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# Psychological and Behavioral Consequences of Debt and Their Mechanisms

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## Abstract

Debt refers to an individual' s legal or moral obligation to repay money to others or institutions, either presently or in the future. As the debt level of Chinese residents continues to rise, its psychological and behavioral consequences warrant attention. Debt-induced debt stress can lead individuals to exhibit poorer mental health status and increased myopic behavior, consumption behavior, and unethical behavior, with potential impacts on their partners and children. The influence mechanisms of debt include two pathways: psychological needs frustration and compensation mechanism, and cognitive resource depletion mechanism. Future research should investigate other psychological and behavioral consequences of debt and identify boundary conditions, systematically examine the characteristic dimensions of debt, expand research methods on debt, and construct an integrated theory to explain the consequences of debt.

## Full Text

## Preamble

### Psychological and Behavioral Consequences of Debt and Their Mechanisms

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### Abstract

Debt refers to a legal or moral obligation for an individual to repay another person or institution, either presently or in the future. As household indebtedness among Chinese residents continues to rise, its psychological and behavioral consequences warrant serious attention. Debt-induced stress leads to poorer mental health outcomes, increased short-sighted behaviors, altered consumption patterns, and elevated unethical conduct, with potential spillover effects

on debtors' partners and children. Two primary mechanisms explain these effects: the psychological need threat-compensation mechanism and the cognitive resource depletion mechanism. Future research should explore additional psychological and behavioral consequences of debt, identify boundary conditions, clarify the dimensional structure of debt, expand methodological approaches, and develop integrated theoretical frameworks to explain debt' s consequences.

**Keywords:** debt, debt stress, mental health, consumption behavior, psychological needs, cognitive resources

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Household debt in China has risen steadily, reaching over 71 trillion yuan by 2021, with the household leverage ratio climbing from 17.87% in 2008 to 62.16% in 2021. This trend indicates increasing household debt burdens and mounting debt risks (He & Li, 2022). Individual and household indebtedness triggers household financial vulnerability (Li & Zhu, 2022) and exacerbates income inequality (Zhang & Yin, 2022), thereby creating broader societal impacts. China' s 14th Five-Year Plan proposes "maintaining macro leverage ratios stable with a slight decline,"which requires individuals and households to properly understand and manage debt from the perspective of resident indebtedness.

Debt constitutes a component of individual economic life. Although individuals in economically disadvantaged positions are more likely to incur debt (Mewse et al., 2010), the effects of economic disadvantage and indebtedness are not equivalent. Economic disadvantage, similar to low social class, manifests in lower income and education levels and reduced household wealth. Previous research has extensively documented the negative effects of economic disadvantage, such as lower sense of control and self-esteem among low social class individuals (Caplan & Schooler, 2007; Chou & Chi, 2000). However, one study found a positive association between debt and sense of control (Dwyer et al., 2011). Moreover, researchers argue that debt more effectively predicts physical and mental health than indicators reflecting economic disadvantage such as low income (Drentea & Lavrakas, 2000). Thus, the effects of debt and economic disadvantage may differ in direction and magnitude, underscoring the unique value of examining debt' s psychological and behavioral consequences.

Although debt is an economic concept, individual economic behavior can be explained through psychological mechanisms—debt decisions and management have psychological underpinnings (Lea, 2021), and debt affects various life domains, creating psychological consequences. However, systematic reviews of debt from a psychological perspective are lacking in China, which constrains both debt management practice and future research. This paper reviews existing debt research from a psychological perspective, first clarifying debt concepts and classifications, then summarizing debt' s psychological and behavioral con-

sequences and their underlying mechanisms, and finally proposing directions for future research.

## 2. Concepts and Classifications of Debt

An individual or organization is considered indebted if they have a legal or moral obligation to make payments to another party, either now or in the future (Lea, 2021). Both individuals and organizations (enterprises, governments) can be debt subjects. This paper focuses on personal debt from a psychological perspective. The National Balance Sheet Research Center uses the household sector leverage ratio as an indicator of personal debt levels, calculated as total household debt divided by nominal GDP (Li et al., 2018). A higher ratio indicates lower likelihood of debt repayment based on current income and greater debt risk. As shown in Figure 1 [Figure 1: see original paper], China' s household debt level continues to rise, approaching the 65% warning line set by the International Monetary Fund (National Balance Sheet Research Center, 2022).

Debt includes various types, and clarifying these classifications is prerequisite to understanding their differential impacts. First, based on nature, debt can be divided into objective and subjective dimensions (Tay et al., 2017). Objective debt refers to whether an individual or household has repayment obligations and their intensity, typically measured by indebtedness status (Richardson et al., 2013), default status (Tay et al., 2017), total debt amount (Olson-Garriott et al., 2015), and debt-to-income ratio (Dunn & Mirzaie, 2016). Subjective debt refers to the degree of burden individuals feel from debt, representing a subjective assessment that integrates objective debt levels and repayment capacity, commonly operationalized as debt stress (Elder & Caspi, 1988). In essence, subjective debt is a direct consequence of objective debt.

Second, based on intensity, debt can be categorized as credit versus debt. In daily life, both terms represent owing money that must be repaid, with debt arising from credit and reflecting different aspects of the same phenomenon (Chen, 2017). Previous scholars have used these terms interchangeably in debt research (Lea, 2021), yet their concepts and effects differ substantially. Credit reflects a voluntary agreement between borrower and lender where the individual has both capacity and intention to fulfill the agreement, resulting in minimal negative impact and representing "good debt." In contrast, debt typically reflects situations where payment is due but unpaid, with severe cases leading to debt crisis and overindebtedness that triggers negative emotions (Tay et al., 2017), representing "bad debt."

Third, based on the borrower' s initiative, debt can be divided into passive indebtedness and active borrowing. Passive indebtedness occurs when individuals "are forced" to borrow to maintain livelihood when income cannot cover expenses, making low-income individuals and households most likely to incur such debt (Mewse et al., 2010). Sudden economic shocks also force borrowing, such as unemployment causing income drops (McCloud & Dwyer, 2011) or serious ill-

ness causing expense spikes (Li et al., 2020). Active borrowing refers to using debt as a positive financial management strategy. According to life cycle theory (Modigliani & Brumberg, 1954), consumers make consumption and borrowing plans based on expectations of long-term economic prospects, carefully calculating future income and expenses over extended periods and borrowing only when confident in repayment capacity. Gathergood and Weber (2014) analyzed UK household debt data, finding that 12% of households simultaneously held consumer credit and bank savings, indicating that some families actively borrow even with surplus funds, flexibly using credit for financial management. Few studies have examined this classification, yet as credit becomes more widespread and attitudes shift positively (Tu & Hu, 2022), more people may choose active borrowing, warranting future research attention on its psychological impacts.

Finally, other classification systems exist. Debt can be categorized by purpose into mortgages, student loans, consumer credit, etc. (Lea, 2021), or by repayment period into short-term and long-term debt (Shen et al., 2014). Previous psychological and behavioral science literature on debt has not always clearly defined the debt types under investigation. This review attempts to clarify the debt types examined in each study to identify potential differential psychological and behavioral consequences.

## 3. Objective Debt and Debt Stress

Subjective debt, commonly measured as debt stress, is a direct consequence of objective debt. Higher actual debt levels (objective debt) correspond to greater subjectively perceived debt stress. Olson-Garriott et al. (2015) found that total student loan amount significantly predicted debt stress among counseling psychology graduate students. Beyond absolute debt amounts, Dunn and Mirzaie (2016) used debt-to-income ratios for different debt purposes (e.g., mortgages, consumer credit) as independent variables, analyzing pooled data from the U.S. Consumer Finance Monthly Survey (2006-2012). They measured debt stress through four items: frequency of debt worry, perceived stress level, expectations about future debt, and concerns about inability to repay. The study found that all debt-to-income ratios positively predicted debt stress, indicating that higher ratios increase stress. Using Granger causality tests, the study also demonstrated that objective debt causes debt stress, while the reverse causal path was not significant.

Increasing evidence suggests that equivalent debt amounts can trigger different stress levels. Theoretically, threat perspective scarcity theory (Goldsmith et al., 2020) offers an explanatory framework for these differential effects, proposing that changes in cognition and behavior stem not from resource scarcity per se but from perceived threat levels (Du et al., 2022).

First, different debt types generate varying threat levels. Individuals subjectively perceive debt types differently. Greenberg and Mogilner (2021) found through mixed-methods research that compared to student loans and consumer

credit, people more often view mortgages as investments rather than debts, reflecting higher perceived control and lower threat perception. Research synthesizing different debt types confirms that stress per unit of debt varies by type: non-mortgage debts such as payday loans (b = 2.20) and credit card debt (b = 1.03) generate greater stress per unit increase than mortgages (b = 0.28) (Dunn & Mirzaie, 2016). A large-scale Chinese survey similarly found that bank debt had smaller negative effects than other debt types (Chen, 2017). Additionally, debt stress paradoxically decreases with debt duration, with short-term debtors experiencing more than double the stress of long-term debtors (Shen et al., 2014), suggesting reduced threat sensitivity with greater debt experience. In summary, different debt types produce varying effect directions and intensities primarily due to differential threat levels, explaining why debt default—representing loss of control—poses greater risk than debt amount alone (Hogan et al., 2013). We further speculate that active borrowing generates less stress and negative impact than passive indebtedness, a hypothesis requiring future verification.

Second, different populations perceive varying threat levels from debt. Women experience greater debt-related distress; one study found women reported higher debt stress than men even with lower debt amounts (Dunn & Mirzaie, 2016), indicating larger negative effects on women (Amit et al., 2020; Chen et al., 2020). This stems from women' s generally lower incomes (Dunn & Mirzaie, 2016), greater risk aversion (Croson & Gneezy, 2009), and more aggressive collection strategies targeting vulnerable debtors including women (Dunn & Mirzaie, 2016). Furthermore, individual income moderates debt' s negative effects (Tay et al., 2017). High-income individuals view debt more as a cash flow tool and possess repayment capacity, experiencing less worry and lower perceived threat. In contrast, low-income individuals must devote time and energy to managing finances after incurring debt, reducing work hours (Kim et al., 2006) and increasing income loss risk, which elevates both the intensity and duration of debt stress.

## 4. Psychological and Behavioral Consequences of Debt

Beyond directly causing debt stress, debt indirectly produces other psychological and behavioral consequences, broadly categorized as well-being/mental health issues and socioeconomic behaviors. Moreover, debt' s effects extend beyond debtors themselves to partners and children. This section examines debt' s consequences through three aspects: its relationship with well-being and mental health, its relationship with socioeconomic behavior, and its interpersonal and intergenerational impacts.

### 4.1 Debt and Its Relationship with Well-being and Mental Health

Debt undermines individual well-being (e.g., Berger et al., 2016; Dunn & Mirzaie, 2016; Sweet et al., 2013). A meta-analysis found both subjective debt (r = -0.054) and objective debt (r = -0.037) negatively affect subjective

well-being (Tay et al., 2017), though effect sizes were small and one included study found opposite results (subjective debt negatively correlated with negative emotions, r = -0.26; Olson-Garriott et al., 2015), indicating unstable effects. While subjective debt appears more impactful than objective debt, this difference was not significant due to the small number of studies (k = 9).

Debtors also exhibit higher levels of anxiety and depression symptoms and mental health problems (Drentea & Reynolds, 2012). Richardson et al. (2013) conducted a meta-analysis synthesizing studies from the UK, US, Australia, China, and India, using odds ratios (OR) to compare mental health problem incidence between indebted and non-indebted populations. Higher OR values indicate greater health problem risk in indebted populations. Results showed indebted individuals faced several times higher risks for mental illness (OR = 3.24), depression (OR = 2.77), psychiatric disorders (OR = 4.03), and neurological disorders (OR = 3.21), with substantially higher rates of suicide (OR = 7.90) and suicide attempts (OR = 5.76), demonstrating medium to large effect sizes. Additionally, objective and subjective debt exert equivalent effects on mental health problems (Hamilton et al., 2019).

### 4.2 Debt and Its Relationship with Socioeconomic Behavior

Reviewing debt research reveals that debtor behavior can be summarized as increased shortsighted behavior, consumption behavior, and unethical conduct.

#### (1) Shortsighted Behavior

Extensive evidence shows debtors frequently engage in "shortsighted behavior," preferring immediate small gains over larger long-term rewards. First, long-term debtors excel at "stretching every penny," seemingly reflecting strong money management skills, yet they only manage small daily amounts effectively while failing to consider future income and expenses (Buckland, 2010). Indebted students cope by "not thinking about the future, only focusing on the present," temporarily reducing worry but offering no long-term solution (Nissen et al., 2019). Second, debtors exhibit more health risk behaviors (Richardson et al., 2013). Nelson et al. (2008) found college students with over $1,000 in debt had 1.43, 1.30, and 1.25 times higher probabilities of smoking, alcohol abuse, and skipping breakfast, respectively, compared to other students. Third, debtors show poorer academic performance, with indebted students achieving lower grades than non-indebted peers (Dryden et al., 2023). This mirrors economically disadvantaged individuals' higher time discount rates (Hilbert et al., 2022) and preference for fast strategies (Du et al., 2022), prioritizing immediate gratification over future consequences. However, Dwyer et al. (2013) found an inverted U-shaped relationship between student loans and graduation rates: while high loan amounts increased dropout risk, moderate loans facilitated degree completion, possibly because appropriate student loans provide economically disadvantaged students opportunities to complete their education. When debtors view debt as opportunity and responsibility, they demonstrate greater self-discipline

and higher completion rates. Specifically, indebted college students reduce irrelevant sports and entertainment activities, devoting more time to studying and working (Quadlin & Rudel, 2015). Whether debtors become more shortsighted or more future-oriented may depend on debt intensity and nature, requiring further investigation.

**(2) Consumption Behavior**

Debt may increase both daily consumption and conspicuous consumption, seemingly contradicting common sense. First, debt increases daily consumption (He & Li, 2022; Zhang et al., 2019; Zhou & Wang, 2018). For example, Zhang et al. (2019) analyzed China Family Panel Studies (CFPS) data from 2010, 2012, and 2014, finding indebted households' average consumption level was 14.1% higher than non-indebted households. The relationship varies by debt type: households with consumer or business debt consumed 18.1% more than households without such debt, while mortgage effects on consumption were unstable. This relates to borrowing motives, as consumer and business loans aim to provide cash flow for consumption, making initial borrowing motivation a key factor in the debt-consumption relationship.

Second, debt stress increases luxury consumption intentions. Both questionnaire measures and brief priming tasks manipulating debt stress enhance positivity toward luxury consumption (Wang et al., 2020), reflecting irrational debtor consumption. Previous research shows less affluent consumers spend higher income proportions on non-essaries than relatively affluent consumers (Christen & Morgan, 2005), yet such irrational consumption may further increase debt stress, creating a vicious cycle.

**(3) Unethical Behavior**

Debt incurs moral costs and fosters unethical behavior. Xin et al. (2023) systematically examined the debt stress-unethical behavior relationship at both macro and individual levels. At the macro level, controlling for GDP growth, unemployment, and consumer confidence indices, rising household leverage ratios correlated with increased Baidu search indices for unethical behaviors like "cheating" and "ghostwriting," indicating that over time, higher debt stress corresponds to greater unethical behavioral intentions in society. At the individual level, merely recalling past debt experiences caused participants to violate moral principles in subsequent moral choice scenarios, demonstrating unethical behavioral intentions and establishing a moderate causal link (Cohen' s d = 0.40). However, increased unethical intentions did not stem from altered moral cognition; rather, individuals appeared to "knowingly violate" principles. Greater debt stress led individuals to more strongly support default decisions by indebted nations despite recognizing default as immoral (Del Ponte & DeScioli, 2022).

Debt also creates more serious moral problems—crime. A systematic review (Hoeve et al., 2014) synthesized debt' s effects on criminal behavior, finding higher

crime rates among debtors (e.g., correlation of 0.38 between debt and crime among 18-30 year-olds; Hoeve et al., 2016) and higher recidivism likelihood.

### 4.3 Interpersonal and Intergenerational Effects of Debt

Debt' s impact extends beyond individual mental health and behavior to spill over to others. Partners are first affected, with debt increasing marital conflict (Dew, 2007) and divorce rates (Dew, 2011). Debt also impacts partners' mental health; Rojas (2023) collected data on enforced debtors and their partners from Swedish enforcement authorities, finding that regardless of partners' own health, employment, or socioeconomic status, they were more likely to develop depression.

Attitudes and behaviors transmit across generations. Parents' economic attitudes and behaviors influence children through socialization (Guo & Xin, 2020). Parents transmit consumption knowledge, skills, and values through language (Moschis, 1985), shaping children' s money concepts (Shim et al., 2009). Children also learn by observing parental economic discussions and decisions, forming their own financial habits (Hibbert et al., 2004). Thus, parents' attitudes toward debt and their successful or failed financial management experiences subtly influence children. Additionally, indebted parents' negative emotions may spill over into parent-child interactions, hindering child development. Heintz-Martin et al. (2022) surveyed German mothers, finding that higher maternal debt stress increased depression levels and harsh parenting behaviors, impairing children' s adaptive capacity development. This demonstrates how individual debt' s negative effects ripple outward.

## 5. Related Mechanisms

As a component of economic life, debt affects individuals through multiple pathways. Systematic review reveals that from a psychological perspective, debt directly triggers debt stress, which subsequently impacts mental health and socioeconomic behavior: first, debt reduces well-being and causes mental health problems; second, debt induces shortsighted behavior, consumption behavior, and unethical conduct; third, these individual effects spill over to partners and children. How does debt influence individual psychology and behavior? Researchers suggest debt' s effects are indirect, involving internal mechanisms. For example, Tay et al. (2017) used financial well-being to explain debt' s indirect effects on happiness. However, such research remains limited, often focusing on mechanisms underlying specific consequences without integrated framework examination. Based on systematic literature review, this paper proposes a conceptual framework (Figure 2 [Figure 2: see original paper]) to reveal debt' s underlying psychological mechanisms from psychological needs and cognitive resource perspectives.

### 5.1 Psychological Need Frustration and Compensation Mechanism

While proper credit use has positive value, indebtedness is not socially approved, and people often feel ashamed discussing debt experiences (Nissen et al., 2019) and reluctant to incur debt (Greenberg & Mogilner, 2021). Research shows economic disadvantage threatens sense of control and self-esteem (Chou & Chi, 2000), increasing insecurity. In most cases, indebtedness not only signals poor economic status but also reflects insufficient financial skills to change disadvantaged circumstances, thereby reducing self-esteem and undermining psychological need satisfaction.

On one hand, frustrated psychological needs spill over. Researchers generally agree that debt' s negative relationship with well-being is indirect (e.g., Berger et al., 2016; Dunn & Mirzaie, 2016; Sweet et al., 2013), operating through financial well-being. Indebted individuals recognize their financial skill deficiencies, reducing financial well-being (Bartholomae & Fox, 2021). As financial well-being represents subjective well-being in key life domains, this creates bottom-up spillover effects (Tay et al., 2017). Meanwhile, low need satisfaction cannot protect mental health. According to depression' s vulnerability model (Beck, 1967), negative self-perceptions constitute risk factors for depression (Gao et al., 2015). Debtors' low self-esteem and basic psychological need satisfaction levels further cause serious problems like suicidal ideation (Britton et al., 2014).

On the other hand, individuals compensate for unmet needs. When social rejection reduces self-esteem and control, people may compensate through material wealth pursuit (Jiang et al., 2015) or conspicuous consumption (Mazzocco et al., 2012). Similarly, indebted individuals show greater preference for luxury consumption.

### 5.2 Cognitive Resource Depletion Mechanism

Indebtedness represents "actual objective resource scarcity" —borrowing for cash flow reflects current fund shortages that trigger scarcity perceptions (Mullainathan & Shafir, 2013). Blocker et al. (2023) define debt as low-intensity, long-duration scarcity, corresponding to long-term credit processes like mortgages requiring monthly payments over years or decades. These payments typically remain within repayment capacity, creating moderate rather than extreme stress. Under scarcity, individuals have narrower cognitive "bandwidth,"focusing attention only on fund shortages while neglecting other issues (Lei et al., 2020). Empirical research confirms the debt-cognitive resource depletion relationship. Jia et al. (2023) found that overindebted individuals' actual self-control was substantially limited by debt. Liu et al. (2018) manipulated debt levels, finding that recalling debt experiences depleted cognitive resources, increasing fatigue and physical burden compared to control groups. Ong et al. (2019) conducted intervention research, finding that partial debt relief improved cognitive function more than scarcity compensation (e.g., farmer harvests or urban poor wages), though differences and commonalities between debt and resource scarcity re-

quire further empirical investigation.

Cognitive resources are limited. When attention concentrates on scarce money, individuals cannot consider issues comprehensively (Tan et al., 2012). On one hand, resource-occupied individuals become more sensitive to immediate gains while ignoring important long-term matters (Jimura et al., 2013), showing higher time discount rates and risk preferences (Dou et al., 2014), thus exhibiting more shortsighted behavior. On the other hand, cognitive depletion causes self-control failure (Baumeister et al., 2007), preventing self-monitoring to ensure behavior conforms to social norms. Empirical evidence supports cognitive resources' mediating role between debt and unethical behavior: debt stress depletes self-control resources, making unethical behavior harder to inhibit (Xin et al., 2023).

## 6. Limitations of Existing Research and Future Directions

This review summarizes debt' s effects on individual psychology and behavior, potential intergenerational impacts, and underlying mechanisms from psychological needs and cognitive resource perspectives. Literature review reveals several limitations: content-wise, research on debt' s behavioral consequences is incomplete with insufficient examination of moderating mechanisms; methodologically, debt' s characteristics and dimensions remain unclear, lacking standardized measurement tools, with questionnaire methods predominating and limiting causal inference; theoretically, researchers typically apply classical theories to explain specific aspects of debt, focusing on borrowing reasons and debt management without constructing integrated theories explaining debt consequences. Based on these limitations, we propose future research directions.

### 6.1 Exploring Additional Psychological and Behavioral Consequences of Debt

Researchers have examined consequences including mental health, shortsighted behavior, consumption, and unethical conduct, but this area remains incomplete. Future research should pursue two pathways. First, deepen investigation of debt' s moral costs. Although Xin et al. (2023) examined debt-unethical behavior relationships, they used behavioral tendencies as outcomes. Future research should extend to actual unethical behavior to validate this relationship. Additionally, their study allowed participants to benefit from unethical behavior (e.g., "taking office copy paper" to save personal expenses), leaving unclear how debt affects moral behaviors without personal benefit. Future research should examine behaviors like pro-organizational unethical conduct that benefit others but not oneself (Darren et al., 2021) under debt conditions.

Second, explore debt-prosocial behavior relationships. As the opposite of unethical behavior, whether debt erodes prosocial tendencies remains unclear. On one hand, debt-induced cognitive resource depletion reduces prosocial behavior (Ainsworth et al., 2014). On the other hand, research finds economically disadvantaged individuals are more helpful and generous (Piff et al., 2010). Ad-

ditionally, researchers equate owing money with owing favors (Liu et al., 2018), suggesting debt creates not only economic but also interpersonal pressure. Thus, debtors may exhibit more prosocial behavior to maintain relationships. In summary, debt' s effects on prosocial behavior remain uncertain (Wang & Zhang, 2020), requiring future investigation.

### 6.2 Identifying Boundary Conditions for Debt Effects at Macro and Micro Levels

Reviewing debt consequences reveals predominantly negative effects: reduced well-being and mental health, cognitive resource depletion leading to focus on immediate gains, unhealthy lifestyles, and unethical behavior. However, most research focuses on Western developed countries, though debt phenomena and problems also exist—and may be more severe—in less developed regions (Lea, 2021). Limited research from developing countries shows similar patterns (Amit et al 2020), but more studies across different economic development levels are needed.

Beyond economic factors, macro-level cultural contexts importantly influence debt effects, as cultures differ in attitudes toward saving and debt. A US study found that in cities with higher male-to-female gender ratios among unmarried adults, men had more credit cards and debt (Griskevicius et al., 2012). However, Chinese populations may show opposite patterns: research indicates that in Chinese regions with higher gender ratios, parents of boys save more for their children (Wei & Zhang, 2009), reflecting that in Chinese society, saving is more socially approved and valued, making savers more competitive in marriage markets. As male-male competition intensifies, US men may borrow to consume and build positive images, while Chinese men save to build positive images, conforming to cultural traditions. Thus, debt's antecedents and consequences may differ across cultures, warranting future cultural research for deeper understanding.

Researchers can also examine individual cognitive factors as boundary conditions, such as debt threat perception. Limited research demonstrates that reframing debt as non-threatening can protect individuals. Destin and Svoboda (2017) showed that college students' debt burden depleted cognitive resources only when it conflicted with desired successful future identities; reframing educational debt as a viable path to future success substantially reduced cognitive depletion. Dryden et al. (2023) used attribution theory to intervene with indebted students, finding that scientifically guiding students to attribute academic success/failure to internal, controllable factors improved indebted students' academic performance. While both studies demonstrate cognitive reframing's value, their results are limited to student populations using cognitive performance and academic outcomes. Future research should generalize these findings to broader debtor populations and directly test cognitive interventions' effects on other negative debt consequences.

### 6.3 Clarifying Debt's Dimensional Structure and Improving Measurement Tools

Lack of unified classification and standardized measurement tools severely limits debt research and consensus building. First, objective debt's classification and essential characteristics remain unclear. Many researchers directly compare debts by purpose, finding mortgages reduce consumption while consumer/business debt increase it (He & Li, 2022; Zhang et al., 2019). Purpose-based categories include educational debt, medical debt, auto loans, etc., which current research cannot exhaustively cover. Moreover, studies only examine surface relationships between debt types and consumption without identifying essential differences between debt sources. Without answering this question, current findings cannot improve debt problems or promote consumption. Future research should explore objective debt' s characteristic attributes for classification. Blocker et al. (2023) defined debt as low-intensity, long-duration scarcity, but this does not apply to all types (e.g., consumer credit is short-term; medical debt is high-intensity). Variations in intensity and duration may produce different effects and threat perceptions. Research confirms high-intensity default has greater negative impact (Tay et al., 2017) and stress decreases with debt duration (Shen et al., 2014). Future research should use multidimensional scaling (Johnston, 1995) to identify debt' s spatial structure and classify debts by attributes rather than purpose alone.

Second, subjective debt' s dimensional structure remains unclear, lacking standardized measurement tools. For example, Drentea and Lavrakas (2000) used three items: debt worry frequency, perceived stress level, and inability-to-repay concerns. Dunn and Mirzaie (2016) added "expectations about future debt" (likelihood of repaying loans within five years). Researchers used Likert scales, averaging items to create debt stress indices, but these questionnaires derived from existing databases lacked standard development processes and consideration of debt stress dimensions. Future researchers could adapt the Perceived Stress Scale (Cohen et al., 1983), which includes "tension" and "loss of control" dimensions, suggesting debt stress might be similarly measured.

### 6.4 Expanding Research Methods for Causal Conclusions and Neural Evidence

Current debt research relies primarily on large-scale surveys examining debt' s correlates (e.g., Dunn & Mirzaie, 2016; Richardson et al., 2013), providing only correlational evidence insufficient for causal inference. This creates confounding between debt' s consequences and antecedents. For example, long-term indebted individuals with high stress may develop anxiety and depression that reduce work motivation, further deepening debt (Lea, 2021). Similarly, debt and consumption may be mutually causal: irrational luxury consumption may cause cash flow problems requiring borrowing, while indebtedness may trigger luxury consumption to compensate for unmet psychological needs (Wang et al., 2020). Future research should design experiments using debt recall or simulated

indebtedness scenarios to provide causal evidence, and employ longitudinal designs to track debt' s long-term effects.

Beyond questionnaires, experiments, and longitudinal methods, research should incorporate social cognitive neuroscience and physiological psychology to examine debt' s neurophysiological mechanisms. Chronic stress research provides useful models (Sweet et al., 2013): chronic stress activates the hypothalamic-pituitary-adrenal (HPA) axis stress regulation system (Herman et al., 2005), increasing cortisol levels (Stawski et al., 2013), which modulates behavioral responses to environmental stress (Fan & Shi, 2009). Additionally, chronic stress like debt affects spontaneous neural activity during rest; Ren et al. (2022) used resting-state fMRI to find that frequent, long-term stressors maintain persistent activation in limbic brain regions.

### 6.5 Building Integrated Theory to Explain Debt Consequences

No specialized theory of debt consequences currently exists. Researchers typically borrow theories from economic psychology or behavioral economics to explain debt. For example, intertemporal choice theory examines how individuals weigh benefits across time points, with credit decisions requiring calculations about consumption and repayment timing (Lea, 2021). However, Lea notes intertemporal choice theory' s limited explanatory power, as debt is far more complex. Mental accounting theory explains debt management processes (Prelec & Loewenstein, 1998): individuals don' t manage all debts in a unified account but narrowly establish separate mental accounts by debt type to calculate gains and losses. When more accounts show "loss status,"psychological costs increase (Ong et al., 2019), leading individuals to prioritize clearing small debts to reduce account numbers rather than addressing highest-interest debts (Amar et al., 2011). These theories address borrowing decisions and debt management from economic psychology perspectives but don' t theoretically construct debt' s psychological consequences.

Based on systematic review of debt consequence research, this paper proposes a theoretical framework where objective debt triggers subjective debt, depleting cognitive resources and reducing psychological need satisfaction, ultimately affecting mental health and socioeconomic behavior (Figure 2). While each link has theoretical and empirical support, no research has directly tested this integrated framework. Future researchers should flexibly employ multiple methods, starting from objective debt to explore proximal and distal outcomes, building integrated theoretical models of debt consequences.

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