studies of Selected Global Public Agencies Dr. Najimaldin Mohammedhussen Sado Advisor, Anti Corruption and Ethical Commission, Addis Ababa, Ethiopia Prof. Dr. Siba Prasad Rath, Director, CSIBER, India	13-22
3	Revisiting Financial Inclusion through Geographic and Demographic Penetration: A Cross Sectional District Level Study of Assam Dr. Nitashree Barman Assistant Professor, Department of Accountancy, Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya, Tulungia	23-32
4	Design and Study of Integrated Desiccant Dehumidification and Vapour Compression for Energy-Efficient Air Conditioning System Mr. Siddharth Rath Ph. D. Research Scholar, Department of Chemical Engineering, Indian Institute of Technology, Bombay (IIT – B), India	33-60

5	<p>Exploring the Role of Staff Education in Enhancing Job Satisfaction: Insights from Universities and Institutions in Uttarakhand, India</p> <p>Dr. H. M. Azad Associate Professor, Department. of Management studies, Graphic Era University, Dehradun</p> <p>Dr. Smriti Tandon Associate Professor, Department of Management studies, Graphic Era University, Dehradun</p> <p>Dr. Surendra Kumar Associate Professor, Department of Business Management, HN BG Central University, Srinagar (Garhwal), Uttarakhand</p>	61-81
6	<p>Crisis at One End, Opportunity on the other: Sri Lankan Crisis A Surge for Indian Tea and Textile Exports</p> <p>Dr. Deepika Kumari Assistant Professor, Department of Economics, Shyamlal College, University of Delhi, India.</p>	82-96

7	<p>Assessing the Impact of the COVID-19 Pandemic on Employment Legislation and Workers' Rights in Mauritius</p> <p>Miss. Megha Rani Patel Research Scholar, Department of Commerce and Financial Studies, Central University of Jharkhand, Ranchi, India</p> <p>Dr. Bateshwar Singh Associate Professor, Department of Commerce and Financial Studies, Central University of Jharkhand, Ranchi, India</p> <p>Dr. Ajay Pratap Yadav Assistant Professor, Department of Commerce and Financial Studies, Central University of Jharkhand, Ranchi, India</p>	97-114
8	<p>The Influence of Knowledge Management Enablers on Knowledge Sharing: An Empirical Analysis of Hospitality Sector</p> <p>Dr. Jitender Kaur Assistant Professor, Department of Commerce and Management, Khalsa College Patiala (Punjab)</p> <p>Dr. Parminder Singh Dhillon Head and Assistant Professor, Department, Tourism Hospitality and Hotel Management Punjab University Patiala (Punjab)</p>	115-132
9	<p>Exploring the Impact of Psychological Determinants and Financial Literacy on Retirement Planning in Tribal Communities with Reference to Bodoland Territorial Region, Assam.</p> <p>Miss. Rosy Basumatary Research Scholar, Department of Management Studies, Bodoland University, Kokrajhar, Assam India</p> <p>Dr. Nayanjyoti Bhattacharjee Assistant Professor, Department of Management Studies, Bodoland University, Kokrajhar, Assam India</p>	133-144
10	<p>The Role of Leadership Behavior and Emotional Intelligence in School Principals' Effectiveness During the COVID-19 Pandemic: A Study of Adaptive Strategies and Outcomes.</p> <p>Ms. Sujatha Koshy Professor, Psychology, Amity Institute of Psychology and Allied Sciences, Amity University, Noida, Uttar Pradesh, India</p> <p>Dr. Mamata Mahapatra Associate Professor, Amity Institute of Psychology and Allied Sciences, Amity University, Noida, Uttar Pradesh, India</p> <p>Dr. Shadab Ahamad Ansari Psychology in School of Liberal Allied Science Education, Galgotias University, Noida, Uttar Pradesh, India</p>	145-163

Exploring the Impact of Psychological Determinants and Financial Literacy on Retirement Planning in Tribal Communities with Reference to Bodoland Territorial Region, Assam.

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Abstract

Tribal communities are the indigenous peoples of the nation. They are very much connected to the land, yet they often face significant neglect in various aspects, such as economic backwardness, geographical isolation, limited access to financial services, and low literacy rate. Despite these issues, research on retirement planning within tribal communities is notably sparse within India. No specific research has been conducted to explore the determinants of retirement planning among the Bodo tribes living in Bodoland Territorial Region (BTR), Assam. This paper aims to address this gap and adds to the existing work on retirement planning. It thus explores the psychological determinants of retirement planning behaviour, such as financial risk tolerance, future time perspective, and retirement goal clarity within this community. It also examines how variations in financial literacy moderate the association between these psychological factors and the retirement planning behavior exhibited by working individuals of BTR. Using a sample of 382 working individuals, data were analyzed through PLS-SEM multigroup analysis in Smart PLS 4. The path analysis results indicated that financial risk tolerance, future time perspective, and retirement goal clarity have a direct positive impact on retirement planning behavior. The findings affirmed that financial literacy acts as a moderator in the association between psychological factors and retirement planning behaviour. Interestingly, the findings of multigroup analysis underscores that the effect of future time perspective on retirement planning behaviour is more pronounced among individuals with low financial literacy than among those with high financial literacy within this unique geographical region, which is unlike the studies conducted with urban or metropolitan populations. The findings of our study have implications for financial planners, policy makers and financial institutions.

Keywords: Financial Literacy, Retirement Planning Behaviour, Financial Risk Tolerance, Multigroup Analysis

Introduction

According to Max Life Insurance India Retirement Index Study 3.0 (July-August 2023), two out of five Indians have not even started to plan for retirement. India has witnessed increasing life expectancy from 62.28 years in 2000 to 70.42 years in 2023 and will also increase over the years (Source: United Nations- World Population Prospects). This trend accentuates the growing need of retirement income. McKenzie and Liersch (2011) also expressed that a rise in life expectancy combined with a greater requirement for retirement revenue resulting in a lack of adequate retirement funds represents a severe concern. Also, the paradigm shift from defined benefit to contribution-based pension plans has elevated responsibility among people for life cycle saving. This is in context of India as a whole, based on the surveys and studies conducted in urban and metropolitan populations. However, the situation is somewhat different for the marginalized sections of the society, particularly among scheduled tribes.

Tribal communities, as indigenous peoples, often face substantial challenges in various aspects, such as economic backwardness, geographical isolation, limited access to financial services, and low literacy rate. Research conducted in tribal areas has revealed that indigenous populations tend to have low literacy rates (Dutta and Sarkar, 2019; Singh and Singh, 2023). A study by Sadhu (2022) revealed that the saving and investment behaviour of the tribal people living in Deoghar district of Jharkhand state is very low even if they are financially included. Also, in a study conducted by Nayak (2013) found that majority of the rural households of western Odisha have low educational levels, leading to limited awareness of the benefits of saving.

Despite these significant issues, no specific research has been conducted to explore the determinants of retirement planning among the scheduled tribes living in Bodoland Territorial Region, Assam. This concern motivates the focus of the present study to explore the extant retirement picture among the Bodo tribes living in BTR to better comprehend the variables driving the retirement planning behaviour among working people of this region and derive implications for developing effective strategies and pension policy improvements.

Majority of the studies on retirement planning behaviour has concentrated on demographic parameters comprising gender, age, income, education level, and marital status (Hershey, 2004; Joo and Pauwels, 2002; Moorthy et al., 2012;). However, the psychological and cognitive factors are often overlooked despite their significant impact. Hershey (2004) claimed that demographic variables are the distal influences that are mediated by psychological factors. Whereas psychological factors are the proximate effects having a direct impact on retirement planning practices. This study, therefore, focuses on key psychological constructs such as future time perspective, financial risk tolerance, and goal clarity, which are prominent in the existing literature on retirement planning.

With the increase in individual's responsibility for managing their retirement finances, it has now become essential for an individual to be financially literate. Also, with the swift growth of financial markets with myriads of complex financial products, the study of financial literacy has become increasingly important to make informed decisions. Previous research has explored the cognitive effect of financial literacy on retirement planning (Hauff et al., 2020; Lusardi and Mitchell, 2006). However, fewer studies have investigated its interplay with psychological variables affecting retirement planning practices. Hence our study intends to investigate the relationship between psychological factors, financial literacy, along with retirement planning behavior.

This study thus has the following objectives:

- To examine the direct impact of psychological factors such as financial risk tolerance, future time perspective, and retirement goal clarity on the retirement planning behavior.
- To explore the moderating effect of financial literacy- categorized as high and low- on the relationship between psychological factors and retirement planning behavior.

To address these objectives, we thus analyse the responses of 382 respondents to study retirement planning behaviours of working individuals of Bodoland Territorial Region, Assam by employing structural equation modeling with partial least square (PLS-SEM) and multigroup analysis.

This research makes a significant contribution to the literature by examining retirement planning behavior in the Bodoland Territorial Region (BTR), a Sixth Schedule area with distinct socio-economic conditions. The study considers the unique economic landscape, access to financial services, and attitudes towards retirement among a large scheduled tribe population in this region. Scheduled Tribe communities face socio-economic disparities, and retirement financial planning can be affected by factors like having accessibility to education, employment opportunities, and economic resources. Studying this population helps identify and address these disparities, fostering more equitable retirement outcomes.

Research that primarily focuses on urban or metropolitan populations may overlook the experiences and needs of those living in other areas of the country. By focusing on BTR, we seek to contribute to a more inclusive understanding of retirement planning behavior that accounts for the unique socio-economic dynamics and cultural nuances of this region. The study attempts to provide to a more inclusive understanding about retirement planning in India, potentially shedding light on psychological antecedents and cognitive factors. This approach will help guide targeted interventions to meet the specific retirement planning needs of individuals in BTR, thereby promoting inclusive growth and a robust social security net at the grassroots level.

Furthermore, aligning with the "Viksit Bharat" vision of inclusive and sustainable development, this research underscores the importance of addressing regional disparities in retirement planning. By highlighting the unique challenges faced by tribal communities, this study supports broader national objectives of equitable development and social welfare, contributing to a more comprehensive and inclusive growth strategy for India.

The remaining part of the paper is organized as follows: Section 2 provides the research framework and hypotheses development. Section 3 lays down the research methodology. Section 4 addresses the discussion of results, followed by the study's conclusion.

Research Framework and Hypotheses Development

Relevant Theories

Theory of Planned Behaviour

This theory builds upon Ajzen (1991) theory of reasoned behaviour. According to this theory, three key factors influence an individual's intention to engage in specific behaviours, such as planning and saving for retirement. These factors are: (1) Attitude towards the behavior, which encompasses elements like future orientation, goal clarity, and risk tolerance; (2) Subjective norms, reflecting social pressures and expectations; and (3) Perceived

behavioural control, which is influenced by financial literacy. Together, these components shape the intention to plan for retirement.

Mowen's 3M Theory of Motivation

This theory of motivation and personality was developed by Mowen (2000). It provides a comprehensive framework for understanding individual's behaviour by establishing systematic relationship between personality traits, motivation, and behaviour. The hierarchical structure of this theory include: elemental traits (basic personality characteristics), compound traits (such as future time perspective), situational traits (like financial risk tolerance) and surface traits (including retirement goal clarity). These traits collectively contribute to the desired behavior, in this case, effective retirement planning.

The Conceptual Model:

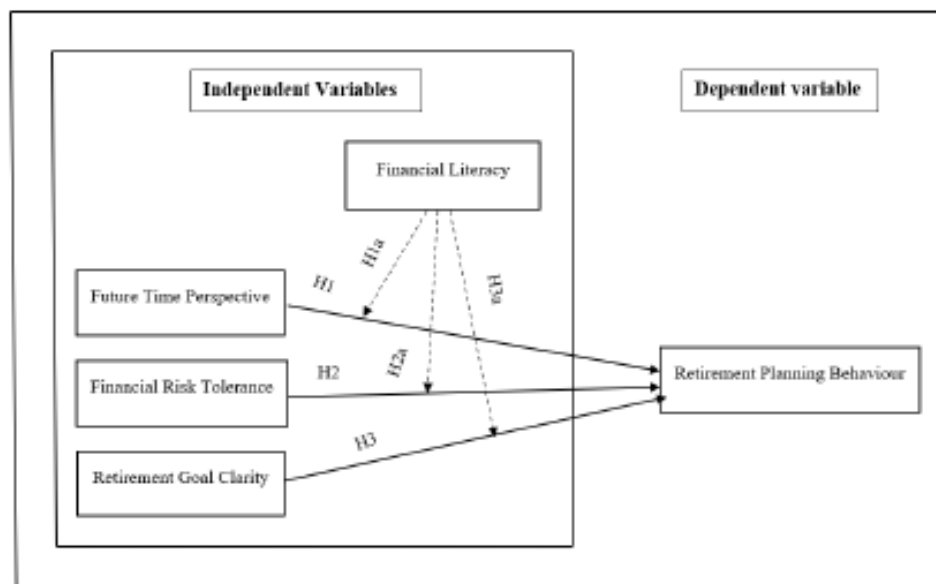


Figure 1. The conceptual model of the study

Source: The authors.

Figure 1 presents the conceptual model for this study. The model identifies psychological factors—namely, future time perspective, risk tolerance, and retirement goal clarity—as independent variables. Financial literacy is considered a moderator variable, while retirement planning behaviour serves as the dependent variable. The model examines the direct effects of the psychological factors on retirement planning behaviour. It also investigates how financial literacy influences these relationships, differentiating between groups with high and low levels of financial literacy.

Association between future time perspective and retirement planning

Future orientation or future time perspective measures the level as to which an individual prioritizes the future over the present or past (Howlett *et al.*, 2008). In the financial planning literature, future orientation stands out as a psychological factor that is widely discussed and examined concerning retirement planning. The study conducted by Jacobs-Lawson and Hershey in 2005 found that people who score high on a future time perspective index are more inclined towards setting their goals and hence more into retirement planning. Kimiyagahlam, Safari and Mansori (2019) study results also found that the future time perspective exhibits a positive correlation with regard to retirement planning mediated by savings attitude. Tomar *et al.*, (2021) also concluded that high future-oriented individuals are likely to be more aggressive for retirement planning and savings.

Hypothesis 1 (H1): There is a positive correlation between future time perspective and retirement planning behaviour.

Association between financial risk tolerance and retirement planning

The majority of earlier studies have utilized the perspective of risk tolerance in overall financial investment preferences. However, this study investigated risk tolerance as an individual's personal propensity for risk. There are not many numbers of studies that have investigated at how risk tolerance affects retirement savings and planning. Risk tolerance has been found to be a key forerunner of retirement investment and saving choices as reported by Grable and Joo (1997). Jacob and Hershey (2005) explored how future orientation and risk tolerance affects retirement savings behaviour and results indicated that people with high levels of financial risk tolerance are connected with greater degree of savings profile.

H2: There is a positive correlation between financial risk tolerance and retirement planning behaviour.

Association between retirement goal clarity and retirement planning

Goal clarity is a major predictor of planning behaviour, and planning, in turn, is found to anticipate savings tendency (Stawski, Hershey and Jacobs-Lawson, 2007). Various psychological research in literature have demonstrated that setting a specific, well-defined goal is very much essential because it motivates people to take part in planning activities thereby increasing their contributions to savings (Hershey, Henkens and Van Dalen, 2010). In addition, (Tomar *et al.*, 2021) argued that retirement planning behaviour is positively associated to retirement goal clarity.

H3: There is a positive correlation between retirement goal clarity and retirement planning behaviour.

Association between financial literacy and retirement planning

Financial literacy is generally a person's ability to apply knowledge and skills to handle financial resources effectively throughout an entire lifetime in the context of financial well-being (Hung *et al.*, 2011). Several studies in the literature have demonstrated a robust connection among financial literacy and a range of financial behaviour regarding savings, wealth accumulation, and portfolio selection (Hauff *et al.*, 2020; Lusardi and Mitchell, 2006). Lusardi and Mitchell (2011) also identified financial literacy as an important factor affecting retirement planning as it impacts a person's ability to comprehend interest rates, risk and inflation. Tomar *et al.* (2021) in their study found that retirement planning behaviour among professional women is moderated by financial literacy in connection with future time perspective and goal clarity. Research conducted by Kimiyagahlam, Safari and Mansori (2019) also demonstrated that financial literacy, future orientation, and tendency to plan are positively and directly related to retirement planning which is mediated by savings attitude.

H1a: Financial literacy moderates the association between future time perspective and retirement planning behaviour.

H2a: Financial literacy moderates the association between financial risk tolerance and retirement planning behaviour.

H3a: Financial literacy moderates the association between retirement goal clarity and retirement planning behaviour.

Research Methodology

Data Collection

This research employs a quantitative research methodology, utilizing primary data collected through a survey method that combines personal interviews and mailed questionnaires. The target population comprises working individuals aged 18 and above in the Bodoland Territorial Region. The study specifically concentrated on the Kokrajhar district, selected for its role as the administrative headquarters of the Bodoland Territorial Region (BTR). This designation renders Kokrajhar a representative centre for individuals from all four districts within the region, thereby providing a comprehensive sample for analysis.

A total of 382 working individuals from Kokrajhar were surveyed. To determine the required sample size, we used G*Power analysis software and input an effect size of 0.05 (f square), an α error probability of 0.05, and a power of 0.85 with five predictors. This analysis indicated that a minimum sample size of 146 respondents was needed. Given that our study involved multigroup analysis with two subgroups (high financial literacy and low financial literacy), we ensured that each subgroup comprised at least 146 respondents, validating the adequacy of the sample size.

We employed stratified purposive sampling to target two distinct groups: employed individuals (including those in private, government, and public sectors) and self-employed individuals (namely businesspersons, professionals, and gig workers) within Kokrajhar. This approach is significant because it ensures the inclusion of participants who possess specific characteristics pertinent to our study, allowing for a nuanced analysis of retirement planning behaviours across diverse occupational categories.

Measures

The dependent variable of the study retirement planning behavior was measured with a five-item scale adapted from the retirement planning scale designed by Moorthy et al. (2012). A Likert scale with five-point pattern from strongly disagree to strongly agree was used by respondents to answer all the items. Two items RPB4 and RPB5 were removed from the study as their outer loadings were below 0.50 and had poor AVE. Removing these two items improved AVE, Cronbach's alpha value, and Composite reliability of the construct. Future time perspective was assessed using a three-scale item adapted from Tomar et al. (2021) measured on a 7-point Likert scale ranging from 1 as strongly disagree to 7 as strongly agree. For the financial risk tolerance variable, we adapted a three-item scale from the risk tolerance scale developed by Tomar, Baker, Kumar and Hoffman (2021) and Jacobs-Lawson and Hershey (2005) also measured on a Likert scale with 7 points. Retirement goal clarity construct was measured using a five-item scale developed by Tomar et al. (2021) and responses were recorded on a 7-point Likert scale. Financial literacy was measured using five multiple-choice questions adapted from Lusardi and Mitchell (2017). These questions address basic financial principles such as compound interest, inflation, money illusion, and time value of money. Each question had a 'Don't know' option to discourage participants from guessing. The respondents got a score of 1 for each correct answer. An individual scoring above 60 percent indicates high financial literacy, while below 60 percent indicates low financial literacy (Chen and Volpe, 1998).

Discussion of Results

Descriptive Statistics

Table 1 provides a snapshot of the respondent's demographic profile. The majority fall within the age category of 18 to 29 years. Notably, 63.1 percent of those surveyed are male. In terms of income distribution, 56.8 percent earn up to Rs 2,50,000 annually, while 8.9 percent have an income exceeding Rs 10,00,000 per year. Educational statistics reveal that 39.5 percent of respondents are graduates. Occupation-wise, 51.8 percent are employed in various sectors, while 48.2 percent are self-employed.

Table 1. Demographic profile of respondents

Variables	Categories	Frequency	Percentage (%)
Age	18 to 29 years	152	39.8
	30 to 39 years	118	30.9
	40 to 49 years	63	16.5
	50 to 59 years	42	11.0
	60 years and above	7	1.8
Gender	Male	241	63.1
	Female	141	36.9
Annual income	Up to Rs 2,50,000	217	56.8
	Rs 2,50,001 to Rs 5,00,000	81	21.2
	Rs 5,00,001 to Rs 10,00,000	50	13.1
	Above Rs 10,00,000	34	8.9
Education	Up to Matriculation	32	8.4
	Higher Secondary/Diploma	70	18.3
	Graduate	151	39.5
	Post-graduate	117	30.6
	Above post-graduate	12	3.1
Type of employment	Employed	198	51.8
	Self-employed	184	48.2

Source: The authors.

Evaluation of the measurement model

Table 2 displays the reliability and validity assessment outcomes of the complete sample, and the two subgroups.

Table 2. Construct reliability & convergent validity outcomes of the measurement model evaluation.

Items	Factor loadings			Cronbach's alpha (α)			CR			AVE		
	Complete sample	High FL	Low FL	Complete sample	High FL	Low FL	Complete sample	High FL	Low FL	Complete sample	High FL	Low FL
FTP1	0.843	0.828	0.874	0.777	0.715	0.815	0.870	0.840	0.889	0.691	0.637	0.728
FTP2	0.851	0.796	0.883									
FTP3	0.798	0.769	0.800									
FRT1	0.890	0.903	0.871	0.810	0.829	0.780	0.887	0.897	0.872	0.724	0.744	0.694
FRT2	0.844	0.846	0.829									
FRT3	0.817	0.838	0.798									
RGC1	0.790	0.771	0.816	0.872	0.872	0.871	0.908	0.909	0.908	0.667	0.670	0.666
RGC2	0.866	0.882	0.844									
RGC3	0.879	0.877	0.882									
RGC4	0.872	0.890	0.852	0.759	0.747	0.763	0.863	0.856	0.865	0.678	0.667	0.683
RGC5	0.656	0.645	0.669									
RPB1	0.745	0.751	0.761									
RPB2	0.909	0.832	0.934	0.808	0.809	0.773						
RPB3	0.808	0.809	0.773									

Source: The authors.

Note: CR: Composite reliability, AVE: Average variance extracted, FTP: Future time perspective, FRT: Financial risk tolerance, RGC: Retirement goal clarity, RPB: Retirement planning behaviour, FL: Financial literacy.

All items in the constructs for the complete sample, high FL subgroups, and low FL subgroups are found to be above 0.5. The loadings between the range of 0.4 and 0.7 will be considered acceptable if composite reliability and AVE values crosses the threshold (Hair *et al.*, 2017). All the constructs in Table 2 have Cronbach's alpha value above 0.7 i.e., the threshold. From Table 2 it is also evident that the composite reliability values for all the constructs are above 0.7. Hence, the study indicated acceptable reliability and good internal consistency. Convergent validity is confirmed by the average variance extracted (AVE). The AVE's recommended threshold value for acceptability should be above 0.5 (Hair *et al.*, 2017). The AVE values in Table 2 for all the dimensions in the complete sample, low FL, and high FL subgroups are found to be above 0.5 which corroborates the study's convergent validity.

The heterotrait-monotrait (HTMT) ratio is used to evaluate the discriminant validity which is supported by HTMT values less than 0.9 (Hair *et al.*, 2017). Table 3 indicates that the HTMT values are less than 0.9 for all three cases and hence the result satisfies the HTMT criterion.

Dataset	Constructs	FRT	FTP	RGC	RPB
Complete (N=504)	FRT				
	FTP	0.213			
	RGC	0.709	0.422		
	RPB	0.614	0.500	0.860	
High Financial Literacy (n=264)	FRT				
	FTP	0.201			
	RGC	0.644	0.377		
	RPB	0.583	0.357	0.804	
Low Financial Literacy (n=240)	FRT				
	FTP	0.325			
	RGC	0.824	0.483		
	RPB	0.755	0.578	0.899	

Source: The authors.

Note: The above table represents the HTMT (heterotrait-monotrait ratio) evaluation of the measurement model.

Structural model assessment

In evaluating a structural model, the initial step involves gauging multicollinearity through VIF (Variance Inflation Factor). We have followed the full collinearity process and observed that the values of VIF in all three instances are below the estimated limit ($VIF < 3$) indicating no multicollinearity issue according to Hair, Risher, Sarstedt and Ringle (2019).

The analysis of structural model begins with the assessment of co-efficient of determination (R^2) which measures the degree of variance explained in the dependent construct by structural model of the study (Hair *et al.*, 2017). Henseler *et al.* (2009) recommends the R^2 value of 0.67 as substantial, 0.33 as moderate, and 0.19 as weak. The R^2 values for the dependent construct ranged between 0.44 to 0.63 across all three samples (Complete, High FL, and Low FL) which is able to explain the study's moderate variance in the endogenous variable.

The effect size measures the level of impact exerted by the exogenous constructs on the dependent variable which is computed by Cohen's function f^2 . Cohen (1988) suggests the value of f^2 with 0.35 as strong, 0.15 as moderate, and 0.02 as weak effects. In the low FL subgroup, the sway of future orientation is found to be weak ($f^2=0.06$), goal clarity is found to exhibit a strong effect ($f^2=0.51$) and financial risk tolerance is also found to exhibit a weak effect ($f^2=0.02$) on retirement planning. On the other hand, results for the high FL individuals indicated that the sway of retirement goal clarity had a moderate effect size ($f^2=0.34$), risk tolerance had a weak effect ($f^2=0.01$), while future time perspective had a non-significant effect size on retirement planning.

To conclude the analysis of structural model for high and low FL subgroups, we tested the model's predictive power using the Q^2 value (Hair, Risher, Sarstedt and Ringle, 2019). The values of Q^2 for the endogenous constructs in both models are above zero, hence confirming predictive relevance.

The values of structural path coefficients for both the original sample and subsamples are provided in Table 4 where the proposed hypotheses are tested.

Path/Hypothesis	Complete				High Financial Literacy				Low Financial Literacy			
	β	t	P value	Results	B	t	P value	Results	β	t	P value	Results
H1: FTP→RPB	0.17	3.902	0.000	Supported*	0.078	1.255	0.210	Not supported	0.170	3.14	0.002	Supported*
H2: FRT→RPB	0.12	2.486	0.013	Supported*	0.156	2.392	0.017	Supported*	0.120	1.71	0.087	Supported*
H3: RGC→RPB	0.57	11.56	0.000	Supported*	0.540	7.183	0.000	Supported*	0.627	9.51	0.000	Supported*

Table 4. Path analysis Results

Source: The authors.

Note: FTP: Future time perspective, FRT: Financial risk tolerance, RGC: Retirement goal clarity, RPB: Retirement planning behaviour, FL: Financial literacy, * $p < 0.05$, ** $p < 0.1$

In the full sample analysis, all the hypotheses were supported as reported in the table 4. Future time perspective is found to exhibit substantial positive influence upon retirement planning behaviour of working individuals i.e., individuals with more future orientation have higher inclination to plan for their life after retirement. Hence, H1 is supported ($\beta=0.17$ and $p < 0.05$) which aligns with the study findings (Jacob and Hershey, 2005; Kimiyagahlam, Safari and Mansori, 2019). Financial risk tolerance is also found to be significantly affecting retirement planning suggesting that risk-tolerant working individuals are more prone to invest for their retirement. Thus, H2 is also supported ($\beta=0.12$ and $p=0.013$ i.e., $p < 0.05$). This result is in line with the findings of (Grable and Joo, 1997; Jacobs-Lawson and Hershey, 2005). Goal clarity also have a positive direct effect on retirement planning behaviour indicating that working individuals with clear and well-defined goals are more likely to take up planning activities to boost their contributions towards savings for retirement. Therefore, H3 is also supported ($\beta=0.57$ and $p < 0.05$) which is similar with the previous study (Hershey, Henkens and Van Dalen, 2010; Tomar, Baker, Kumar and Hoffman, 2021).

In terms of high FL subgroup, the impact of future orientation is revealed to be a non-significant predictor variable of retirement planning. Thus, H1 is not supported ($\beta=0.078$ and $p>0.05$) which contrasts the findings of Hershey and Mowen (2000) and Tomar *et al.* (2021). Risk tolerance is found to have a significant impact upon retirement planning which is in contrast with Tomar *et al.* (2021) and therefore, H2 is accepted ($\beta=0.156$ and $p>0.05$). And the strongest path in high FL subgroup is among retirement planning behaviour and retirement goal clarity ($\beta=0.540$ and $p<0.05$) which is in accordance with the results of Tomar *et al.*, 2021 and thus H3 is supported. This reveals that individual having a high degree of financial literacy are adept at setting realistic financial goals and engaging in comprehensive financial readiness for retirement.

In terms of low FL subgroup, all paths were revealed to be significant i.e., all psychological variables are identified to be significant positive predictors of retirement planning behaviour with goal clarity having the strongest significant path coefficient concerning retirement planning ($\beta=0.627$ and $p<0.05$) and risk tolerance having the weakest path on retirement planning ($\beta=0.120$ and $p<0.05$) as depicted in Table 4. This indicates that despite limited financial literacy, individuals with future-oriented mindset, try to gain financial knowledge as well as seek out information with a view to better plan their long-term financial retirement goals. Similarly, individuals with higher financial risk tolerance, despite low financial literacy, are more into retirement planning, indicating willingness to take risks to secure their future, as shown by the study results. Our study results also found that goal clarity has a substantial impact upon retirement planning among working individuals with low FL, which corroborates the study results of Tomar *et al.* (2021).

Multigroup analysis (MGA)

Multigroup analysis is performed to assess the moderation effect of financial literacy delineated as high and low FL subgroups on the studied relationships and test hypotheses. Henseler *et al.* (2016) argue that prior to performing MGA, it is essential to conduct MICOM (Measurement Invariance of Composite Models) to confirm that the variations between the two groups are caused by the difference in the latent variables and not by any other issues. We employed a two-stage process MICOM. Firstly, the assessment of configural invariance is done to confirm that the measurement model considered for the study for both the subgroups has the same configuration which means that the same indicators are used for both models, identical data treatment has been done, and identical algorithm settings for both the subgroups. Second, compositional invariance is evaluated as demonstrated in Table 5. Table 5 reveals that all constructs have permutation p-value exceeding 0.05, indicating insignificance. This confirms that the compositional variance is achieved.

Table 5. MICOM Compositional Variance

	Original correlation	Correlation permutation	5.00%	Permutation p-value
FRT	1.000	0.999	0.996	0.704
FTP	0.998	0.996	0.987	0.604
RGC	1.000	0.999	0.998	0.599
RPB	0.999	0.999	0.997	0.340

Source: The authors.

We now proceed to assess the differences between high FL and low FL subgroups using PLS-MGA (Multigroup analysis). The outcome of the multigroup analysis is illustrated in Table 6. Here in the concluding part of the study, we look at the notable difference between high FL and low FL in connection

Table 6. Multi-group analysis result

Relationships	Difference (High Financial Literacy-Low Financial Literacy)	p-value (High Financial Literacy-Low Financial Literacy)
H1a: FTP→RPB	-0.415	0.008*
H2a: FRT→RPB	0.004	0.943
H3a: RGC→RPB	0.153	0.316

Source: The authors.

Note: *p<0.05

with financial risk tolerance, future time perspective, and retirement goal clarity on the retirement planning behaviour. The study outcomes highlighted that the differences in p-value are only significant and negative for H1a i.e., the effect of future time perspective on retirement planning behaviour is stronger in working individuals with low financial literacy in comparison to working individuals with high financial literacy by 0.415 in Bodoland Territorial Region, Assam. This result contrasts with the findings of Tomar *et al.* (2021), who found that for individuals with high financial literacy, the effect of future orientation on attitude towards retirement is stronger. Hence our data supports H1a only. This indicated that retirement planning behaviour of working individuals with limited financial knowledge are more prone to be driven by their future orientation which indicates that having a greater degree of forward-looking orientation tries to reduce financial literacy gaps by acquiring financial knowledge and seeking out information with a view to better plan their long-term financial retirement goals. The hypotheses H2a and H3a considered for the study cannot be supported by the results obtained in our study. Overall, the study contributes significant understanding into the complex dynamics between financial literacy, psychological factors, and retirement planning behavior, particularly in the context of the Bodoland Territorial Region, Assam.

Conclusion and Recommendations

The research underscores the considerable influence that risk tolerance, future time perspective, and retirement goal clarity have on retirement planning behavior. It is evident that individuals who exhibit a future-oriented mindset are more inclined to engage in planning for retirement, emphasizing the relevance of clarity in both short-term and long-term goals. Moreover, the study highlights the positive impact of financial risk tolerance upon retirement planning, particularly among risk-tolerant individuals who tend to be more disposed to make investment for their retirement. Furthermore, the impact of goal clarity emerges as an important precursor of retirement planning behavior, with individuals having distinct and well-defined goals demonstrating a greater propensity to indulge in financial planning endeavors and enhance their savings for later stages of life.

The study also delves into how financial literacy regulates the association between psychological factors and retirement planning behavior. It suggests that individuals with high financial literacy might not rely on future orientation for retirement planning. However, goal clarity and risk tolerance were significant predictors, indicating that individuals with high financial literacy are good at setting clear financial goals and comfortable taking risk for their retirement. For individuals with lower financial literacy, if they are future oriented and willing to take risks, they are motivated to plan for their retirement indicating that they make effort to gain financial knowledge and set realistic goals, despite their lower financial understanding.

Interestingly, the multigroup analysis emphasizes the role of future time perspective on retirement planning behavior is more noticeable among working individuals with low financial literacy among tribals living in BTR. This underscores the relevance of a forward-looking mindset in addressing gaps in financial literacy and improving planning strategies.

Overall, this study contributes valuable insights into the intricate dynamics between financial literacy, psychological factors, and retirement planning behaviour, offering practical implications for policymakers, financial facilitators, and individuals seeking to enhance their financial readiness for retirement. Given the study's insights, a few recommendations are proposed to enhance retirement planning among tribal communities, particularly in the Bodoland Territorial Region. First, Initiatives should be established to improve financial literacy within tribal communities. Tailored educational programs focusing on basic financial concepts, retirement planning strategies, and risk management can empower individuals to make informed financial decisions. Workshops and seminars can be conducted in local languages to ensure accessibility and comprehension. Policymakers should recognize the disparities in financial literacy levels within the Bodoland Territorial Region and focus on providing targeted tools and assistance to promote inclusive retirement planning preparedness. This includes policies that improve access to education and financial resources for marginalized

communities, ensuring that support reaches those who need it most. Tribal communities often face economic challenges, such as limited access to financial services, lower income levels, and higher rates of economic instability. Financial institutions can create retirement plans that fit these realities by offering flexible contribution options. For example, allowing individuals to adjust their savings based on changing income or financial obligations enables them to participate in retirement savings without the stress of rigid payment schedules. Setting up community-based financial counseling services can provide personalized support to those individuals looking to enhance their retirement planning efforts. Financial planners should offer guidance tailored to the specific needs of people in tribal areas, creating a supportive environment that promotes financial growth. This community-oriented approach can boost confidence in making sound financial choices. Ongoing research should be encouraged to further explore retirement planning determinants in tribal communities. Establishing a framework for monitoring and evaluating the impact of financial literacy programs and retirement planning initiatives will be crucial for refining strategies and ensuring they meet community needs effectively. The recommendations provided aims to empower individuals within tribal communities, improving their financial readiness for retirement, while also informing policy makers and financial institutions about the unique challenges faced by these populations. By leveraging these insights, stakeholders can create a more inclusive financial landscape that fosters better retirement outcomes for all. This proactive approach will not only enhance individual's financial security but also contribute to the broader economic well-being of tribal communities, ultimately leading to a more equitable society.

Limitations

The study is subject to limitations that warrant acknowledgment. The analysis of psychological variables and their impact on planning behavior is limited to low and high financial literacy subsamples. Future studies could explore variations based on gender, employment status, or other relevant distinctions. Finally, the sample in the specific geographic context employed for the study may constrain the generalizability of the results.

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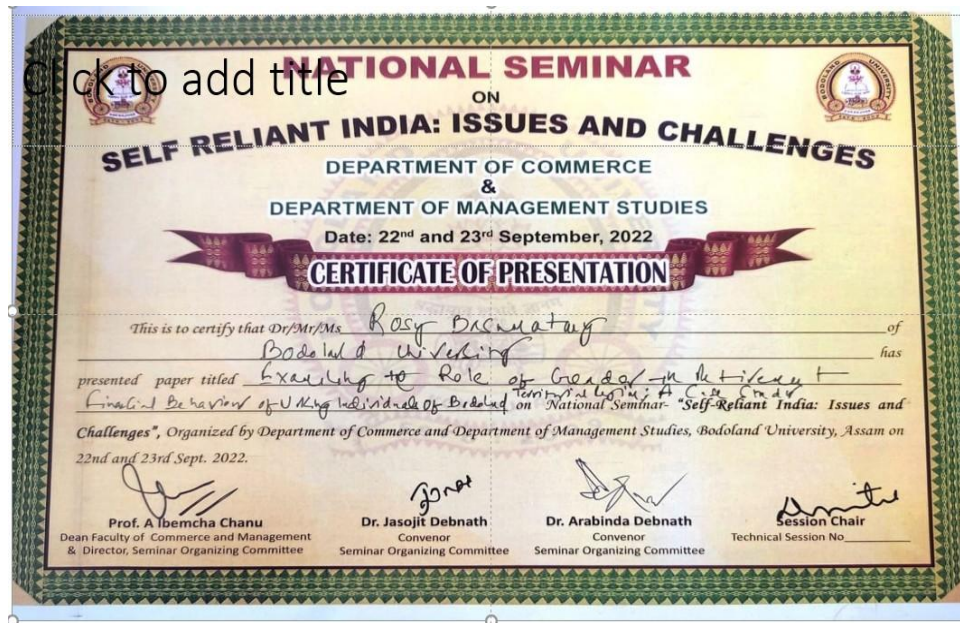
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Research Paper Presentations at Conferences/Seminars (Certificates Attached)

1. Paper titled “Impact of Demographic and Psychological Factors on Retirement Planning Behaviour of Working Individuals: The Case of Bodoland Territorial Region, Assam” presented at International Finance and Accounting Conference, September 08-09, 2023 (IIM Jammu).
2. Paper titled “Examining the Role of Gender in Retirement Financial Behavior of Working Individuals of Bodoland Territorial Region: A Case Study” presented at National Seminar on Self Reliant India: Issues and Challenges (Organized by- Department of Commerce and Department of Management Studies, Bodoland University), September 22-23, 2022.
3. Paper titled “Examining the Role of Self-Control Bias in Retirement Financial Behavior: A Case Study Approach” presented at International Conference on Behavioral Finance, IIIT Allahabad, June 18-19, 2022.





Appendix A: Details of the Constructs Used in this Study

Variables	Items	References
Financial Risk Tolerance (FRT) (7-point Likert Scale)	FRT 1. I prefer a “sure thing” over a gamble when planning for retirement.	Jacobs-Lawson et al. (2005) and Tomar et al. (2021).
	FRT 2. I prefer those investments which have higher returns even if they are riskier.	
	FRT 3. The overall growth potential of a retirement investment is more important to me than the level of risk associated with the investment.	
	FRT 4. I am very willing to make risky investments to ensure financial stability in retirement.	
	FRT 5. As a rule, I would never choose the safest investment when planning for retirement.	
Future Time Perspective (FTP) (7-point Likert Scale)	FTP 1. I like to think about what the future will hold.	Tomar et al. (2021).
	FTP 2. I enjoy thinking about how I will live years from now in the future.	
	FTP 3. I look forward to life in the distant future.	
	FTP 4. According to me, it is important to have a long-term perspective in life.	
	FTP 5. My close friend would describe me as future-oriented.	
Retirement Goal Clarity (RGC) (7-point Likert Scale)	RGC 1. I set specific goals regarding how much I will need to save for my retirement.	Stawski et al. (2007) and Tomar et al. (2021).
	RGC 2. I think a great deal about the quality of life I want to lead after retirement.	
	RGC 3. I have a clear version of how my life shall be after retirement.	
	RGC 4. I have set clear goals for gaining information about retirement.	
	RGC 5. I have discussed retirement plans with my spouse, friends, and significant others.	
Social Group Support (SGS)	SGS 1. My spouse believes it's important to save for retirement.	Tomar et al. (2021).

(7-point Likert Scale)	SGS 2. My friends believe it's important to save for retirement.	
	SGS 3. My colleagues at work believe it's important to save for retirement.	
	SGS 4. Saving was an important lesson I learned as a child.	
Attitude Towards Retirement (ATR) (7-point Likert Scale)	ATR 1. Retirement will enable me to pursue my unfulfilled dreams.	Tomar et al. (2021).
	ATR 2. I look forward to retirement.	
	ATR 3. I am worried about my life after retirement.	
	ATR 4. I expect that being retired will make me feel useless.	
Retirement Financial Behaviour (RFB) (5-point Likert Scale)	RFB 1. I am concerned about the state of my financial preparation for my retirement.	Moorthy et al. (2012) and Jacobs-Lawson and Hershey (2005). Adapted scale.
	RFB 2. I am confident that I will have a decent standard of living in my retirement.	
	RFB 3. At present, I rate my financial preparation for retirement as good.	
	RFB 4. I expect my standard of living in retirement will decrease.	
	RFB 5. I am not confident that I could work out what my expected income and expenditure would be in retirement.	
	RFB 6. Made meaningful contributions to a voluntary retirement savings plan.	
	RFB 7. Relative to my peers, I have saved a great deal for retirement.	
	RFB 8. Accumulated substantial savings for retirement.	
	RFB 9. Made a conscious effort to save for retirement.	
	RFB 10. Based on how I plan to live my life in retirement, I have saved accordingly.	
Financial Literacy	Q1. Suppose you had Rs100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow? (Numeracy)	Tomar et al. (2021).
	i. More than Rs 102	

	ii. Exactly Rs 102	
	iii. Less than Rs 102	
	iv. Don't know	
	Q2. Suppose you had Rs100 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After 5 years, how much would you have in this account in total? (Compound Interest)	
	i. More than Rs 200	
	ii. Exactly Rs 200	
	iii. Less than Rs 200	
	iv. Don't know	
	Q3. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account? (Inflation)	
	i. More than today	
	ii. Exactly the same	
	iii. Less than today	
	iv. Don't know	
	Q4. Assume a friend inherits INR 10,000 today and his sibling inherits Rs 10,000 3 years from now. Who is richer because of the inheritance? (Time Value of Money)	
	i. My friend	
	ii. His sibling	
	iii. They are equally rich	
	iv. Don't know	
	Q5. Suppose that in the current year your income has doubled and prices of all goods have doubled too. How much do you think you will be able to buy with your income? (Money Illusion)	
	i. More than today	
	ii. The same as today	
	iii. Less than today	
	iv. Don't know	

Appendix B: Levene Test Results

Test of Homogeneity of Variances (Age)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	1.652	4	636	.159
	Based on Median	1.672	4	636	.155
	Based on Median and with adjusted df	1.672	4	629.007	.155
	Based on trimmed mean	1.667	4	636	.156

Source: SPSS Output from Researcher's Analysis

Test of Homogeneity of Variances (Gender)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	.469	1	639	.494
	Based on Median	.832	1	639	.362
	Based on Median and with adjusted df	.832	1	626.185	.362
	Based on trimmed mean	.530	1	639	.467

Source: SPSS Output from Researcher's Analysis

Test of Homogeneity of Variances (Marital Status)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	.541	2	638	.582
	Based on Median	.413	2	638	.662
	Based on Median and with adjusted df	.413	2	636.559	.662

	Based on trimmed mean	.443	2	638	.642
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Source: SPSS Output from Researcher's Analysis

Test of Homogeneity of Variances (Number of Children)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	.109	3	637	.955
	Based on Median	.104	3	637	.957
	Based on Median and with adjusted df	.104	3	629.555	.957
	Based on trimmed mean	.104	3	637	.958

Source: SPSS Output from Researcher's Analysis

Test of Homogeneity of Variances (Caste)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	.535	3	637	.659
	Based on Median	.618	3	637	.604
	Based on Median and with adjusted df	.618	3	632.032	.604
	Based on trimmed mean	.542	3	637	.654

Source: SPSS Output from Researcher's Analysis

Test of Homogeneity of Variances (Education)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	.549	4	636	.700
	Based on Median	.482	4	636	.749
	Based on Median and with adjusted df	.482	4	606.443	.749
	Based on trimmed mean	.587	4	636	.672

Source: SPSS Output from Researcher's Analysis

Test of Homogeneity of Variances (Income)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	2.690	3	637	.545
	Based on Median	2.971	3	637	.553
	Based on Median and with adjusted df	2.971	3	608.809	.531
	Based on trimmed mean	2.747	3	637	.542

Source: SPSS Output from Researcher's Analysis

Test of Homogeneity of Variances (Occupation)					
		Levene Statistic	df1	df2	Sig.
Retirement Financial Behaviour	Based on Mean	4.127	5	635	.701
	Based on Median	3.972	5	635	.742
	Based on Median and with adjusted df	3.972	5	572.285	.689
	Based on trimmed mean	4.111	5	635	.731

Source: SPSS Output from Researcher's Analysis

Appendix C: Normality Tests

Tests of Normality (Age)							
Retirement Financial Behaviour	Age	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	18-29 years	.098	213	.000	.981	213	.006
	30-39 years	.091	210	.000	.971	210	.000
	40-49 years	.152	121	.000	.952	121	.000
	50-59 years	.129	82	.002	.960	82	.011
	60 years and above	.130	15	.200*	.949	15	.513
*. This is a lower bound of the true significance.							
a. Lilliefors Significance Correction							

Source: SPSS Output from Researcher's Analysis

Tests of Normality (Gender)							
Retirement Financial Behaviour	Gender	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	Male	.104	431	.000	.972	431	.000
	Female	.097	210	.000	.976	210	.001
a. Lilliefors Significance Correction							

Source: SPSS Output from Researcher's Analysis

Tests of Normality (Marital Status)							
Retirement Financial Behaviour	Marital Status	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	Single	.102	226	.000	.977	226	.001
	Married	.095	408	.000	.973	408	.000
	Divorced	.214	7	.200*	.908	7	.383
*. This is a lower bound of the true significance.							
a. Lilliefors Significance Correction							

Source: SPSS Output from Researcher's Analysis

Tests of Normality (Number of Children)							
Retirement Financial Behaviour	Number of Children	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	No children	.106	300	.000	.973	300	.000
	1 Child	.096	182	.000	.971	182	.001
	2 Children	.125	127	.000	.964	127	.002
	More than 2 children	.110	32	.200*	.960	32	.275
*. This is a lower bound of the true significance.							
a. Lilliefors Significance Correction							

Source: SPSS Output from Researcher's Analysis

Tests of Normality (Caste)							
Retirement Financial Behaviour	Caste	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	Scheduled Tribe	.098	382	.000	.973	382	.000
	General	.124	134	.000	.976	134	.019
	Scheduled Caste	.170	34	.014	.918	34	.014
	Other Backward Classes	.109	91	.010	.963	91	.012
	a. Lilliefors Significance Correction						

Source: SPSS Output from Researcher's Analysis

Tests of Normality (Education)							
Retirement Financial Behaviour	Education	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	Upto Matriculation	.102	69	.070	.956	69	.017
	Higher Secondary	.157	123	.000	.956	123	.000
	Graduate	.097	252	.000	.977	252	.000
	Post Graduate	.107	168	.000	.956	168	.000
	Above Post Graduate	.179	29	.019	.938	29	.088
	a. Lilliefors Significance Correction						

Source: SPSS Output from Researcher's Analysis

Tests of Normality (Annual Income)							
Retirement Financial Behaviour	Annual Income	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	Upto Rs 2,50,000	.110	310	.000	.973	310	.000
	Rs 2,50,001 - Rs 5,00,000	.143	163	.000	.959	163	.000
	Rs 5,00,001 - Rs 10,00,000	.108	103	.005	.979	103	.107
	Above Rs 10,00,000	.163	65	.000	.944	65	.005
a. Lilliefors Significance Correction							

Source: SPSS Output from Researcher's Analysis

Tests of Normality (Type of Employment)							
Retirement Financial Behaviour	Type of Employment	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
	Government	.105	124	.002	.977	124	.033
	Public Sector	.157	105	.000	.940	105	.000
	Private Sector	.133	104	.000	.923	104	.000
	Business	.105	102	.007	.957	102	.002
	Professionals	.162	102	.000	.948	102	.001
	Gig Workers	.110	104	.003	.951	104	.001
a. Lilliefors Significance Correction							

Source: SPSS Output from Researcher's Analysis

Appendix D: Questionnaire

I am Rosy Basumatary, research scholar (pursuing Ph.D.) at Department of Management studies, Bodoland University, Kokrajhar. I am conducting a survey on the topic “Retirement Financial Behaviour of Working Individuals in Bodoland Territorial Region, Assam”. Through my study I will try to capture the factors influencing retirement planning and savings behaviour. This questionnaire is a part of my research work and the information will be used for academic purpose only. Therefore, I kindly request you to spare few minutes to fill this questionnaire. Your cooperation in completing this information will make the results of this study meaningful. Your responses will be kept confidential. Thanking you in anticipation of your valuable time and response.

Section A

Please tick ☐ your appropriate response. Only one response per question.

- Q1. Age:
- ☐ 18 – 29 years
 - ☐ 30 – 39 years
 - ☐ 40 – 49 years
 - ☐ 50 – 59 years
 - ☐ 60 and above

- Q2. Gender:
- ☐ Male
 - ☐ Female
 - ☐ Transgender

- Q3. Marital Status:
- ☐ Single
 - ☐ Married
 - ☐ Divorced
 - ☐ Widowed

Q4. Number of Children: ☐ No children

☐ 1 child

☐ 2 children

☐ More than 2 children

Q5. Designated group as per Indian Constitution/Caste:

☐ General

☐ Schedule Tribe

☐ Schedule Caste

☐ Other Backward Classes

Q6. Education: ☐ Up to Matriculation

☐ Higher Secondary/ Diploma

☐ Graduate

☐ Post Graduate

☐ Above Post graduate

Q7. Annual Income: ☐ Up to Rs 2,50,000

☐ Rs 2,50,001 – Rs 5,00,000

☐ Rs 5,00,001 – Rs 10,00,000

☐ Above Rs 10,00,000

Q8. Type of Employment: ☐ Government

☐ Public Sector

☐ Private sector

☐ Business

☐ Professionals

☐ Gig worker

Q9. Name of the employer, if applicable _____

Q10. Mother Tongue: ☐Bodo ☐Assamese

☐Bengali ☐Hindi Others,

please specify_____

Q11. District of domicile: ☐ Kokrajhar

☐ Chirang

☐ Baksa

☐ Udalguri

Section B

Please tick [☐] the appropriate response based on your degree of agreement with the following statements (1= Strongly Disagree, 2= Disagree, 3= Somewhat Disagree, 4= Neutral, 5= Somewhat Agree, 6= Agree, 7= Strongly Agree). There is no correct or wrong answer. Only one response per statement.

Statements	Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree
I like to think about what the future will hold.							
I enjoy thinking about how I will live years from now in the future.							
I look forward to life in the distant future.							
According to me, it is important to have a long-term							

perspective in life.							
Retirement will enable me to pursue my unfulfilled dreams.							
My close friend would describe me as future-oriented.							
I look forward to retirement.							
I am worried about my life after retirement.							
I expect that being retired will make me feel useless.							
I prefer a “sure thing” over a gamble when planning for retirement.							
I prefer those investments which have higher returns even if they are riskier.							
The overall growth potential of a retirement investment is more							

important to me than the level of risk associated with the investment							
I am very much willing to make risky investments in order to ensure financial stability in retirement							
As a rule, I would never choose the safest investment when planning for retirement							
I set specific goals regarding how much I will need to save for my retirement							
I think a great deal about quality of life I want to lead after retirement							
I have a clear vision of how my life shall be after retirement							
I have set clear goals							

for gaining information about retirement							
I have discussed retirement plans with spouse, friends, or significant others							
My spouse believes it's important to save for retirement.							
My friends believe it's important to save for retirement.							
My colleagues at work believe it's important to save for retirement							
Savings was an important lesson I learnt as a child							

Section C

Q 1. Suppose you had Rs 100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- i. More than Rs 102

- ii. Exactly Rs 102
- iii. Less than Rs 102
- iv. Don't know

Q 2. Suppose you had Rs 100 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After 5 years, how much would you have in this account in total?

- i. More than Rs 200
- ii. Exactly Rs 200
- iii. Less than Rs 200
- iv. Don't know

Q 3. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?

- i. More than today
- ii. Exactly the same
- iii. Less than today
- iv. Don't know.

Q 4. Assume a friend inherits INR 10,000 today and his sibling inherits Rs 10,000 3 years from now. Who is richer because of the inheritance?

- i. My friend
- ii. His sibling
- iii. They are equally rich
- iv. Don't know.

Q 5. Suppose that in the current year your income has doubled and prices of all goods have doubled too. How much do you think you will be able to buy with your income?

- i. More than today
- ii. The same as today
- iii. Less than today
- iv. Don't know.

Section D

Please choose the appropriate response based on your degree of agreement with the following statements (1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree). Please tick[] your appropriate response. Only one response for each statement.

Statements	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am concerned about the state of my financial preparation for my retirement.					
I am confident that I will have a decent standard of living in my retirement.					
At present, I rate my financial preparation for retirement is good.					
I expect my standard of living in retirement will decrease.					
I am not confident that I could work out what my expected income and expenditure would be in retirement.					
Made meaningful contributions to a voluntary retirement savings plan.					
Relative to my peers, I have saved a great deal for retirement.					
Accumulated substantial savings for retirement.					
Made a conscious effort to save for retirement.					

Based on how I plan to live my life in retirement, I have saved accordingly.					
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