Psychological determinants of retirement financial planning behavior

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A B S T R A C T

Various studies raise concerns over the pervasive poverty among women after retirement. Although much research is available on retirement planning, the advent of behavioral finance and the integration of psychological concepts with financial planning and saving behavior have made the phenomenon more critical. This study focuses on how the interaction between financial literacy as a cognitive characteristic and retirement goal clarity, future time perspective, attitude toward retirement, risk tolerance, and social group support as psychological characteristics influence women's retirement planning behavior. We use partial least squares regression through PLS-3 with Multi Group Analysis to test a set of theory-based hypotheses. Our results reveal a positive association of future time perspective, retirement goal clarity, and social group support with retirement planning behavior, which are moderated by financial literacy. Future time perspective and retirement goal clarity also play mediating roles. Our study has implications for financial planning professionals, advisors, and consumers.

1. Introduction

Various studies express concern about the prevalence of financial insolvency among people during retirement. The sustainability of public and private pension provisions is at risk because of financial deficits (Farrar, Moizer, Lean, & Hyde, 2019). Research shows that by 2050, 25% (17%) of the population in OECD countries (global population) will be above 65 years old (He, Goodkind, & Kowal, 2016; Marchal et al., 2012). However, research also shows that only 24.8% of individuals worldwide save for old age (Demirgüç-Kunt, Klapper, & Panos, 2016). This lack of savings, coupled with population aging, creates significant liabilities on pension systems, resulting in the risk of many retirees having low financial resources to support them during retirement (Farrar et al., 2019).

Despite this issue's importance, many individuals approaching retirement, particularly women, are unprepared (Brüggen, Hogreve, Holmlund, Kabadayi, & Löfgren, 2017; de Bassa Scheresberg, Lusardi, & Yakoboski, 2014; Keele & Alpert, 2013; UN Women, 2015). Generally, females' transition toward retirement is heterogeneous and diverges significantly compared to men (Kojola & Moen, 2016). Women outlive men and face various hardships throughout their lives. The gender wage

gap worsens this situation (Williams, Elizabeth, & Spencer-Rodgers, 2010). Moreover, women often have to engage in part-time jobs or have interrupted work histories given their caregiving roles, reducing their earnings.

Despite being more financially vulnerable, evidence shows that women are less active in retirement financial planning (Burn, Button, Figinski, & McLaughlin, 2020). Combined with an aging population, increasing pressure on pension provisions, and a lack of savings, this situation poses a significant challenge to women's financial security unless policy measures are taken to improve their planning and financial well-being in retirement. This situation calls for exploring the existing retirement landscape to better understand females' retirement planning behavior and draw implications for designing effective strategies and reforms in the pension system.

These issues are magnified in an emerging market economy like India, in which many consumers are at the "bottom of the pyramid." Impoverished consumers or those at the bottom of the pyramid have consumption patterns and experiences different from those at the top of the pyramid. The material landscape defined by abundance, for countries at the top of the pyramid is incongruous with those at the bottom of the pyramid and therefore market place practices also differ (Martin and

Paul Hill, 2012). This situation holds in the Indian context. The Indian population is increasing at an unprecedented rate, with those at least 60 years old expected to increase from 88 million in 2009 to 315 million by 2050 (Bharati & Singh, 2013). Some expect the global population of the oldest individuals (i.e., 80 years or above) to be mainly in five countries – China, the United States., India, Japan, and Germany. In 2015, these countries accounted for nearly 50% of the global population of 80 years and older (Lyons, Grable, & Joo, 2018). Furthermore, the Indian economy is undergoing a rapid transition leading to greater participation from women at all the levels of management.

As suggested by Datta and Argawal (2017), India's GDP can increase by 27%, if men and women are employed equivalently. Yet, according to the Global Gender Gap Report 2020, India has slipped to the 112th rank from the previous 108th rank in 2018. It is ranked at the 149th position in female economic participation and opportunity, and 117th position in gender wage equality for similar work. These figures suggest that it is a long haul before this shift takes place. One area of paramount importance is the financial management and particularly women's retirement financial management, where little research exists. In subsistence marketplaces like India, financial management acquires greater importance. Already females are facing hardships on financial fronts. Hence, they should put aside some portions of their earnings in the form of savings to avert any catastrophic effect due to lack of financial support (Martin & Hill, 2015).

Historically, India's traditional joint family structure has functioned as a safety net ensuring the social and economic well-being of older women. However, swift urbanization, a changing social and economic framework, and the nuclear families' evolution have left the elderly population vulnerable to economic insecurities (Agarwal, Lubet, Mitgang, Mohanty, & Bloom, 2020; Chauhan & Indapurkar, 2017). Also, India does not have a universal social security system. Pension and employees' provident funds provide little retirement financial security. Furthermore, no pension scheme covers most of the elderly population (Agarwal et al., 2020; Gupta & Hershey, 2016). Because the rest of the elderly population relies on informal mechanisms, personal savings play a crucial role in India. To promote personal savings, the Indian government developed progressive strategies like establishing the national campaign for financial inclusion and providing every household with a saving account (Lyons et al., 2018).

Because financial inclusion alone cannot promote savings, we need to look beyond it to understand the factors stimulating and inhibiting retirement saving behavior. The majority of retirement and financial planning studies on women focus on North America and other western countries. India differs culturally from these countries (Kumar, Tomar, & Verma, 2019; Traylor, Ng, Corrington, Skorinko, & Hebl, 2020), and communal practices related to retirement planning vary. Consequently, a need exists to determine whether the factors identified as those concerning women's retirement planning and savings in developed economies are also relevant in emerging economies.

Research on retirement planning behavior has gained momentum over the past few years. The literature indicates a direct association between retirement savings and age (Adams & Rau, 2011; Clark, Knox-Hayes, & Strauss, 2009; Hershey, Henkens, & Van Dalen, 2010; Phua & McNally, 2008), income (Kilty & Behling, 1986; Kock & Yoong, 2011; Moorthy et al., 2012), education (Lee, 2003; Lusardi & Mitchell, 2017), family structure (Chatterjee & Zahirovic-Herbert, 2010; Szinovacz, DeViney, & Davey, 2001; Wang & Hanna, 1997), and marital status (Damman, Henkens, & Kalmijn, 2015; Grable, 2000). A few studies also identify gender as a strong predictor of retirement financial planning (Fisher, 2010; Glass & Kilpatrick, 1998) and confirm that women save less than men. Such studies help to explain who is saving for retirement.

However, an unanswered question is, "why are so few individuals saving for retirement?" The answer lies in the psychological mechanism underlying planning and saving behavior. According to Hershey (2004), demographic factors influence retirement planning behavior, but psychological constructs, which render a direct/proximal influence,

mediate their influence. In contrast, demographic characteristics have a distal influence on financial planning and saving behavior. Integrating psychological concepts with financial planning and saving behavior has become more critical with the advent of behavioral finance and the discovery that consumers deviate from rational financial decision-making (Asebedo et al., 2019; Brüggen et al., 2017). Recent financial literature acknowledges the crucial role of emotions, feelings, and behavioral traits that drive an individual's decisions away from rationality and maximizing economic benefits. However, researchers have neglected a social network's role, which is one of the most significant ties maintained by individuals, in the context of investment decision-making (Ostrovsky-Berman & Litwin, 2019). Women experience more influence than men because social and cultural norms strongly affect them (Griffin, Loe, & Hesketh, 2012). They may also experience events such as gender discrimination causing them to rely on their social support networks more heavily than men (Watson et al., 2018). Because women are more expressive in their friendships than men (Fox, Gibbs, & Auerbach, 1985), they may have more in-depth communication with their social networks. Consequently, women presumably follow their close associates in their planning behavior.

This study focuses on how financial literacy as a cognitive characteristic and retirement goal clarity, future time perspective, attitude toward retirement, risk tolerance, and social group support as psychological characteristics influence the retirement planning of professional women in India. It also focuses on professional women because they should have sufficient financial resources and means to engage in financial planning. Doing so is both academically important and practically relevant. From an academic perspective, previous research has assessed the financial literacy in terms of perceived financial knowledge rather than actual financial knowledge. This may have led to perceptual bias wherein respondents might have overestimated or underestimated their financial knowledge. Our study bases its assessment of financial knowledge on a set of multiple choice questions whose validity and reliability has been established through Item Response Theory (Baker, Tomar, Kumar, & Verma, 2020). The study also holds practical implications. In particular, by developing an understanding of the interaction of the psychological traits with financial literacy, regulators and policy makers can wisely channel the limited educational resources to address the issue of insufficient retirement planning. Recent studies on financial vulnerability of impoverished consumers suggest that often the educational programs designed to assist them in their navigation through the marketplace fail due to a lack of knowledge on how impoverished consumer's retirement savings and perception is manifested differently from those in the western or developed economies (Martin & Hill, 2015). Importantly, recent work finds that women are more likely to be in a state of high financial vulnerability compared to men (Hoffmann, McNair, & Pallant, 2021).

From a practical perspective, our research addresses an urgent need for financial market regulators and consumer policy makers around the world to get a better understanding of retirement planning behavior. The results reveal that financial behaviors such as retirement planning and savings, stem out of deeply embedded personal traits like retirement goal clarity and future time perspective, which are further influenced by social forces such as group support and cognitive abilities such as financial literacy. Therefore, the programs should be designed to look beyond financial knowledge to fully exploit and to effectively transmute knowledge into responsible behavior. Additionally, opportunities should be created to augment the social influence and develop the retirement goal clarity and future time perspective. Doing so is important given the vital role played by financial security during the transition, adjustment and success during retirement (Noone, Stephens, & Alpass, 2009) and the ever increasing responsibility placed on individuals for managing their finances and procuring sufficient retirement wealth.

The rest of the paper is organized as follows. We first provide a theoretical background and develop the hypotheses. We then explain the

research methodology and present the data analysis and results. Finally, we provide a discussion of our main findings and conclusions.

2. Theoretical background and hypotheses development

Retirement planning refers to preparation for the time when a person would leave the work force and work- related income would cease to exist. It may be seen as an approach to establish a balance between current expenditure and reserves to ensure a financially confident retirement. Previous studies provide evidence for the relation between retirement planning activities and saving practices (Stawski, Hershey, & Jacobs-Lawson, 2007; Chou et al., 2015; Anderson, Baker, & Robinson, 2017). Savings adequacy refers to the degree to which a person feels that he or she is saving enough to enjoy a comfortable and financially secure retirement. Lusardi (2000) conducted a study on American households and found that planning behavior had a significant influence on savings and wealth holdings. Households in which family heads engaged in some form of retirement planning ended up accumulating large wealth holdings and savings as compared to those households in which family heads did not engage in such planning.

Mulvey and Shetty (2004) attempted to explain the problem of financial planning via a "multi-stage stochastic programming" model. They argued that investors did not always take rational financial decisions; particularly in case of uncertainties, investors diverged from rational behavior and succumbed to choices that could possibly provide some financial gains. This irrationality in decision-making led to the integration of the study of the role of emotions and psychological characteristics in financial decision making and advent of behavioral finance. On the basis of behavioral theories, Mitchell and Utkus (2004) argued that efficient retirement planning was heavily reliant on decisions regarding savings and investments. These decisions were in turn influenced by a few psychological characteristics.

Hershey, Jacobs-Lawson, and Austin (2013) developed a conceptual model for understanding the determinants of effective retirement planning behavior. Through this model, the authors contend that three dimensions, namely, capacity, willingness, and opportunity, determine the efficiency of planning and savings for retirement. Capacity refers to the cognitive factors, aptitude, comprehension, knowledge which distinguishes two individuals from each other. The second dimension - willingness - is defined through the psychological and emotional characteristics that provide the impetus to start retirement planning and continue with it over time. It includes factors like attitude, clarity of financial and retirement goals, personality traits, ethics, virtues, and rectitude, which defines an individual's self-image. The third dimension, opportunity includes those factors that are external to an individual like availability of employee pension plans, diverse investing options, long-term economic and financial market trends, fiscal policies, and tax regulations.

This model operates as the blueprint for the development of the framework for current study as presented in Fig. 1. It is a compendious model taking into consideration different facets to explain financial planning for retirement. Also, this model is procedural as it takes into account the temporal dimension as well. The first dimension of the model_, capacity, is reflected through financial literacy. The willingness in the model is based on the motivational factors, attitude, and perceived social norm as depicted by the four psychological characteristics (retirement goal clarity, future time perspective, attitude toward retirement, and risk tolerance) and the social group support.

The framework also draws substantially from Beach's image theory (Beach, 1998; Beach & Mitchell, 1987) and Mowen's 3 M Theory of Motivation and Personality (Mowen, 2000). Both theories present an outline for a sequential relationship among the personality traits (e.g.,
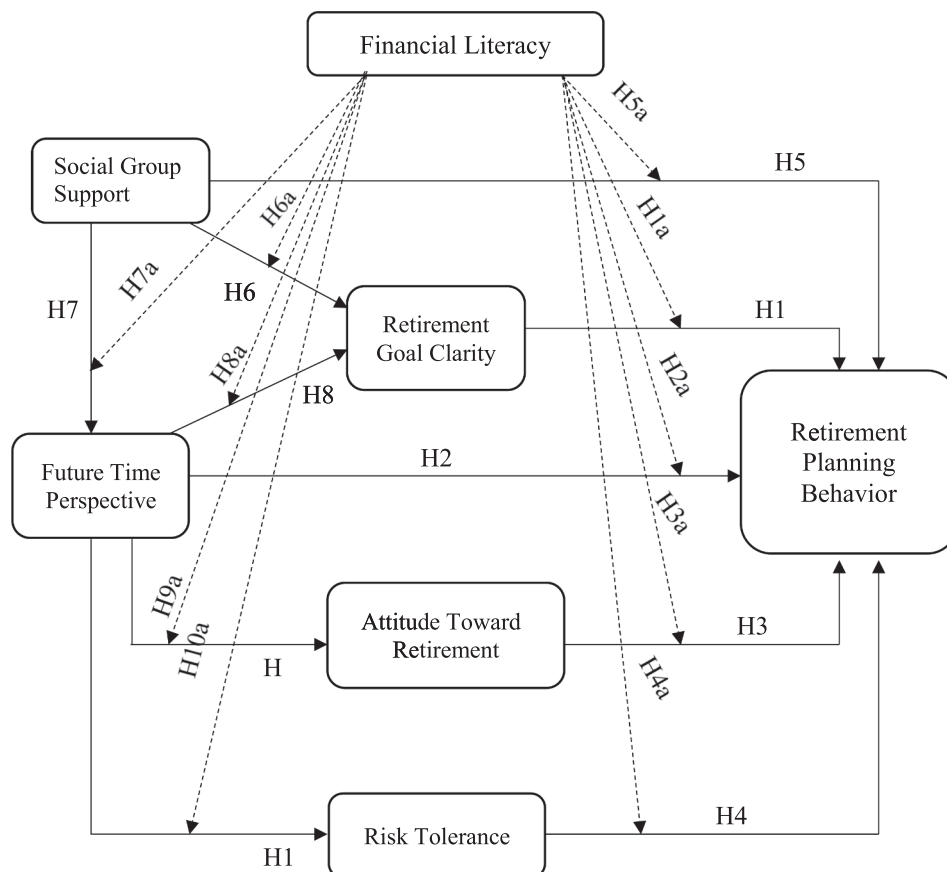

Fig. 1. The Conceptual Model of the Study.

future time perspective), cognitive constructs (e.g., knowledge and goal clarity), and behavioral aspects (e.g., planning activity and saving behavior). Beach's image theory postulates that decision-makers act following their principles, ethics, and personality dimensions (self-image). They frame their goals, plans, and tactics (trajectory image) to be compatible with these principles. These goals further motivate or guide the incremental behavioral steps needed to achieve these goals (Beach & Mitchell, 1987).

Similarly, Mowen's 3 M Theory of Motivation and Personality also suggests that elemental traits are an individual's essential underlying characteristics arising from that person's genetic and early learning (Mowen, 2000). These elemental traits define the compound trait or the central trait (future time perspective). The central traits serve as a causal precursor to the surface traits (retirement goal clarity), preceding the behavioral aspect (planning and saving).

2.1. The impact of psychological characteristics on retirement planning behavior

2.1.1. Retirement goal clarity

The Beach Image Theory (Beach & Mitchell, 1987) suggests that individuals develop an ideal image, which determines how they would like to see themselves in the future and strive to achieve this image. The assertion that goal clarity provides strong motivation for the accomplishment of a task has been clearly supported in the retirement planning literature. Various studies in the field of psychology unanimously agree that a clear and well-defined goal is crucial as it predisposes an individual to get involved in planning activities, which further enhance the saving contributions (Hershey, Jacobs-Lawson, McArdle, & Hamagami, 2007; Hershey et al., 2010; Moorthy et al., 2012; Stawski et al., 2007; Zhu & Chou, 2018).

Although males and females usually have a similar number of goals, females' goals are more abstract (Hershey, Jacobs-Lawson, & Neukam, 2002). Females tend to develop self-oriented goals and devote more time toward leisure and maintaining social contact than men. Such behavior may be because females are socialized differently than males in the development and retention of their interpersonal relationships (Eismann, Verbeij, & Henkens, 2019; Poulter, 2020).

H1: Retirement goal clarity has a positive association with retirement planning behavior.

2.1.2. Future time perspective

Future time perspective is a central personality trait and highlights how one can visualize the future. A high level of future time perspective indicates that individuals can clearly and easily visualize their lives in the future. Operationalizing the construct can occur in several ways based on setting and field, including patience, time preferences (economics-based literature), and planning horizon (psychology-based literature).

Hershey et al. (2010) characterize future time perspective as one of the "central" or "cardinal" personality traits and a predictor of future financial planning. It exerts its effect by influencing an individual's knowledge and involvement in financial planning activities (Hershey et al., 2007; Kooij, Kanfer, Betts, & Rudolph, 2018). Hastings and Mitchell (2011) identify impatience as a significant predictor of savings for retirement. They find that impatient investors or those who chose current gratification tend to invest in shortsighted investment options. In particular, individuals who focus more on the present have less savings for the future. Bernheim, Skinner, and Weinberg (2001), Clark, Hammond, and Khalaf (2019), and Griffin et al. (2012) present similar findings. They state that people scoring high on temporal or time discounting relish immediate rewards and are less concerned about savings or future retirement planning. Kerry (2018) studies the antecedents of retirement planning and finds that future time perspective and financial risk tolerance are two constructs holding substantial relevance for the retirement planning domain.

H2: Future time perspective has a positive association with retirement planning behavior.

2.1.3. Attitude toward retirement

Attitude is the perception, outlook, or perspective toward a person, idea, thing, or situation. Ajzen (1991) suggests that someone with a favorable opinion of a specific behavior has a higher propensity to follow such behavior. In keeping with this concept, several studies identify a positive association between one's perception toward retirement and retirement planning (Gordon, 1994; Noone, Alpass, & Stephens, 2010; Reitzes & Mutran, 2004; Topa, Moriano, Depolo, Alcover, & Morales, 2009; Turner, Bailey, & Scott, 1994; Zeka, Rootman, & Krüger, 2020). However, a few studies contradict these findings and highlight that people often do not behave according to their attitudes, especially in terms of future-oriented behaviors like savings. Despite having a positive attitude, preferences change and people make choices in contrast to their attitude at implementation (Ainslie & Haslam, 1992; Rachlin, 1995). Although men view retirement as a natural progression that is controllable to some extent, women are more apprehensive about unforeseen difficulties, which hampers their attitude and behavior toward such an event (Poulter, 2020).

H3: Attitude toward retirement has a positive association with retirement planning behavior.

2.1.4. Risk tolerance

Studies examining risk tolerance from a financial perspective tend to focus on the pattern of investment decisions. Studies on women's investment patterns provide contradictory findings. One school of thought views women as risk-averse in selecting their portfolios (Bajtelsmit & Bernasek, 1996; Bajtelsmit, Bernasek, & Jianakoplos, 1999; Charness & Gneezy, 2012; Clark et al., 2009). Another school believes that the disparity in earnings and the gap in financial knowledge favoring males explain this difference (Atkinson, Baird, & Frye, 2003; Almenberg & Dreber, 2015; Bucher-Koenen, Alessie, Lusardi, Van Rooij, 2016; Fisher & Yao, 2017).

Bernasek and Shwiff (2001) and Sunden and Surette (1998) investigate the effect of risk aversion on household economic decisions in the case of cohabitating or married couples. They report that women adopt conservative investment strategies and allocate their wealth to less risky investment options. As risk and return go together, investments in less risky options yield lower returns and lesser wealth. Risk tolerance influences both portfolio choices and saving tendencies. Women who are less risk-tolerant are less inclined to save over the short term (Fisher, 2010). Grable and Joo (1997) and Jacobs-Lawson and Hershey (2005) report that a higher risk tolerance predisposes an individual to develop aggressive retirement savings strategies.

H4: Risk tolerance has a positive association with retirement planning behavior.

2.2. Social group support and the mediating role of psychological characteristics on retirement planning behavior

Social surroundings affect humans. Social learning theory suggests that early childhood learnings and peer groups like friends, co-workers, and family members influence future goals and motivations required to accomplish tasks (Bandura, 1977, 1986; Koposko & Hershey, 2014). Similarly, social contacts also influence retirement planning (Henkens, 1999; Richardson, 1999; Szinovacz & Davey, 2005). Lusardi (2003) corroborates that the learning and experience of close relatives such as siblings and parents partly shape any sort of financial planning. This factor is prevalent in portfolio choices for high return assets like stocks.

Duflo and Saez (2003) show that people do not randomly learn about economic opportunities and their economic decisions are heavily driven by their environment. They conducted an experimental study and established that peers at the workplace influenced participation in employer organised program. The study entailed an experiment in

which employees were encouraged to attend an employer organized 'information fair' that sought to create awareness about "Tax Deferred Account (TDA)" retirement plan. While a few random groups of employees were given monetary rewards, others were not even informed about the rewards. Strikingly, employees receiving awards were able to influence and convince others to attend the program.

Hershey et al. (2010) study the influence of support from friends, colleagues, and spouses on financial planning and conclude that social networks have an impact. This impact may be either indirect and affect the time of women's departure from the workforce (Richardson, 1999) or direct and affect future time perspective and retirement goal clarity (Hershey et al., 2010).

Besides peer influence, early learning, particularly parental influence, affects planning and saving. Parental influence plays a crucial role in shaping one's personality, beliefs, and attitudes toward various life domains, including economics and finance. Webley and Nyhus (2006) study children between 16 and 21 years old and find that parental traits, such as future orientation, conscientiousness, and discussion of matters related to savings and economics with children, affect a child's economic behavior until adulthood. Palaci, Jiménez, and Topa (2017) suggest that parental economic behavior influences financial literacy and the skills required for making well-informed financial decisions. These skills later influence financial planning for retirement. We thus expect:

H5: Social group support has a positive association with retirement planning behavior.

H6: Retirement goal clarity mediates the effect of social group support on retirement planning behavior.

H7: Future time perspective mediates the effect of social group support on retirement planning behavior.

Buss (1989) identified three types of traits: "cardinal traits, central traits and surface or stylistic traits. While cardinal and central traits are embedded in deeper levels and together determine the idiosyncratic characteristics of an individual, surface traits are more superficial and their foundation lies somewhere between cardinal and central traits. Along similar lines, Hershey et al. (2010) also categorized future time perspective as one of the "central" or "cardinal" personality traits and a predecessor of surface traits like goal clarity. It also exercises its influence through the knowledge and involvement of an individual in financial planning activities (Hershey et al., 2007).

H8: Retirement goal clarity mediates the effect of future time perspective on retirement planning behavior.

Attitude also interacts with other psychological characteristics such as future time perspective. Consequently, having a distant future time perspective increases the attitude intention consistency toward future oriented behavior like planning and saving (Rabinovich, Morton, & Postmes, 2010).

H9: Attitude toward retirement mediates the effect of future time perspective on retirement planning behavior.

Financial risk tolerance is influenced by future time perspective. According to Jacobs-Lawson and Hershey (2005), there is a three-way interaction between risk tolerance, financial planning knowledge, and future time perspective that influences retirement savings. For individuals with short future time perspective, financial planning knowledge does not have significant influence on the relationship between risk tolerance and retirement savings. This means that if an individual has low future time perspective, then even in the presence of high financial planning knowledge, there would be minimal effect of risk-taking ability on savings as the individual won't be able to visualize the distant future. On the other hand, someone with high future time perspective with either high or low financial knowledge might experience a significant influence of risk tolerance on retirement savings.

H10: Risk tolerance mediates the effect of future time perspective on retirement planning behavior.

2.3. The moderating role of financial literacy

The gradual shift of pension plans from defined benefit to defined contribution has changed how people plan for retirement. This shift has augmented every person's accountability toward managing their finances and at the same time securing a reasonable retirement wealth for the future. Because many complex financial instruments exist, people must develop a comprehensive understanding of financial products to make informed decisions. Clearly, financial literacy plays a vital part in retirement planning. Further exploring the association between psychological characteristics and financial literacy can serve as a promising and interesting area for research (Murphy, 2013). Taken together, they can provide an explanation for a significant variance in the various components of financial wellbeing.

Hershey and Mowen (2000) studied the influence of psychological characteristics, financial knowledge, and financial preparedness on retirement planning. They included cardinal traits (openness, conscientiousness, emotional stability, materialism, introversion, and need for arousal) to predict the central trait (future time perspective) and the surface trait (financial planning knowledge and level of involvement in retirement issues). Finally, the criterion measure was identified that represented financial preparedness in the form of savings for retirement. Their findings indicated that future time perspective strongly influenced both financial knowledge and retirement preparedness. Rolison, Hanoch, and Wood (2017) found that younger individuals with a long term or high future time perspective, prioritize their goals and the attainment of financial knowledge. The knowledge gathering behavior is motivated by a future time orientation. Thus, the financial education programs designed to enhance the retirement saving behavior should be fine-tuned in line with the individual's thoughts for the future.

Howlett, Kees, and Kemp (2008) explored the influence of future orientation and financial knowledge on consumers' participation in 401 (k) plans. Their findings suggested that future orientation and financial knowledge interacted such that consumers with higher future orientation and basic financial knowledge were more likely to participate in the retirement saving plan as compared to someone with high knowledge and low future orientation. In the absence of knowledge, future orientation failed to have any effect on the participation rate in 401(k) plans. Similarly, Zimbardo, Clements, and Leite (2017) also identified that the coupling of financial literacy and time perspective introspection programs can have a significant influence on people's future financial health. Hershey, Mowen, and Jacobs-Lawson (2003) explored the effect of retirement seminars on financial planning and found that financial information and goal-setting seminars, when integrated, present the most promising results.

Various studies suggest that financial literacy can have a strong influence on investment perceptions. Diacon (2004) show that risk appetite of individuals differs based on their financial knowledge. Financial experts tend to invest in risky investment options as compared to laypeople with low financial awareness. Financial literacy has a positive influence on participation in the stock market (Van Rooij, Lusardi, & Alessie, 2011), selection of mutual funds (Müller & Weber, 2010), and wealth management (Hilgert, Hogarth, & Beverly, 2003). We thus expect:

H1a-H10a: Financial literacy moderates the relationships among the model constructs.

3. Research methodology

3.1. Data collection

Data collection is the procedure for collecting respondent opinions on the topic of interest (Zikmund, 2003). Based on the description of the research problem, various techniques are available for data collection. We used a survey for collecting data, which included self-administered questionnaires along with posted/mailed or emailed surveys. The

main benefit of a questionnaire is that it is the most time and cost-effective technique when a large number of respondents are to be approached for data collection (Sekaran, 2003).

3.2. Participants and procedure

Our study focuses on the psychological antecedents of retirement planning behavior and the influence of the interaction between professional women's financial literacy and psychological characteristics on their retirement planning behavior. In the context of our study, "professional women" refer to women who have attained a formal qualification or training required to develop expertise for an occupation. Accordingly, to develop our sampling frame, we consulted the quarterly employment report by the Ministry of Labour and Employment Labour Bureau of India (2016) and an industry report by Wheebox (2017), which show that the percentage of female workers was highest in the education (48.96%), health (48.22%), information technology and business process outsourcing (IT/BPO) (31.27%), and banking, financial service, and insurance (21.21%) sectors. Our study includes professors, doctors, lawyers, bank officials, and accountants, among others.

We used non-probabilistic sampling techniques, specifically purposive and snowball sampling. Purposive sampling, also called judgment sampling, permits thoughtful selection of participants due to the specific characteristic they possess (Etikan, Musa, & Alkassim, 2016). Through purposive sampling, we collected data from female professionals like doctors, professors, accountants and bank officials, in western region of India. We later used a combination of snowball and purposive sampling to collect data from northern, middle, and southern India. Snowball sampling is chain referral sampling wherein the study sample is selected through references from existing respondents for the next link who possess characteristic that are of interest for the researcher. The next subject provides direction toward the next subject, and the chain continues (Biernacki & Waldorf, 1981).

We pilot tested the instrument on 90 professional women. Based on valuable suggestions, we identified certain drawbacks in statement phrasings and made minor corrections to the questionnaire. Thereafter, we sent the final questionnaire to 2150 professional women by online and offline modes. In all, we received 135 responses (a 22.5% response rate) through the online mode (Google forms), and 383 responses (a 24.7% response rate) through the offline (self-administered questionnaires along with posted/mailed survey with postage envelopes provided) mode. There is an innate limitation of low response rate associated with the survey questionnaire technique. However, to overcome this issue, we sent follow-up emails and reminders. Out of these, we discarded 33 offline responses due to missing information, reducing the number to 350. Thus, the final sample consisted of 485 responses.

3.3. Non-response bias

A potential limitation of survey research is non-response bias. Weiss and Heide (1993) suggest that when the response rate of the survey is high, the researcher should not worry about non-response bias. However, when the response rate is low, a greater likelihood exists of the sample being unrepresentative of the population, resulting in non-response bias. Such issues pose a threat to the survey's external validity and impede the extraction of valid inferences from the data (Barriball & While, 1999). To test this bias, we used (1) the Mann-Whitney-*U* test and (2) the Wilcoxon W test. We compared the responses of early (first 30 online and first 50 offline responses) and late (last 30 online and last 50 offline responses) respondents to ascertain whether they differed statistically on social group support, psychological, and retirement planning scales (Armstrong & Overton, 1977). Table 1 indicates no statistically significant difference between early and late respondents. Further, Deutskens, de Jong, de Ruyter, and Wetzels (2006) note that, with respect to the response characteristics, both online and offline surveys produce equivalent results. This reduces our concern about non-response bias.

3.4. Measures

3.4.1. Dependent variable

We assessed the dependent variable through two measures—retirement planning activity and retirement savings tendency. We used a four-item scale by Hershey et al. (2010) to measure retirement planning activity. We assessed retirement savings tendency through a five-item scale by Jacobs-Lawson and Hershey (2005). Respondents answered all items on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). On conducting exploratory factor analysis on these nine items, all items loaded on a single factor, which indicates that respondents consider planning activity and savings tendency as similar behaviors. We name this factor "Retirement Planning Behavior." It has a Cronbach's alpha value of 0.953, indicating excellent reliability (Cronbach, 1951).

3.4.2. Independent variables

The independent variables for our study included retirement goal clarity, future time perspective, attitude toward retirement, risk tolerance, social group support, and financial literacy. We developed a five-item scale for future time perspective from Koposko and Hershey (2014). It presented good internal reliability with a Cronbach's alpha value of 0.865. For retirement goal clarity, we took the five-item scale from Stawski et al. (2007). Its Cronbach's alpha value was 0.885. Similarly, we borrowed the four items for attitude toward retirement,

Table 1
Statistical Test for Non-Response Bias.

		Online Responses				
	FTP	**ATR**	**RT**	**RGC**	**SGS**	**RPB**
Mann- Whitney U	439.00	400.50	374.00	416.50	394.00	414.00
Wilcoxon W	904.0	865.50	839.00	881.50	859.50	879.00
Z	−0.163	−0.734	−1.126	−0.497	−0.823	−0.533
Asymptotic Significance (2-tailed)	0.870	0.463	0.260	0.619	0.411	0.594
		Offline Responses				
	FTP	**ATR**	**RT**	**RGC**	**SGS**	**RPB**
Mann- Whitney U	1242.00	1203.00	1037.00	1067.50	1138.00	1083.50
Wilcoxon W	2517.00	2478.00	2312.00	2342.50	2413.00	2358.50
Z	−0.055	−0.325	−1.471	−1.262	−0.780	−1.149
Asymptotic Significance (2-tailed)	0.956	0.745	0.141	0.207	0.436	0.251

Notes: This table shows the outcomes of the Mann-Whitney-U and Wilcoxon W tests for non-response bias. It compares the early (first 30 online and first 50 offline responses) and late (last 30 online and last 50 offline responses) respondents on social, psychological characteristics and retirement planning behavior scale. None of the tests are statistically significant at the 0.05 level. FTP = future time perspective, ATR = attitude towards retirement, RT = risk tolerance, RGC = retirement goal clarity, SGS = social group support, and RPB = retirement planning behavior.

four for social group support, and five items for risk tolerance from Moorthy et al. (2012), Van Dalen, Henkens, and Hershey (2010), and Jacobs-Lawson and Hershey (2005), respectively. We measured all the items for the above constructs on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). They displayed a Cronbach's alpha value of 0.787 for attitude toward retirement, 0.865 for social group support, and 0.809 for risk tolerance. We, easired all the items for the above constructs on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree).

We measured financial literacy using two sets of multiple-choice questions designed by Lusardi and Mitchell (2017) to ascertain different levels of knowledge. With each question, the questionnaire provided a "Don't know" option to deter the participants from guessing. The first set pertained to basic financial literacy questions assessing the awareness of simple numerical skills such as compound interest, inflation, time value of money, and money illusion. The second set of financial literacy questions evaluated respondent knowledge/awareness of more complicated financial concepts such as stocks, bonds, mutual funds, risk-return, and risk diversification.

Table 2 provides an overview of all items used to measure the dependent and independent variables in this study and also includes descriptive statistics of each variable.

4. Data analysis and results

4.1. Sample characteristics

Table 3 presents the respondent profiles. Most respondents are between the ages of 30 and 60 years when they make critical financial decisions. Almost half of the women had a gross annual income of INR 400,000 to 1,000,000 (approximately USD 6,000 to 14,000 at the time of the survey), whereas 19.8% earned more than INR 1,000,000 per year. Of the respondents, 73.2% of the women are married. In terms of their occupation, 23.5% of the women are finance professionals, such as chartered accountants, income tax officers, accountants, and bank officials; 76.5% are non-finance professionals, including doctors (27.4%), teachers (31.5%), IT/BPO employees (16.5%), and others such as interior designers and lawyers (1.0%). Regarding education, about half (49.4%) are postgraduates, and 14.8% hold a doctorate.

4.2. The direct influence of psychological characteristics and social group support on retirement planning Behavior.

We used partial least squares (PLS) regression with Smart PLS 3.0 to evaluate both the uni-dimensionality of the constructs and the psychological antecedents of retirement planning behavior. PLS is the preferred choice of analysis because it can simultaneously measure latent variables and test the relation between latent variables (Babin, Hair, & Boles, 2008). Moreover, PLS provides additional advantages because it does not make stringent assumptions about the data's distribution. The sample size required for validation and testing of the model is also small (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014).

We followed a two-step approach to analyze the model. First, we evaluated the outer measurement model for establishing the model's uni-dimensionality, reliability, discriminant, and convergent validity. Thus, we can ensure that the constructs used for assessing the relation in the inner model are precisely measured (Hair et al., 2014). Second, we assessed the inner structural model for determining causal relations based on significant path coefficient values between the proposed latent constructs (Hair et al., 2014).

4.2.1. Basic model evaluation

4.2.1.1. Instrument reliability.
When assessing the measurement model, the first task was to evaluate the internal consistency of the items/

variables, which indicates the share of a variable's variance explained by the latent variable (Götz, Liehr-Gobbers, & Krafft, 2010). As a rule of thumb, researchers often prefer a loading of 0.7 or higher as it implies that compared to the unexplained or the error variance, the construct shared more variance with the measure (Hulland, 1999). Agapito and Oom do Valle, & da Costa Mendes (2013) and Hulland (1999) suggest that when adapting scale items from other settings, the recommended threshold value for a factor loading should be 0.5. According to Nunnally (1978), dropping items with lower loadings from any further analysis is appropriate because they would add little to the model's explanatory power. Hence, we removed any items with factor loadings below 0.5. As Table 4 shows, all the items display reliability and satisfy the criteria mentioned above except ATR4, RT2, and RT5. Because these items have factor loadings below 0.5, we eliminated them from the construct structure. The absolute correlation or the factor loading between the rest of the items and their constructs is between 0.532 and 0.946.

We used Cronbach's alpha and composite reliability to evaluate construct reliability. Construct level reliability confirms that the items within a construct present a higher relation among themselves. Although Cronbach's alpha measures the uni-dimensionality within the multi-item scale (Cronbach, 1951), composite reliability measures how well the items can assess their respective constructs (Gotz, Liehr-Gobbers, & Krafft, 2010). As Table 4 shows, Cronbach's alpha values are higher than the recommended threshold value of 0.7. Similarly, composite reliability also exceeds the threshold value of 0.7 (Nunnally & Bernstein, 1994).

4.2.1.2. Instrument validity.
We verify convergent and discriminant validity to establish the proposed model's quality. Besides factor loadings on the construct and composite reliability, we establish convergent validity through the average variance extracted (AVE) values. The AVE indicates the convergence calculated from the variance extracted from all the items loading on a construct. A value above 0.5 indicates convergent validity or uni-dimensionality within the construct (Hair, Black, Babin, & Anderson, 2010; Nikou & Economides, 2017). As can be deduced from Table 4, the value of AVE exceeds the recommended value. Hence, we infer that each construct's respective items can explain more than half of the variance. Therefore, our proposed model has convergent validity.

Discriminant validity is a corresponding idea to convergent validity, representing that entirely different sets of measuring items should explain two theoretically distinctive constructs. Hence, we do not expect the items to present any uni-dimensionality (Henseler, Ringle, & Sinkovics, 2009). The Fornell-Larcker criterion and cross-loadings are the most common and dominant approaches to examine discriminant validity. However, for PLS-SEM, Henseler, Ringle, and Sarstedt (2015) propose a more precise measure - the heterotrait-monotrait ratio (HTMT). We examine the HTMT to evaluate discriminant validity, which is the mean value of the correlation among items across constructs (i.e., heterotrait-heteromethod correlations) relative to the mean of the average correlation of the items, which measures the same construct (i.e., monotrait-heteromethod correlations) (Henseler et al., 2015). HTMT values below 0.9 support discriminant validity (Hair, Matthews, Matthews, & Sarstedt, 2017; Henseler et al., 2015). As can be deduced from Table 5, the results meet the HTMT criterion, verifying the scale's discriminant validity.

4.2.2. Structural model evaluation

Having assured the model's validity and reliability, we measured the inner model for its predictive relevancy and the relations among constructs. We also evaluated the path coefficients with their respective statistical significance, coefficient of determination (R^2), effect size (f^2), and goodness-of-fit (GOF).

Table 2
Variable and Scale Definitions for Retirement Planning Behavior, Financial Literacy and Psychological Characteristics.

Construct	Item	Statement	Min.	Max.	Mean	S.D
Future Time PerspectiveItem = 5	FTP1	I like to think about what the future will hold.	2.60	7.00	5.474	0.990
	FTP2	I enjoy thinking about how I will live years from now in the future.				
	FTP3	I look forward to life in the distant future.				
	FTP4	According to me, it is important to have a long term perspective in life.				
	FTP5	My close friend would describe me as future oriented.				
Attitude Towards RetirementItem = 4	ATR1	Retirement will enable me to pursue my unfulfilled dreams.	1.00	6.75	3.572	1.415
	ATR2	I look forward to retirement.				
	ATR3	I am worried about my life after retirement.				
	ATR4	I expect that being retired will make me feel useless.				
Risk Tolerance Item = 5	RT1	I prefer a "sure thing" over a gamble when planning for retirement.	1.00	7.00	3.534	1.316
	RT2	I prefer those investments which have higher returns even if they are riskier.				
	RT3	The overall growth potential of a retirement investment is more important to me than the level of risk associated with the investment.				
	RT4	I am very much willing to make risky investments in order to ensure financial stability in retirement.				
	RT5	As a rule, I would never choose the safest investment when planning for retirement.				
Retirement Goal Clarity Item = 5	RGC1	I set specific goals regarding how much I will need to save for my retirement.	1.00	7.00	5.120	1.256
	RGC2	I think a great deal about quality of life I want to lead after retirement.				
	RGC3	I have a clear vision of how my life shall be after retirement.				
	RGC4	I have set clear goals for gaining information about retirement.				
	RGC5	I have discussed retirement plans with spouse, friends, or significant others.				
Social Group Support Item = 4	SGS1	My spouse believes it's important to save for retirement.	2.25	7.00	5.552	1.045
	SGS2	My friends believe it's important to save for retirement.				
	SGS3	My colleagues at work believe it's important to save for retirement.				
	SGS4	Saving was a important lesson I learned as a child.				
Retirement Planning Behavior Item = 9	RPB1	Calculations have been made to estimate how much I have to save to retire comfortably.	1.00	7.00	4.748	1.450
	RPB2	I frequently read articles, books, brochures or surf the internet to learn about retirement planning.				
	RPB3	I have informed myself about the level of my future pension benefits.				
	RPB4	I have informed myself about financial preparation for retirement.				
	RPB5	I have made regular contributions to a voluntary retirement savings plan.				
	RPB6	Relative to my peers, I have saved a great deal (almost double) of money for post retirement years.				
	RPB7	I regularly contribute a fixed percentage of my income to my retirement saving account.				
	RPB8	I make a conscious effort to save for retirement.				
	RPB9	Based on how I plan to live my life in retirement, I have saved accordingly.				
Basic Financial Literacy	Numeracy	Suppose you had INR100 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 INR102**, (88.6%) (ii) Exactly INR102, (iii) Less than INR102, (iv) Don't know.				
	Compound Interest	Suppose you had INR100 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 INR 200**, (77.3%) (ii) Exactly INR 200, (iii) Less than INR 200, (iv) Don't know				
	Inflation	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**, (58.6%) (iv) Don't know.				
	Time Value of Money	Assume a friend inherits INR 10,000 today and his sibling inherits INR 10,000 3 years from now. Who is richer because of the inheritance? (i) **My friend**, (65.3%) (ii) His sibling, (iii) They are equally rich, (iv) Don't know.				
	Money Illusion	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**, (62.6%) (iii) Less than today, (iv) Don't know.				
Advanced Financial Literacy	Stock Market	Which of the following statements describes the main function of the stock market? (i) The stock market helps to predict stock earnings, (ii) The stock market results in an increase in the price of stocks, (iii) **The stock market brings people who want to buy stocks together with those who want to sell stocks**, (57.9%)				

Table 2 (*continued*)

Construct	Item	Statement	Min.	Max.	Mean	S.D
		(iv) None of the above, (v) Don't know.				
	Mutual Funds	Which of the following statements regarding mutual funds is correct? (i) Once one invests in a mutual fund, one cannot withdraw the money in the first year, (ii) **Mutual funds can invest in several assets, for example, in both stocks and bonds**, (43.09%) (iii) Mutual funds pay a guaranteed rate of return that depends on their past performance, (iv) None of the above, (v) Don't know.				
	Bond Price	If the interest rate falls, what should happen to bond/debenture prices? (i) **Rise**, (34.43%) (ii) Fall, (iii) Stay the same, (iv) None of the above, (v) Don't know.				
	Safe Return	Buying a single company stock usually provides a safer return than a stock mutual fund. (i) True, (ii) **False**, (57.1%) (iii) Don't know.				
	Stocks/Bonds	True or false? Stocks are normally riskier than bonds. (i) **True**, (72.3%) (ii) False, (iii) Don't know.				
	Highest Long Period Return	Consider a long time period (e.g., 10 or 20 years), which asset normally gives the highest long period return? (i) Savings accounts, (ii) Bonds, (iii) **Stocks**, (38.1%) (iv) Don't know.				
	Highest Fluctuation	Normally, which asset displays the highest fluctuations over time? (i) Savings accounts, (ii) Bonds, (iii) **Stocks**, (73.6%) (iv) Don't know.				
	Risk Diversification	When an investor spreads his money among different assets, the risk of losing money. (i) Increases, (ii) **Decreases**, (67.01%) (iii) Stays the same, (iv) Don't know.				

Notes: Bold text in the item wording column indicates the correct answer for the multiple choice financial literacy scales. The percentage values indicate that proportion of the sample who responded correctly for the questions. The minimum score (Min.), maximum score (Max.), mean score, and the standard deviation (SD) represent the average Likert score across all the items on the scale.

Table 3
Demographic Profile of 485 Professional Indian Women.

Characteristics	Group	Frequency	Percentage
Age (Years)	20 to 30	144	29.7
	31 to 40	183	37.7
	41 to 50	93	19.2
	51 to 60	46	9.5
	> 60	19	3.9
Annual income (in INR)	< 400,000	131	27.0
	400,000–700,000	148	30.5
	> 700,000–1,000,000	110	22.7
	> 1,000,000	96	19.8
Marital status	Unmarried	110	22.7
	Married	355	73.2
	Divorced	11	2.3
	Widowed	9	1.9
Profession	Financial	114	23.5
	Non-financial	371	76.5
Education	Graduate	173	35.7
	Postgraduate	240	49.4
	Doctorate	72	14.8

4.2.2.1. Measuring path coefficients. Path coefficients are similar to the standardized β coefficients of ordinary least square regression analysis. They depict the variation in the dependent variable for a unit variation in the independent variable (Henseler et al., 2009). We determined the path coefficient values for each path and estimated their significance levels using a *t*-test following a bootstrapping procedure. We carried out bootstrapping on a subsample of 5,000 with no change in sign. Table 6 summarizes the path coefficient values. Retirement goal clarity shows a significantly positive relation to retirement planning behavior (β = 0.680, p < 0.001), which supports H1. This finding is consistent with the results of Hershey et al. (2007), Stawski et al. (2007), and Zhu and Chou (2018).

Furthermore, H2 hypothesized that future time perspective would have a positive and significant relationship with retirement planning behavior. As can be deduced from Table 6, H2 is not supported (β = -0.003, p > 0.05). Though H2 is not supported, future time perspective exerted a direct and positive influence on retirement goal clarity (β = 0.523, p < 0.001). This finding is consistent with evidence from Hershey et al. (2007). The effect of future time perspective on attitude toward retirement (β = 0.460, p < 0.001) and risk tolerance (β = 0.392, p < 0.001) is also positive and significant. This result is consistent with the findings of Rabinovich et al. (2010) and Jacobs-Lawson and Hershey (2005).

H3 hypothesized that attitude toward retirement would have a positive and statistically significant relation to retirement planning behavior. Results from Table 6 do not support H3 (β = 0.062, p > 0.05). This finding is contrary to evidence by Gordon (1994), Noone et al. (2010), and Turner et al. (1994). H4, which hypothesized a positive and statistically significant relation of risk tolerance with retirement planning behavior, also lacks support (β = -0.043, p > 0.05). Our evidence contradicts the findings of Grable and Joo (1997) and Jacobs-Lawson and Hershey (2005).

In H5, we hypothesized that social group support would have a

Table 4
Results for Reliability and Convergent Validity of Measurement Model

Items	Factor Loadings (>0.40)			α (>0.70)			CR (>0.70)			AVE (>0.50)		
	Complete sample	Low FL	High FL	Complete sample	Low FL	High FL	Complete sample	Low FL	High FL	Complete sample	Low FL	High FL
FTP1	0.677	0.625	0.724	0.865	0.869	0.866	0.863	0.866	0.865	0.559	0.566	0.563
FTP2	0.732	0.751	0.752									
FTP3	0.736	0.688	0.789									
FTP4	0.759	0.798	0.698									
FTP5	0.827	0.875	0.785									
ATR1	0.946	0.855	0.993	0.787	0.781	0.790	0.791	0.782	0.799	0.571	0.548	0.589
ATR2	0.732	0.705	0.748									
ATR3	0.532	0.645	0.471									
RT1	0.846	0.807	0.892	0.809	0.777	0.833	0.819	0.793	0.839	0.611	0.578	0.639
RT3	0.900	0.936	0.842									
RT4	0.552	0.456	0.642									
RGC1	0.748	0.760	0.731	0.885	0.894	0.880	0.886	0.894	0.882	0.610	0.629	0.600
RGC2	0.738	0.737	0.713									
RGC3	0.801	0.809	0.809									
RGC4	0.825	0.832	0.845									
RGC5	0.780	0.825	0.767									
SGS1	0.765	0.747	0.781	0.865	0.872	0.846	0.867	0.876	0.845	0.619	0.638	0.577
SGS2	0.826	0.846	0.786									
SGS3	0.779	0.846	0.682									
SGS4	0.776	0.752	0.784									
RPB1	0.833	0.816	0.859	0.953	0.950	0.955	0.953	0.950	0.955	0.693	0.678	0.703
RPB2	0.841	0.770	0.869									
RPB3	0.884	0.897	0.864									
RPB4	0.861	0.855	0.887									
RPB5	0.787	0.742	0.820									
RPB6	0.765	0.744	0.752									
RPB7	0.802	0.853	0.789									
RPB8	0.859	0.861	0.834									
RPB9	0.851	0.860	0.863									

Notes. This table presents the results of the composite reliability (CR) and average variance extracted (AVE) and Cronbach's alpha (α) for each construct (recommended threshold values are in the parentheses).

Table 5
Discriminant Validity of the Measurement Model

Dataset	Constructs	Future time perspective	Attitude towards retirement	Risk tolerance	Retirement goal clarity	Social group support	Retirement planning behavior
Complete (N = 485)	Future time perspective						
	Attitude towards retirement	0.457					
	Risk tolerance	0.393	0.205				
	Retirement goal clarity	0.699	0.385	0.302			
	Social group support	0.586	0.217	0.159	0.612		
	Retirement planning behavior	0.598	0.352	0.204	0.811	0.623	
High Financial Literacy (n = 271)	Future time perspective						
	Attitude towards retirement	0.560					
	Risk tolerance	0.329	0.163				
	Retirement goal clarity	0.658	0.428	0.278			
	Social group support	0.540	0.214	0.152	0.570		
	Retirement planning behavior	0.541	0.383	0.212	0.836	0.549	
Low Financial Literacy (n = 214)	Future time perspective						
	Attitude towards retirement	0.339					
	Risk tolerance	0.471	0.336				
	Retirement goal clarity	0.744	0.332	0.333			
	Social group support	0.633	0.187	0.181	0.683		
	Retirement planning behavior	0.665	0.299	0.194	0.781	0.711	

Notes, This table presents the heterotrait- monotrait ratio (HTMT) of the measurement models.

Table 6

Path Analysis Results

Path	Complete Dataset (n = 485)		High Financial Literacy (n = 271)		Low Financial Literacy (n = 214)	
	Path	R Square	Path	R Square	Path	R Square
RGC → RPB	0.680***	0.68.9	0.786***	0.711	0.491***	0.685
ATR → RPB	0.062 (Not significant)		0.067 (Not significant)		0.067 (Not significant)	
RT → RPB	−0.043 (Not significant)		−0.010 (Not significant)		−0.106 (Not significant)	
SGS → RPB	0.203***		0.132*		0.282***	
FTP → RPB	−0.003(Not significant)		−0.079 (Not significant)		−0.153 (Not significant)	
FTP → RGC	0.523***	0.550	0.491***	0.497	0.532***	0.630
SGS → RGC	0.302***		0.305***		0.340***	
FTP → ATR	0.460***	0.211	0.563***	0.317	0.346***	0.120
FTP → RT	0.392***	0.153	0.328***	0.107	0.472***	0.223
SGS → FTP	0.588***	0.345	0.540***	0.292	0.636***	0.405

Notes. *p < 0.05, **p < 0.01, ***p < 0.001.

significantly positive association with retirement planning behavior. Results from Table 6 support H5 (β = 0.203, p < 0.001). As can be inferred from Table 6, social group support has a significantly positive association with future time perspective (β = 0.588, p < 0.001) and retirement goal clarity (β = 0.302, p < 0.001) also.

4.2.2.2. Measuring the coefficient of determination (R^2). The coefficient of determination (R^2) measures the variance explained in the endogenous latent variable by the structural model. The five independent constructs explain 68.9% of the variance in retirement planning behavior (Fig. 2). Chin (1998) and Henseler et al. (2009) consider R^2 values of 0.67, 0.33, and 0.19 in the PLS path model as substantial, moderate, and weak, respectively. Hence, the R^2 value in our study is substantial. The model also explains 55.0% of the variance in retirement goal clarity, followed by 34.5% of the variance in future time

perspective, 21.1% of the variance in attitude towards retirement, and 15.3% of the variance in risk tolerance. These results suggest that apart from risk tolerance and attitude toward retirement, our model explains moderate variance for the other latent variables.

4.2.2.3. Measuring the effect size (f^2). The f^2 measures the exogenous construct's degree of impact on the endogenous latent construct (Hussain, Fangwei, Siddiqi, Ali, & Shabbir, 2018). Its calculation involves measuring the difference in R^2 after removing a particular exogenous construct from the model and establishing the exogenous construct's relative importance in explaining the endogenous construct. We used Cohen's function of f^2 for calculating the effect size. The f^2 values of 0.35, 0.15, and 0.02 represent a strong, moderate, and weak effect, respectively (Cohen, 1988). As Table 7 shows, the effect size of all the paths in the structural model exhibits moderate to strong effects.
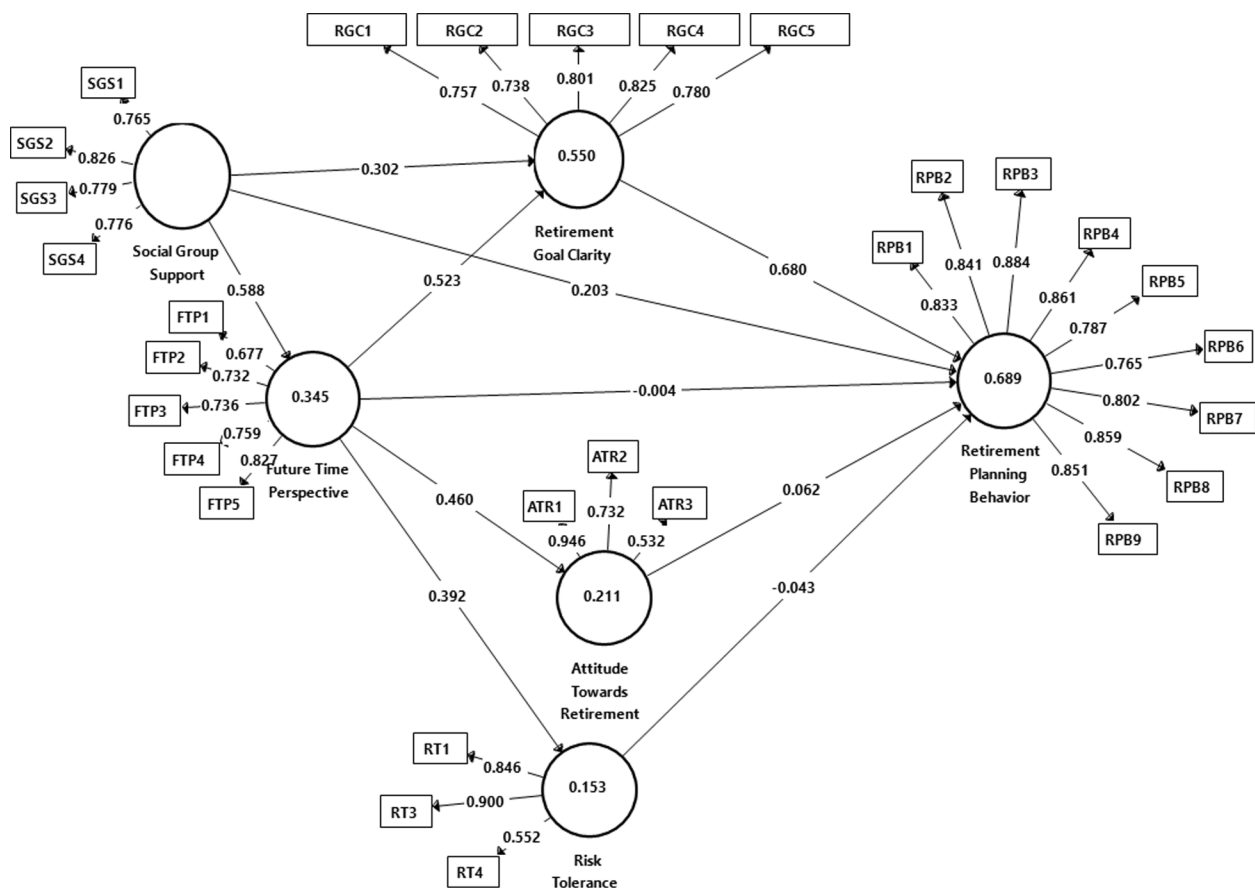

Fig. 2. Structural Equation Model Analysis of the Research Model.

Table 7
Results of Effect Sizes

Path	Effect Size	Total Effect
Future Time Perspective → Attitude Towards Retirement	0.268***	Moderate
Future Time Perspective → Retirement Goal Clarity	0.397**	Strong
Future Time Perspective → Risk Tolerance	0.181***	Moderate
Retirement Goal clarity → Retirement Financial Planning	0.653***	Strong
Social Group Support → Future Time Perspective	0.528***	Strong

Notes. *p < 0.05, **p < 0.01, and ***p < 0.001.

4.2.2.4. Goodness-of-fit index. We used the goodness-of-fit (GOF) index to verify whether the model sufficiently explains the empirical data (Hussain et al., 2018). The GOF value ranges between 0 and 1, and values of 0.01, 0.25, and 0.36 indicate small, medium, and large. Calculating GOF uses average communalities (AVE values) and average R^2 values through the following equation:

$$GOF = \sqrt{Average R2 \, x Average\ communality} \qquad (1)$$

As Table 8 shows, our study's GOF value is 0.486, which is sufficiently high to conclude that the data fit the model satisfactorily and exhibit considerable predictive power.

We also measure the standardized root mean residual (SRMR) value and normed fit index (NFI). SRMR represents the average of the standardized residuals between the observed and hypothesized covariance matrix, and its value should be < 0.08 (Hussain et al., 2018). Our study's SRMR value is 0.042, and for NFI, it is 0.860, revealing that the model has a good fit.

4.3. The mediating role of psychological characteristics on retirement planning behavior

To test the mediating role of psychological characteristics, we used PLS 3, employing the bootstrapping method, with each analysis being run using 5000 boot strapped subsamples. The results indicate that retirement goal clarity partially mediates the effect of social group support on retirement planning behavior (indirect effect 0.205, p < 0.001), thus supporting H6. Further, results also suggest that while future time perspective does not have any direct influence on retirement planning behavior, it also does not mediate the effect of social group support on retirement planning behavior, thus H7 is not supported. Table 9 presents the specific indirect effect. As can be deduced from the table, retirement goal clarity totally mediates the effect of future time perspective on retirement planning behavior (indirect effect 0.355, p < 0.001), thus providing support for H8. In H9 and H10, we hypothesized that attitude towards retirement and risk tolerance mediate the effect of future time perspective on retirement planning behavior. The findings from the study do not provide support for these two hypotheses. Besodes these hypotheses, we document a few more indirect effects. Future time perspective mediates the relation of social group support with retirement goal clarity (indirect effect 0.307, p < 0.001), attitude toward retirement (indirect effect 0.270, p < 0.001), and risk tolerance (indirect

Table 8
Goodness-of-fit Index (GOF).

Construct	AVE	R^2
Attitude Towards Retirement	0.571	0.211
Future Time Perspective	0.559	0.345
Retirement Goal Clarity	0.610	0.550
Risk Tolerance	0.611	0.153
Social Group Support	0.619	–
Retirement Financial Planning	0.693	0.689
Average Values	0.610	0.389
AVE × R^2	0.237	
GOF = $\sqrt{(AVE \times R^2)}$	**0.486**	

Table 9
Specific Indirect Path Results

Hypotheses	Path	Path Coefficient	Results
H6	SGS → RGC → RPB	0.205***	Supported
H7	SGS → FTP → RPB	−0.002 (Not significant)	Not Supported
H8	FTP → RGC → RPB	0.355***	Supported
H9	FTP → ATR → RPB	0.028 (Not significant)	Not Supported
*H*10	FTP → RT → RPB	−0.017 (Not significant)	Not Supported
–	SGS → FTP → ATR	0.270***	–
–	SGS → FTP → RT	0.230***	–
–	SGC → FTP → RGC → RPB	0.209***	–
–	SGS → FTP → RGC	0.307***	–

Notes. ***p < 0.001.

effect 0.230, p < 0.001). Another indirect path that emerged as significant is the influence of social group support on retirement planning behavior via future time perspective and retirement goal clarity (indirect effect 0.209, p < 0.001).

4.4. The moderating role of financial literacy

We used Multi Group Analysis (MGA) to examine the moderating effect of financial literacy. In this approach, we divide the data set into subsamples. We then evaluate the model for each subsample to establish the uni-dimensionality, reliability, discriminant, and convergent validity of the model. Thus, we can verify that our constructs are precisely measured (Hair et al., 2014). Next, we evaluate the inner structural model to identify the causal relationships between the proposed latent constructs (Hair et al., 2014). We carried our bootstrapping to determine the standard error for the structural paths under each subgroup. Finally, we compared the path difference between the subsamples using a parametric *t*-test (Chin, 1998).

We measured financial literacy using two sets of multiple-choice questions designed by Lusardi and Mitchell (2017) to ascertain different levels of knowledge. The first set of questions pertains to basic financial literacy questions while the second set of financial literacy questions evaluates respondent knowledge/awareness of more complicated financial concepts such as stocks, bonds, mutual funds, risk-return, and risk diversification. For each correct answer, the respondent received a score of 1. Later, we computer their score on basic and advanced financial literacy scales based on the total number of correct responses under each category. Further, we applied hierarchal and k-means cluster analysis to classify the respondents based on their basic and advanced financial literacy score. Clustering is a type of data reduction technique involving classifying the cases under homogeneous groups based on the similarity along multiple dimensions of interest (Henry, Tolan, & Gorman-Smith, 2005). We initially applied hierarchical clustering as it allows comparison of results with an increasing number of clusters. Additionally, we did not have to make a prior judgment about the number of clusters (Morissette & Chartier, 2013). We applied hierarchical clustering with Ward's linkage to identify the number of clusters. In Ward's linkage, the clusters are linked based on the degree of similarity between the observations within the same cluster (Henry et al., 2005). To establish measure of similarity, we used Squared Euclidean Distance, which represents the square root of the sum of the squared distance between values for each variable (Henry et al., 2005). Subsequently, we applied non-hierarchical or k-means clustering using the predetermined number of clusters from hierarchical clustering. This combination exploits the strength of both the methods and compensates for their weaknesses. It resulted in two distinctive and meaningful clusters as presented in Table 10. We named the first as high financial literacy (high basic and high advanced financial literacy) and the second as low financial literacy (low basic and low advanced

Table 10
Cluster Solution for Financial Literacy.

Factor	High Financial Literacy	Low Financial Literacy	F	Significance
Basic financial literacy	4.20	2.67	236.816	0.000
Advanced financial literacy	6.00	2.46	890.134	0.000
Respondents (n)	271	214		

financial literacy). There were 271 respondents in the high financial literacy subgroup and 214 respondents in the low financial literacy subgroup.

4.4.1. Measurement model evaluation

Results presented in Table 4 reveal that the factor loadings exceeded the recommended level of 0.4. Loadings ranged from 0.456 to 0.936 in the low financial literacy subgroup and from 0.471 to 0.993 in the high financial literacy subgroup.

We evaluated construct reliability using Cronbach's alpha and composite reliability. Cronbach's alpha value was higher than the recommended value of 0.7 for both the subsamples. Composite reliability value was also higher than the threshold value of 0.7 for both the subsamples (Nunnally & Bernstein, 1994). Hence, we established item and construct level reliability for both the subsamples. Table 4 indicates that the AVE value for the subsamples exceeds 0.5. We can thus be deduce that convergent validity or uni-dimensionality exists within the constructs.

Discriminant validity is a corresponding idea to convergent validity.

Table 5 shows the HTMT ratio to be less than 0.9 for both the subsamples. Hence, we infer that the scale exhibits discriminant validity.

4.4.2. Structural model evaluation

Once the validity and reliability of the model were ensured, we measured the inner model for its predictive relevancy and the relationships among constructs. Table 6 presents the structural path coefficient values for the original sample and the subsamples. The model for the subgroup of high and low financial literacy produced similar overall results as the complete dataset but the strength of the effects differs between these two groups. Retirement goal clarity shows a significantly positive relation to retirement planning behavior. Furthermore, future time perspective exerted a direct and positive influence on retirement goal clarity. The effect of future time perspective on attitude towards retirement is significant. Our study also provides empirical support for positive and significant association of future time perspective with risk tolerance. It indicates a positive and significant relation of social group support with future time perspective, retirement goal clarity, and retirement planning behavior. However, in the high financial literacy subgroup the relationship of social group support with retirement planning behavior is weak ($\beta = 0.132$, $p < 0.05$).

In high financial literacy subgroup, the strongest significant path was between retirement goal clarity and retirement planning behavior ($\beta = 0.786$, $p < 0.001$) and the weakest path coefficient was between social group support and retirement planning behavior ($\beta = 0.132$, $p < 0.05$) as depicted in Fig. 3. The value of R^2 was highest for retirement planning behavior ($R^2 = 0.711$ or 71.1%), followed by retirement goal clarity ($R^2 = 0.497$ or 49.7%).

In the low financial literacy subgroup, the relationships were slightly different from the complete dataset, such as the path coefficient between social group support and retirement planning behavior ($\beta = 0.282$, $p <$
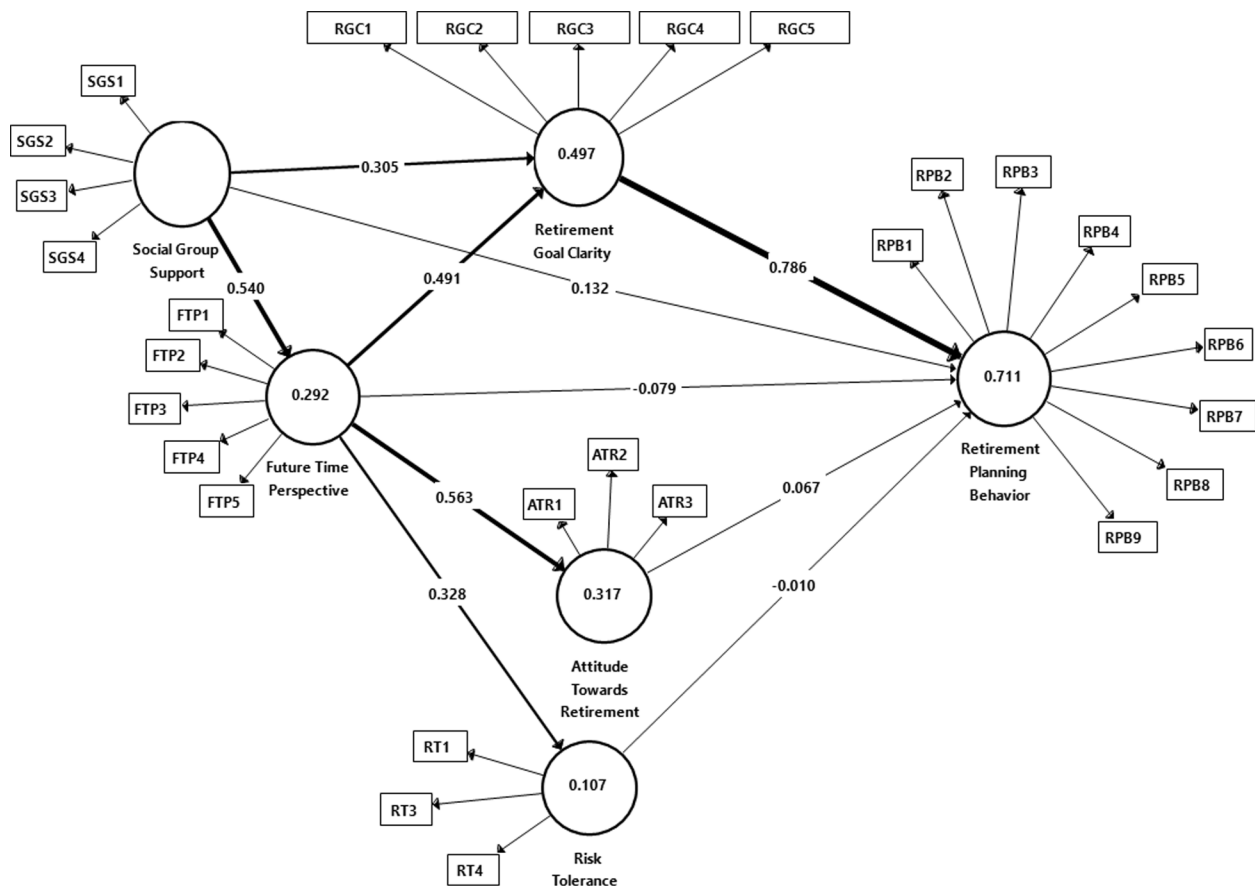

Fig. 3. Structural Equation Model Analysis of the High Financial Literacy Subgroup.

0.001), future time perspective and attitude towards retirement (β = 0.346, p < 0.001), future time perspective and risk tolerance (β = 0.472, p < 0.001), and social group support and future time perspective (β = 0.636, p < 0.001) as depicted in Fig. 4. The value of R^2 was highest for retirement planning behavior (R^2 = 0.685 or 68.5%), followed by retirement goal clarity (R^2 = 0.630 or 63%). The strongest significant path was between social group support and future time perspective (β = 0.636, p < 0.001) and the weakest significant path was between social group support and retirement planning behavior (β = 0.282, p < 0.001). The structural model predicts 2.6% more variance in retirement planning behavior behavior in the high financial literacy subgroup than in the low financial literacy subgroup.

To ascertain the significant differences between the high and low financial literacy subgroups, we assessed the parametric *t*-test values (Table 11). For women with low financial literacy, social group support displayed high influence on retirement planning behavior. At the same time, future time perspective exerted high influence on risk tolerance. For women with high financial literacy, future time perspective showed high influence on attitude toward retirement. Also, retirement goal clarity strongly influenced retirement planning behavior. Thus, our evidence provides support for H1a, H5a, H9a. and H10a.

5. Discussion

Reently, various parties have promoted programs and initiatives designed to improve the financial knowledge and well-being. However, studies indicate that the abundance of such initiatives focused on improving financial knowledge as a promising means of improving the financial behavior does not assure more responsible financial behavior (Jones, 2005; Tang, Baker, & Peter, 2015). Regulators, policy makers, government agencies, financial educators, and planners have all

Table 11
Path Coefficients (Moderating Effect of Financial Literacy)

Path	Path coefficients-difference(High FL-Low FL)	p-Value(High FL-Low FL)
FTP → ATR	0.203	0.007
FTP → RT	−0.126	0.097
RGC → RPB	0.220	0.010
SGS → RPB	−0.131	0.100

Notes. This table presents the result of pair wise parametric *t*-tests on both the subsamples.

unanimously agreed to the crucial role played by the psychological characteristics and individual's early life in shaping up their future financial well-being. These events motivated us to examine the association of four psychological factors - retirement goal clarity, future time perspective, attitude towards retirement, and risk tolerance - and social group support construct with retirement planning behavior. We also examined the interplay of these factors and investigated how social influence, psychological predispositions and cognitive influence (financial literacy) are associated with retirement planning behavior.

5.1. The direct and indirect influence of psychological characteristics and social group support on retirement planning behavior

Our results reveal that the model's explanatory power is high, with psychological and social group constructs explaining 68.9% of the variance in women's retirement planning behavior. Among all factors, future time perspective, retirement goal clarity, and social group exhibit a significantly positive effect on women's retirement planning behavior.
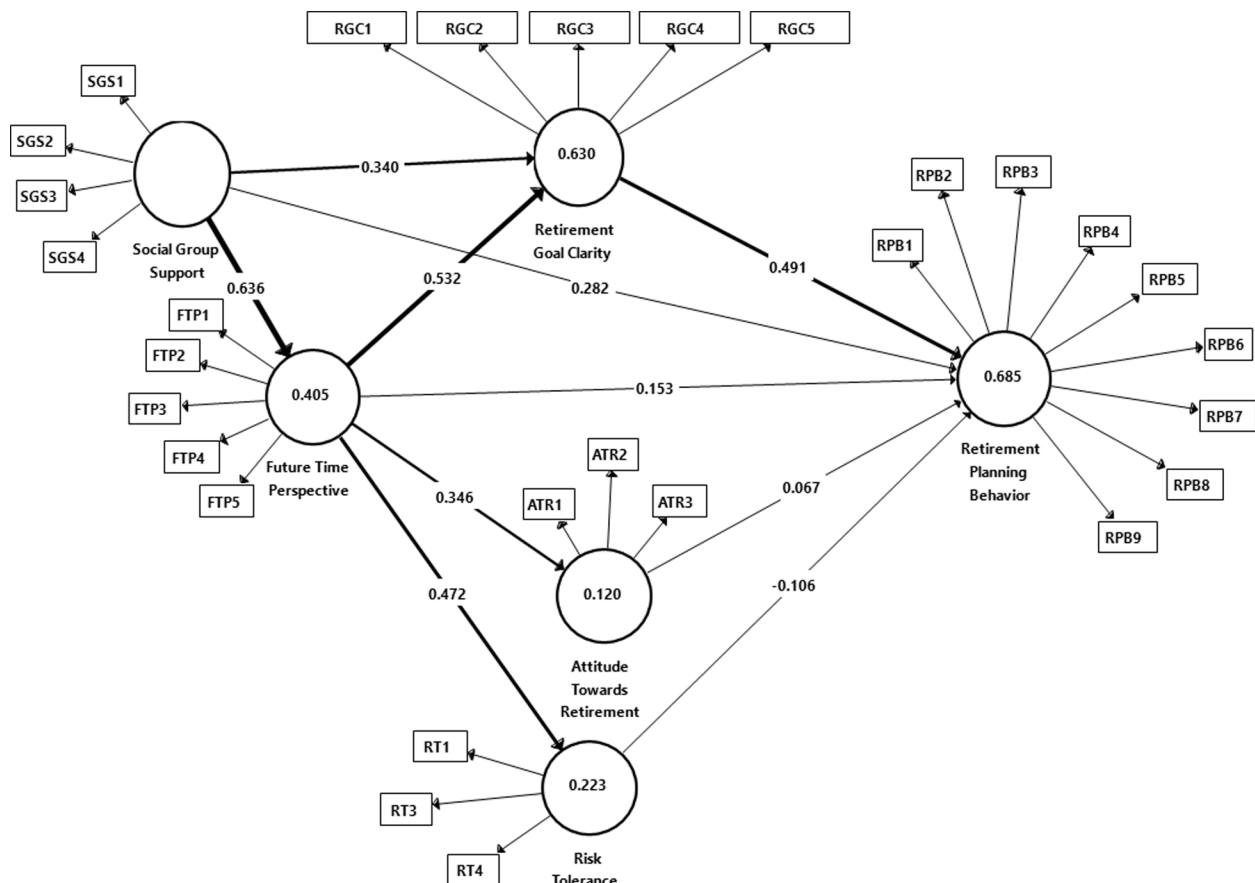

Fig. 4. Structural Equation Model Analysis of the Low Financial Literacy Subgroup.

However, neither attitude toward retirement nor risk tolerance is associated with retirement planning behavior. Our findings are consistent with Beach's image theory and Mowen's 3 M Theory of Motivation Personality. As the theory proposes, decision-makers act in consensus with their ethics, principles, and values as framed in their childhood through early learning. This "self-image" is subject to influence by a spouse, colleagues, and friends. The future vision, goals, plans, and tactics are designed in harmony with one's "self-image" and further motivate the behavioral markers like planning and saving.

Retirement goal clarity has the highest direct effect (direct effect = 0.680), implying that females with clear, well-defined, and pragmatic goals present a high level of involvement in financial planning activities and retirement saving behavior. It indicates that women should be motivated to develop precise goals at a strategic level. An estimate of their post-retirement needs to guide them to start planning for retirement. India's collective culture led to overconfidence about one's family providing post-retirement financial support, which led to procrastination in saving for retirement. Hence, a myth arose that Indian women have adequate retirement provisions.

Indian women need to become aware that they are responsible for their future financial needs and the detrimental consequences of having insufficient retirement wealth. The government should provide retirement benefit counseling to assist these women in making well-informed decisions about their retirement savings and gaining realistic expectations about their retirement financial prospects. The government should also collaborate with banks and other financial institutions to sponsor financial counseling facilities and online financial services. Given that estimating post-retirement financial requirements can be complicated and requires considerable financial knowledge, such services could be invaluable to Indian women.

For women working in different organizations, employers should organize educational seminars, counseling sessions, and workshops led by guest speakers and pension planners to share their retirement experiences to help them achieve retirement goal clarity.

Our study's main contribution is that it identifies the strong association (both direct and indirect) between social group support and women's retirement planning behavior. Early learning and support from a spouse, friends, and colleagues influence retirement planning behavior directly and indirectly by extending future time perspective and retirement goal clarity. Social networks can influence financial decisions in several ways. For example, women are likely to accept recommendations from members of a trusted social network. Such a network can directly influence their financial decisions (Black, Devereux, Lundborg, & Majlesi, 2017; Ostrovsky-Berman & Litwin, 2019).

Although the social force dimension has mostly a modest influence in other countries (França & Hershey, 2018), the strong influence of social groups in India suggests that Indian women display an external locus of control. Thus, they are more likely to adopt behavior similar to their close associates.

Locus of control represents one of the personality variables whereby individuals can be classified as "internal" (perceive life events as a consequence of their actions) or "external" (believe external, uncontrolled factors govern their lives). Individuals with an external locus of control often depend on others, including spouses, friends, children, parents, or relatives, to decide on their behalf. Women often display an external locus of control that hampers their financial preparation and well-being (Glass & Kilpatrick, 1998; Morgan & Eckert, 2004; Anderson, Li, Bechhofer, McCrone, & Stewart, 2000). Our findings suggest that Indian women feel both a lack of control and confidence in their abilities to manage their finances autonomously. Consequently, financial planners and advisors should design programs to help women gain self-confidence in their financial abilities. These programs could incorporate their families and educate them to overcome the social stigma and role demarcations in Indian society. Spouses, friends, and colleagues should conduct open discussions on financial planning and future retirement aspirations to upgrade retirement goal clarity levels and to

develop the future vision of women. A social network's strong influence can also create spill-over outcomes among women. This social linkage enables disseminating information on timely retirement planning efficiently and effectively to other women in the social network.

Future time perspective also renders an indirect impact on retirement planning behavior via retirement goal clarity. Parents should cultivate a long-term future time perspective in their children to influence their future savings positively. Further, a future time perspective influences one's attitude toward retirement and risk tolerance. However, the attitude toward retirement and risk tolerance does not significantly influence retirement planning behavior. An explanation for this finding is that male family members make most of the financial and investment decisions in India. Hence, women's attitude and risk tolerance fail to affect their retirement planning behavior directly.

5.2. The moderating role of financial literacy

Our results reveal that financial behaviors stem from deeply rooted personal traits, which are influenced by social forces and cognitive influences. Therefore, programs should not focus on only financial knowledge. Rather, fully exploiting and effectively transforming knowledge into responsible behavior required simultaneously creating opportunities to enhance the social influence and develop the psychological characteristics.

For women with high financial literacy, their future time perspective strongly influences attitude toward retirement. This finding suggests that women with high future time perspective and high financial knowledge will have a positive outlook toward retirement. Also, for such women, retirement goal clarity significantly influences retirement planning behavior, implying that women with better financial knowledge and greater clarity of their retirement goals would probably demonstrate better retirement planning and saving behavior. This finding is relevant to financial planners and advisors. They can fine-tune their programs in line with this finding so that females with higher financial knowledge can be promoted to develop precise and pragmatic goal and to inculcate distant future vision. This action should improve their attitude toward retirement and taken together should improve their financial planning for retirement. Studies indicate that Indian women display low levels of financial literacy and lack knowledge about some basic principles needed in everyday money management (Baker et al., 2020). Further studies also suggest that to improve financial knowledge, school and college curricula should incorporate material about financial awareness. Additionally, steps should be taken to improve future vision. Educational seminars and workshops lead by financial professionals and industry experts are needed to enhance women's financial knowledge and develop their future vision and retirement goal clarity.

The influence of financial literacy on the relationship between social groups, psychological characteristics and retirement planning reveals that for women with low financial literacy, social group support strongly influences their retirement planning behavior. This finding implies that the retirement planning and savings decisions of financially illiterate or less literate women would be more likely to be driven by the behavior of their social groups, including their friends, colleagues, and spouses. This finding indicates that Indian women, despite being educated and professionally affluent, are under confident of managing their finances autonomously. For such women, their future time perspective strongly influences their risk tolerance. Thus, women with low financial literacy and high future time perspective are more likely to have greater risk tolerance. This finding suggests that owing to their high risk appetite and low knowledge of the various investment option, such women pose a threat to their financial well-being. One way to use this social influence could be to incorporate parents and members of their social circle as part of their financial education programs. Such programs can be developed to include a separate section for parents, spouse. and friends. This approach also equips parents with the knowledge required to guide their

children and demonstrate adequate financial behavior for them to imitate.

6. Conclusions

This study is the first to consider the retirement planning behavior of Indian women in light of an array of psychological characteristics, the social group influence, and cognitive ability. It contributes to existing knowledge by providing the latest insights on the perception of retirement saving adequacy in females in India. Our findings support the perception of using an interdisciplinary approach to study complex retirement planning behavior. Decisions about investment, planning, and retirement savings are complicated. They require a harmonized interplay of cognitive and personality traits at both the psychological and social levels. From a practical perspective, our findings suggest that financial planners, regulators, and counselors need to take extra efforts with females to ensure that they develop a proper understanding of their retirement saving needs. Retirement benefits counseling can serve as one way to impose retirement goal clarity and reduce the gap between perception and reality for women about their future financial well-being. Social groups can also help Indian women gain a future time perspective and retirement goal clarity. Particularly in case of women, direct measures should be undertaken to improve their financial knowledge along with fostering an environment where they can have interactions with their social circle and parents.

Our study is not without potential limitations. It focuses on women from specific non-financial sectors (education, health, and IT/BPO) and financial sectors (banking, financial services, and insurance). Thus, generalizing our resus to all employed Indian women requires caution. We also use a single item indicator for each subset of the social group support construct. In future studies, researchers could use a multiple-item scale to measure early savings-related lessons and a spouse and friends' perspectives involving retirement planning and saving. Future studies can also incorporate additional variables like the number of children, homeownership, and health and compare men and women. Although considerable information is available about the psychological determinants of retirement planning behavior, much remains to be learned to fully understand the complex interplay of psychological, social, and cognitive factors that influence women's retirement planning behavior.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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