

Behavioral Factors Affecting Household Over-Indebtedness: A Systematic Review

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Abstract

Household over-indebtedness is a significant issue in many parts of the world and has extremely detrimental socioeconomic effects. Separate studies have found that macroeconomic, demographic, and behavioral factors account for the majority of the variance in household over-indebtedness; however, behavioral components have received less attention. The purpose of this study is to review the behavioral factors that affect household over-indebtedness. To identify relevant empirical studies on household over-indebtedness, databases such as Scopus, Web of Science, Emerging Sources Citation Index, and Social Sciences Citation Index were reviewed. During this search, 267 articles were initially screened, but the PRISMA framework (Preferred Reporting Items for Systematic reviews and Meta-Analyses) was applied to select the most appropriate, well-cited, and recent 52 articles. The most significant behavioral factors of household over-indebtedness are financial literacy, risk perception, materialism, and emotions. This review reveals that behavioral factors have not been well established in many developing economies whereas the empirical findings in developed countries are consistent with behavioral theories. Further, this paper discloses that interaction of macroeconomic, demographic, and behavioral determinants on household over-indebtedness still needs further study. According to Keynes' general theory, individual financial decisions are influenced by macroeconomic circumstances. Moreover, Ando and Modigliani's life cycle hypothesis contends that demographic factors significantly influence individuals' financial behavior. Our suggested conceptual model contains macroeconomic and demographic factors as mediators and moderators,

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respectively, between behavioral factors and household over-indebtedness. Once this model is tested, the findings may greatly aid governments, central banks, financial institutions, bank managers, credit officers, and other policymakers in their quest to discover answers to the problem of household over-indebtedness.

Keywords: *Household Over-Indebtedness, Financial Literacy, Risk Perception, Materialism, Emotions, Macroeconomic and Demographic Factors*

Introduction

Nowadays, household over-indebtedness is a major concern in many parts of the world, as it creates severe negative socioeconomic consequences (Lerskullawat, 2020; Fatoki, 2015). Identifying the key causes of household over-indebtedness is a vital social need. If citizens of a particular country can satisfy their expectations with the existing income level, they can enjoy their lives with good financial well-being. Accordingly, household economic well-being is one of the most important expectations of every citizen in any country (Rahman et al., 2020). However, when family income falls short of the expected financial commitments, people frequently become indebted by turning to credit facilities from various sources to maintain smooth consumption. Easily affordable, constructive credit facilities will ensure the financial well-being of family members. Accordingly, household indebtedness may not always be a serious concern in society. Unfortunately, in many developing economies, people typically turn to unbearable and unsecured borrowing to meet their financial expectations (Rahman et al., 2020; Azma et al., 2019). Consequently, a zero or tolerable level of household indebtedness is difficult to observe in many economies worldwide (Gutiérrez-Nieto et al., 2017). Throughout this review, the terminology of household over-indebtedness has been used to refer to the inability to pay off borrowed money and attributed interest for an extended period. Minor difficulties in paying off a loan or even major difficulties faced during a short period have not been considered situations of over-indebtedness (Puliyakot & Pradhan, 2017).

There are different studies on household over-indebtedness in different contexts. From the aggregate viewpoint, individuals in a country become over-indebted due to macroeconomic factors such as inflation, interest rate, aggregate consumption, and aggregate saving (Lerskullawat, 2020; Meniago et al., 2013). Further, some researchers have identified that over-indebtedness is influenced

by demographic factors, such as age, gender, income, and education (Kumar & Goyal, 2016). However, in addition to macroeconomic and demographic considerations, behavioral factors also play a role in the causes of household over-indebtedness. Considerable studies on behavioral factors have been conducted in some developed economies such as Brazil, Canada, Australia, the UK, and the USA (Rieger, 2020; Gutiérrez-Nieto et al., 2017). The findings of these studies are also consistent with behavioral theories such as projection bias theory (Loewenstein et al., 2003), behavioral life cycle theory (Shefrin & Thaler, 1988), and prospect theory (Kahneman & Tversky, 1979). In developed economies, the behavioral perspective has been studied to some extent (Rieger, 2020; Flores & Vieira, 2014). However, in the eastern part of the world, especially in South Asia, this behavioral aspect is not well established and empirical findings in developing economies are limited (Rahman et al., 2020; Azma et al., 2019). Only a few studies have been conducted in several Asian countries including Thailand, Pakistan, and Malaysia (Azma et al., 2019; Doosti & Karampour, 2017). Researchers that have investigated this issue continue to emphasize the need for more studies on the behavioral component and have pointed out several shortcomings in the majority of studies on household over-indebtedness (Rahman et al., 2020).

The three categories of factors that determine household over-indebtedness are macroeconomic, demographic, and behavioral variables. Studies already conducted have looked at the direct connections between each factor and household over-indebtedness. Even establishing a link between behavioral characteristics and over-household debt may have a substantial impact on the relevant circumstances in emerging economies (Azma et al., 2019). Furthermore, it is challenging to represent ambiguous and complicated situations in a model utilizing solely direct relationships. We have come to the sensible conclusion that the relationship between behavioral factors and household over-indebtedness may be affected to some extent by macroeconomic and demographic factors. Some theoretical underpinnings, such as the general theory of employment, interest, and money (GT) presented by Keynes (1936) and the life cycle hypothesis of savings (LCH) presented by Ando and Modigliani (1963), were explored to capture the magnitude effects of macroeconomic and demographic factors between behavioral factors and household over-indebtedness, respectively. Accordingly, we present a novel conceptual model to review the behavioral factors affecting household over-indebtedness with the mediating effect of macroeconomic factors and the moderating effect of demographic factors. This suggested conceptual model

would be a unique addition to understanding the elements causing household over-indebtedness, which would help lessen the severe negative socio-economic effects of household over-indebtedness. Furthermore, this would be useful for financial regulators in both developing and developed nations worldwide to decrease the severe socioeconomic effects of household over-indebtedness. Overwhelmingly, the purpose of this paper is to review the most influential behavioral factors those affect household over-indebtedness with the magnitude effects of other possible variables.

This section serves as the review's introduction. The approach for analysing the body of literature is discussed in the next section, and the theoretical and empirical literature on the subject is covered in section three. The suggested conceptual model is the focus of the study and is presented in the fourth section, and finally, the discussion and conclusion are presented in sections five and six, respectively.

Methodology

Data

A database search that includes online resources such as indexing journal articles and book chapters forms the basis of the methodology of the paper. During the online search, we searched several databases, such as Scopus, Web of Science (Clarivate), Science Direct, Taylor & Francis online and Google Scholar, to find more appropriate and high-quality research articles. In addition to the individual search process based on keywords, a connected paper visual tool was used to find related articles on household over-indebtedness. During the indexing journal search process, 193 articles were identified, and an additional 74 articles were found via the connected papers visual tool, showing a total of 267. All articles on the topic of household over-indebtedness were screened based on the abstracts, findings, and conclusions. Subsequently, 81 articles related to over-indebtedness were considered for full-text assessment after excluding the remaining 186 at the abstract level. The eligibility assessment yielded the most appropriate 44 articles, and these articles were included in the synthesis. Additional 8 articles were identified via cross-references, and the final meta-analysis was executed with 52 well-cited journal articles indexed in Elsevier, Scopus, SSRN, DMPI, ABDC, Emerald Insight, Cross Mark, etc. These selection and exclusion decisions were based on quality, relevance, timeliness, number of citations, and the article's indexing level. Moreover, three behavioral finance theories and two economics theories were

considered in developing the theoretical background and the new conceptual model.

Analytical tool

Figure 1 shows the PRISMA framework, which was used to reduce the number of journal articles.

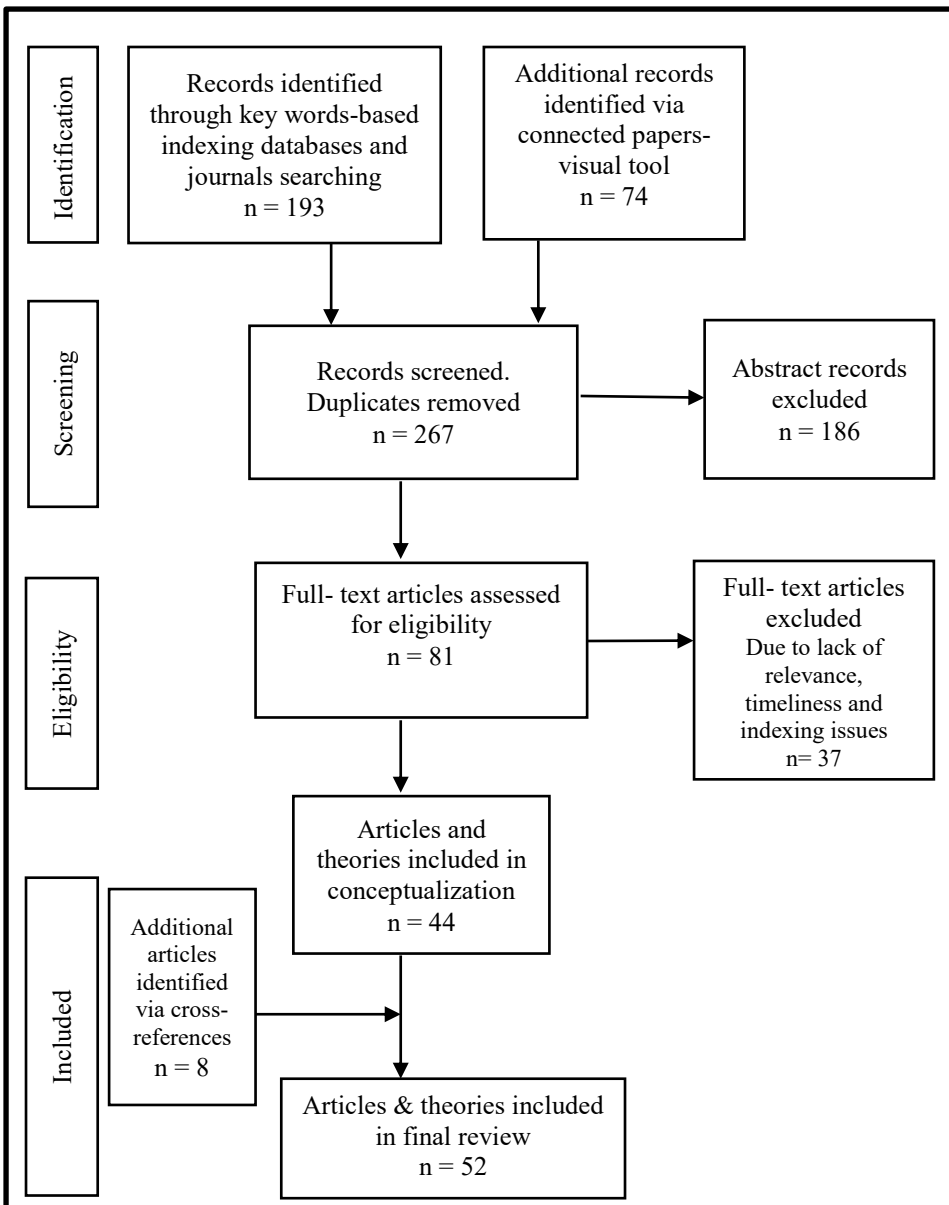


Figure 1: PRISMA framework

Systematic Review

Today, household over-indebtedness is a key concern in many parts of the world (Lerskullawat, 2020). The existing household over-indebtedness creates severe negative socio-economic consequences, such as mental illnesses, family problems, illegal and unethical activities, crimes, and loss of cultural and spiritual values (Muhammad & Iqbal, 2018; Barba & Pivetti, 2009). These consequences cannot be controlled by preventive measures such as the enforcement of law and order, welfare activities, or financial policies, which are carried out by overlooking the root causes of household over-indebtedness (Meniago et al., 2013). Accordingly, identifying the key causes of household over-indebtedness is a vital social need.

Many studies have been conducted worldwide to determine the primary reasons for household over-indebtedness. From a broader perspective, macroeconomic factors influence the extent of household over-indebtedness (Meniago et al., 2013). Individuals in a country become over-indebted due to macroeconomic factors such as inflation, interest rates, employment, wages, real income, real GDP, aggregate consumption, income distribution, and aggregate savings (Lerskullawat, 2020; Barba & Pivetti, 2009). During the last few decades, household debt has increased significantly in most economies worldwide, ensuring smooth consumption while lowering household savings rates due to high levels of inflation (Ismail et al., 2020). The reality of some economies forced people to consume all of their income before dropping their purchasing power due to high inflation rates, which rapidly devalue the currency (Flores & Vieira, 2014). When the inflation rate is high, disposable income falls below the required level to maintain the standard of living, and households struggle to maintain at least their minimum living standards, so they often borrow more to fill the deficit in the household budget rather than saving more (Barba & Pivetti, 2009). Higher public debt-to-GDP ratio influences taxation and bank regulations, consequently influencing household savings and debt (Coletta et al., 2019). Moreover, a higher unemployment rate leads to a higher level of household debt burden, irrespective of individual expectations and other macroeconomic factors (Keese, 2012). The economy's household debt increases as a result of increasing aggregate consumption (Barba & Pivetti, 2009). It is not surprising that the majority of household debt is found among higher-income households because the vast majority of household debt financing assets and asset ownership are concentrated near the top of the income distribution (Meniago et al., 2013). Interest rates have a long-term impact on the cost of

borrowing money, and changes in interest rates would affect savers and borrowers differently (Coletta et al., 2019). In addition to these macroeconomic factors, foreign exchange rates, money supply, gross domestic production, etc., could also influence household over-indebtedness (Lerskullawat, 2020).

Moreover, household over-indebtedness is influenced by demographic factors, such as age, gender, income, level of education, marital status, family size, religion, and household savings (Fang et al., 2022a, Rahman et al., 2020). When age increases, the overconfidence bias among individuals decreases (Tekçe et al., 2016). Thus, an increase in age minimizes the risk of over-indebtedness (Baker et al., 2019). However, some researchers have found no significant differences in overconfidence and herding biases in terms of the age of individuals (Komalasari et al., 2021; Kumar & Goyal, 2016). According to numerous studies, males are more prone to overconfidence and herding biases than females (Kumar & Goyal, 2016; Baker et al., 2019). Females tend to be less audacious in financial decisions, and their perceived risk is higher than the males (Filip et al. 2015; Keese, 2012). The information-seeking and alternative evaluation phases of the financial decision-making process differ significantly depending on gender (Danrimi et al., 2018; Kumar & Goyal, 2016). Consequently, females have lower levels of household debt than males. Hence, gender significantly influences over-indebtedness (Filip et al. 2015). This conclusion is consistent with many previous findings (Keese 2012). Further, income can influence the level of household over-indebtedness. There is a significant difference in the overconfidence bias among individuals with different income levels (Kumar & Goyal, 2016; Tekçe et al., 2016). Low-income groups are more confident in borrowing decisions than high-income groups (Baker et al., 2019). As a result of this overconfidence, low-income people move to a higher tendency of being over-indebted (Tekçe et al., 2016). Furthermore, people with lower levels of education show a stronger familiarity bias (Tekçe et al., 2016). Surprisingly, households with higher education levels have a lower likelihood of participating in the debt market than households with only basic education (Baker et al., 2019). Therefore, people with higher education tend to have lower levels of debt (Rahman et al., 2020). In addition to these demographic factors, marital status, family size, religion, and household savings significantly influence household over-indebtedness (Baker et al., 2019).

In analysing existing empirical studies, it is obvious that macroeconomic and demographic factors are well established in both developed and developing

contexts. Although many empirical studies have been conducted to identify the causes of household over-indebtedness from macroeconomic and demographic perspectives, many economies are still unable to find appropriate solutions to this issue. Many bankruptcy cases, defaults in loan repayments, and unbearable volumes of household debt have been reported from both developing and developed economies (Rahman et al., 2020). The increasing trend of individual over-indebtedness cannot be fully explained by macroeconomic and demographic determinants alone (Rahman et al., 2020). Understanding behavioral aspects might, therefore, greatly aid in determining the entire range of reasons for household over-indebtedness.

Theories such as the projection bias theory (Loewenstein et al., 2003), behavioral life cycle theory (Shefrin & Thaler, 1988), and prospect theory (Kahneman & Tversky, 1979) show that individual behavioral factors affect people's financial decisions. The projection bias theory (Loewenstein et al., 2003) explains the nature of irrational individual behavior in day-to-day financial decisions (Grable et al., 2004). According to this theory, people often make decisions that satisfy their current desires or emotions, rather than focusing on long-term objectives (Grable et al., 2004). People typically assume that their current thoughts, feelings, and behaviors will remain unchanged in the future (Grable et al., 2004). Consequently, people tend to maintain their current consumption patterns smoothly by providing financial assistance at any cost (Grable et al., 2004). According to behavioral life cycle theory, three biases influence people's decisions (Shefrin & Thaler, 1988). They are self-control, mental accounting, and framing, rather than discount factors and rational behavioral patterns of individuals, based on utility theory (Beverly et al., 2003). Accordingly, individuals often do not think about spending and loan decisions using discount rates but through mental accounting (Graham & Isaac, 2002). Thus, the argument of behavioral life cycle theory (Shefrin & Thaler, 1988) focuses on heuristics in individual decision-making, and it is controversial in neoclassical finance. Prospect theory explains that irrational behavioral factors influence financial decisions and critiques expected utility theory as a descriptive model of decision-making (Kahneman & Tversky, 1979). Further, prospect theory states that choices among risky prospects exhibit universal effects that are inconsistent with the basic tenets of utility theory (Edwards, 1996). According to this view, the delight experienced upon winning outweighs the pain experienced upon losing (Edwards 1996). These three theories exemplify that behavioral factors influence individual decision-making processes. Hence, household over-indebtedness is also an extreme result of the

individual decision-making process; our main argument that behavioral factors influence household over-indebtedness could be supported by these three behavioral theories.

In developed countries, a considerable number of studies have been conducted on the behavioral factors of household over-indebtedness (Rieger, 2020; Gutiérrez-Nieto et al., 2017). However, in developing contexts, this area of study is still very less analysed, and even researchers who conducted such behavioral studies have pointed out the necessity of deeper exploration into the behavioral perspective of household over-indebtedness (Azma et al., 2019; Doosti & Karampour, 2017). Table 1 presents some behavioral factors examined in current empirical studies, mostly in developed economies. From the list of behavioral factors, financial literacy, risk perception, materialism, and emotions have been considered the most influential behavioral factors of household over-indebtedness (Rahman et al., 2020; Azma et al., 2019; Anderloni & Vandone, 2010). Therefore, these four behavioral factors were included in our proposed conceptual model, and a deeper review of each factor was included.

Table 1: List of behavioral factors

Number	Behavioral factor	Author(s)	Country
1	Perceived financial risk	Barros & Botelho, 2012	Brazil
2	Materialism	Richins & Dawson., 1992	USA
		Watson, 2003	New Zealand
		Flores & Vieira, 2014	Brazil
		Jacobs & Smit, 2010	South Africa
3	Financial literacy	Gutiérrez-Nieto et al., 2017	Spain
		Disney & Gathergood, 2011	UK
		Lusardi & Mitchell, 2007	USA
		Rieger, 2020	Germany
4	Risk Perception	Flores & Vieira, 2014	Brazil
		Caetano et al., 2011	USA
		Azma et al., 2019	Malaysia
5	Emotions	Flores & Vieira, 2014	Brazil
		Yu & Chen, 2016	China
		Azma et al., 2019	Malaysia
6	Risk Behavior	Flores & Vieira, 2014	Brazil
7	Lack of patience	Fatoki, 2015	South Africa
8	Decrease in risk	Fatoki, 2015	South Africa

	aversion		
9	Self-Control	Gathergood, 2012	UK
10	Self-efficacy	Ismail et al., 2020	Malaysia
11	Impulsivity	Frigerio et al., 2020	Italy
12	Herding Behavior	Danrimi et al., 2018	Malaysia
		Komalasari et al., 2021	Switzerland
		Filip et al., 2015	Romania
13	Financial Behavior	Fatoki, 2015	South Africa
14	Over-confidence	Anderloni & Vandone, 2010	Italy
15	Locus of Control	Keese, 2012	Germany

Source: Authors compiled based on literature

Financial literacy is a crucial determinant of household over-indebtedness in both developed and developing economies (Widjaja et al., 2020). It refers to the ability to understand and effectively use various financial skills, including personal financial management, budgeting, and investment (Lusardi & Mitchell, 2007; Disney, & Gathergood, 2011; Rieger, 2020). Further, financial literacy denotes the set of information that helps people manage their income, expenses, monetary loans, savings, and investments in both the short and long term (Rahman et al., 2020). Financial literacy improves people's capacity to understand and manage financial problems (Fang et al., 2022b, Flores & Vieira, 2014; Van Rooij et al. 2011). People with poor financial literacy face severe confusion with financial information because they do not have sufficient tools to handle it (Rahman et al., 2020). Financially knowledgeable people could minimize unnecessary losses and they can achieve their financial goals with proper financial planning (Rieger, 2020). Lack of financial knowledge may lead to loss-making experiences such as late payments for credit cards, penal interest, and surcharges (Gathergood, 2012). As a result of this negative relationship between financial literacy and over-indebtedness, people with profound financial literacy could enjoy better well-being in the future, whereas people with a lack of knowledge could end up with financial issues (financial ill-being/over-indebtedness) (Rahman et al., 2020).

Risk perception refers to the subjective judgment of the possibility of negative financial decisions (Flores & Vieira, 2014). This indicates how different people perceive a particular risk in their decision-making process (Caetano et al., 2011). Some people feel a higher risk in some financial decisions while others may feel a different level of risk in the same financial decision (Widjaja et al., 2020). When risk perception is high, individuals are more risk averse and do not tend to take more risks in their financial decisions (Betti et al., 2007). When risk perception is low, such people tend to take more risks, and as a result, there is a

possibility of making losses (Rahman et al., 2020). Thus, when exploring the relationship between risk perception and over-indebtedness, people may perceive risk differently in a given situation (Widjaja et al., 2020). Some people feel that the result would be more attractive, and they are willing to engage in situations without much concern for risk and uncertainty (Widjaja et al., 2020). They are risk-seekers and take more risks with a higher expected return (Barros & Botelho, 2012). However, some people feel that the result would be less attractive, and they are not willing to face the given situation (Sweet et al., 2013). They are risk-averse and may feel the benefits of being less profitable (Barros & Botelho, 2012). If they feel uncertain, they can avoid the situation because of extreme concern for risk. Thus, many existing studies show a negative relationship between risk perception and household over-indebtedness.

Materialism refers to the tendency to consider material possessions and physical comfort rather than spiritual values (Widjaja et al., 2020; Rahman et al., 2020). This behavioral pattern is controversial for the sayings of the Lord Buddha. The extreme level of materialism could result in massive suffering, and this effect has been explained by Lord Buddha as “*Thanhaya Jayathi Soko*’ (Dhammapadaya). Highly materialistic people may be more willing to rely on borrowing to satisfy their strong desire to acquire assets (Watson, 2003). Acquisition plays a role in the pursuit of happiness and the use of possessions as an indicator of success in life (Watson, 2003). Materialism is related to the act of consumption (Richins & Dawson, 1992). In a deeper sense, this is the greediness to enjoy a comfortable life (Watson, 2003). Based on the existing literature, two types of people can be distinguished based on their level of materialism. People with a high level of materialism are characterized as spenders, whereas those with low levels are identified as savers (Rahman et al., 2020; Azma et al., 2019). Materialistic people chase to possess assets, and they do not consider the cost compared to the benefit and satisfaction they gain from such possessions (Watson, 2003). They have more favorable attitudes towards borrowing more money to make or buy luxury items such as swimming pools, jewelry, mansion houses, and vehicles. They are more likely to use high-capacity credit cards and tend to use instalment plans (Jacobs & Smith, 2010; Ponchio, 2006). Furthermore, they tend to engage in impulse buying (Frigerio et al., 2020; Azma et al., 2019). Many existing research findings have evidenced a strong positive relationship between materialism and household over-indebtedness.

Understanding human emotions is a complex task in nature (Yu & Chen, 2016). However, it is vital to attempt to find even the direction of emotions, since they

are directly related to individual financial decisions. Emotion is an overflow of feelings that develop and withdraw in the short term (Widjaja et al., 2020). This emotional factor is related to an individual's ability to express positive or negative emotions when handling financial decisions (Widjaja et al., 2020). People with positive emotions are riskier than those with negative emotions (Flores & Vieira, 2014). Therefore, individuals with positive emotions tend more toward household over-indebtedness than those with negative emotions do. Emotions that are relevant to people's propensity for over-indebtedness include anger, fear, anxiety, depression, jealousy, embarrassment, pride, shame, nervousness (stress), etc. (Huy & Zott, 2019). When a person experiences negative emotions because of a debt obligation, the person will try to find a way to reduce debt (Widjaja et al., 2020). Most of the existing literature has shown a significant negative relationship between emotions and household over-indebtedness (Huy & Zott, 2019; Doosti & Karampour, 2017). However, some studies have revealed that emotion is positively significant in household over-indebtedness (Azma et.al 2019; Quelch & Jocz, 2007). Thus, the results depend on the positive or negative emotions of respondents (Widjaja et al., 2020).

These findings are key takeaways drawn from the existing direct studies. From the very outset of studying the subject area of household over-indebtedness, many researchers have come to the empirically supported conclusions that household over-indebtedness is influenced by macroeconomic, demographic, and behavioral factors. However, these studies considered the key determinants as separate independent variables in their studies. Behavioral economics integrates the elements of economics and psychology to better understand how and why people behave in ways that they do in the real world. This differs from neoclassical economics, which asserts that the overwhelming majority of people have strictly outlined preferences and base their well-informed, self-interested judgments on those desires (Hicks, 1936). Keynes placed a great emphasis on the role of sentiment and emotion in economic decision-making (Baddeley, 2018). According to Keynes, economic behavior is the result of a sophisticated relationship between emotion and cognition (Baddeley, 2018). Some macroeconomic issues have been addressed by behavioral macroeconomists using behavioral assumptions (Gabaix, 2016). The General Theory of Employment, Interest, and Money-1936 (GT) is an example of Keynes' consideration of uncertainty and psychology in the macroeconomy (Baddeley, 2017). Furthermore, the classical theory's assumptions about the specific situation are not true of the economic system in which we actually live; thus, trying to apply its lessons to reality will only make matters worse (Hicks, 1936).

George Katona, Hyman Minsky, and Richard H Thaler are some of the pioneers in extending Keynes's insights about socio-psychological forces in the macroeconomy, specifically into the impact of these influences on the financial system (Baddeley 2018). Nobel Prize-winner Richard Thaler identified behavioral factors as anomalies in individual financial decisions (Thaler, 2018). Referring to these theoretical findings, it is obvious that macroeconomic factors could have an impact on the relationship between behavioral factors and household over-indebtedness. Moreover, macroeconomic factors could surface as a function of behavioral factors and help conceptualize and explain the influence of behavioral factors on household over-indebtedness (Sekaran & Bougie, 2016). According to the explanations of mediating variables, macroeconomic factors can be considered a mediator in the relationship between behavioral factors and household over-indebtedness (Sekaran & Bougie, 2016).

Moreover, Albert Ando and Franco Modigliani's Life Cycle Hypothesis of Savings (1963) offers a strong theoretical foundation for the claim that the relationship between behavioral factors and household over-indebtedness is influenced by the individual's demographic profile. The theory states that individuals seek smooth consumption throughout their lifetime by borrowing when their income is low and saving when their income is high. In accordance with this theory, age, gender, income, and education influence financial decisions (Ando & Modigliani, 1963). Even though this theory assumes that individuals possess rational utility functions, it is a fair illustration of how demographic factors might be used to determine household debt levels and savings (Ando & Modigliani, 1963). Further, they stated that individual rationale is inconsistent, particularly because the original utility function ignores the interactions between individual behavior and the demographic profile (Ando & Modigliani, 1963). By referring to the above theory and subsequent studies, demographic factors could affect the strength and direction of the relationship between behavioral factors and household over-indebtedness (Sekaran & Bougie, 2016). According to the definition and explanations of moderating variables, demographic factors confidently can be taken as moderators within the relationship between behavioral factors and over-indebtedness (Sekaran & Bougie, 2016). Future researchers can include behavioral factors in their conceptual models by considering demographic factors as moderators in light of this empirical gap compared to what the theory says.

Consequently, our curiosity led us to question whether there is any magnitude effect of those demographic and macroeconomic determinants on the

relationship between behavioral factors and household over-indebtedness and proposed the following conceptual model.

Conceptual Model

Most recent behavioral studies conducted in developed economies have commonly employed conceptual models to show the direct connection between behavioral factors and household over-indebtedness. Accordingly, financial literacy, risk perception, materialism, and emotions are the most significant behavioral factors of household over-indebtedness. However, since behavioral aspects have not been well tested in developing economies, the mere application of these direct relationships is nevertheless helpful. Moreover, we conclude that there could be some anomalies behind these direct relationships. We pushed deeper into theoretical underpinnings to design a rational construct by integrating such possible anomalies into the new model.

In accordance with the aforementioned literature overview, numerous empirical studies have demonstrated that macroeconomic factors would affect household over-indebtedness. Furthermore, Keynes's general theory of employment, interest, and money (1936) in behavioral economics contends that macroeconomic factors can affect individual behavior, and therefore, it is necessary to maintain keen attention in preparing policies on macroeconomic factors. Keynes, a pioneer in the study of behavioral economics, and a large number of his adherents have claimed that individual behavior has a significant impact through macroeconomic variables. This theoretical foundation enables us to include macroeconomic factors as mediators in the proposed conceptual model. Moreover, this inclusion is consistent with explanations of the mediating variables (Sekaran & Bougie, 2016). Numerous scholars have also discovered that a person's demographic profile significantly affects household over-indebtedness. To refill the empirical gap in evaluating the relationship between behavioral factors and household over-indebtedness with the influence of demographic factors, we have suggested a theoretical underpinning through the life cycle hypothesis of savings (1963) brought out by Albert Ando and Franco Modigliani. Based on this theoretical backing, we integrated demographic factors as moderators to test the strength and direction of the relationship between behavioral factors and household over-indebtedness.

Our proposed conceptual model would be more beneficial to policymakers if we could measure the relationship by integrating the mediating effect of macroeconomic factors and the moderating effects of demographic factors rather than testing the direct relationship between behavioral factors and

household over-indebtedness. Moreover, we pointed out some demographic and macroeconomic factors that were significant in earlier direct studies (Lerskullawat, 2020). These factors would be helpful for the future operationalization of the conceptual model. Consequently, figure 2 shows the proposed conceptual model, which could be a novel contribution to future researchers in the execution of their empirical studies.

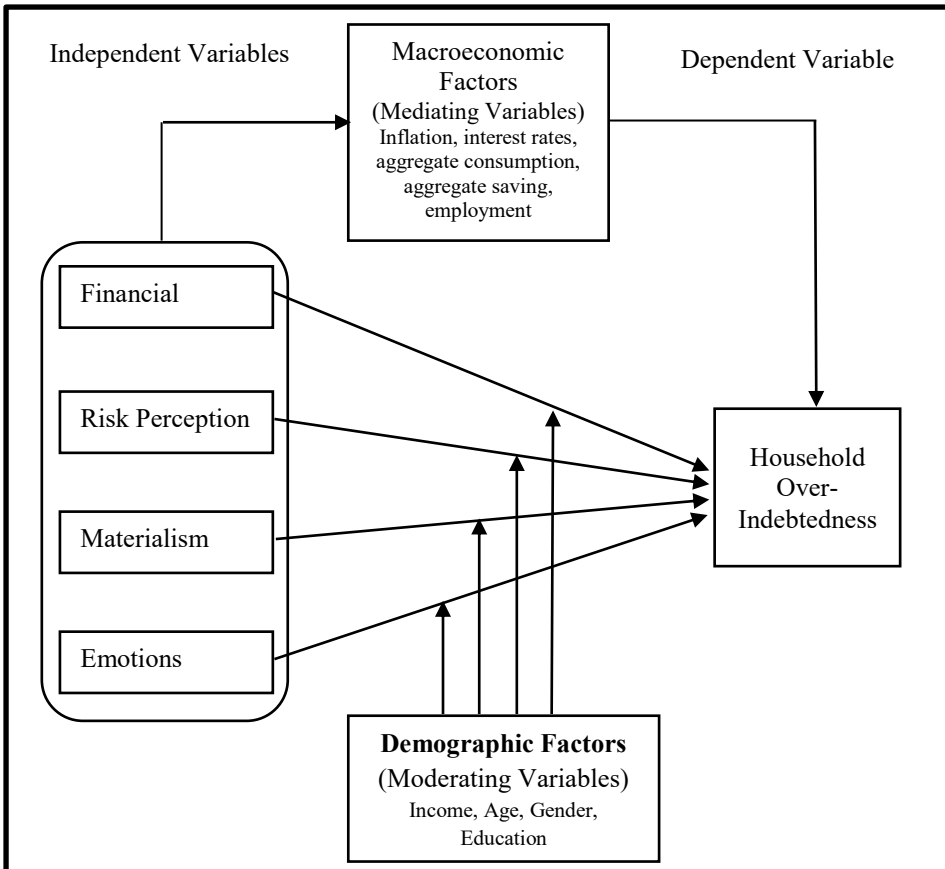


Figure 2: Proposed Conceptual model

According to Figure 2, financial literacy, risk perception, materialism, and emotions are key behavioral factors that influence household over-indebtedness. These factors were shown as independent variables, whereas household over-indebtedness was the dependent variable. Further, macroeconomic factors (inflation, interest rates, aggregate consumption, aggregate savings, employment, etc.) mediate between behavioral factors and household over-indebtedness. Moreover, demographic factors (income, age, gender, and

education) are expected to moderate the relationship between behavioral factors and household over-indebtedness.

Behavioral, macroeconomic, and demographic factors affecting household over-indebtedness, together with the corresponding definitions, dimensions, and measuring scales, are presented in Table 2. Further, panel regression is proposed as the most suitable method for testing the proposed conceptual model in a real-world scenario.

Table 2: Dimensions in measuring variables in the proposed model

Variable	Definition	Dimension	How to measure and source
Financial literacy	The ability to understand and effectively use various financial skills, including personal financial management, budgeting, and investing.	Earning	Using the scales of Disney & Gathergood (2011)
		Spending	
		Save and invest	
		Borrowing	
		Protect	
Risk perception	Subjective judgement about the possibility of negative occurrences of financial decisions	Familiar vs unfamiliar technology or situation	Based on the scale of Caetano et al. (2011) and Flores and Vieira (2014)
		Locus of control	
		Voluntary vs Involuntary exposure	
		Fair vs Unfair exposure.	
Materialism	The tendency to consider material possessions and physical comfort as more important than spiritual values	Greediness	Using the scale of Ponchio (2006)
		Shallowness	
		Lack of spiritual value	
Emotions	Irrational and biased judgements in investment decisions	Subjective experiences	Based on the scale of Quelch & Jocz (2007)
		Physiological responses	
		Expressive responses	
Macroeconomic Factors (Mediators)	Influential fiscal, ecological or political factors that broadly affect the national economy.	Inflation, Interest rates, aggregate consumption, aggregate savings and employment	Using secondary data Central Bank Report (Panel data regression analysis)
Demographic	Factors that are used to	Income, Age,	Categorical scales

Factors (Moderators)	define the characteristics of a person	Gender, Education	via closed-ended questions on demographic profile
Household over-indebtedness	The inability of paying off the borrowed money and attributed interest for an extended period.	Extended loan arrears, lower income than loan instalments, legal issues, family problems	Flores and Vieira (2014)

Source: Authors compiled based on literature

Discussion

Over-indebtedness among households has become a major societal concern in many parts of the world (Lerskullawat, 2020). The existing household over-indebtedness has severe negative effects on society, including mental diseases, family issues, unlawful and unethical behaviors, crimes, and loss of spiritual values (Ferreira et al., 2021; Håkansson & Widinghoff, 2020). In some economies, serious policy mistakes have occurred because of a lack of understanding of the fundamental factors that lead to household over-indebtedness and how they are interconnected (Lerskullawat, 2020). Researchers in developed economies have endeavored to identify causes from different perspectives, such as macroeconomic, demographic, and behavioral factors. Particularly in North American and European nations, there is a considerable amount of evidence supporting all three claims, and they are well-established. However, these behavioral characteristics have not been well examined in the literature on developing economies, particularly in South Asia. Although they have the severity of the problem of over-indebtedness, the adequate focus on the behavioral aspect is quite low. The idea presented above, which is what motivated this study, is that behavioral factors can have an impact on credit problems in addition to macroeconomic and demographic factors (Rahman et al., 2020). The literature review identifies significant empirical and theoretical findings regarding the impact of behavioral factors on household over-indebtedness in different countries worldwide. Thus, this study offers four more prominent and significant behavioral factors affecting household over-indebtedness in different contexts. These are financial literacy, risk perception, materialism, and emotions. In addition, many researchers have attempted to test the direct relationship between these behavioral factors and household over-indebtedness in their studies. Accordingly, we extend our argument that there is a possibility of having some mediating variables in such direct relationships. According to our analysis, one argument is that macroeconomic factors can

significantly influence the relationship between behavioral factors and over-indebtedness; therefore, they have been included as mediators in the proposed model. If we consider the increasing interest rate of the banking sector as a macroeconomic factor, it could differently affect different people and their behavior. Savers enjoy the higher interest rates offered by banks for fixed deposits and treasury bills. People who have invested in such instruments may appreciate the prevailing policies of the government and central bank. However, borrowers experience many grievances. The monthly loan instalments of floating-rate loan holders have increased drastically. With this unexpected change, they might not be in a position to survive on their monthly incomes. They could move into a more serious debt trap. The same economic change, but with different people, behaves differently. The simple reason is that interest rates can mediate the relationship between individual behavior and household over-indebtedness. The general theory of employment, interest, and money of John Maynard Keynes (1936) supported this argument. Moreover, there could be some moderators between behavioral factors and household over-indebtedness. Income, age, gender, and education are examples of such demographic factors. These variables could act as catalysts to the relationship between behavioral factors and household over-indebtedness, and thus, could produce some interaction effects. For example, age may influence risk perception and household over-indebtedness. Elderly people will have lower levels of debt because of their higher perceived risk. This indicates that age can act as a moderator in the relationship between behavioral factors and household over-indebtedness. This argument is supported by the life-cycle hypothesis of the savings of Ando and Modigliani (1963). Thus, the main objective of this review is to create a unique conceptual model that can be used to test the impact of behavioral factors on household over-indebtedness, while testing the mediating effects of macroeconomic factors and the moderating effects of demographic factors with profound theoretical and empirical backing. The government, central banks, financial intermediaries, including banks, and other policymakers can use these findings for their policy-making and implementation processes to provide substantial solutions for the issue of household over-indebtedness. Thus, the proposed conceptual model is helpful in determining both direct and indirect relationships. However, since this field is still unexplored in many developing economies, the real benefit of the study can only be ascertained through several empirical studies with different parameters in different contexts as a longitudinal study.

Conclusion

Macroeconomic, demographic, and behavioral factors are key determinants of household over-indebtedness. According to existing empirical findings, the direct relationships between these determinants and household over-indebtedness have been thoroughly studied in developed economies. However, even the direct relationship is a less-explored area in developing contexts. Therefore, empirical studies on the behavioral aspects of household over-indebtedness should be encouraged. Financial literacy, risk perception, consumerism, and emotions are significant behavioral factors that influence household over-indebtedness, according to studies conducted in developed economies. Additionally, we should work to understand how macroeconomic and demographic factors interact with these behavioral determinants to influence household over-indebtedness. An in-depth conceptual framework is provided for interested parties to analyse the social dilemma of household over-indebtedness from a behavioral perspective by the integrative impact of behavioral factors on household over-indebtedness, with the mediating effect of macroeconomic factors and the moderating effect of demographic factors. Governments and other policymakers cannot overcome the issue of household over-indebtedness with fiscal and monetary policies to manage macroeconomic factors. Macroeconomic factors can influence the direction and strength of individual behavior. Moreover, the demographic profile of individuals can influence the relationship between behavioral factors and household over-indebtedness. Therefore, identifying the causal effect relationships of household over-indebtedness is imperative in all economies before preparing policies. We will be able to ascertain more comprehensive conclusions after conducting some empirical studies by referring to the proposed conceptual model with the mediating effect of macroeconomic factors and the moderating effects of demographic factors. The combined effect of changes in individual behavior and institutional policies on financial decisions could change the future by referring to the stock of knowledge presented in this paper and subsequent empirical studies.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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