

A life course perspective on childhood adversity, protective factors, and financial fraud  
vulnerability

by

Brandon DaReil Ratzlaff

B.B.A., Texas Tech University, 2002  
M.S., Texas Tech University, 2003  
M.B.A., University of Texas at Dallas, 2010

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirement for the degree

DOCTOR OF PHILOSOPHY

Department of Personal Financial Planning  
College of Health and Human Sciences

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

2025

## **Abstract**

Financial fraud poses a significant threat to individuals' financial well-being, particularly among older adults who may experience cognitive decline and limited financial decision-making capacity. This study examines how early life adversities (ELAs) contribute to financial fraud vulnerability in later life, with a specific focus on the moderating effects of financial literacy, resilience, social support, and financial guidance. While prior research has linked ELAs to various negative life outcomes, little is known about how early-life adversity influences financial decision-making and fraud susceptibility in adulthood. This study addresses this gap by exploring whether individuals with ELA histories are at greater risk of financial fraud and whether certain protective factors can mitigate this vulnerability.

Using data from the Health and Retirement Study (HRS), this study employs quantitative methods, including logistic and linear regression analyses, to examine the relationship between ELAs and financial fraud vulnerability. Multiple imputation techniques are used to address missing data and ensure the robustness of findings. The analysis explores direct effects of ELAs on fraud victimization, as well as the moderation effects of demographic and protective factors. Additionally, the study investigates three-way interactions between ELAs, financial literacy, and psychological resilience to assess whether the combined presence of financial knowledge and behavioral adaptability reduces fraud susceptibility.

The findings indicate that ELA exposure is significantly associated with greater financial fraud vulnerability, supporting the life course theory perspective that early-life adversity has long-term economic consequences. However, financial literacy alone does not serve as a protective factor unless paired with resilience, suggesting that financial knowledge must be supplemented with behavioral and psychological adaptability. Among demographic moderators,

gender, age, and education significantly influence fraud vulnerability, while race, marital status, and employment status do not. The study also finds that resilience strengthens the protective effects of financial literacy, highlighting the need for financial education programs that integrate both knowledge acquisition and behavioral coaching.

These findings have important theoretical, practical, and policy implications. The study extends life course model by demonstrating how childhood adversity creates long-term financial disadvantages, reinforcing the need for early interventions that promote both financial and psychological resilience. Practical implications suggest that financial planners should incorporate trauma-informed approaches when advising clients with ELA histories, while financial educators should design curricula that integrate fraud awareness and behavioral resilience training. Policy recommendations include targeted fraud prevention programs for at-risk individuals and regulatory measures that enhance consumer protections against financial exploitation. By providing empirical evidence on the intersection of ELAs, financial decision-making, and fraud vulnerability, this study contributes to the growing fields of behavioral finance and financial therapy and informs strategies to improve financial security for vulnerable populations.

A life course perspective on childhood adversity, protective factors, and financial fraud  
vulnerability

by

Brandon DaReil Ratzlaff

B.B.A., Texas Tech University, 2002  
M.S., Texas Tech University, 2003  
M.B.A., University of Texas at Dallas, 2010

A DISSERTATION

submitted in partial fulfillment of the requirement for the degree

DOCTOR OF PHILOSOPHY

Department of Personal Financial Planning  
College of Health and Human Sciences

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

2025

Approved by:

Major Professor  
Derek R. Lawson

# Copyright

© Brandon Ratzlaff 2025.

## **Abstract**

Financial fraud poses a significant threat to individuals' financial well-being, particularly among older adults who may experience cognitive decline and limited financial decision-making capacity. This study examines how early life adversities (ELAs) contribute to financial fraud vulnerability in later life, with a specific focus on the moderating effects of financial literacy, resilience, social support, and financial guidance. While prior research has linked ELAs to various negative life outcomes, little is known about how early-life adversity influences financial decision-making and fraud susceptibility in adulthood. This study addresses this gap by exploring whether individuals with ELA histories are at greater risk of financial fraud and whether certain protective factors can mitigate this vulnerability.

Using data from the Health and Retirement Study (HRS), this study employs quantitative methods, including logistic and linear regression analyses, to examine the relationship between ELAs and financial fraud vulnerability. Multiple imputation techniques are used to address missing data and ensure the robustness of findings. The analysis explores direct effects of ELAs on fraud victimization, as well as the moderation effects of demographic and protective factors. Additionally, the study investigates three-way interactions between ELAs, financial literacy, and psychological resilience to assess whether the combined presence of financial knowledge and behavioral adaptability reduces fraud susceptibility.

The findings indicate that ELA exposure is significantly associated with greater financial fraud vulnerability, supporting the life course model perspective that early-life adversity has long-term economic consequences. However, financial literacy alone does not serve as a protective factor unless paired with resilience, suggesting that financial knowledge must be supplemented with behavioral and psychological adaptability. Among demographic moderators,

gender, age, and education significantly influence fraud vulnerability, while race, marital status, and employment status do not. The study also finds that resilience strengthens the protective effects of financial literacy, highlighting the need for financial education programs that integrate both knowledge acquisition and behavioral coaching.

These findings have important theoretical, practical, and policy implications. The study extends life course model by demonstrating how childhood adversity creates long-term financial disadvantages, reinforcing the need for early interventions that promote both financial and psychological resilience. Practical implications suggest that financial planners should incorporate trauma-informed approaches when advising clients with ELA histories, while financial educators should design curricula that integrate fraud awareness and behavioral resilience training. Policy recommendations include targeted fraud prevention programs for at-risk individuals and regulatory measures that enhance consumer protections against financial exploitation. By providing empirical evidence on the intersection of ELAs, financial decision-making, and fraud vulnerability, this study contributes to the growing fields of behavioral finance and financial therapy and informs strategies to improve financial security for vulnerable populations.

## Table of Contents

|                                                                    |      |
|--------------------------------------------------------------------|------|
| List of Figures .....                                              | xi   |
| List of Tables.....                                                | xii  |
| Acknowledgments.....                                               | xiii |
| Dedication .....                                                   | xvi  |
| Chapter 1 – Introduction .....                                     | 1    |
| Introduction and Statement of the Problem .....                    | 1    |
| Purpose and Justification of the Study.....                        | 3    |
| Background .....                                                   | 3    |
| Need for the Study .....                                           | 5    |
| Research Questions.....                                            | 6    |
| Hypotheses.....                                                    | 7    |
| Theoretical Framework.....                                         | 9    |
| Life Course Model .....                                            | 9    |
| Resiliency Theory .....                                            | 10   |
| General Conceptualization of the Theory .....                      | 13   |
| Limitations .....                                                  | 16   |
| Summary and Potential Implications .....                           | 17   |
| Chapter 2 – Review of the Literature.....                          | 20   |
| Early Life Adversity.....                                          | 20   |
| Early Life Adversity and Financial Behaviors.....                  | 22   |
| Protective Factors and Financial Resilience .....                  | 26   |
| Demographic Factors in ELA-Related Financial Vulnerabilities ..... | 36   |
| Vulnerability to Financial Fraud in Adulthood .....                | 37   |
| Summary .....                                                      | 40   |



|                                                                     |    |
|---------------------------------------------------------------------|----|
| Chapter 3 – Methodology .....                                       | 42 |
| Dataset and Sample Selection .....                                  | 42 |
| Variable Measurement .....                                          | 45 |
| Outcome Variable: Financial Fraud Vulnerability .....               | 45 |
| Independent Variable: Early Life Adversity .....                    | 48 |
| Moderating Variable: Financial Literacy .....                       | 51 |
| Moderating Variable: Financial Guidance .....                       | 53 |
| Moderating Variable: Psychological Resilience .....                 | 55 |
| Moderating Variable: Social Support.....                            | 58 |
| Control Variables .....                                             | 60 |
| Data Analysis .....                                                 | 64 |
| Analysis Structure.....                                             | 66 |
| Chapter 4 – Findings and Results .....                              | 70 |
| Demographic characteristics of the sample .....                     | 70 |
| Bivariate Correlations and Preliminary Analyses .....               | 73 |
| Regression Analyses and Hypothesis Testing.....                     | 78 |
| Logistic Regression: Predicting Fraud Victimization .....           | 78 |
| OLS Regression: Predicting Fraud Severity .....                     | 79 |
| Interaction and Moderation Analysis .....                           | 81 |
| Logistic Regression: Moderation Effects on Fraud Victimization..... | 81 |
| OLS Regression: Moderation Effects on Fraud Severity .....          | 83 |
| Summary of Analyses .....                                           | 85 |
| Direct Effects on Fraud Victimization and Fraud Severity .....      | 85 |
| Moderating Effects of Psychological and Financial Factors .....     | 86 |
| Model Performance and Implications.....                             | 87 |

|                                                                   |     |
|-------------------------------------------------------------------|-----|
| Chapter 5 – Discussion, Implication, and Conclusions .....        | 89  |
| Discussion of Research Findings .....                             | 90  |
| Direct Effects .....                                              | 91  |
| Moderation Effects.....                                           | 93  |
| Interaction Effects .....                                         | 95  |
| Implications of Findings .....                                    | 97  |
| Theoretical Implications .....                                    | 97  |
| Practical Implications for Financial Planners and Educators ..... | 99  |
| Implications for Policy and Consumer Protection .....             | 100 |
| Limitation of Current Study .....                                 | 102 |
| Recommendations for Future Studies .....                          | 105 |
| Conclusion .....                                                  | 107 |
| References .....                                                  | 111 |
| Appendix A – Statistical Programming.....                         | 142 |
| Statistical programming (Stata) .....                             | 142 |

## **List of Figures**

|                                                                                                                 |    |
|-----------------------------------------------------------------------------------------------------------------|----|
| Figure 1.1. Conceptual Life Course Model .....                                                                  | 13 |
| Figure 1.2. Integrated Conceptual Model of ELAs, Protective Factors, and Financial Fraud<br>Vulnerability ..... | 15 |
| Figure 3.1. Moderation Model of ELAs and Financial Fraud Vulnerability .....                                    | 60 |
| Figure 4.1. Moderation Model with Empirical Results .....                                                       | 87 |

## List of Tables

|                                                                                                      |    |
|------------------------------------------------------------------------------------------------------|----|
| Table 3.1. Measurement of Financial Fraud Vulnerability.....                                         | 47 |
| Table 3.2. Distributions of ELA Indicators .....                                                     | 50 |
| Table 3.3. Cronbach's Alpha for Financial Literacy Scale .....                                       | 53 |
| Table 3.4. Financial Literacy Score Distribution (N = 1,806) .....                                   | 53 |
| Table 3.5. Financial Guidance Distribution (N = 1,680) .....                                         | 55 |
| Table 3.6. Cronbach's Alpha for Psychological Resilience Scale .....                                 | 58 |
| Table 3.7. Cronbach's Alpha for Social Support Scale.....                                            | 59 |
| Table 3.8. Cronbach's Alpha for Mental Status Scale .....                                            | 63 |
| Table 3.9. Measurement of Control Variables.....                                                     | 63 |
| Table 3.10. Expected Relationship between Model Variables and Financial Fraud Vulnerability<br>..... | 64 |
| Table 4.1. Sample Characteristics of Categorical Variables (N = 15,681).....                         | 72 |
| Table 4.2. Sample Characteristics of Scales and Continuous Variables (N = 15,681).....               | 73 |
| Table 4.3. Bivariate Correlation Matrix for Key Continuous Variables.....                            | 74 |
| Table 4.4. T-Test and ANOVA Results for Fraud Severity Across Demographic Groups.....                | 76 |
| Table 4.5. Logistic Regression Predicting Fraud Victimization.....                                   | 78 |
| Table 4.6. OLS Regression Predicting Fraud Severity .....                                            | 80 |
| Table 4.7. Logistic Regression: Two-Way Interactions on Fraud Victimization .....                    | 82 |
| Table 4.8. Logistic Regression: Three-Way Interactions on Fraud Victimization .....                  | 83 |
| Table 4.9. OLS Regression: Two-Way on Fraud Severity .....                                           | 84 |
| Table 4.10. OLS Regression: Three-Way on Fraud Severity .....                                        | 84 |
| Table 5.1. Summary of Hypotheses Support .....                                                       | 96 |

## Acknowledgments

The decision to pursue a PhD in your 40s is not made or accomplished alone. Numerous choices, experiences, and personal interactions have led me to this point, profoundly impacting not only myself but also my family, friends, colleagues, and clients. Reflecting on these moments and expressing gratitude to those who have shaped my journey is incredibly important to me. It is especially meaningful to recognize the individuals who inspired me, knowingly or unknowingly, along the way.

I would first and foremost like to express my deepest appreciation to my family: my wife, Jennifer, my son, Conner, and my daughter, Kennedy. Your unwavering support, patience, and the sacrifices you've made allowed me to pursue this journey. I recognize that my academic responsibilities often interfered with our family life, especially during demanding summer sessions and intense periods dedicated to my dissertation. No matter how disruptive this became, your encouragement and understanding sustained me. You have sacrificed more than anyone to help me achieve this goal, and for that, I am forever grateful. For this and more, I love you!

I cannot imagine having done this without the best “nerdy-but-cool” PhD cohort ever: Chet Bennetts, Eric Ludwig, Effie Antonoudi, and Daniel Yerger. We began this journey together in August of 2020 during the height of COVID, and even though it took us a year to finally meet in person, I immediately felt like we'd been lifelong friends. The college experiences we shared each summer – staying up late “studying,” the dinners out, the coffee shop coding sessions, and all the shenanigans we created - are all moments I will cherish forever. To Chet Bennetts for your friendship, for introducing me to New Girl, which helped us pass many late nights during the infamous second summer, and for always letting me be the big spoon. To Eric Ludwig, thank you for your friendship, and for being the north star that set a

profound example of balancing responsibilities as a student, husband, and father. You were unquestionably the best pickleball teammate – our mutual agreement that letting Dr. Martin Seay win was essential to our PhD progression, will now and forever put an asterisk to his bragging rights on pickleball dominance. To both Chet and Eric, the random, very unacademic, and unprofessional conversations we shared during breakfasts at the Bluemont and walks to class are the cornerstone of our friendship and put the “happy” in Manhappiness.

To my committee chair, Dr. Derek Lawson – I blame you for all of this. Had it not been for that conversation at Texas Tech, I would have continued living an unfulfilled life. The past four-and-a-half years have been an extraordinary combination of misery and blessing. You always knew when I needed encouragement and when I needed to be pushed harder, all while patiently tolerating my jokes designed to deflect when I didn’t have a clue how to answer your questions. Your mentorship, and more importantly, your friendship has meant more than I can ever express. For it all, thank you!

To my committee members, Dr. Megan McCoy, Dr. Mindy Joseph, and Dr. Kristin Anders – I would not be here today without your valuable feedback and your reminder to do less and focus more. The quality of the final version of this dissertation reflects your investment in me; I hope it makes you as proud as I am. It has been an honor to have each of you play such an important role in my journey and I hope one day I can contribute to others as meaningfully as you have to me. I also want to express my gratitude to Dr. HaNa Lim, whose guidance and feedback in the initial stages of my dissertation greatly influenced its direction. Your insights and challenges early in the dissertation process provided a strong foundation, for which I am sincerely thankful.

I would also like to express my appreciation to the faculty – Dr. Blake Gray, Dr. Stuart Heckman, Dr. Elizabeth Kiss, Dr. Michael Kothakota, Dr. Derek Lawson, Dr. HaNa Lim, Dr. Maurice MacDonald, Dr. Megan McCoy, and Dr. Martin Seay. Thank you all for sharing your expertise and teaching this old guy new things. I am proud to have been one of your students. To Morgan Graham, our academic advisor, thank you! Your guidance and constant reminders kept me focused so I never missed a deadline.

Finally, to my colleagues at Cypress Point, thank you for your continuous support and encouragement. My PhD journey coincided with a time of extraordinary growth at Cypress Point, and without each of you, neither would have been possible. I want to give a special thanks to Jimmy Kull and Jennifer Cook. During the seasons when my academic workload was especially demanding, you both stepped up and gave me the time and space I needed to reach the finish line.

## **Dedication**

I dedicate this dissertation to my family. To my wife, Jennifer, thank you for always supporting my goals, no matter how ambitious or ridiculous they may have seemed, and for your endless love, encouragement, and patience. Your unwavering belief in me made this possible. To my son, Conner, and my daughter Kennedy, your journeys through high school, college selection, graduation, and stepping into your own adventures coincided with my PhD journey. Watching you both persevere and overcome your own challenges motivated and inspired in ways you will never fully know as I faced my own through this process. As proud as I am to earn the letters PhD, nothing compares to the joy and pride of being your DAD. Everything I am today is because of you, and my greatest wish is that one day you experience the same pride and happiness you have given me. To my mom and dad, I wish you could be here to celebrate this milestone alongside Jen and the kids. I know you are watching over me and celebrating in your own special way. Even after all these years, your love and support continue to guide and inspire me.



# **Chapter 1 – Introduction**

## **Introduction and Statement of the Problem**

The complexities of human behavior are shaped by a myriad of experiences, most notably those encountered during the formative years of childhood. Early life experiences, whether beneficial or detrimental, form the cognitive and emotional foundations that influence decision-making, behaviors, and long-term well-being (Fox et al., 2010; McLeod & Almazan, 2003; Rutter, 1989; Sroufe et al., 2010). Among these foundational experiences, early life adversities (ELAs), such as early exposure to abuse, neglect, or family dysfunction, may influence how individuals manage financial risks later in life. This study explores whether ELAs play a role in shaping susceptibility to financial exploitation, scams, and fraud in adulthood.

For purposes of this study, financial fraud vulnerability is defined as an individual's susceptibility to deceptive or manipulative financial practices that result in economic loss (DeLiema et al., 2020; James et al., 2014). This encompasses vulnerability to investment fraud, consumer scams, identity theft, and financial exploitation through various channels including digital, telephone, and in-person schemes. Recent estimates from the Federal Trade Commission (2024) indicate that Americans lost over \$10 billion to fraud in 2023, with older adults and vulnerable populations bearing a disproportionate burden of these losses. ELAs encompass a range of stressful or traumatic experiences that occur before age 18, including neglect, physical and emotional abuse, and household dysfunction (Sansone et al., 2012). The negative consequences of ELAs are well-documented, linking childhood adversity to mental and physical health challenges (Felitti et al., 1998; Knifton & Inglis, 2020; Lippard & Nemeroff, 2020), maladaptive behaviors (Price et al., 2018; Windle et al., 2018), and diminished economic opportunities (Carvalho, 2012; Metzler et al., 2017).

While ELAs have been extensively studied in relation to health and psychological outcomes, their impact on financial fraud vulnerability remains largely unexplored. Existing research has demonstrated that ELAs impair decision-making processes (Gathergood, 2012; Sansone et al., 2013), alter risk perception (Haushofer & Fehr, 2014), and diminished executive function (Ross et al., 2022), the direct pathway connecting childhood adversity to financial fraud susceptibility has not been systematically investigated. This critical gap limits our understanding of why certain individuals become financial fraud victims while other in similar demographic profiles remain protected. Understanding this relationship is critical, as financial fraud remains a growing societal concern, particularly among aging populations with increased cognitive and emotional vulnerabilities.

The financial domain provides a critical framework for understanding how early-life adversity increases vulnerability to financial fraud. Individuals with ELA exposure may face heightened financial vulnerability due to impaired decision-making, lower financial literacy, and increased susceptibility to manipulative financial schemes (Gathergood, 2012; Ross et al., 2022). Cognitive impairments and emotional dysregulation, commonly associated with ELAs, may further compromise fraud detection abilities, making individuals more likely to fall victim to scams (Ross et al., 2022). However, protective factors such as financial literacy (defined as the knowledge, skills, and confidence needed to make responsible decisions), resilience, social support (Hamby et al., 2018) and financial guidance (structured assistance from qualified financial professionals) may buffer against these risks, potentially mitigating the long-term financial consequences of childhood adversity.

This dissertation takes a multidisciplinary approach, drawing from psychology, economics, consumer behavior, and behavioral finance to examine the relationship between

ELAs and financial fraud vulnerability in adulthood. Specifically, this dissertation investigates whether financial literacy, resilience, social support, and financial guidance serve as protective factors that moderate the relationship between ELA exposure and fraud vulnerability. By addressing these relationships, this study advances our understanding of how early-life adversity influences financial well-being and provides valuable insights for policymakers, financial educators, and practitioners aiming to develop targeted interventions that reduce financial harm among at-risk populations, fostering greater financial stability and resilience.

### **Purpose and Justification of the Study**

The purpose of this study is to examine the impact of early life adversity (ELA) on financial fraud vulnerability in adulthood. Specifically, this research investigates whether individuals with ELA histories face a heightened risk of financial exploitation, scams, and fraud. This study employs a quantitative approach using data from the Health and Retirement Study (HRS), a nationally representative longitudinal dataset that captures both childhood experiences and late-life financial outcomes.

Once this relationship is established, the study will assess whether financial literacy, resilience, social support, and financial guidance serves as protective factors that mitigate these risks. Understanding these dynamics is critical for developing evidence-based interventions that help prevent financial harm among at-risk populations. The findings will directly inform the development of targeted financial education programs and fraud prevention strategies for individuals with ELA histories.

### **Background**

The relationship between childhood trauma and adult financial vulnerability has gained increasing attention in recent years, particularly as financial fraud schemes have become more

sophisticated and prevalent. Most research on early life adversities (ELAs) has focused on effects on health, psychological well-being, and relational stability (Felitti et al., 1998; Knifton & Inglis, 2020; Lippard & Nemeroff, 2020; Price et al., 2018; Windle et al., 2018). Other studies have extensively examined how ELAs contribute to mental health challenges, chronic illness, and social difficulties. (Dube et al., 2003; Felitti et al., 1998; Hughes et al., 2017; Kalmakis & Chandler, 2015; Papp et al., 2009; Petruccelli et al., 2019;). More recently, research has begun exploring ELA's economic consequences, showing associations with employment instability, food and housing insecurity, and financial stress (CDC, 2021, 2024; Currie & Widom, 2010; Harter & Harter, 2022; Hughes et al., 2024; Liu et al., 2013; McCrae et al., 2019; Metzler et al., 2017).

Recent studies have identified specific mechanisms through which childhood adversity may increase financial vulnerability. Lund et al. (2023) demonstrated that ELA exposure is associated with impaired executive functioning, which directly affects complex financial decision-making processes essential for fraud detection. Similarly, Kalia and Knauff (2020) found that disrupted emotional regulation – a common consequence of childhood trauma – significantly influences risk assessment capabilities, making individuals more susceptible to high-pressure sales tactics and emotional manipulation in financial contexts. Additionally, Schneider et al. (2020) documented how ELA survivors often develop diminished social support networks in adulthood, eliminating the protective guidance and oversight that typically shields individuals from fraudulent schemes and financial exploitation.

While these studies highlight the indirect financial consequences of ELAs, far less is known about their direct impact on financial fraud vulnerability. Individuals with ELA exposure may have lower financial literacy, impaired judgement in recognizing deceptive financial

schemes, and weaker social support networks – factors that increase their vulnerability to scams and exploitation (Gutter & Copur, 2011; James et al., 2014; Ross et al., 2022; Shim et al., 2013). However, protective factors such as financial literacy, resilience, social support, and financial guidance (Kim & Chatterjee, 2013; Masten, 2014) may reduce these risks by fostering better decision-making skills and strengthening fraud detection abilities.

## **Need for the Study**

Financial fraud and exploitation have become pressing public concerns, particularly among older adults. According to the FBI's Crime Complaint Center (2024), Americans lost over \$10.3 billion to internet-enabled fraud in 2023, with individuals over 60 experiencing the highest per-capita losses. The Raval (2021) report indicates that fraud-related financial losses have increased dramatically in recent years, disproportionality affecting individuals with cognitive vulnerabilities, economic hardship or limited financial literacy. Common fraud schemes targeting vulnerable populations include romance scams (\$1.14 billion in losses in 2023), investment fraud (\$3.94 billion in losses), business email compromise (\$2.7 billion in losses), and tech support scams particularly targeting older adults (\$1.2 billion in losses; FBI, 2024). Given that ELA survivors are at a heightened risk for economic stress and cognitive impairments, understanding the link between ELA exposure and fraud vulnerability is critical.

This study is particularly relevant for financial planning professionals, as clients with ELA histories may exhibit unique financial vulnerabilities. Many individuals with ELA exposure face difficulties in financial planning, risk assessment, and fraud detection (Archuleta & Grable, 2010; Harter & Harter, 2022; Hughes et al., 2024). As specialized fields such as financial therapy gain prominence (Ford et al., 2020), research at the intersection of ELAs, financial literacy,

resilience, social support, and financial guidance is needed to develop more effective financial education programs and interventions (Kim & Chatterjee, 2013).

The selection of the Health and Retirement Study (HRS) as the primary data source offers several advantages: its longitudinal design allows for examination of long-term effects; its large, nationally representative sample enhances generalizability; it provides comprehensive measures of both childhood experiences and financial outcomes; and it contains detail information about protective factors and demographic characteristics. Although prior research has explored financial literacy and resilience in various contexts (Dube et al., 2003; Felitti et al., 1998; Hughes et al., 2017; Kalmakis & Chandler, 2015; Knifton & Inglis, 2020; Lippard & Nemeroff, 2020; Papp et al., 2009; Petruccelli et al., 2019; Windle et al., 2018), no existing studies have systematically examined how these factors – along with social support and financial guidance – influence the relationship between ELAs and financial fraud vulnerability. This study aims to address this gap by evaluating whether financial literacy, resilience, social support, and financial guidance moderate the impact of ELAs on fraud vulnerability.

## **Research Questions**

This study employs a systematic approach to understanding the relationship between early life adversity (ELA) and financial fraud vulnerability over the life course. The following research questions are structured to examine both the direct effects and potential protective mechanisms:

1. How do early life adversities (ELAs) affect financial fraud vulnerability (magnitude, dose-response), and does this vary by demographic factors?
2. Does resilience, along with social support or financial guidance, buffer the ELAs-fraud vulnerability link, and do these effects differ by demographic characteristics?

3. Does financial literacy moderate the ELAs – fraud relationship, and how does it interact with resilience or other protective factors across different demographic groups?

## **Hypotheses**

Based on existing literature and theoretical frameworks, this study proposes the following directional hypotheses:

### **Direct Effects of ELAs on Financial Vulnerability**

H1a: Individuals with at least one ELA are at greater risk of financial fraud compared to those with no ELAs.

H1b: The relationship will show a dose-response pattern, with more ELAs predicting higher vulnerability.

### **Moderating Effects of Demographics**

H2: The effect of ELAs on financial vulnerability will be stronger for racial minorities, due to compounded systemic barriers and reduced access to financial resources.

H3: The effect of ELAs on financial vulnerability is moderated by gender, with women being more vulnerable than men.

H4: The effect of ELAs on financial vulnerability will be strongest among older adults (age 65+), with the relationship strengthening as cognitive decline increases.

H5: The effect of ELAs on financial vulnerability is moderated by marital status, with unmarried individuals experiencing greater financial vulnerability compared to married individuals.

H6: The effect of ELAs on financial vulnerability is moderated by educational attainment, with higher education reducing vulnerability.

H7: The effect of ELAs on financial vulnerability is moderated by employment status, with unemployed or underemployed individuals exhibiting a stronger relationship.

### **Moderating Effects of Protective Factors**

H8: Resilience moderates the relationship between ELAs and financial vulnerability, such that individuals with higher resilience experience lower financial vulnerability.

H9: Financial literacy moderates the relationship between ELAs and financial vulnerability, such that individuals with higher financial literacy are less likely to fall victim.

H10: Social support moderates the relationship between ELAs and financial vulnerability, such that individuals with higher social support experience lower financial vulnerability.

H11: Financial guidance moderates the relationship between ELAs and financial vulnerability, such that individuals who receive financial coaching or guidance experience lower financial vulnerability.

H12: There is a three-way interaction between ELAs, resilience, and financial literacy, such that individuals with high resilience and high financial literacy experience the lowest levels of financial vulnerability.

H13: There is a three-way interaction between ELAs, social support, and financial literacy, such that individuals with high social support and high financial literacy experience the lowest levels of financial vulnerability.

H14: There is a three-way interaction between ELAs, financial guidance, and financial literacy, such that individuals with high financial guidance and high financial literacy experience the lowest levels of financial vulnerability.



## **Theoretical Framework**

This research is guided by two complementary theories: life course model (Moschis, 2019a) and resiliency theory (Zimmerman, 2013). These theories work together to provide a comprehensive understanding of financial vulnerability. Life course model provides a framework for understanding how early-life adversities, such as ELAs, shape long-term financial outcomes, while resiliency theory, in turn, explains why some individuals demonstrate financial resilience despite experiencing childhood adversity. The integration of these theories suggests that while ELAs create vulnerability pathways, protective factor can modify these trajectories through specific mechanisms.

### **Life Course Model**

Life course model examines human development as a lifelong process shaped by historical, social, and personal contexts (Moschis, 2019a). It posits that timing, accumulation of risk, and social structures play critical roles in shaping an individual's developmental trajectory (Moschis, 2019a). The timing dimension of life course model is particularly relevant to financial decision-making and fraud vulnerability. Exposure to adversity during critical developmental periods – such as adolescence when financial attitudes are forming – may have disproportionate effects on later financial behavior (Brumley et al., 2017). The timing (Ts) of ELA exposure may disrupt the development of risk assessment abilities and trust mechanisms essential for detecting fraudulent schemes (Harter & Harter, 2022; Nur et al., 2022). For instance, ELAs occurring during adolescence may have particularly strong effects on financial capability development, as this is a critical period for learning financial management skills (Fine & Kotelchuck, 2010; Kuh et al., 2003)

The accumulation pathway suggests that repeated exposure to adversity compounds negative effects, creating what Elder (1998) terms “cumulative disadvantage.” This accumulation exacerbates fraud vulnerability by progressively impairing cognitive and emotional regulation capacities crucial for financial decision making (Morduch & Schneider, 2017; Nu et al., 2022). Each additional ELA appears to incrementally reduce financial judgement capacity (Schurer et al., 2019) and emotional regulation – key protective factors against financial exploitation (Elder et al., 2003; Kahn & Pearlin, 2006; Schroeder, 2018).

The contextual dimensions emphasize that childhood experiences occur within broader socioeconomic, familial, and historical environments (Hope, 2019). According to Seligman et al. (2013), these context-dependent experiences create enduring patterns of financial behavior and vulnerability. For example, childhood economic hardship combined with other ELAs creates compounded vulnerability to financial exploitation through multiple pathways (Schurer et al., 2019).

Empirical research supports these theoretical mechanisms, demonstrating that repeated exposure to childhood adversity significantly increases susceptibility to financial fraud (Brockie et al., 2015; Cavanaugh et al., 2015; Felitti et al., 1998; Fox et al., 2015; Hughes et al., 2017). However, structural factors including race, socioeconomic status, and community resources moderate these relationships (Brown et al., 2016; McLeod & Owen, 2004). Strong social support networks and financial literacy resources may facilitate resilience, while systemic barriers intensify financial vulnerability for marginalized groups (Mossakowski, 2008; Nwosu & Ilori, 2024).

## **Resiliency Theory**

Resiliency theory (Zimmerman, 2013) offers a powerful explanatory framework for understanding why some individuals maintain positive financial and psychological well-being despite experiencing adversity (Masten, 2016). In the context of financial fraud vulnerability, resilience represents not merely the absence of financial harm but rather an active process of adaption that enables individuals to recognize financial threats, make sound decisions under pressure, and recover from economic setbacks (Joseph & Linley, 2006; Southwick et al., 2014).

The theoretical foundation of resilience research emerged in the 1970s and 1980s through the work of Garmezy, Rutter, and Werner (Howard et al., 1999; Johnson & Wiechelt, 2004). The landmark Kauai Longitudinal Study provided compelling evidence that positive outcomes were possible despite significant adversity exposure (Werner, 1989). This study revealed that approximately one-third of high-risk children developed into competent, confident adults through specific protective mechanisms (Werner, 1989). These findings catalyzed research into how financial and psychological resilience might develop despite early adversity (Masten, 2016).

Contemporary resilience literature has evolved beyond viewing resilience as a fixed personality trait toward understanding it as a dynamic, multidimensional process. Masten (2016) defines resilience as “the capacity for successful adaptation to disturbances that threaten system function, viability, or development” (p. 298). This definition is particularly relevant to financial contexts, where adaption to economic threats requires multiple protective capacities (Briguglio et al., 2014; Klapper & Lusardi, 2020). Resilience emerges through interactions between individuals and their environments, emerging from a combination of psychological strengths (e.g., cognitive abilities, problem-solving skills, emotional regulation, and financial literacy) and external protective factors (social support networks, financial guidance, and access to community resources) (Heard-Garris et al., 2018; Masten, 2016).

Empirical research demonstrates that individuals with greater resilience are better equipped to make sound financial decisions, avoid financial exploitation, and navigate financial hardships more effectively (Southwick et al., 2014). Conversely, risk factors such as economic hardship, family instability, and adverse social environments can increase an individual's vulnerability to financial distress (Johnson & Wiechelt, 2004). While resilience cannot eliminate all impacts of childhood adversity, it functions as a critical buffer against financial exploitation.

### ***The role of social support and financial guidance in resilience***

Social support and financial guidance play critical roles in fostering financial resilience and reducing financial fraud vulnerability. Social support encompasses both actual assistance (received support) and the perception that help is available when needed (perceived support) (Park et al., 2017). Strong social networks provide emotional stability, enhance financial knowledge, and raise fraud awareness, reducing the likelihood of risky financial behaviors and financial vulnerability (Friedline et al., 2017; Reblin & Uchino, 2008).

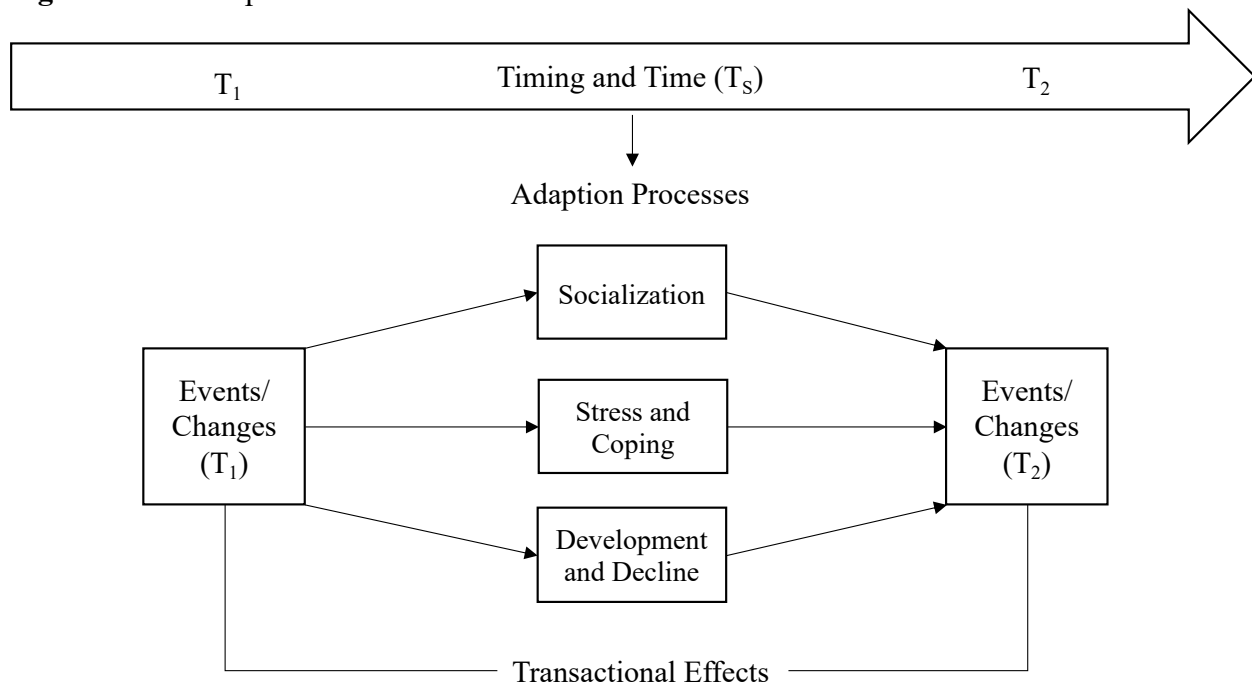
Financial guidance – whether through financial coaching, professional advisors, or educational programs – strengthens financial resilience by promoting responsible financial behaviors and reducing fraud susceptibility (Collins et al., 2013; Theodos et al., 2015). This is particularly relevant for early life adversity (ELA) survivors, who face higher risks of financial distress and impulsive financial behaviors. Structured financial coaching programs can help mitigate these risks and enhance financial resilience (Tumataroa & O'Hare, 2019).

By integrating life course and resilience theoretical frameworks, this study offers a comprehensive model for understanding how ELAs influence financial vulnerability and how protective factors – including resilience, financial literacy, social support, and financial guidance – can collectively reduce susceptibility to financial fraud.

## General Conceptualization of the Theory

A foundational model for understanding life course model comes from the consumer behavior research of Moschis (2019b). The model presented in Figure 1 is adapted from the Conceptual Life Course Model (Moschis, 2019a) and illustrates how early-life experiences shape behavioral and decision-making patterns over time.

**Figure 1.1.** Conceptual Life Course Model



A Conceptual Life Course Model (Moschis, 2019a)

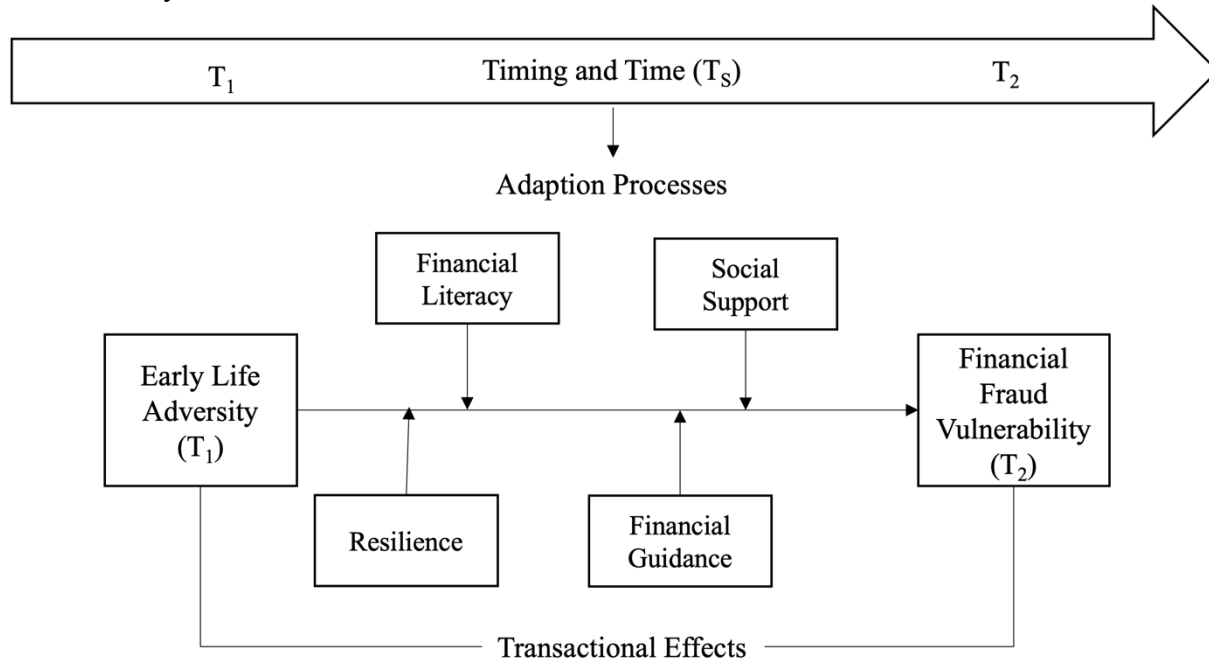
Moschis' (2019a) model represents a revision and expansion of an earlier life course model (Moschis, 2007), which has been widely applied in consumer behavior research (Mathur & Kasper, 2019; Mathur et al., 2020). This updated model has been instrumental in examining how life events – both expected (e.g., entering Kindergarten) and unexpected (e.g., childhood trauma) – influence long-term outcomes. The model identifies three interdependent adaptation processes triggered by these events at Time 1 ( $T_1$ ): (1) socialization processes, which shapes

values, attitudes, and behaviors, (2) stress and coping responses, which determine resilience to adversity, and (3) developmental changes, which reflect cognitive, emotional, and financial growth or decline over time. These adaptation processes influence behavioral outcomes at Time 2 (T2), representing later-life consequences of earlier experiences.

The life course perspective emphasizes that personal development, stability, and behavioral shifts are not random but shaped by dynamic life conditions, social structures, and environmental changes (Elder & Johnson, 2002). Individuals actively construct their life courses through decision-making, constrained by both personal limitations (e.g., biological, financial, social capital) and structural conditions (e.g., market factors, educational opportunities, systemic barriers). Events at T1 do not operate in isolation; instead, they interact with structural and contextual factors, meaning that early adversities may compound over time or be mitigated by protective mechanisms such as education, financial literacy, and social support.

While Moschis' model provides a strong foundation for understanding consumer decision-making, this study extends it to examine financial fraud vulnerability. Specifically, this research integrates elements of life course model and resilience theory to explore how early life adversities (ELAs) influence financial fraud vulnerability in adulthood. Figure 2 presents the adapted life course model, which builds upon Moschis' framework by incorporating ELAs, resilience, financial literacy, financial guidance, and social support as key factors shaping financial fraud vulnerability.

**Figure 1.2.** Integrated Conceptual Model of ELAs, Protective Factors, and Financial Fraud Vulnerability



In this adapted model, T<sub>1</sub> represents exposure to ELAs during childhood, while T<sub>2</sub> reflects financial fraud vulnerability in adulthood, including susceptibility to financial exploitation, scams, and fraud. ELAs are hypothesized to increase financial fraud vulnerability by impairing financial decision-making, reducing financial literacy, and contributing to economic instability. However, protective factors such as resilience, financial literacy, social support, and financial guidance may help buffer against these risks by fostering adaptive coping strategies, improving financial awareness, and enhancing fraud detection skills. While the demographic factors are included primarily as controls, we acknowledge their potential role as moderators in the ELA-fraud relationship. Individuals with higher educational attainment, greater financial guidance, or stronger social support networks may be better equipped to navigate financial risks and avoid fraud, whereas those facing systemic barriers may experience heightened financial vulnerability.

The integrated conceptual model provides a comprehensive framework for understanding how early-life adversity translates into financial fraud vulnerability later in life. This model underscores the importance of both risk and protective factors in shaping long-term financial outcomes, emphasizing the role of financial education, financial guidance, resilience, and social support in mitigating fraud vulnerability. This conceptual approach offers insights that can inform interventions aimed at improving financial resilience among individuals with histories of childhood adversity.

### **Limitations**

This study has several limitations that highlight opportunities for future research on the relationship between early life adversities (ELAs) and financial vulnerability in adulthood. A key limitation is the reliance on an existing dataset, the Health and Retirement Study (HRS), which was not specifically designed to investigate ELAs and financial fraud. Consequently, proxy variables are used to measure certain constructs, which may not fully capture the complexity of these relationships. While we have utilized measurement approaches validated in peer-reviewed literature, inherent measurement limitations remain.

The correlational nature of the findings represents another significant limitation. Despite the HRS's longitudinal design, this study cannot establish definitive causal relationships between ELAs and financial fraud vulnerability. Life course model provides a strong theoretical foundation for connecting early-life adversity to long-term financial outcomes, but future research using experimental or quasi-experimental designs is needed for more rigorous causal assessment causality more rigorously. Additionally, the reliance on self-reported data introduces potential recall and social desirability bias, particularly regarding childhood experiences and financial behaviors. Though research indicates that self-reported data in social science research



can be reliable, particularly when confidentiality is assured (Lelkes et al., 2012; Mitchell & Jolley, 2010), potential inaccuracies in retrospective reporting remain a concern.

Furthermore, this study primarily examines financial literacy as a protective factor against financial fraud vulnerability, while excluding other potential interventions such as mental health support, social safety nets, emotional resilience-building programs. Future research should explore these additional protective mechanisms to develop a more comprehensive understanding of how individuals with ELA histories can mitigate financial risks.

Despite these limitations, this study makes a meaningful contribution to the expanding body of literature on financial fraud vulnerability and childhood adversity. By integrating life course and resilience theories, it provides novel insights into the enduring financial consequences of ELAs. Future research would benefit from experimental or qualitative approaches to capture the lived experiences of individuals with ELA histories, complementing quantitative analyses. Additionally, investigating the effectiveness of financial education initiatives and broader policy interventions could establish a more comprehensive framework for fostering financial resilience among vulnerable populations.

### **Summary and Potential Implications**

This study deepens our understanding of how early life adversity (ELA) influence fraud vulnerability throughout adulthood, yielding critical insights for financial planning practitioners, policymakers, and educators. Financial planning practitioners working with trauma-affected clients often lack awareness of how early adversity shapes financial behaviors and fraud susceptibility. By recognizing these connections, financial planners, advisors, and financial therapists can deliver more effective, trauma-informed financial guidance that strengthens clients' financial resilience.

The findings of this study reveal several significant implications. First, financial practitioners must acknowledge that childhood trauma fundamentally influences financial behaviors, including risk aversion, impulsivity, and vulnerability patterns. This necessitates trauma-informed financial planning approaches that address both the psychological and emotional dimensions of financial decision-making. Practitioners should incorporate thoughtful, sensitive inquiry about clients' financial histories to uncover underlying factors influencing their financial choices.

These findings also emphasize the protective value of financial literacy, social support networks, and professional guidance. Policymakers and educators should integrate comprehensive financial literacy and fraud prevention initiatives within trauma-informed programming, ensuring that vulnerable populations receive essential knowledge and support. Financial education curricula should specifically address the intersection between trauma, decision-making processes, and fraud awareness, equipping individuals with more effective financial decision-making skills.

Furthermore, this research highlights the necessity for cross-disciplinary collaboration among financial planners, financial therapists, mental health professionals, and social service providers. Financial resilience development requires comprehensive support – reinforced through robust social networks and accessible financial coaching. Structured financial coaching programs can help clients with ELA histories develop healthier financial habits, while strong social connections serve as important protective mechanisms that reduce financial stress and fraud vulnerability.

This research ultimately demonstrates that childhood experiences profoundly shape adult financial behaviors, underscoring the need for holistic financial planning approaches. By

systematically integrating financial education, social support mechanisms, and professional financial guidance into client strategies, financial professionals can proactively support at-risk individuals, strengthen financial resilience, and advance the broader dialogue on financial security and fraud prevention.

## **Chapter 2 – Review of the Literature**

Early life adversity (ELA) encompasses a broad range of early-life adversities, including physical and emotional abuse, neglect, and household dysfunction (Felitti et al., 1998). Extensive research has established ELAs as a major determinant of long-term health and psychological well-being, with lasting effects on emotional regulation, cognitive development, and social stability (Felitti et al., 1998; Hughes et al., 2017). While the connection between ELAs and negative health outcomes are well-documented, less attention has been given to their impact on financial behaviors and vulnerabilities.

Emerging research suggests that individuals with ELA histories may be more susceptible to financial exploitation, impulsive decision-making, and economic instability (Ross et al., 2022). However, the mechanisms through which ELAs shape financial vulnerability remain largely unexplored. This chapter reviews the literature on the relationship between ELAs and financial behaviors, focusing on how ELAs contribute to financial vulnerability, including fraud susceptibility. Additionally, it explores the role of protective factors, including financial literacy, social support and financial guidance. By synthesizing interdisciplinary research, this chapter highlights existing gaps in the literature and provides the foundation for examining the role of protective factors in mitigating financial vulnerability among individuals with ELA exposure.

### **Early Life Adversity**

Early life adversities (ELAs) refer to a broad range of early-life adversities that significantly impact long-term health, psychological well-being, and social functioning (Petrucelli et al., 2019). These experiences are generally classified into three categories: abuse (physical, emotional, and sexual), neglect (physical and emotional), and household dysfunction (e.g., exposure to domestic violence, parental substance abuse, divorce, or incarceration of

family member). Early exposure to such stressors has been linked to negative developmental, cognitive, and emotional outcomes, often extending into adulthood (Felitti et al., 1998; Hughes et al., 2017).

Research consistently shows that ELAs are highly prevalent across populations. The landmark study by Felitti et al. (1998) found that nearly two-thirds of participants reported at least one ELA, and over 20% experienced three or more. Subsequent large-scale studies have confirmed similar patterns, with ELAs disproportionately affecting individuals from low-income and marginalized communities (Bellis et al., 2014; Merrick et al., 2019). Reports indicate that over 3 million cases of child maltreatment are reviewed annually by Child Protective Services (US Department of Health and Human Services, 2023).

The consequences of ELAs extend beyond childhood, shaping long-term psychological and behavioral patterns. Early trauma alters neurodevelopment, emotional regulation, and stress response systems, making individuals more vulnerable to depression, anxiety, and maladaptive coping behaviors (Dube et al., 2005; Greeson et al., 2014). A dose-response relationship has been observed, where higher ELA exposure correlates with increased emotional and behavioral difficulties in both childhood and adulthood (Burke et al., 2011; Ford et al., 2009).

Certain populations exhibit heightened vulnerability to adverse effects of ELAs. Survivors of childhood sexual abuse and children of parents with substance abuse disorders are particularly at risk for poor mental health, substance dependency, and behavioral instability (Anderloni et al., 2012; Brown et al., 1999; Gottschall et al., 2022). Parental alcohol abuse, in particular, has been linked to higher rates of depression, increased likelihood of alcohol dependency, and persistent emotional distress into adulthood (Anda et al., 2002; Wilson, 2010).

While the relationship between ELAs and health outcomes is well established, fewer studies have examined how childhood adversity shapes financial behaviors. Neurodevelopment disruptions caused by ELAs – such as impaired executive functioning, heightened emotional reactivity, and altered risk perception – can significantly influence financial decision-making, including impulsivity, risk-taking, and susceptibility to financial fraud (Ross, et al., 2022). Individuals with ELA histories often exhibit difficulty with long-term financial planning, economic self-regulation, and financial self-efficacy (Gutter & Copur, 2011). The following section explores the link between ELA exposure and financial behaviors, highlighting key mechanisms such as impulsivity, economic hardship, and financial exploitation risk.

### **Early Life Adversity and Financial Behaviors**

Financial behavior is a complex, multidimensional construct encompassing various activities, such as cash management, credit usage, savings, investment decisions, and long-term financial planning (Jorgensen et al., 2017; Stolper & Walter, 2017). While financial decision-making has historically been examined in economic and behavioral finance contexts, an increasing body of research highlights the role of psychological and development factors in shaping financial behaviors. Early life adversities (ELAs) have been linked to impulsivity, financial risk-taking, financial literacy, and vulnerability to financial exploitation (Friedline et al., 2021; Ross et al., 2022).

Although causality has not been firmly established, a growing body of literature suggests that early-life adversity contributes to long-term financial challenges (Merrick et al., 2019). Individuals with ELA exposure are at greater risk of financial hardship, lower financial literacy, and impaired financial decision-making, increasing their susceptibility to economic stressors and

financial exploitation (Harter & Harter, 2022; Lusardi, 2012). The following sections outline key pathways through which ELAs shape financial behaviors.

### **Impulsivity, risk-taking, and financial decision making**

One key mechanism linking ELAs to financial vulnerability is impaired self-regulation, which often manifests as heightened impulsivity, compulsive spending, and poor financial planning. Research suggests that ELA exposure disrupts brain regions associated with executive functioning, including impulse control, delayed gratification and financial decision-making (Sansone et al., 2013). Hyperbolic discounting – a tendency to prioritize short-term rewards over a long-term financial stability – is particularly common among individuals with childhood trauma (Haushofer & Fehr, 2014). This pattern aligns with studies showing that ELA survivors are more likely to engage in impulsive financial behaviors, such as excessive credit card usage, payday lending, and compulsive buying (Gathergood, 2012). Empirical research supports these findings. Sansone et al. (2013) found that individuals who experienced childhood emotional abuse exhibited significantly higher compulsive buying tendencies. Similarly, Liu et al. (2013) reported that ELA survivors faced heightened financial distress, including greater debt accumulation, foreclosure risk, and bankruptcy rates. These findings underscore the role of early-life adversity in shaping maladaptive financial behaviors.

These patterns are consistent with broader findings in behavioral finance, where adverse early-life conditions predict increased financial risk-taking in adulthood (Gathergood, 2012). Individuals with a history of childhood trauma often display weaker financial planning habits and greater reliance on high-interest debt, reflecting an inability to engage in long-term financial goal setting (Grohmann et al., A., 2015).

### **Economic hardship, employment instability and financial struggles**

ELAs have been strongly linked to reduced financial stability and employment difficulties. Economic adversity in childhood can create intergenerational cycles of financial insecurity, as individuals with ELA exposure are more likely to face challenges in employment, lower wages, and financial instability (Conger et al., 1994; Eckenrode et al., 2014). The Iowa Project (Conger et al., 1994), a seminal qualitative study of rural families, demonstrated that economic stressors during childhood shape long-term financial behaviors by increasing emotional distress, limited financial role models, and fostering negative coping mechanisms.

Hall (2000) conducted qualitative research on low-income African American women and found that child abuse survivors frequently struggled with financial literacy, employment stability, and financial independence. Participants frequently reported:

1. A lack of financial role models or exposure to financial education.
2. Heightened emotional distress (anger, depression, trust issues), which interfered with long-term financial planning.
3. A reliance on short-term coping mechanisms, such as compulsive spending or avoidance of financial decision-making.

More recent studies confirm these findings, showing ELA survivors often experience greater job instability, lower earnings, and difficulty managing financial responsibilities (Harter & Harter, 2022; Font et al., 2016; Ross et al., 2022). Given the strong relationship between childhood economic hardship and financial insecurity in adulthood, some researchers argue that ELAs function as a precursor to chronic financial stress (Liu et al., 2013).

### **Financial exploitation and vulnerability to fraud**

Beyond impulsive spending and economic instability, individuals with a history of early life adversity (ELA) are at heightened risk of financial exploitation, scams and fraud (James et al.,



2014; Merrick et al., 2019; Ross et al., 2022). Exposure to early-life adversity has been linked to long-term impairments in trust, financial literacy, and risk perception, which may increase vulnerability to predatory financial practices such as high-interest payday loans, fraud schemes, and financial abuse by family members (Friedline et al., 2021; Kim et al., 2023; Sweet et al., 2018). Research suggests that ELA survivors often struggle with financial self-efficacy and decision-making, making them more susceptible to manipulation and economic coercion (Friedman, 2018; Harter & Harter, 2022).

Empirical studies on financial vulnerability provides further evidence that link between ELAs and fraud susceptibility. Acierno et al. (2017) found that individuals who reported higher ELA exposure were significantly more likely to experience financial exploitation in adulthood. Similarly, Lichtenberg et al. (2013, 2016) identified psychological vulnerability – closely tied to early trauma – as a key predictor of financial fraud vulnerability among older adults. These findings highlight the long-term consequences of childhood adversity on financial well-being, emphasizing the role of cognitive and emotional regulation in financial decision-making.

The long-term effects of ELAs on financial vulnerability are particularly concerning given that fraudulent financial schemes disproportionately target individuals experiencing economic hardship, cognitive decline, or social isolation (Burnes et al., 2017; DeLiema, 2018; DeLiema et al., 2020; Wood & Lichtenberg, 2017). Research suggests that financial literacy and social support systems may serve as protective factors, buffering against fraud susceptibility and reducing financial exploitation risks (Beach et al., 2018; DeLiema et al., 2020; Friedline et al., 2021). Given the increased exposure of ELA survivors to financial vulnerability, further research is needed to explore targeted interventions that enhance financial resilience and fraud prevention strategies for vulnerable populations.

## **Protective Factors and Financial Resilience**

### **Financial literacy as a protective factor**

Financial literacy plays a crucial role in shaping financial decision-making, economic stability, and long-term financial well-being. It encompasses an individual's ability to understand and apply financial concepts, including budgeting, saving, investing, and managing credit (Lusardi & Mitchell, 2014). While financial literacy is widely recognized as an important determinant of financial outcomes, its role as a protective factor for individuals with early life adversities (ELAs) remains underexplored. Given that ELA exposure is associated with increased financial stress, risk-taking behaviors, and vulnerability to financial exploitation (Ross et al., 2022), financial literacy may serve as a critical mechanism in reducing financial harm.

Research has consistently demonstrated that higher financial literacy is associated with improved financial behaviors and outcomes (Lusardi & Mitchell, 2014; Wagner, 2019). Individuals with greater financial knowledge are more likely to engage in long-term financial planning, maintain emergency savings, and make informed borrowing decisions (Hung et al., 2009; Seay et al., 2017). By contrast, low financial literacy is linked to poor financial decision-making, high-cost borrowing, and increased financial stress (Lusardi et al., 2017).

Mitchell and Lusardi (2015) found that financial literacy varies significantly by educational attainment, gender, and socioeconomic background, with historically marginalized groups exhibiting lower financial knowledge. This financial literacy gap contributes to economic disparities, particularly among individuals with limited access to financial resources (Al-Bahrani et al., 2019, 2020; Hasler et al., 2018). Given that ELAs disproportionately affect individuals from lower-income and disadvantages backgrounds (Merrick et al., 2019), the intersection of financial literacy and financial vulnerability is particularly relevant.

Individuals with ELA exposure may be particularly susceptible to financial risks, including impulsive financial behaviors, economic instability, and financial exploitation (Friedline et al., 2021; Sweet et al., 2018). Research suggests that low financial literacy exacerbates these risks by limiting an individual's ability to assess financial products, recognize predatory lending practices, and make informed economic decisions (James et al., 2014; Wood & Lichtenberg, 2017). Acierno et al. (2017) found that individuals with higher ELA exposure were significantly more likely to experience financial exploitation in adulthood. However, financial literacy emerged as a key protective factor, reducing fraud susceptibility and improving resilience. Similarly, Friedline et al. (2021) highlighted financial literacy as a mitigating factor against financial stress and economic instability, particularly for individuals with a history of economic hardship.

Behavioral finance research also suggests that financial literacy may counteract the impulsivity and short-term decision-making patterns commonly observed in ELA survivors. Gathergood (2012) found that individuals with limited self-control and high impulsivity – traits often linked to ELA exposure (Sansone et al., 2013) – were more likely to engage in high-interest borrowing and compulsive spending. Financial education and literacy interventions can help mitigate these tendencies by fostering financial self-regulation and promoting goal-oriented financial behaviors (Kaiser & Menkhoff, 2017, 2020).

Financial education has been shown to improve financial knowledge and promote responsible financial behaviors. A meta-analysis by Kaiser and Menkhoff (2017, 2020) found that financial education programs significantly increased financial literacy and positively influenced financial behaviors, particularly when programs exceeded ten hours of instruction.

The study emphasized that financial education was most effective when delivered at critical decision-making moments, reinforcing the concept of a “teachable moment.”

However, some researchers have raised concerns about the long-term efficacy of financial education. Mandell and Klein (2007) questioned whether financial education alone could lead to meaningful behavioral changes, particularly if motivation and engagement were lacking. Similarly, Fernandes et al. (2014) argues that financial education had limited long-term effects on financial behaviors. In contrast, more recent research by Kaiser and Menkhoff (2017, 2020) and Lusardi and Mitchell (2014) provide robust evidence supporting the sustained benefits of financial education, particularly when tailored to the needs of vulnerable populations. For ELA-exposed individuals, financial education may serve as an essential tool for reducing financial vulnerability. Given the heightened financial risks associated with early-life adversity, targeted financial literacy programs – especially those integrated with trauma-informed approaches – could play a vital role in enhancing financial resilience (Harter & Harter, 2021; Mancone, 2024).

### **Social support as a protective factor**

Social support is a well-documented protective factor that influences psychological well-being, emotional regulation, and resilience across the lifespan (Gable, 2019). Given the significant and lasting impact of early life adversity (ELA) on financial decision-making and economic stability, social support may serve as a crucial buffer that mitigates financial vulnerability. Studies suggest that individuals with strong social networks are more likely to exhibit resilience in adulthood, navigate financial challenges effectively, and avoid financial exploitation (Bellis et al., 2017; Burke-Harris, 2018; Reblin & Uchino, 2008).

Social support encompasses both received support (actual help and resources provided by others) and perceived support (the belief that one has access to help when needed) (Gable, 2017). Both forms of support have been shown to promote well-being by reducing stress, enhancing coping mechanisms, and fostering adaptive behaviors (Harber et al., 2007). From a financial perspective, social support provided tangible benefits, such as shared financial knowledge, direct economic assistance and guidance in financial decision-making (Friedline et al., 2021).

The protective function of social support in financial behaviors is particularly relevant for individuals with ELA exposure. Childhood adversity often results in disrupted attachment patterns, impaired trust, and heightened economic stress, increasing the likelihood of financial mismanagement and risk-taking behaviors (Ross et al., 2022; Sansone et al., 2013). However, individuals with strong social networks may be better positioned to mitigate these risks. For example, Bellis et al. (2017) found that individuals with ELA exposure who had access to a trusted adult during childhood exhibited significantly lower levels of financial distress and harmful economic behaviors in adulthood. Additionally, social support networks provide emotional stability, which can counteract the long-term effects of financial stress and impulsive financial decision-making.

The presence of supportive relationships plays a crucial role in financial literacy and decision-making. Research indicates that individuals with strong social ties are more likely to seek financial advice, plan for the future, and engage in responsible financial behaviors (Friedline et al., 2021; Sweet et al., 2018). Moreover, social networks can serve as information financial advisors, helping individuals recognize predatory lending practices, avoid financial scams, and develop sound financial habits. (Kim et al., 2023). Conversely, the absence of social support has been linked to financial risk-taking and economic instability. Burke-Harris (2018)

emphasized that childhood trauma disrupts stress response system, making individuals more susceptible to economic hardship and financial distress. Without the buffering effect of social support, individuals exposed to ELAs may struggle with financial anxiety, avoid long-term planning, and exhibit higher rates of financial vulnerability (Cheong et al., 2017).

Financial exploitation and fraud disproportionately affect individuals with ELA exposure, as childhood adversity is often associated with lower financial self-efficacy and impaired risk perception (Ross et al., 2022). However, social support may serve as a protective mechanism by increasing financial awareness and reducing susceptibility to fraudulent schemes. Empirical studies highlight the role of social networks in preventing financial victimization. Acierno et al. (2017) found that individuals with higher levels of perceived social support were significantly less likely to experience financial exploitation. Similarly, research on elder financial abuse indicates that social isolation is one of the strongest predictors of financial fraud and vulnerability (James et al., 2014). These findings underscore the importance of social connections in safeguarding individuals against financial harm.

Long-term financial stability is often influenced by early-life social environment and the availability of support systems. Studies on intergenerational financial behavior suggest that individuals who grow up in supportive households are more likely to develop positive financial habits and achieve economic stability in adulthood (Conger et al., 1994). Conversely, individuals who lack strong support systems often face greater economic hardship, reinforcing cycles of vulnerability (Eckenrode et al., 2014). Marriott et al. (2013) further demonstrated that supportive relationships in adulthood can enhance resilience and mitigate the long-term effects of childhood adversity. Specifically, individuals with ELA exposure who reported strong interpersonal relationships exhibited higher levels of financial well-being and economic security. These

findings align with research in social capital, which suggests that social connections provide access to financial knowledge, job opportunities, and economic resources (Beach et al., 2018; Kim et al., 2023).

### **Financial guidance as a protective factor**

Financial guidance and coaching play a critical role in fostering financial resilience, particularly for individuals with a history of early life adversity (ELA). Professional financial advisors, financial coaches, and structured financial interventions provide individuals with the tools to navigate complex financial decisions, mitigate financial risks, and build long-term stability. Given the ELA survivors are more likely to experience impulsive spending, economic instability, and financial exploitation (Ross et al., 2022), access to financial coaching and professional guidance can serve as a critical buffer against these vulnerabilities.

Financial coaching is defined as “an ongoing process that involves setting goals, establishing a concrete plan of action, monitoring one’s progress, and ideally, forming new positive financial habits” (Collins et al., 2013, p. 1). Unlike financial education programs, which focus primarily on knowledge acquisition, financial coaching emphasized behavior change through personalized guidance and accountability. Studies indicate that financial coaching produces significant positive effects on perceptions of financial well-being (Theodos et al., 2015), which in turn, enhance financial confidence and satisfaction (Atlas et al., 2019). Individuals who participate in financial coaching interventions also demonstrate improved financial self-control, leading to healthier financial behaviors over time (Tumataroa & O’Hare, 2019).

Empirical studies have documented the effectiveness of financial coaching in improving financial behaviors and outcomes. Modestino et al. (2019) found that individuals receiving

financial coaching showed significant improvements in credit scores compared to a control group. Participants also reported being in better financial situations post-intervention, including reduced eviction risks, fewer interactions with collection agencies, and improved financial stability. Similarly, a study by the Urban Institute found that financial coaching participants had significantly improved credit ratings and accumulated twice the savings compared to those in a control group. (Theodos et al., 2015). Moulton et al. (2015) examined first time home buyers who received financial education modules combined with telephone coaching and found that these individuals were less likely to default on mortgages, had lower overall debt balances, and were more likely to maintain savings post-purchase.

Access to financial guidance has been shown to mitigate financial vulnerability by promoting informed decision-making and encouraging disciplined financial practices (Stolper & Walter, 2017). Individuals who work with financial advisors or coaches are more likely to develop effective savings strategies, avoid high-cost debt, and engage in proactive financial planning (LeSure, 2014). Given the link between ELAs and impulsive financial behaviors, targeted financial interventions can provide a structured approach to improving long-term financial outcomes. Research suggests that financial coaching and advisory services not only increase financial stability but also reduce the likelihood of engaging in high-risk financial behaviors such as payday lending, high-interest credit card usage, and predatory loan schemes (Friedline et al., 2021; Sweet et al., 2018).

Financial coaching may also serve as an important tool in addressing age-related financial challenges. As individuals age, their perceptions of financial well-being may become more positive (Tenney & Kalenkoski, 2019), yet financial management difficulties often increase with age. Bleijenberg et al. (2017) reported that nearly 69% of individuals aged 85 and older



experience difficulties managing their finances. The concept of Age-Associated Financial Vulnerability (AAFV) suggests that even cognitively intact older adults may exhibit financial behaviors that increase their risk for fraud, exploitation, and financial mismanagement (Lachs & Han, 2015). Given these risks, structured financial coaching programs designed for older adults can play a vital role in mitigating financial vulnerability and ensuring financial security later in life.

Research suggests that financial literacy alone is not always sufficient to prevent financial exploitation – financial coaching and guidance provide additional layers of protection against fraud and economic abuse (Friedman, 2018). Financial advisors help clients recognize and avoid predatory financial practices, establish fraud prevention strategies, and build financial resilience. DeLiema (2018) highlights the importance of financial education and guidance in preventing fraud victimization, particularly among older adults and financially vulnerable populations, Advisors and financial coaches play a key role in developing fraud detection strategies, monitoring suspicious transactions, and implementing financial safeguards such as power of attorney arrangements and automated alerts (Wood & Lichtenberg, 2017).

For ELA survivors, who may be at heightened risk of financial exploitation due to impaired financial decision-making and trust issues, financial coaching offers structured support to enhance financial self-efficacy (Kim et al., 2023). Studies indicate that individuals who receive professional financial advice demonstrate greater financial autonomy, improved money management skills, and reduced susceptibility to financial fraud (Greenberg & Hershfield, 2019; Stolper & Walter, 2017). By fostering informed decision-making and promoting financial resilience, financial coaching serves as a crucial intervention for individuals navigating financial challenges linked to early-life adversity.

### **Resilience as a protective factor**

Resilience is a crucial protective mechanism that enables individuals to adapt to adversity, regulate emotions, and develop strategies for long-term stability. Despite the significant risks associated with early life adversity (ELA), many individuals demonstrate resilience by overcoming financial stress, impulsive decision-making tendencies, and vulnerability to financial exploitation (Ross et al., 2022). Resilience is not a fixed trait, but a dynamic process shaped by biological, psychological, and social factors (Bonanno, 2004; Casco et al., 2017). It encompasses the ability to maintain or regain a stable trajectory of functioning despite challenges (Masten, 2014). Researchers emphasize that resilience is fostered through both internal and external protective factors, including financial literacy, social support, and financial guidance, all of which serve as buffers against the negative financial consequences of ELA exposure (Southwick et al., 2014).

Understanding the pathways through which resilience mitigates financial vulnerability is critical. Emotional and cognitive regulation are central to financial resilience, as individuals with higher resilience exhibit greater self-regulation and impulse control, allowing for more deliberate financial decision making (Cortina et al., 2016). The ability to process adversity in a constructive manner significantly influences long-term financial planning behavior, reducing economic stress and fostering financial self-efficacy (Heard-Garris et al., 2018). In a large-scale study, Heard-Garris et al. (2018) found that resilience in children was strongly associated with lower financial stress in adulthood, particularly when supported by stable family environments and strong social connections.

The development of adaptive coping strategies further enhances financial resilience. Problem-focused coping, which involves proactively addressing financial stressors and seeking

long-term solutions, is associated with improved financial outcomes and reduced risk-taking behaviors (Lazarus & Folkman, 1984; Sheffler et al., 2019). In contrast, avoidant coping – often observed in individuals with ELA exposure – is linked to high-interest borrowing, compulsive spending, and financial mismanagement (Poole et al., 2017; Wadsworth, 2015). Research indicates that financial resilience can be cultivated by promoting adaptive financial coping mechanisms, such as budgeting, financial planning, and delaying gratification., which in turn reduce financial distress and improve economic stability (Hildon et al., 2008; van Kessel, 2013).

Positive early-life experiences also play a crucial role in fostering resilience and counteracting negative effects of ELAs. Narayan et al. (2018) introduced the Benevolent Childhood Experiences (BCEs) scale, which identifies protective factors such as stable caregiving, perceived safety, and strong family connections. Their study found that individuals with higher BCE scores exhibited greater financial resilience, lower economic stress, and a reduced likelihood of engaging in risky financial behaviors. These findings suggest that positive childhood experiences can act as a counterbalance to the financial vulnerabilities associated with ELA exposure, reinforcing the importance of early support systems in shaping financial well-being.

Beyond individual coping mechanisms, resilience is also influenced by broader social and community factors. Social cohesion, trust in financial institutions, and access to financial resources contribute to greater financial resilience by providing individuals with the support needed to make informed financial decisions and avoid economic hardship (Gelkopf et al., 2012). Individuals with strong social networks are more likely to seek financial advice, recognize financial risks, and engage in responsible financial behaviors (Bellis et al., 2017). Community-based interventions that promote financial literacy and access to financial resources have been

found to enhance financial resilience, particularly among individuals with ELA exposure (Friedline et al., 2021). Resilience-building interventions can also mitigate long-term risks and improve financial well-being. Studies have demonstrated that individuals with strong resilience exhibit lower rates of depression, anxiety, and financial distress despite experiencing childhood adversity (Beutel et al., 2017). Interventions focused on financial education, social support networks, and financial coaching can enhance financial resilience by equipping individuals with the tools to navigate financial challenges effectively (Borge et al., 2016; Theodos et al., 2015).

### **Demographic Factors in ELA-Related Financial Vulnerabilities**

Early life adversities (ELAs) are not uniformly distributed across populations; rather, they disproportionately affect individuals from lower socioeconomic backgrounds, gender, racial and ethnic minorities, and marginalized communities (Hunt et al., 2017; Maguire-Jack et al., 2020). These disparities contribute to long-term challenges in educational attainment, employment stability, and financial security, all of which influence financial behaviors and fraud susceptibility in adulthood.

#### **Education, employment, and economic disparities**

Exposure to ELAs is associated with lower levels of education attainment and increased employment instability, both of which are critical determinants of financial well-being. Individuals with a history of ELAs are significantly less likely to complete high school or pursue higher education, leading to reduced earning potential and increased reliance on high-cost borrowing (Boden et al., 2007; Zielinski, 2009). These individuals also experience higher unemployment rates and lower lifetime earnings compared to those without ELA exposure (Font & Maguire-Jack 2016; Liu et al., 2013). The resulting economic strain can perpetuate cycles of

financial hardship, increasing reliance on short-term financial coping mechanisms such as payday loans or high-interest debt (Gathergood, 2012).

### **Racial and ethnic disparities**

Racial and ethnic minorities, particularly Black and Hispanic individuals report higher rates of ELA exposure compared to their White counterparts, often due to systemic inequalities, economic disadvantages, and intergenerational trauma (Fagan & Novak, 2018; Mersky & Janczewski, 2018). These disparities have long-term financial consequences, as early-life adversity compounds existing structural barriers to wealth accumulation. Research indicates that lower financial literacy among racial minorities further exacerbate financial vulnerability, increasing susceptibility to economic instability and financial fraud (Friedline et al., 2021; Lusardi et al., 2017)

### **Gender disparities**

Women, particularly those who experienced ELAs, exhibit distinct financial behaviors and vulnerabilities compared to men. Research suggests that female ELA survivors face greater financial insecurity, lower financial confidence, and higher susceptibility to financial exploitation (Harter & Harter, 2022; Sansone et al., 2013). Gender disparities also emerge in financial fraud susceptibility, with women being more likely to experience financial coercion or abuse, particularly in the context of romantic relationships (Friedman, 2018). Additionally, sexual minority individuals report heightened ELA exposure and associated economic stressors, further complicating their financial resilience (Friedman et al., 2011; Sterzing et al., 2017).

### **Vulnerability to Financial Fraud in Adulthood**

As the older adult population increases, financial fraud and exploitation have become a growing public concern (FBI, 2024; FINRA, 2013). Older individuals face heightened risks due

to cognitive aging, social isolation, and declining financial decision-making abilities (Acierno et al., 2010; James et al., 2014; Ruffman et al., 2012). Reports of financial victimization have surged in recent years, with the Raval (2021) noting a fourfold increase in suspicious activity reports filed by banks and financial institutions from 2013 to 2017. Notably, approximately 70% of these reports involved individuals aged 60 years and older, with one-third involving those over 80.

Financial exploitation is among the most common forms of elder abuse, often perpetrated by family members, caregivers, or financial predators (Acierno et al., 2010; Laumann et al., 2008; Pinsker et al., 2012). Studies estimate that 3.5% to 5.2% of older adults experience financial exploitation annually (Acierno et al., 2017; Beach et al., 2010). African American adults and those experiencing economic hardship report disproportionately higher rates of financial victimization (Beach et al., 2010; Laumann et al., 2008). Furthermore, individuals with a history of ELA exposure are more likely to encounter financial hardship and lack strong social networks, further increasing their vulnerability to fraud and exploitation (Ross et al., 2022).

The long-term consequences of financial fraud extend beyond economic losses, often leading to mental health decline, increased anxiety, depression, and lower life satisfaction (Acierno et al., 2017; Pinsker et al., 2012; Weissberger et al., 2020). Fraud victims are significantly more likely to exhibit poor self-rated health, heightened financial stress, and decreased psychological well-being compared to their non-victimized counterparts (Weissberger et al., 2020). Cognitive impairments and executive function decline further compound vulnerability, particularly among older adults with diminished financial literacy (Boyle et al., 2013; Judges et al., 2017; Wood et al., 2016).

### **Risk factors for financial fraud susceptibility**

### ***Cognitive decline and executive function impairment***

Studies show that declining cognitive abilities are closely linked to fraud susceptibility (Boyle et al., 2013; Wood et al., 2014). Older adults with mild cognitive impairment (MCI) often struggle with complex financial decisions, risk assessment, and scam detection (Han et al., 2016). Neuropsychological research highlights the role of brain regions responsible for trust and risk perception, showing that fraud victims often exhibit reduced activity in areas linked to critical thinking and skepticism (Spreng et al., 2016).

### ***Social isolation and lack of protective relationships***

Research suggests that social isolation is one of the strongest predictors of financial fraud vulnerability (DeLiema, 2018; James et al., 2014). Older adults without strong social support networks are more susceptible to coercion, undue influence, and deceptive financial schemes (Quinn et al., 2017). Routine Activity Theory (DeLiema, 2018) posits that fraud occurs when a vulnerable target, a motivated offender, and the absence of capable guardianship intersect, underscoring the importance of social support as a protective mechanism.

### ***Financial literacy and economic hardship***

Lower financial literacy is strongly correlated with financial fraud vulnerability (James et al., 2014; Wood & Lichtenberg, 2017). Older adults with limited financial knowledge are less able to identify deceptive investment opportunities, predatory lending practices, or fraudulent financial advisors (Friedline et al., 2021). Research also indicates that individuals with higher financial stress and economic instability are more likely to fall victim to scams promising quick financial relief or high-return investments (Lichtenberg et al., 2013, 2016).

## Summary

This study examines the relationship between early life adversity (ELA) and financial fraud vulnerability, focusing on how early-life adversity increases the likelihood of financial exploitation in adulthood. While significant research has explored the effects of ELAs on health and psychological well-being, far less is known about how childhood adversity influences financial behaviors and fraud vulnerability. Childhood trauma, including physical and emotional abuse, neglect, and household dysfunction, can have lasting effects on cognitive development, emotional regulation, and risk perception, all of which play a critical role in decision-making (Felitti et al., 1998; Knifton & Inglis, 2020; Lippard & Nemeroff, 2020). Individuals exposed to ELAs may exhibit greater difficulties in recognizing fraudulent schemes, lower financial self-efficacy, and increased susceptibility to economic exploitation. However, not all individuals with ELA histories experience financial fraud, suggesting that protective factors such as financial literacy, social support, and financial guidance may mitigate the risk.

This study is grounded in life course model and resiliency theory, which together provide a framework for understanding both the cumulative disadvantages associated with ELAs and the mechanism through which individuals develop financial resilience. Life course model posits that early-life experiences shape long-term development trajectories, with the timing, duration, and accumulation of risk playing a crucial role in financial vulnerability. Repeated exposure to adversity may create cumulative disadvantages that extend into adulthood, increasing the likelihood of financial instability, impaired judgement in financial matters, and heightened risk of fraud victimization (Hughes et al., 2017; Lee & Chen, 2017). Moreover, socioeconomic background, access to financial education, and social networks may moderate these effects, shaping financial vulnerability in different ways across racial, gender, and economic groups.



Complementing this perspective, resiliency theory explains why some individuals can resist financial fraud despite experiencing childhood adversity. Resilience is not simply the absence of financial victimization but rather a dynamic process of adaptation, influenced by both internal psychological strengths and external support systems. Individuals with greater resilience often exhibit stronger awareness, improved decision-making, and heightened ability to recognize fraudulent financial schemes (O'Connor et al., 2019; Zheng et al., 2024). Factors such as financial literacy, social support, and access to financial coaching may buffer the negative effects of ELAs, helping individuals develop the skills necessary to protect themselves from financial fraud.

Despite growing recognition of the connection between childhood trauma and financial fraud vulnerability, research gaps persist. Few studies have examined the specific pathways through which ELAs increase susceptibility to fraud, and there is limited evidence on how protective factors mitigate these risks. Additionally, race, gender, and socioeconomic status may influence the extent to which ELAs affect financial fraud vulnerability, further complicating the relationship between early-life adversity and economic exploitation. This study integrates life course model and resiliency theory to examine how ELA exposure shapes financial vulnerability and to identify protective factors that may mitigate financial risks. Specifically, the research addresses the following key gaps in the literature: (1) the need to examine financial literacy, social support, and financial guidance as protective factors and (2) the role of demographic moderators in shaping financial risk among ELA survivors. By addressing these gaps, this study contributes to the growing field of financial trauma research and informs interventions designed to protect financially vulnerable populations from fraud.

## **Chapter 3 – Methodology**

This dissertation examines the relationship between early life adversity (ELA) and financial fraud vulnerability in adulthood, focusing on how early-life adversity may increase the likelihood of financial exploitation and fraud vulnerability. While previous research has explored the psychological and behavioral effects of ELAs, limited attention has been given to their influence on financial decision-making and fraud susceptibility (Nur et al., 2022). This study seeks to address this gap by investigating whether individuals with a history of ELAs are at higher risk of experiencing financial fraud and whether protective factors, such as resilience, financial literacy, social support, and financial guidance, moderate this relationship.

This chapter outlines the methodological approach used to analyze these relationships. The first section describes the dataset and sample selection, outlining the Health and Retirement Study (HRS) waves utilized, sample inclusion criteria, and weighting adjustments. The second section focuses on variable measurement, detailing how key constructs – including ELAs, financial fraud vulnerability, and protective factors – are operationalized, coded, and incorporated into the analysis. The final section provides an overview of the statistical analysis plan, including model specifications, robustness checks, and interpretation frameworks.

### **Dataset and Sample Selection**

This study utilizes data from the 2008, 2010, 2012, 2016, and 2020 waves of the Health and Retirement Study (HRS), a nationally representative longitudinal dataset sponsored by the National Institute on Aging under grant number NIA U01AG009740 and administered by the University of Michigan. The HRS was established to examine the complex interactions between health, economic, and social dynamics associated with aging in the United States (Sonnega et al., 2014). Since its inception in 1992, the HRS has expanded to include seven birth cohorts, ranging

from individuals born between 1890-1941 to the Late Baby Boomer cohort, which was added in 2016 to capture the experiences of a younger segment of older adults. The longitudinal and multidisciplinary design of the HRS makes it uniquely suited for examining life-course factors, including the impact of early-life adversity on financial behavior in later life. This dataset provides biennial data on a diverse population of over 43,000 individuals aged 50 years and older, making it one of the most comprehensive resources for studying financial behaviors and vulnerabilities among older adults (Fisher & Ryan, 2018).

The HRS dataset includes detailed interviews covering a wide range of themes, including employment history, retirement planning, income, assets and liabilities, health, and psychosocial factors, making it a valuable resource for examining financial vulnerability and fraud victimization in older adults. The study sample is drawn using a multi-stage area probability sampling design with geographical stratification, ensuring geographical diversity and intentional oversampling of African American and Hispanic populations, allowing for subgroup-specific analyses (Sonnegga et al, 2014). To ensure generalizability, survey weights were applied to adjust for unequal probabilities of selection and nonresponse bias (Nielsen & Seay, 2014).

To assess the relationship between ELAs and financial fraud vulnerability, this study integrates key measures from multiple HRS waves, capturing both early-life adversity and later-life financial outcomes. For accessibility and consistency, this study leverages the RAND HRS Longitudinal file, which standardizes multiple waves of HRS data by providing cleaned and structured variables for efficient analysis (RAND, 2023). Specifically, this study integrates measures of adverse childhood experience, financial fraud vulnerability, social support, resilience, financial guidance, and financial literacy. The ELA measure is constructed using responses from the 2008-2012 Leave Behind Questionnaires (LBQs), which collected

retrospective data on childhood experiences (Smith et al., 2017). Financial fraud vulnerability is derived from the 2016 HRS financial mismanagement and fraud module, which assesses respondents' experiences with investment fraud, scams, and unauthorized financial transactions.

Financial literacy is measured using a series of financial knowledge questions from the 2010 HRS survey, assessing respondents' understanding of interest rates, inflation, differences between stocks versus mutual funds, and asset return expectations. To ensure reliability, these items were drawn from a widely used financial literacy scale developed by Lusardi & Mitchell (2011). Resilience is captured using the Self-Rated Resilience Scale (SRS) from the 2016 HRS Leave Behind questionnaire, a validated measure assessing psychological resilience (Manning et al., 2016). Similarly, social support is assessed using responses from the HRS Leave Behind questionnaire, which evaluates interpersonal relationships and perceived levels of support systems across key social connections, including spouses, children, other family members, and friends.

Finally, financial guidance is operationalized based on respondents' self-reported engagement with financial professionals or participation in structured financial education programs using data from the 2016 experimental module. Because financial guidance was assessed through an experimental module administered to a random subsample of respondents, the sample size for this measure is smaller than that of other key variables. This limitation should be considered when interpreting results involving financial guidance. The data set provides a robust foundation for examining how early-life adversity influences financial fraud vulnerability in later life, while allowing for an assessment of moderating factors such as financial literacy, social support, resilience, and financial guidance.

## **Variable Measurement**

### **Outcome Variable: Financial Fraud Vulnerability**

Financial fraud vulnerability refers to an individual's likelihood of experiencing fraudulent financial schemes, including investment scams and deceptive solicitations that result in financial loss. While prior research has examined fraud prevalence among older adults, relatively few studies have utilized multiple waves of the HRS fraud data to assess longitudinal fraud victimization trends over time (Anderson, 2013; DeLiema et al., 2020; Pak & Shadel, 2011). This study integrates five waves of HRS fraud data (2008, 2010, 2012, 2016, and 2020) to construct a comprehensive fraud victimization measure that accounts for both general self-reported fraud and more granular fraud experiences introduced in 2016.

Because the 2016 HRS Financial Mismanagement at Older Ages module was an experimental module, the sample size for that wave is significantly smaller (~10% of the full HRS Core sample) (HRS, 2023). Experimental modules in the HRS are randomly assigned to different subsamples, meaning each respondent receives only one experimental module per wave (HRS, 2023). As a result, the number of respondents available for financial fraud analysis in 2016 is substantially smaller than other waves, which may impact statistical power and generalizability. To mitigate this issue, this study incorporates multiple waves of fraud data, improving the reliability of fraud measurement across time.

This study operationalized financial fraud vulnerability using two classification approaches: as a binary fraud victimization measure (0 = No Fraud, 1 = Fraud Victim) and an ordinal fraud severity measure (0 = No Fraud, 1 = HRS Reported Fraud, 2 = Other Financial Fraud). The binary fraud victimization measure captures whether an individual reported at least one fraud experience across any of the five waves. This measure is derived from validated HRS

survey items that assess direct experiences of fraud, excluding general financial mismanagement or unauthorized account misuse (e.g., identity theft). Specifically, fraud victimization is identified using a self-report fraud victim question from the 2008, 2010, 2012, and 2020 HRS waves, as well as more detailed fraud classifications introduced in 2016.

The 2016 HRS fraud questions capture specific types of fraud experiences such as investment fraud, fraudulent recommendations, and prize scams. Specifically, the fraud items include:

1. Investing money after a free meal (e.g., seminar-based fraud schemes).
2. Investing in a knowingly fraudulent opportunity (e.g., direct financial misrepresentation).
3. Investing based on a fraudulent recommendation from a relative or financial advisor.
4. Paying money to receive a prize, lottery, or award.

Each of these fraud types represent a direct financial loss resulting from deceptive practices, aligning with prior HRS-based fraud research (DeLiema et al., 2020). Responses were coded as “1” if the participant reported experiencing at least one of these fraudulent incidents within the past five years and “0” otherwise. To ensure consistency in measurement across waves, this study excludes general financial mismanagement or account misuse (e.g., unauthorized account use or identity theft), as these incidents may not reflect direct fraud experiences but rather broader financial abuse or cybercrime.

To account for differences in fraud complexity, this study also classifies fraud experiences using the ordinal fraud severity measure (0-2). This categorization ensures statistical power, aligns categories across waves, and prevents small cell counts that could affect model reliability. Specifically, HRS-reported fraud (coded as 1) includes self-reported fraud victimization from the 2008, 2010, 2012, or 2020, while Other Financial Fraud (coded as 2)

includes more specific fraud incidents reported in the 2016 module, such as investment fraud, prize scams, and fraudulent recommendations.

Since this study integrates multiple waves of fraud data, several statistical considerations must be addressed. First, sample selection bias may influence findings, as only a subset of HRS respondents were randomly assigned to the 2016 fraud module, while other waves rely on general self-reports. Second, low prevalence rates for fraud necessitate careful interpretation of statistical models, particularly in identifying risk factors associated with fraud victimization. To address these challenges, this study employs logistic regression for the binary fraud vulnerability measure and ordered logistic regression for the fraud severity scale, ensuring a structured analysis of fraud risk factors while accounting for sample composition differences across waves.

By integrating both fraud victimization and fraud severity classifications, this study ensures a robust and replicable approach to measuring financial fraud vulnerability in older adults. However, given the constraints of the HRS sampling framework, findings should be interpreted in consideration of potential sample size limitations and selection bias. The final fraud vulnerability is summarized in Table 3.1.

**Table 3.1.** Measurement of Financial Fraud Vulnerability

| Variable                            |                                                                                                                                                                                                                                                            | Measure<br>ment   | Wave(s) Used |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|
| Investment after free meal/seminar  | “In the past five years, did you [or your husband/wife/partner] invest money after a meeting that offered a free meal and educational information for some sort of investment, including, but not limited to, a vacation timeshare or an annuity product?” | 1 if yes; 0 if no | 2016         |
| Fraudulent investment (self-report) | "Do you think you [or your husband/wife/partner] have ever put your money into a fraudulent investment in the past five years?"                                                                                                                            | 1 if yes; 0 if no | 2016         |

|                                      |                                                                                                                                                                                                                                                  |                                                                 |                        |
|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------|
| Fraud investment by relative/advisor | "In the past five years, have you [or your husband/wife/partner] invested money in an opportunity recommended by a friend, a relative, or a financial advisor which turned out to be fraudulent?"                                                | 1 if yes; 0 if no                                               | 2016                   |
| Paid to win an award                 | "In the past five years, have you [or your husband/wife/partner] paid money to someone who told you that you had won a prize or a lottery or had been selected to receive an award such as money, a free vacation, or other product or service?" | 1 if yes; 0 if no                                               | 2016                   |
| Fraud victim                         | Have you been the victim of fraud in the past five years?                                                                                                                                                                                        | 1 if yes; 0 if no                                               | 2008, 2010, 2012, 2020 |
| Fraud Severity (Ordinal Scale)       | Categorization of fraud victimization                                                                                                                                                                                                            | 0 = No Fraud, 1 = HRS-Reported Fraud, 2 = Other Financial Fraud | All Waves              |

---

### **Independent Variable: Early Life Adversity**

Early life adversities (ELAs) were assessed using self-reported measures from the 2008, 2010, and 2012 waves of the Health and Retirement Study (HRS) psychosocial leave-behind questionnaire. These ELA items were originally developed as part of a longitudinal study examining the health consequences of trauma in older adults Krause et al., 2004) and were influenced by research on the cumulative impact of lifetime adversity (Turner & Lloyd, 1995). While these indicators are drawn from research on adverse childhood experiences (ACEs), they are not intended to represent a comprehensive ACE index. Rather, they capture broader forms of early-life hardship and trauma relevant to long-term financial behavior, consistent with the life course model.



This study examines four validated early childhood adversity indicators that reflect early-life stressors. These indicators represent distinct dimensions of adversity, including:

1. Educational Challenges – “Before you were 18 years old, did you have to do a year of school over again?”
2. Household Dysfunction – “Before you were 18 years old, did either of your parents drink or use drugs so often that it caused problems in the family?”
3. Exposure to Violence – “Before you were 18 years old were you ever physically abused by either of your parents?”
4. Juvenile Legal Involvement – “Before you were 18 years old, were you ever in trouble with the police?”

Each ELA item was coded as a binary variable, where a response of “Yes” indicated exposure (coded as 1), and “No” indicated no exposure (coded as 0). Response of “Don’t Know” or “Refused” were coded as missing to ensure data quality. To maximize data availability, responses were drawn from the most recent available wave for each participant, prioritizing data from 2012, followed by 2010, and then 2008.

To capture the cumulative impact of childhood adversity, a three-category ELA exposure variable was created. This categorization aligns with prior research, which suggests that the effects of early hardships accumulate, with two or more adversities often associated with significantly higher risk (Fujiwara, 2022; Hamby et al., 2021; Petruccelli et al., 2019). Respondents who report no ELA exposure were assigned a value of “0”, those who experienced exactly one ELA were assigned a value of “1”, and individuals who experienced two or more ELAs were assigned a value of “2”.

A limitation of these measures is that they were only collected from respondents who completed the psychosocial leave-behind questionnaire, meaning they were not administered to all HRS participants. This introduces potential selection bias, as individuals who received and completed the questionnaire may differ systematically from those who did not. Despite this limitation, prior studies (Ross et al., 2022) have found robust associations between childhood trauma and financial behaviors in older adults. Other research has shown that early-life adversity can impair self-control and decreases financial well-being in later life (Choung & Pak, 2023). These effects may manifest through poor financial decision-making, reduced retirement savings, or increased susceptibility to financial fraud.

The most frequently reported early life adversity was parental substance abuse (16.64%), followed by repeating a year in school (15.69%), physical abuse (7.63%), and juvenile legal involvement (5.93%). While all four items are included in the cumulative ELA index, the “school over again” item is interpreted more cautiously in the context of trauma. Given the historical differences in retention practices, particularly in earlier cohorts, this indicator may capture educational or structural challenges rather than interpersonal adversity. It is retained due to its potential relevance to developmental disruption and long-term disadvantage, but it is not conceptually group with core trauma-related indicators such as parental substance use or physical abuse. Table 3.2 presents the distribution of individual ELA indicators and the final binary ELA variable.

**Table 3.2.** Distributions of ELA Indicators

| Variable                   | % Exposed |
|----------------------------|-----------|
| School over again          | 15.69     |
| Parental substance use     | 16.64     |
| Physical abuse             | 7.63      |
| Juvenile legal involvement | 5.93      |
| 1 ELA                      | 17.45     |

**Moderating Variable: Financial Literacy**

Financial literacy was assessed using three financial knowledge questions designed to evaluate the respondents' understanding of fundamental financial concepts: interest rates, inflation, differences between stocks and mutual funds. These questions were sourced from the 2010 HRS Financial Sophistication and Investment Decision Making module, which was administered as an experimental module to random subsample of respondents. Due to its random assignment design, only a small percentage of the full HRS sample received this module, introducing potential selection bias (HRS, 2023)

This financial literacy measure, often referred to as the “Big Three” financial literacy questions, was developed by Lusardi and Mitchell (2011) and has been widely used in empirical research on financial literacy and well-being outcomes. This scale has been adopted in national and international surveys, demonstrating predictive validity across diverse populations (Lusardi & Mitchell, 2014). Despite its relatively low internal consistency in some studies, Lusardi and Mitchell (2011) argue that the three questions capture distinct yet complementary dimensions of financial literacy, making it a benchmark for assessing financial knowledge

Each financial literacy question was coded as a dichotomous variable, where a correct response was assigned a value of 1, and an incorrect or “Don’t Know” response was coded as 0. The financial literacy concepts were measured using the following questions:

1. Interest rate. The question assessing knowledge of interest rate asked: “Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow - more than \$102, exactly \$102, or less than \$102?” Five options

were provided: (1) more than \$102, (2) exactly \$102, (3) less than \$102, (8) DK (Don't Know), NA (Not Ascertained), and (9) RF (Refused). Respondents who correctly answered (1) more than \$102 were coded as “1”, otherwise “0”.

2. Inflation rate. Knowledge of inflation was measured with the following question: “Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy more than today, exactly the same as today, or less than today with the money in this account?” Five choices were provided: (1) more than today, (2) exactly the same as today, (3) less than today, (8) DK (Don't Know), NA (Not Ascertained), and (9) RF (Refused). Respondents who correctly answered (3) less than today were coded as “1”, otherwise “0”.
3. Stock vs. mutual fund. A true or false question was asked to measure respondents’ understanding of the difference between stock and mutual funds: “Do you think that the following statement is true or false: buying a single company stock usually provides a safer return than a stock mutual fund?” Four options were provided: (1) true, (5) false, (8) DK (Don't Know), NA (Not Ascertained), and (9) RF (Refused). Respondents who correctly answered (5) false were coded as “1”, otherwise “0”.

A composite index was created to measure financial literacy by summing the number of correctly answered questions, resulting in a scale ranging from 0 to 3, with higher scores indicating greater financial literacy.

This measure is consistent with prior research that has linked high financial literacy to improved retirement planning, lower debt accumulation, and increased financial resilience

(Klapper & Lusardi, 2020; Lusardi & Mitchell, 2011, 2014; Lusardi & Tufano, 2015). However, since the questions capture distinct concepts, the scale may demonstrate lower internal consistency than multi-item scales designed to measure a single dimension (Gignac & Ooi, 2022). A Cronbach's Alpha analysis was conducted to assess the internal consistency of the financial literacy measure, as shown in Table 3.3.

**Table 3.3.** Cronbach's Alpha for Financial Literacy Scale

|                    | Items | Cronbach's<br>$\alpha$ | M    | S.D. | Min. | Max. |
|--------------------|-------|------------------------|------|------|------|------|
| Financial Literacy | 3     | 0.72                   | 2.31 | 0.83 | 0    | 3    |

The distribution of respondent scores across the financial literacy index is presented in Table 3.4.

**Table 3.4.** Financial Literacy Score Distribution (N = 1,806)

| Financial Literacy Score (0-3) | Frequency | Percent |
|--------------------------------|-----------|---------|
| 0                              | 53        | 2.93    |
| 1                              | 320       | 17.72   |
| 2                              | 642       | 35.55   |
| 3                              | 791       | 43.80   |

### **Moderating Variable: Financial Guidance**

Financial guidance was assessed based on the respondents' reported receipt of assistance in managing their financial decisions. Specifically, the variable captured whether individuals received help with savings, investments, taxes, insurance, mortgage, retirement, or government benefits decisions. The assessment was based on responses to two questions in the 2016 HRS Financial Advice and Capacity at Older Ages experimental (Module 3), which was administered to a randomly selected subsample representing approximately 10% of the total HRS sample (HRS, 2023). The experimental design means that not all respondents were asked about financial guidance, introducing a potential source of selection bias

The first question measured whether a respondent received financial guidance. Participants were asked: *“Does anyone currently help you [and your spouse/partner] make decisions about your money management, particularly saving, investment, taxes, insurance, or benefits?”* Four options were provided: (1) Yes, (5) No, (8) Don’t Know (DK), and (9) Refused (RF). A binary variable was created to indicate whether the respondent reported receiving any financial guidance. Respondents who answered “Yes” were coded as 1, and those who answered “No” were coded as 0. To avoid misclassification, respondents who selected DK or RF were coded as missing values.

The second question examined the source(s) of financial guidance with the following prompt: *“Who helps you [or your spouse/partner] with making decisions about money management, particularly saving, investment, taxes, insurance, mortgage, retirement, or benefits”* Respondent could select multiple sources, including: (1) Child or child-in-law, (2) Other relative, (3) Friend, (4) Financial advisor, planner, accountant, or other professional investment counselor, (5) Lawyer, (6) Banker, (7) Social Security representative (8) Human Resources staff, (9) Online calculator, and (10) Other. Based on the responses, three distinct categories of financial guidance were created based on these responses:

1. Professional guidance was coded as 1 if the respondent selected financial advisor, planner, accountant, or other professional investment counselor, lawyer, banker, and 0 otherwise.
2. Family and friends’ guidance was coded as 1 if the respondent reported receiving financial advice from a child or child-in-law, other relatives, or friends, and 0 otherwise.

3. Institutional guidance was coded as 1 if the respondent relied on an online calculator, social security representative, or HR staff as a source of guidance, or other, and 0 otherwise.

A composite financial guidance variable was created to indicate whether the respondent reported receiving financial guidance from at least one source. The variable was coded as 1 if guidance was received from any of the three categories and 0 otherwise. An additional variable was created to indicate whether respondents received guidance from multiple sources, reflecting the degree to which individuals engage with various financial advice providers. Since these questions were part of an experiment module, missing values were not assumed to indicate a lack of financial guidance but rather that the respondent was not part of the randomly assigned subsample. This limitation must be considered when interpreting results, as the sample for this variable is smaller compared to other study variables.

Given that prior research has highlighted the importance of financial guidance in shaping financial behaviors and outcomes (Collins, 2012; Collins et al., 2012; Lusardi & Mitchell, 2014; Marsden et al., 2011), this study investigates whether financial guidance acts as a moderator in the relationship between ELAs and financial fraud vulnerability. In particular, receiving financial guidance may improve individuals' financial decision-making abilities, lowering their risk of exploitation. Table 3.5 presents the distribution of financial guidance sources.

**Table 3.5.** Financial Guidance Distribution (N = 1,680)

| Financial Guidance Source              | Frequency | Percent |
|----------------------------------------|-----------|---------|
| No Financial Guidance                  | 781       | 46.48   |
| Receives Financial Guidance            | 451       | 26.85   |
| Financial Guidance from Professionals  | 291       | 17.32   |
| Financial Guidance from Family/Friends | 134       | 7.98    |
| Financial Guidance from Institutions   | 23        | 1.37    |

### **Moderating Variable: Psychological Resilience**

Psychological resilience was measured using a subset of items adapted from Wagnild and Young's (1993) Resilience Scale, a well-established, multidimensional scale validated for use across adulthood (Wagnild, 2009). The Self-Rated Resilience Scale (SRS) was constructed using data from the 2016 wave of the HRS Leave Behind Questionnaire, which has been widely replicated as a robust measure of psychological resilience in nationally representative samples (King et al., 2019; Manning et al., 2016; Taylor & Carr, 2021).

The SRS was calculated using responses to twelve statements designed to assess an individual's ability to adapt to change, maintain focus under pressure, and recover from challenges. Respondents were asked to indicate the extent to which they agreed or disagreed with each statement. To ensure comparability across items, all responses were consolidated into a standard 5-point Likert scale, where: 1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neutral (Slightly Agree/Slightly Disagree/Neither Agree nor Disagree), 4 = Somewhat Agree, and 5 = Strongly Agree. This transformation was necessary because some items were originally on a 6-point scale and others on a 7-point scale. For 6-point scale items, slightly agree and slightly disagree responses were collapsed into the neutral category. For 7-point scale items, "neither agree nor disagree" was mapped into the neutral category to maintain consistency across all items.

Several items were reverse coded to ensure that higher scores consistently represented greater resilience. The twelve items included:

1. "I can do the things that I want to do."
2. "I am satisfied with my life."
3. "The future seems hopeless to me and I can't believe that things are changing for the better." (reverse-coded)
4. "In most ways my life is close to ideal."



5. “So far, I have gotten the important things I want in life.”
6. “What happens in my life is often beyond my control.” (reverse-coded)
7. “When I really want to do something, I usually find a way to succeed at it”
8. “I feel it is impossible for me to reach the goals that I would like to strive for.” (reverse-coded)
9. “If something can go wrong for me, it will.” (reverse-coded)
10. “I can do just about anything I really set my mind to.”
11. “I have a sense of direction and purpose in life”
12. “There is really no way I can solve the problems I have.” (reverse-coded)

To standardize responses for scaling, each item was transformed to range from 0 to 1, where 0 represents the lowest level of resilience and 1 represents the highest level. The final SRS score was calculated by summing the standardized values across all twelve items, creating a continuous measure ranging from 0 to 12 with higher scores indicating greater psychological resilience. This methodological approach aligns with prior studies demonstrating the strong construct validity and predictive efficacy of the SRS (Manning et al., 2016; Taylor et al., 2019; Taylor et al., 2024).

A Cronbach’s Alpha analysis was conducted to assess the internal consistency of the SRS, with the results presented in Table 3.6. The scale demonstrated excellent reliability ( $\alpha = 0.85$ ), suggesting strong internal consistency. By constructing a standardized resilience index, this study ensures comparability across diverse respondents and facilitates robust analysis of the moderating effects of resilience on financial fraud vulnerability. The final resilience measure was included in the regression models as a moderator to evaluate whether it influenced the strength of the relationship between childhood adversity and financial fraud vulnerability.

**Table 3.6.** Cronbach's Alpha for Psychological Resilience Scale

|               | Items | Cronbach's<br>$\alpha$ | M    | S.D. | Min. | Max. |
|---------------|-------|------------------------|------|------|------|------|
| Mental Status | 12    | 0.85                   | 8.60 | 2.03 | 0.75 | 12   |

### **Moderating Variable: Social Support**

Perceived social support was assessed using measures from the 2010 and 2012 waves of the HRS Leave Behind Questionnaire, which captures respondents' perceived support from four primary relationship types: spouse/partner, children, other family members, and friends.

Respondents rated three dimensions of support within each relationship type based on the following questions:

1. "How much do they really understand the way you feel about things?"
2. "How much can you rely on them if you have a serious problem?"
3. "How much can you open up to them if you need to talk about your worries?"

Each item was scored on a 4-point Likert scale, where 0 = Not at all, 1 = A little, 2 = Some, and 3 = A lot. Responses of "Don't Know" (DK) or "Refused" (RF) were coded as missing to ensure accurate calculations and avoid bias in the composite measure.

For each relationship category, a mean score was calculated across the three support dimensions. These relationship-specific scores were then averaged to create an overall perceived social support index, resulting in a continuous measure ranging from 0 to 3, where higher values indicate greater perceived social support. The multi-source social support index follows previous research utilizing relational measures in aging populations (Smith et al., 2017). The final composite index captures the breadth and depth of an individual's perceived social support network, which has been shown to serve as a protective factor in mitigating financial fraud vulnerability. Prior research suggests that greater social support is associated with lower financial exploitation risk, as it provides both emotional and informational resources that

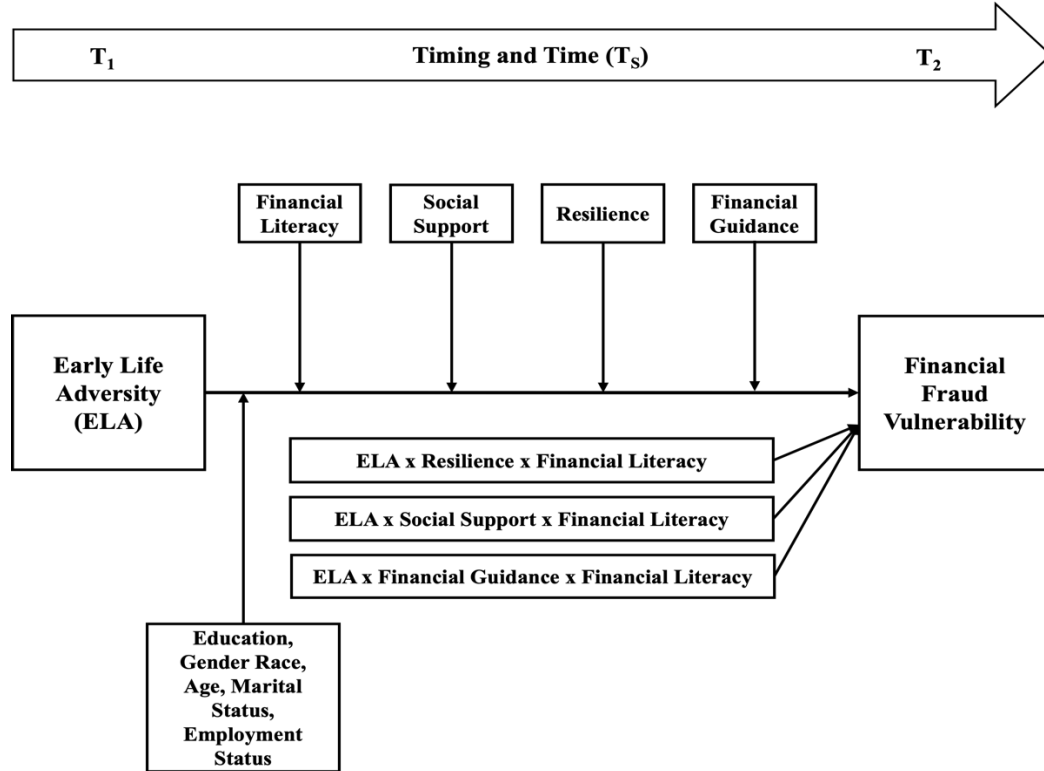
enhance financial decision-making and reduce susceptibility to fraud attempts (Antonucci et al., 2014; DeLiema et al., 2020; Uchino, 2009). Table 3.7 presents the internal consistency of the social support scale.

**Table 3.7.** Cronbach's Alpha for Social Support Scale

|               | Items | Cronbach's<br>$\alpha$ | M    | S.D. | Min. | Max. |
|---------------|-------|------------------------|------|------|------|------|
| Mental Status | 3     | 0.57                   | 0.83 | 0.55 | 0    | 3    |

Figure 3.1 illustrates the moderating effects of protective factors (resilience, financial literacy, social support, and financial guidance) and three-way interaction effects on the relationship between early life adversity (ELA) and financial fraud vulnerability. The smaller dashed arrows represent moderating influences, indicating that protective factors may buffer or amplify the relationship between ELAs and financial fraud vulnerability. The three-way interaction terms (ELAs x Resilience x Financial Literacy, ELAs x Social Support x Financial Literacy, and ELAs x Financial Guidance x Financial Literacy), shown as larger dashed arrows, explore whether combinations of protective factors influence financial fraud risk in later life.

**Figure 3.1.** Moderation Model of ELAs and Financial Fraud Vulnerability



### Control Variables

The control variables included in this study were selected based on prior research in financial decision-making, consumer behavior and vulnerability (Rajan et al., 2021; Schwandt, 2018). These variables are categorized into four key domains: sociodemographic factors, financial characteristics, cognitive function, and life-cycle indicators. Controlling for these variables allows for a more accurate analysis of the relationship between early life adversity (ELA) and financial fraud vulnerability by reducing protentional confounding effects and improving model precision.

**Socio-demographic.** Demographic characteristics play a well-documented role in financial decision-making and fraud susceptibility (James et al., 2014; Kim & Chatterjee, 2013). This study controls for age, gender, race, marital status, education level, and employment status,

as these factors influence financial risk perception, decision-making tendencies, and vulnerability to financial exploitation.

- Age was included as a continuous variable, drawn from the 2020 wave of the HRS, reflecting participants' age at the time of the most recent survey response. Prior research suggests that older adults may face heightened financial vulnerability due to cognitive decline and increased exposure to fraud schemes (Hale et al., 2020; Lusardi & Mitchell, 2014; Manly et al., 2022; Qian et al., 2021; Shao et al., 2019).
- Gender was coded as a binary variable, with males coded as 1 and females codes as 0, aligning with studies showing that gender differences in financial literacy and risk tolerance contribute to variation fraud susceptibility (Haahr-Pedersen et al., 2020; Mueller et al., 2020).
- Race was self-reported and categorized into three groups: White respondents were coded as 0, Black respondents as 1, and all other racial groups as 2. Missing race values were not imputed unless data from prior waves allowed for inference.
- Marital status is categorized as either married/partnered (coded as 1) or unmarried (coded as 0), reflecting research that suggests single individuals may have greater financial vulnerable due to the absence of a financial support system (Gutter & Copur, 2011).
- Education is included as a dichotomous variable, with respondents coded as 1 if they attained some college education or higher and 0 if they completed only high school or less.
- Employment status was also included as a binary variable, coded as 1 if the respondent was currently working and 0 if unemployed or retired. This recognizes employment as a key determinant of financial stability.

All sociodemographic variables were obtained from the 2020 RAND HRS Longitudinal File, a standardized dataset that harmonizes multiple waves of HRS data to improve cross-time comparisons (RAND HRS Longitudinal File 2020 (V1), 2023).

**Financial.** Financial security is a strong predictor of financial behavior and resilience (Farrell et al, 2016). To account for economic stability, net worth and credit card debts are included as financial controls. Burbridge et al. (1988) note that net worth data often demonstrates skewness, which may violate the assumption of normality. Given the skewed distribution of net worth data, this study applied the inverse hyperbolic sine transformation of net worth to normalize the data. Credit card debt is measured as a binary variable coded as 1 if the respondent carries any credit card debt and 0 otherwise, reflecting financial strain and potential vulnerability to financial fraud. Missing financial data were minimized using imputation where necessary, ensuring that the final dataset preserved statistical power while maintaining data integrity.

**Cognitive Ability.** Cognitive ability is strongly linked to financial literacy and fraud susceptibility (Lusardi & Mitchell, 2011). This study incorporates a cognitive function scale, which is summed performance across multiple cognitive tasks as a proxy for cognitive function, including measures of immediate and delayed word recall, as well as awareness of current events (e.g., correctly identifying the current U.S. President and Vice President). The scale is normalized to range from 0 to 8, with higher scores indicating better cognitive function. This measure was adapted for use in the HRS from the Telephone Interview for Cognitive (TICS) (Brandt et al., 1988), which was modeled after the Mini-Mental State Exam (MMSE) (Folstein et al., 1983). Given that cognitive decline increases susceptibility to financial deception, controlling for cognitive ability provides a clear understanding of financial vulnerability risks (Hale et al.,

2020; Manly et al., 2022; Qian et al., 2021). Table 3.8 displays the internal consistency of the mental status scale.

**Table 3.8.** Cronbach's Alpha for Mental Status Scale

|               |       | Cronbach's |      |      |      |      |
|---------------|-------|------------|------|------|------|------|
|               | Items | $\alpha$   | M    | S.D. | Min. | Max. |
| Mental Status | 8     | 0.72       | 6.27 | 1.78 | 0    | 8    |

A summary of the control variables used in this study is presented in Table 3.9, detailing their measurement and coding.

**Table 3.9.** Measurement of Control Variables

| Variable                 | Measurement                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------|
| Age                      | Continuous variable (2020 HRS wave)                                                        |
| Gender                   | 0 for Female; 1 for Male                                                                   |
| Relationship Status      | 1 for Married/Partnered; 0 for unmarried in 2020                                           |
| Race                     | 0 if respondent reported being White; 1 for Black, 2 for Other                             |
| Education                | 1 if the respondent completed some college level education or beyond; otherwise, 0 in 2020 |
| Employment Status        | 1 if the respondent is working; 0 if not working in 2020                                   |
| Net Worth                | Inverse hyperbolic sine transformation liquid net worth in 2020                            |
| Credit Card Debt         | 1 if respondent has any credit card debt; 0 if not                                         |
| Cognitive Function Scale | Continuous variable ranging from 0 to 8; sum of correct responses                          |

To further illustrate the anticipated relationships between ELAs, financial vulnerability, and the moderating effects of protective factors, Table 3.10 presents the expected directional effects of the study variables. The table outlines the direct impact of ELAs on financial fraud vulnerability and the hypothesized highlights the hypothesized direct effect of ELAs on financial fraud vulnerability, as well as the expected moderating roles of financial literacy, psychological resilience, social support, and financial guidance. Additionally, it outlines the influence of key control variables, which are essential for isolating the primary relationship under investigation. This framework provides a structured approach for examining how early-life adversity translates into financial risk later in life while considering the buffering effects of protective factors.

**Table 3.10.** Expected Relationship between Model Variables and Financial Fraud Vulnerability

| Variable                                            | Financial Fraud Vulnerability<br>Expected Effect |
|-----------------------------------------------------|--------------------------------------------------|
| <b>Early Life Adversity (ELA)</b>                   |                                                  |
| Aggregate Measure                                   | +                                                |
| <b>Moderation by Financial Literacy</b>             |                                                  |
| ELA x Financial Literacy                            | -                                                |
| <b>Moderation by Protective Factors</b>             |                                                  |
| ELA x Psychological Resilience                      | -                                                |
| ELA x Social Support                                | -                                                |
| ELA x Financial Guidance                            | -                                                |
| <b>Three-Way Interactions</b>                       |                                                  |
| ELA x Psychological Resilience x Financial Literacy | -                                                |
| ELA x Social Support x Financial Literacy           | -                                                |
| ELA x Financial Guidance x Financial Literacy       | -                                                |
| <b>Control Variables</b>                            |                                                  |
| Age                                                 | +                                                |
| Gender (Male vs. Females)                           | +                                                |
| Marital Status (Married vs. Unmarried)              | -                                                |
| Race (White vs. Black or Other)                     | -                                                |
| Education (College vs. No College)                  | -                                                |
| Employment (Employed vs. Unemployed)                | -                                                |
| Net Worth                                           | -                                                |
| Credit Card Debt                                    | +                                                |
| Cognitive Function Scale                            | -                                                |

### Data Analysis

This study used logistic regression analysis to examine the relationship between early life adversity (ELA) and financial fraud vulnerability, incorporating moderating roles of financial literacy, resilience, social support, and financial guidance. Logistic regression is well-suited for this analysis as it allows for the estimation of relationships between independent variables, both continuous and categorical, while predicting a binary outcome –financial fraud vulnerability. To account for missing data in key variables, multiple imputation with predictive mean matching (PMM) was used for financial literacy, resilience, social support, financial guidance, and credit



card debt. The decision to use multiple imputation was based on an assessment of missing data patterns, which indicated that the data were missing at random (MAR) rather than completely at random (MCAR) (Wulff & Ejlskov, 2017). PMM was selected due to its ability to generate plausible values that maintain the observed data distribution, reducing bias introduced by listwise deletion (Akman et al., 2019; Morris et al., 2014). Ten imputations were created, and estimates were pooled to ensure robust inference (Durrant, 2005; Rubin, 1996; Rubin & Schenker, 1986). Given the relatively low prevalence of fraud victimization within the sample, Firth logistic regression was employed to address separation issues and mitigate bias in small event data (Firth, 1993). Additionally, ordinary least squares (OLS) regression was used to analyze fraud severity as a continuous outcome, providing a complementary assessment of financial fraud vulnerability beyond binary categorization. To ensure that missing values did not bias the estimation of the relationship between ELAs and financial fraud vulnerability, imputed values were incorporated into the main regression models. Additionally, sensitivity analyses were conducted using the original dataset (before imputation) to compare findings and assess the robustness of the results.

Moderation analyses was conducted using interaction terms to evaluate whether financial literacy, resilience, social support, and financial guidance buffer the relationship between ELAs and fraud vulnerability. To ensure robustness, several model fit criteria were evaluated, including McFadden's  $R^2$ , which assesses model improvement over a null model; Nagelkerke's  $R^2$ , which adjusts McFadden's measure to range between 0 and 1 for comparability; and Cox & Snell's  $R^2$ , which is derived from likelihood-based statistics but does not reach 1. Further model selection was guided by Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) to identify the best-fitting model. The predictive accuracy of the models is assessed using

classification tables and receiver operating characteristics (ROC) curve analysis.

Multicollinearity was examined using variance inflation factors (VIF), ensuring that predictors did not exhibit excessive correlation. Because VIF is not directly available after multiple imputation in Stata, we extracted the first imputed dataset and ran VIF diagnostics on it to confirm that collinearity was not an issue.

## **Analysis Structure**

The data for this study were processed and analyzed using Stata 18 (StataCorp, 2023), leveraging multiple waves of the Health and Retirement Study (HRS) from 2008, 2010, 2012, 2016, and 2020, along with RAND-enhanced HRS data for additional control variables. The analysis followed a structured approach beginning with data cleaning and preparation, which involved removing duplicate cases, standardizing variable coding, and merging multiple datasets to create a comprehensive analysis file. Missing data diagnostics were conducted to classify missing patterns as missing at random (MAR) or missing completely at random (MCAR) based on statistical tests (Little & Rubin, 2019). Following data cleaning, multiple imputation was performed to handle missing values for financial literacy, resilience, social support, financial guidance, and credit card debt using predictive mean matching (PMM). Race, gender, education, employment status, and net worth were not imputed as they had no missing values. Imputation results were validated by comparing distributions between observed and imputed values to ensure consistency.

Once imputation was completed, descriptive and inferential analyses were conducted to examine the relationships between key variables. Logistic regression models were estimated to assess financial fraud vulnerability, while OLS regression models were used to examine fraud severity as a continuous outcome. Sensitivity analyses were conducted to compare results

between imputed and non-imputed datasets, testing the robustness of findings. To investigate moderation effects, interaction terms were introduced to examine how financial literacy, resilience, social support, and financial guidance influenced the relationship between ELAs and fraud vulnerability.

Further robustness checks and model diagnostics were performed to validate results. Variance inflation factors (VIF) were calculated to detect potential multicollinearity among predictors, with VIF diagnostics conducted on the first imputed dataset for accuracy. Model fit was assessed using AIC, BIC, and pseudo  $R^2$  measures to determine the best-fitting model. Additionally, predictive accuracy was evaluated using ROC curve analysis and classification tables to assess how well the logistic models distinguish between fraud victims and non-victims. The final step involved model selection and interpretation, where coefficients across models were compared to assess stability across imputations. Pooled estimates were generated to ensure reliable interpretation of results. This structured approach allowed for a rigorous and comprehensive assessment of financial fraud vulnerability and the role of protective factors in mitigating risk while accounting for missing data and ensuring the robustness of findings.

## **Hypotheses**

Understanding the relationship between ELAs and financial fraud vulnerability requires a structured examination of direct effects and moderating influences. This study tests a series of hypotheses that explore how early-life adversity affects financial fraud risk and whether financial literacy, resilience, social support, and financial guidance serve as protective mechanisms. Each hypothesis is tied to a specific statistical model to ensure rigor in hypothesis testing.

### **Direct Effects of ELAs on Financial Vulnerability**

H1a: Individuals with at least one ELA are at greater risk of financial fraud vulnerability compared to those with no ELAs.

H1b: The relationship will show a dose-pattern, with more ELAs predicting higher vulnerability.

### **Moderating Effects of Demographics**

H2: The effect of ELAs on financial vulnerability is moderated by race, such that certain racial groups experience a stronger relationship.

H3: The effect of ELAs on financial vulnerability is moderated by gender, with one gender being more vulnerable than the other.

H4: The effect of ELAs on financial vulnerability is moderated by age, with older adults exhibiting a stronger relationship.

H5: The effect of ELAs on financial vulnerability is moderated by marital status, with unmarried individuals experiencing greater financial vulnerability compared to married individuals.

H6: The effect of ELAs on financial vulnerability is moderated by educational attainment, with higher education reducing vulnerability.

H7: The effect of ELAs on financial vulnerability is moderated by employment status, with unemployed or underemployed individuals exhibiting a stronger relationship.

### **Moderating Effects of Protective Factors**

H8: Resilience moderates the relationship between ELAs and financial vulnerability, such that individuals with higher resilience experience lower financial vulnerability.

H9: Financial literacy moderates the relationship between ELAs and financial vulnerability, such that individuals with higher financial literacy are less likely to fall victim.

H10: Social support moderates the relationship between ELAs and financial vulnerability, such that individuals with higher social support experience lower financial vulnerability.

H11: Financial guidance moderates the relationship between ELAs and financial vulnerability, such that individuals who receive financial coaching or guidance experience lower financial vulnerability.

H12: There is a three-way interaction between ELAs, resilience, and financial literacy, such that individuals with high resilience and high financial literacy experience the lowest levels of financial vulnerability.

H13: There is a three-way interaction between ELAs, social support, and financial literacy, such that individuals with high social support and high financial literacy experience the lowest levels of financial vulnerability.

H14: There is a three-way interaction between ELAs, financial guidance, and financial literacy, such that individuals with high financial guidance and high financial literacy experience the lowest levels of financial vulnerability.

Upon testing these hypotheses, this study provides new insights into the mechanisms through which ELAs influence financial vulnerability and the potential for resilience and financial knowledge to mitigate fraud risk. The results of these analyses inform financial education interventions, policy recommendations, and future research aimed at improving financial security for at-risk populations.

## **Chapter 4 – Findings and Results**

Understanding financial vulnerability in later life requires a nuanced examination of both psychological and economic factors. This study investigates how early life adversities (ELAs) shape financial fraud vulnerability in older adults, with particular attention to the moderating roles of financial literacy, resilience, financial guidance and social support. Using data from the Health and Retirement Study (HRS), this analysis employs multiple imputation techniques to address missing data and utilizes logistic and linear regression analyses to assess key predictors of financial fraud vulnerability. The findings provide empirical evidence that early-life adversity translates into financial vulnerability, highlighting the role of psychological and financial resources in mitigating fraud.

This chapter presents the results, beginning with a demographic profile of the analytic sample to establish the study's population characteristics. Next, descriptive statistics detail the distribution of key variables, including cognitive function, financial literacy, and resilience. The chapter then transitions to the core regression analyses, identifying the strongest predictors of fraud victimization and financial fraud vulnerability. Each analysis builds upon the conceptual framework established in earlier chapters, systematically testing the hypotheses regarding the interaction between psychological and financial characteristics in shaping financial outcomes in older adults. This chapter concludes with a synthesis of the key findings, positioning them within the broader literature and providing a foundation for the discussion in the final chapter.

### **Demographic characteristics of the sample**

An overview of the sample characteristics is presented in Tables 4.1 and 4.2. The final analytic sample consists of 15,681 respondents drawn from the Health and Retirement Study (HRS). Given the complexity of the HRS sampling design and the presence of missing data in

key financial and psychological variables, multiple imputation was employed to ensure the integrity of the dataset. Specifically, imputation was applied to financial literacy, social support, resilience, financial guidance, cognitive function, and credit card debt to mitigate potential bias associated with missing responses.

The gender distribution of the sample was 59.36% female ( $n = 9,309$ ) and 40.64% male ( $n = 6,732$ ). The mean age of respondents in 2020 was 68.06 years ( $SD = 10.83$ ), with an age range from 50 to 104 years. To facilitate interpretation, age was categorized into three groups: younger-old adults ( $\leq 60$  years old) (27.14%,  $n = 4,256$ ), middle-aged-old adults (61-75 years old) (45.90%,  $n = 7,198$ ), and older-old adults (76 years and older) (26.97%,  $n = 4,227$ ). These age categorizations reflect meaningful distinctions in financial decision-making and differential vulnerability to economic stressors in later life.

In terms of racial composition, 65.45% of respondents ( $n = 10,265$ ) identified as White, 22.04% ( $n = 3,454$ ) identified as Black, and 12.51% ( $n = 1,962$ ) identified as another racial category. Educational attainment was classified into two categories: 46.66% of respondents had less than a college education, while 53.34% had completed college or attained a higher degree. Employment status at the time of data collection indicated that 64.13% of respondents were not working, whereas 35.87% remained in the workforce. Marital status was balanced, with 59.85% of respondents being married ( $n = 9,385$ ) and 40.15% being unmarried ( $n = 6,296$ ).

Financial vulnerability was assessed through self-reported experiences of fraud victimization. Within the sample, 7.63% ( $n = 1,196$ ) of respondents reported being victims of financial fraud, while 92.37% ( $n = 14,485$ ) did not report such experiences. Additionally, 31.78% ( $n = 4,984$ ) of respondents reported having outstanding credit card debt, while 68.22% ( $n = 10,697$ ) had no credit card balances. Although credit card debt does not directly indicate fraud

vulnerability, it serves as an indicator of financial strain that may increase susceptibility. These findings highlight the prevalence of financial fraud among older adults and reinforce the importance of examining the psychological and financial factors that contribute to susceptibility to financial exploitation.

**Table 4.11.** Sample Characteristics of Categorical Variables (N = 15,681)

| Variable               | n      | %      |
|------------------------|--------|--------|
| Gender                 |        |        |
| Female                 | 9,309  | 59.36% |
| Male                   | 6,372  | 40.64% |
| Age Group              |        |        |
| Young ( $\leq 60$ )    | 4,256  | 27.14% |
| Middle-Aged (61-75)    | 7,198  | 45.90% |
| Older (76+)            | 4,227  | 26.97% |
| Race                   |        |        |
| White                  | 10,265 | 64.45% |
| Black                  | 3,454  | 22.04% |
| Other                  | 1,962  | 12.51% |
| Education              |        |        |
| Less than college      | 7,316  | 46.66% |
| College or higher      | 8,365  | 53.34% |
| Marital Status         |        |        |
| Married                | 9,385  | 59.85% |
| Not Married            | 6,296  | 40.15% |
| Employment status      |        |        |
| Not Working            | 10,060 | 64.13% |
| Working                | 5,621  | 35.87% |
| Credit Card Debt       |        |        |
| No Credit Card Debt    | 10,697 | 68.22% |
| Has Credit Card Debt   | 4,984  | 31.78% |
| Fraud Victimization    |        |        |
| No Fraud Victimization | 14,485 | 92.37% |
| Fraud Victimization    | 1,196  | 7.63%  |

Table 4.2 presents the summary statistics for the continuous variables included in the study. The average financial literacy score was 2.30 (SD = 0.79), measured on a 0-3 scale, indicating moderate levels of financial knowledge among respondents. Resilience, assessed using



a 0-12 standardized scale, had a mean score of 8.73 (SD = 1.98), reflecting differences in psychological adaptability across the sample. Social support, measured on a 0-3 scale, had a mean of 0.85 (SD = 0.54), suggesting that participants reported low to moderate perceived social support from their networks.

Cognitive function scores, ranging from 0 to 8, had a mean of 6.29 (SD = 1.17), providing insight into the overall cognitive ability of respondents. Finally, net worth, transformed using the inverse hyperbolic sine (IHS) function to account for skewness, had a mean of 10.55 (SD = 6.21). These summary statistics establish the distribution and central tendencies of key financial and psychological constructs in the sample, providing a foundation for subsequent analyses.

**Table 4.12.** Sample Characteristics of Scales and Continuous Variables (N = 15,681)

| Variable                       | M     | SD    | Min    | Max   |
|--------------------------------|-------|-------|--------|-------|
| Age (2020)                     | 68.06 | 10.83 | 50     | 104   |
| Financial Literacy Score (0-3) | 2.31  | 0.83  | 0      | 3     |
| Resilience Score (0-12)        | 8.73  | 1.98  | 0.75   | 12    |
| Social Support Score (0-3)     | 0.85  | 0.54  | 0      | 3     |
| Cognitive Function (0-8)       | 6.29  | 1.17  | 0      | 8     |
| IHS Net Worth (Transformed)    | 10.55 | 6.21  | -11.09 | 16.26 |

## Bivariate Correlations and Preliminary Analyses

### Bivariate Correlations

Before proceeding to the primary regression analyses, bivariate correlations and preliminary statistical tests were conducted to examine the relationships between key study variables. These analyses provide an initial examination of associations between psychological, financial, and demographic factors and financial vulnerability outcomes, specifically fraud victimization and fraud severity.

**Table 4.13.** Bivariate Correlation Matrix for Key Continuous Variables

| Variables             | 1        | 2        | 3        | 4        | 5        | 6       | 7        | 8       | 9    |
|-----------------------|----------|----------|----------|----------|----------|---------|----------|---------|------|
| 1. ELA Score          | 1.00     |          |          |          |          |         |          |         |      |
| 2. Financial Literacy | -0.02    | 1.00     |          |          |          |         |          |         |      |
| 3. Resilience         | -0.06**  | 0.15***  | 1.00     |          |          |         |          |         |      |
| 4. Social Support     | 0.06**   | -0.10*** | -0.35*** | 1.00     |          |         |          |         |      |
| 5. Financial Guidance | -0.02    | 0.09***  | 0.20***  | -0.09*** | 1.00     |         |          |         |      |
| 6. Cognitive Function | -0.02    | 0.12***  | 0.22***  | -0.02    | 0.06***  | 1.00    |          |         |      |
| 7. New Worth (IHS)    | -0.09*** | 0.04**   | 0.08***  | -0.02    | 0.04**   | 0.10*** | 1.00     |         |      |
| 8. Credit Card Debt   | 0.06***  | 0.06***  | -0.04**  | 0.02     | -0.05*** | 0.11*** | -0.08*** | 1.00    |      |
| 9. Fraud Severity     | 0.03***  | -0.01    | 0.01     | 0.02**   | -0.01    | 0.03**  | 0.03***  | 0.05*** | 1.00 |

Notes. Correlations are based on pooled imputed datasets; \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Table 4.3 presents the bivariate correlations among continuous study variables, including early life adversities (ELAs), financial literacy, resilience, social support, financial guidance, cognitive function, net worth (IHS transformed), credit card debt, and financial fraud severity. Correlations were computed separately for non-imputed data ( $m=0$ ) and pooled across multiple imputations to ensure robustness. Initial correlation analysis revealed several notable patterns. Financial literacy was negatively correlated to ELAs ( $r = -0.02$ ,  $p < .05$ ), suggesting that individuals with higher childhood adversity exhibited lower financial knowledge. Resilience demonstrated a positive association with financial literacy ( $r = 0.15$ ,  $p < .01$ ), indicating that individuals with greater psychological adaptability also displayed stronger financial knowledge. A moderate negative correlation between social support and resilience ( $r = -0.35$ ,  $p < .001$ ), suggests that individuals with higher resilience may rely less on external support networks. Fraud severity exhibited small but statistically significant correlations with multiple predictors, including social support ( $r = 0.02$ ,  $p < .01$ ) and ELAs ( $r = 0.03$ ,  $p < .001$ ). These results imply a modest relationship between these psychological and financial factors and an individual's susceptibility to fraud. Notably, credit card debt was positively correlated with ELAs ( $r = 0.06$ ,  $p < .001$ ) and financial literacy ( $r = 0.06$ ,  $p < .001$ ), while net worth exhibited positive associations

with cognitive function ( $r = 0.10$ ,  $p < .001$ ) and financial literacy ( $r = 0.04$ ,  $p < .01$ ). These findings underscore the intricate relationships between financial well-being, cognitive function, and early-life adversity.

### **Chi-Square Analysis for Categorical Variables**

The chi-square analyses examined the association between fraud victimization and key demographic factors. The results indicated a statistically significant association between gender and fraud victimization  $X^2(1, n = 15,681) = 6.00$ ,  $p = .014$ , with females experiencing slightly higher rates of fraud victimization compared to males. Race was also a significant predictor  $X^2(2, n = 15,681) = 32.05$ ,  $p < .001$ , with Black and Other racial groups reporting higher fraud victimization rates compared to White respondents. Educational attainment was strongly associated with fraud victimization,  $X^2(1, n = 15,681) = 86.25$ ,  $p < .001$ , where individuals with a college degree or higher reported greater likelihood of fraud victimization compared to those with less education. Employment status was significantly linked to fraud victimization,  $X^2(1, n = 15,681) = 7.18$ ,  $p = .007$ , with non-working individuals at a higher risk. Marital status was not significantly associated with fraud victimization  $X^2(1, n = 15,681) = 0.76$ ,  $p = .384$ , indicating that being married or unmarried did not meaningfully influence fraud victimization.

### **T-Tests and ANOVA for Fraud Severity**

To assess group differences in fraud severity, independent sample t-tests and one-way analysis of variance (ANOVA) were conducted. As shown in Table 4.4, men reported significantly higher fraud severity scores ( $M = 0.092$ ,  $SD = 0.32$ ) compared to women ( $M = 0.079$ ,  $SD = 0.30$ ),  $t(15,679) = -2.50$ ,  $p = .012$ . Age group differences were also significant,  $F(2, 15,678) = 41.36$ ,  $p < .001$ , with middle-old-aged adults (61-75 years old) reporting higher fraud

severity than both younger ( $\leq 60$ ) and older (76+) adults. Race was significantly associated with fraud severity,  $F(2, 15,678) = 11.00, p < .001$ , with Black ( $M = 0.077, SD = 0.31$ ) and Other racial groups ( $M = 0.057, SD = 0.26$ ) reporting slightly higher fraud severity scores than White respondents ( $M = 0.092, SD = 0.31$ ). Educational attainment showed a pronounced effect,  $F(1, 15,679) = 75.15, p < .001$ , with those holding a college degree ( $M = 0.104, SD = 0.34$ ) reporting greater fraud severity scores compared to individuals with lower educational attainment ( $M = 0.062, SD = 0.27$ ). Marital status was not significantly associated with fraud severity,  $F(1, 15,679) = 0.85, p = .355$ , with married ( $M = 0.086, SD = 0.31$ ) and unmarried individuals ( $M = 0.082, SD = 0.31$ ) reporting similar fraud severity levels. Lastly, employment status was associated with fraud severity,  $F(1, 15,679) = 5.54, p = .019$ , with non-working respondents ( $M = 0.089, SD = 0.31$ ) experiencing slightly higher fraud severity levels compared to those who were employed ( $M = 0.077, SD = 0.30$ ). While the effect sizes were small, these findings highlight important differences in fraud severity across key socioeconomic groups and support the need for further multivariate analyses to understand the interplay between financial, psychological, and demographic risk factors in determining fraud vulnerability.

**Table 14.** T-Test and ANOVA Results for Fraud Severity Across Demographic Groups

| Variable            | M (SD)       | t     | df        | p-value  | Effect Size            |
|---------------------|--------------|-------|-----------|----------|------------------------|
| Gender              |              | -2.50 | 15,679    | .012*    | d = .05 (Small)        |
| Female              | 0.079 (0.30) |       |           |          |                        |
| Male                | 0.092 (0.32) |       |           |          |                        |
| Age Group           |              | 41.36 | 2, 15,678 | <.001*** | $\eta^2 = .01$ (Small) |
| Young ( $\leq 60$ ) | 0.051 (0.25) |       |           |          |                        |
| Middle-Aged (61-75) | 0.105 (0.34) |       |           |          |                        |
| Older (76+)         | 0.084 (0.31) |       |           |          |                        |
| Race                |              | 11.00 | 2, 15,678 | <.001*** | $\eta^2 = .01$ (Small) |
| White               | 0.092 (0.31) |       |           |          |                        |
| Black               | 0.077 (0.31) |       |           |          |                        |
| Other               | 0.057 (0.26) |       |           |          |                        |
| Education           |              | 75.15 | 15,679    | <.001*** | $\eta^2 = .01$ (Small) |

|                   |              |      |        |       |                            |
|-------------------|--------------|------|--------|-------|----------------------------|
| Less than College | 0.062 (0.27) |      |        |       |                            |
| College or Higher | 0.104 (0.34) |      |        |       |                            |
| Marital Status    |              | 0.85 | 15,679 | .355  | $\eta^2 = .00$ (No Effect) |
| Married           | 0.086 (0.31) |      |        |       |                            |
| Unmarried         | 0.082 (0.31) |      |        |       |                            |
| Employment Status |              | 5.54 | 15,679 | .019* | $\eta^2 = .00$ (No Effect) |
| Not Working       | 0.089 (0.31) |      |        |       |                            |
| Working           | 0.077 (0.30) |      |        |       |                            |

### Normality Tests and Log Transformation

To assess the distribution of fraud severity, skewness and kurtosis measures were examined, revealing substantial non-normality (skewness = 3.82, kurtosis = 18.13). The D'Agostino-Pearson test confirmed a significant deviation from normality ( $p < .001$ ). Visual inspections, including histograms, kernel density plots, and Q-Q plots, further illustrated a right-skewed distribution with a heavy tail.

A log transformation was attempted; however, due to the large number of zero values in fraud severity, this method produced 92,790 missing cases, making statistically impractical. Given the large sample size, normality was not required for regression analyses. Instead, robust standard errors were employed to account for potential heteroskedasticity, ensuring the validity of statistical inference.

The bivariate correlations, chi-square tests, and group comparisons provide initial evidence supporting the hypothesized relationships between ELAs, psychological characteristics, and financial vulnerability. While the observed associations are modest, they indicate that both psychological and financial factors contribute to fraud susceptibility. The following sections present the results of the regression analyses, which formally test these relationships within a multivariate framework, accounting for potential confounders and interaction effects.

## Regression Analyses and Hypothesis Testing

To examine the predictors of financial fraud victimization and fraud severity, a series of regression analyses were conducted. Logistic regression was used to estimate the likelihood of fraud victimization as a binary outcome, while ordinary least squares (OLS) regression was employed to analyze predictors of fraud severity. Given the presence of missing data, multiple imputation techniques were applied across five imputed datasets to improve estimate reliability. These models allow for an assessment of how demographic, financial, and psychological factors contribute to financial vulnerability among older adults.

### Logistic Regression: Predicting Fraud Victimization

Table 4.5 presents the results of the logistic regression predicting fraud victimization. Individuals who experienced at least one early life adversity (ELA) had 19% higher odds of reporting fraud victimization (OR = 1.19,  $p < .001$ ), suggesting a long-term link between early-life adversity and financial risk. Gender was also a significant predictor, with women having 25% higher odds of fraud victimization compared to men (OR = 1.25,  $p = .002$ ). Age showed an inverse relationship with fraud victimization, as each additional year of age was associated with 16% lower odds of experiencing fraud (OR = 0.84,  $p = .010$ ). Educational attainment was also associated with fraud victimization, with individuals holding a college degree or higher having 68% higher odds of fraud victimization (OR = 1.68,  $p < .001$ ), possibly reflecting greater engagement in financial activities that expose them to fraud risks.

**Table 15.** Logistic Regression Predicting Fraud Victimization

| Variables                                 | B       | SE   | OR   | 95% CI       |
|-------------------------------------------|---------|------|------|--------------|
| ELA Exposure Category                     | 0.18*** | 0.05 | 1.20 | (1.09, 1.33) |
| Financial Literacy Score (0-3)            | -0.02   | 0.05 | 0.98 | (0.89, 1.08) |
| Overall Social Support Index (0-3)        | 0.07    | 0.07 | 1.07 | (0.93, 1.24) |
| Standardized Resilience Score (0-12)      | -0.02   | 0.03 | 0.98 | (0.93, 1.04) |
| Receives Financial Guidance (1=Yes, 0=No) | 0.02    | 0.15 | 1.02 | (0.76, 1.36) |

|                                |         |      |      |              |
|--------------------------------|---------|------|------|--------------|
| Gender                         | 0.22**  | 0.07 | 1.25 | (1.09, 1.43) |
| Age Group                      | -0.16** | 0.06 | 0.85 | (0.75, 0.96) |
| Race                           | -0.01   | 0.06 | 0.99 | (0.88, 1.12) |
| Marital Status                 | 0.05    | 0.08 | 1.05 | (0.91, 1.22) |
| Education                      | 0.52*** | 0.07 | 1.68 | (1.44, 1.95) |
| Employment Status              | -0.11   | 0.09 | 0.89 | (0.75, 1.05) |
| Net Worth (IHS)                | 0.01*   | 0.03 | 1.01 | (1.00, 1.03) |
| Credit Card Debt               | 0.25*   | 0.09 | 1.28 | (1.07, 1.53) |
| Cognitive Function Scale (0-8) | 0.09*   | 0.04 | 1.10 | (1.02, 1.19) |

*Note.* N = 9,420. Standard errors in parentheses. \*p<.05, \*\*p<.01, \*\*\*p<.001.

Financial and psychological variables were included to assess their relationship with fraud victimization. While financial literacy (OR = 0.98, p = .622), social support (OR = 1.07, p = .346), resilience (OR = 0.98, p = .511), and financial guidance (OR = 1.02, p = .900) were not significant predictors, individuals with credit card debt had 28% higher odds of reporting fraud victimization (OR = 1.28, p = .011). This finding suggests that those with financial obligations may be more vulnerable to fraudulent schemes. Additionally, cognitive function was positively associated with fraud victimization, with each unit increase in cognitive function associated with 9% higher odds of fraud victimization (OR = 1.09, p = .024), implying that individuals with better cognitive function may engage in financial activities that increase their exposure to fraud. The logistic regression model was statistically significant ( $F(12, 717.9) = 6.81, p < .001$ ), though the pseudo  $R^2$  value of the 0.021 suggests that additional unmeasured factors may influence fraud victimization risk.

### **OLS Regression: Predicting Fraud Severity**

To examine the predictors of fraud severity, an OLS regression model was estimated, with results presented in Table 4.6. The findings revealed that ELAs were positively associated with fraud severity, as individuals with greater ELA exposure reported higher fraud severity scores ( $\beta = 0.017, p = .002$ ). Similar to the fraud victimization model, gender was a significant

predictor, with men reporting higher fraud severity scores than women ( $\beta = 0.023$ ,  $p = .003$ ).

Age was negatively associated with fraud severity ( $\beta = -0.015$ ,  $p = .032$ ), suggesting that younger individuals were more likely to experience severe fraud incidents. Higher educational attainment was also a strong predictor, with those holding a college degree reporting greater fraud severity compared to those with less education ( $\beta = 0.050$ ,  $p < .001$ ).

**Table 16.** OLS Regression Predicting Fraud Severity

| Variables                                 | Fraud Severity      |
|-------------------------------------------|---------------------|
| ELA Exposure Category                     | 0.017**<br>(0.005)  |
| Financial Literacy Score (0-3)            | -0.003<br>(0.005)   |
| Overall Social Support Index (0-3)        | 0.008<br>(0.009)    |
| Standardized Resilience Score (0-12)      | -0.001<br>(0.003)   |
| Receives Financial Guidance (1=Yes, 0=No) | 0.002<br>(0.016)    |
| Gender                                    | 0.023**<br>(0.008)  |
| Age Group                                 | -0.015*<br>(0.007)  |
| Race                                      | 0.003<br>(0.006)    |
| Marital Status                            | 0.005<br>(0.008)    |
| Education                                 | 0.050***<br>(0.008) |
| Employment Status                         | -0.013<br>(0.009)   |
| Net Worth (IHS)                           | 0.002**<br>(0.001)  |
| Credit Card Debt                          | 0.026*<br>(0.010)   |
| Cognitive Function Scale (0-8)            | 0.008<br>(0.004)    |
| Constant                                  | 0.047               |



|       |         |
|-------|---------|
| $R^2$ | (0.036) |
|       | 0.012   |

---

*Note.* N = 9,420. Standard errors in parentheses. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Among financial factors, credit card debt was significantly associated with higher fraud severity scores ( $\beta = 0.026$ ,  $p = .018$ ), reinforcing the idea that individuals with financial liabilities may be more susceptible to severe fraud incidents. However, financial literacy ( $\beta = -0.003$ ,  $p = .549$ ), social support ( $\beta = 0.008$ ,  $p = .346$ ), resilience ( $\beta = -0.001$ ,  $p = .693$ ), and financial guidance ( $\beta = 0.002$ ,  $p = .883$ ) were not statistically significant predictors of fraud severity. Additionally, cognitive function approached statistical significance but did not reach the conventional statistical thresholds ( $\beta = 0.007$ ,  $p = .062$ ). The OLS model was statistically significant ( $F(14, 686.1) = 5.99$ ,  $p < .001$ ), though the adjusted  $R^2$  value of 0.012 suggest that the included predictors explain only a small portion of the variance in fraud severity.

### Interaction and Moderation Analysis

To assess whether psychological and financial factors moderate the relationship between early life adversity (ELA) and financial vulnerability, a series of logistic and ordinary least squares (OLS) regression models were conducted. These models included two-way interactions to examine whether financial literacy, social support, resilience, and financial guidance moderate the effects of ELAs on fraud victimization and fraud severity. Additionally, three-way interactions were tested to explore whether the combined effects of ELAs, financial literacy, and psychological resilience or external support systems further influence financial vulnerability. Interaction terms were created by multiplying the centered predictor variables to mitigate potential collinearity and ensure interpretability by reducing multicollinearity issues and facilitating meaningful interpretation of moderation effects.

### Logistic Regression: Moderation Effects on Fraud Victimization

Table 4.7 presents the results of the logistic regression models testing two-way interactions on fraud victimizations. The inclusion of interaction terms did not substantively improve model fit, as evidenced by the minimal change in AIC (6371.19) and BIC (6499.90) compared to the main effects model. None of the two-way interactions reached statistical significance at conventional levels, suggesting that resilience (OR = 0.99,  $p = .814$ ), financial literacy (OR = 0.97,  $p = .622$ ), social support (OR = 1.19,  $p = .112$ ), and financial guidance (OR = 1.04,  $p = .697$ ) failed to demonstrate significant moderating effects on the relationship between ELAs and fraud victimization. These findings indicate that the relationship between ELAs and fraud victimization remains constant across varying levels of these moderators, suggesting limited interactive effects in this context.

**Table 17.** Logistic Regression: Two-Way Interactions on Fraud Victimization

| Variables                | Expanded Fraud Victimization<br>(Includes All Fraud Types) |
|--------------------------|------------------------------------------------------------|
| ELA x Resilience         | 0.001<br>(0.027)                                           |
| ELA x Social Support     | 0.099<br>(0.023)                                           |
| ELA x Financial Literacy | -0.086<br>(0.060)                                          |
| ELA x Financial Guidance | 0.093<br>(0.108)                                           |
| Constant                 | -2.987***<br>(0.355)                                       |

*Note.* N = 9,420. Standard errors in parentheses. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Three-way interactions were subsequently tested to determine whether the effects of ELAs on fraud victimization vary as a function of both financial literacy and psychological or social factors (Table 4.8). The three-way interaction between ELAs, resilience, and financial literacy was statistically significant (OR = 0.84,  $p = .029$ ), indicating that individuals with higher resilience and financial literacy had 16% lower odds of fraud victimization. However, the

interactions between ELAs, social support, and financial literacy (OR = 1.04,  $p = .754$ ) and ELAs, financial guidance, and financial literacy (OR = 1.15,  $p = .263$ ) were not significant. These findings suggest that resiliency may enhance the protective effects of financial literacy in reducing financial fraud vulnerability, whereas social support and financial guidance do not appear to offer additional protective benefits. This pattern implies that while resilience reinforced the advantages of financial literacy, other support mechanisms may not adequately buffer against fraud victimization.

**Table 18.** Logistic Regression: Three-Way Interactions on Fraud Victimization

| Variables                                     | Expanded Fraud Victimization<br>(Includes All Fraud Types) |
|-----------------------------------------------|------------------------------------------------------------|
| ELA x Resilience x Financial Literacy         | 0.056*<br>(0.026)                                          |
| ELA x Social Support x Financial Literacy     | 0.115<br>(0.094)                                           |
| ELA x Financial Guidance x Financial Literacy | 0.082<br>(0.115)                                           |
| Constant                                      | -2.973***<br>(0.355)                                       |

*Note.* N = 9,420. Standard errors in parentheses. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### OLS Regression: Moderation Effects on Fraud Severity

OLS regression models were estimated to examine whether financial literacy, social support, resilience, and financial guidance moderate the relationships between ELAs and fraud severity (Table 4.10). Similar to the logistic regression results, none of the two-way interaction terms were statistically significant, including ELAs x financial literacy ( $\beta = -0.004$ ,  $p = .646$ ), ELAs x social support ( $\beta = 0.024$ ,  $p = .074$ ), ELAs x resilience ( $\beta = -0.001$ ,  $p = .868$ ), and ELAs x financial guidance ( $\beta = 0.007$ ,  $p = .617$ ). These results indicate that financial literacy and psychological resources do not significantly alter the relationship between ELAs and fraud severity at the two-way interaction level. This lack of significant moderation suggests that the

impact of ELAs on fraud severity remains stable regardless of individual difference in these resources.

**Table 19.** OLS Regression: Two-Way on Fraud Severity

| Variables                | Fraud Severity    |
|--------------------------|-------------------|
| ELA x Resilience         | -0.001<br>(0.003) |
| ELA x Social Support     | 0.024<br>(0.013)  |
| ELA x Financial Literacy | -0.004<br>(0.008) |
| ELA x Financial Guidance | 0.007<br>(0.014)  |
| Constant                 | 0.054<br>(0.039)  |
| R <sup>2</sup>           | 0.014             |

*Note.* N = 9,420. Standard errors in parentheses. \*p<.05, \*\*p<.01, \*\*\*p<.001.

Table 4.10 displays the results for the three-way interaction models. The interaction between ELAs, resilience, and financial literacy was statistically significant ( $\beta = 0.007$ ,  $p = .022$ ), suggesting that resilience strengthens the protective effects of financial literacy in reducing fraud severity. Conversely, the interaction between ELAs, social support, and financial literacy ( $\beta = 0.014$ ,  $p = .214$ ) and ELAs, financial guidance, and financial literacy ( $\beta = 0.013$ ,  $p = .319$ ) failed to reach statistical significance. Model fit statistics revealed a slight improvement in explanatory power with the inclusion of the three-way interaction terms (AIC = 6822.71, BIC = 6951.42), though the adjusted R<sup>2</sup> remained relatively low (0.014), indicating that these predictors explain only a small proportion of variance in fraud severity. While this model accounts for a marginally greater share of variance, it suggests that other unmeasured factors may contribute more substantially to fraud severity.

**Table 4.20.** OLS Regression: Three-Way on Fraud Severity

| Variables                             | Fraud Severity |
|---------------------------------------|----------------|
| ELA x Resilience x Financial Literacy | 0.007**        |

|                                               |         |
|-----------------------------------------------|---------|
|                                               | (0.003) |
| ELA x Social Support x Financial Literacy     | 0.014   |
|                                               | (0.011) |
| ELA x Financial Guidance x Financial Literacy | 0.013   |
|                                               | (0.013) |
| Constant                                      | 0.043   |
|                                               | (0.036) |
| R <sup>2</sup>                                | 0.014   |

*Note.* N = 9,420. Standard errors in parentheses. \*p<.05, \*\*p<.01, \*\*\*p<.001.

### **Summary of Analyses**

This study examined the relationship between early life adversity (ELA), financial and psychological factors, and financial vulnerability in older adults. The findings were derived from a series of logistic and ordinary least squares (OLS) regression analyses, providing insights into the direct effects of ELAs on fraud victimization and fraud severity, as well as the potential moderating roles of financial literacy, social support, resilience, and financial guidance. The analyses revealed that while ELAs consistently predicted fraud victimization, the effects of financial literacy and resilience varied based on moderation models, suggesting that individual differences in psychological adaptability may shape fraud risk.

### **Direct Effects on Fraud Victimization and Fraud Severity**

The results supported the hypothesis that ELAs are associated with greater financial vulnerability. Individuals with at least one ELA were significantly more likely to report fraud victimization (H1a), and a dose-response pattern was observed, indicating that those with a higher number of ELAs demonstrated increased financial vulnerability (H1b). Among demographic factors, gender (H3), age (H4), and education (H6) were significant predictors, with women, younger individuals, and those with higher levels of education exhibiting greater fraud victimization risk. Marital status (H5) and employment status (H7) were not statistically

significant at conventional levels, but exhibited marginal effects, while race (H2) was not a significant predictor of fraud victimization.

Financial factors also played a role in predicting fraud vulnerability. Credit card debt emerged as a significant predictor of both fraud victimization and fraud severity, suggesting that financial strain may increase susceptibility to financial exploitation. In contrast, financial literacy, social support, resilience, and financial guidance did not significantly predict fraud victimization at the main effects level. Cognitive function was positively associated with fraud victimization, suggesting that individuals with higher cognitive function engage in financial activities that expose them to greater fraud risk. This finding suggests that greater financial sophistication may be associated with increased exposure to complex financial decision-making, which could heighten fraud risk.

### **Moderating Effects of Psychological and Financial Factors**

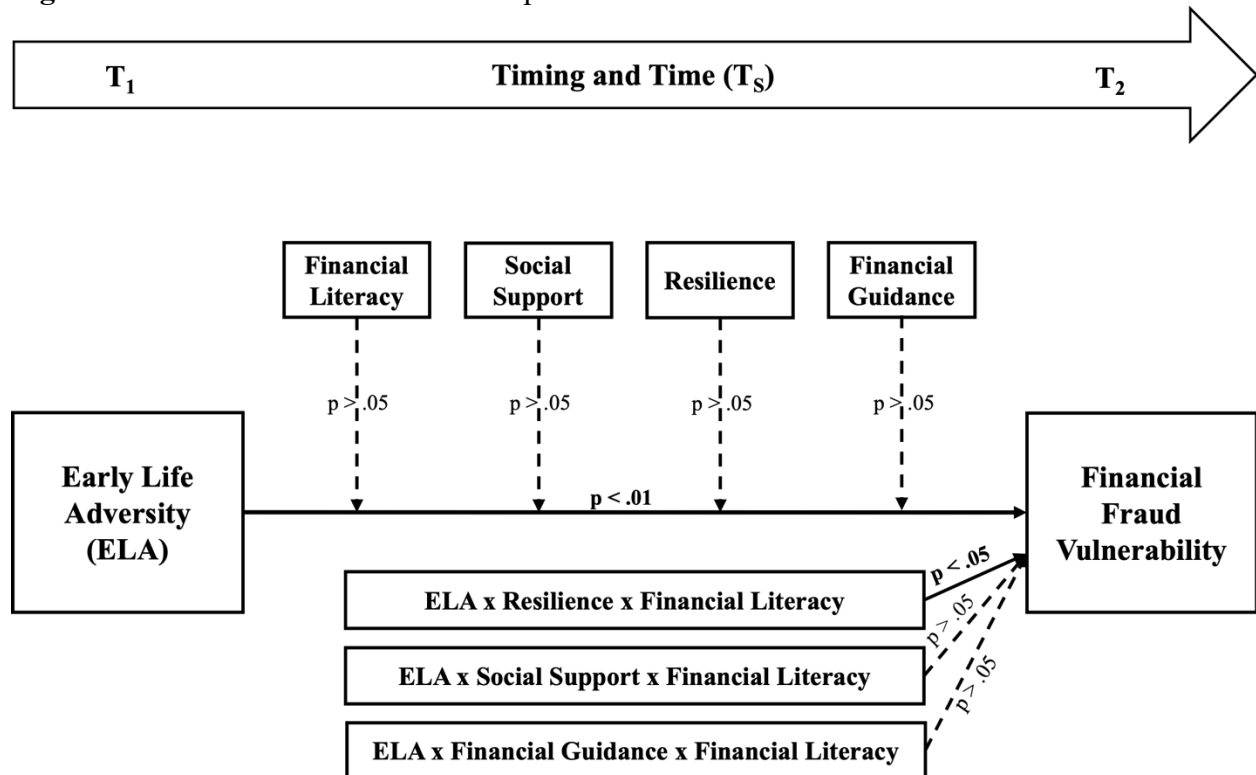
Moderation analysis tested whether psychological and financial resources buffer the effects of ELAs on financial vulnerability (H8-H11). No significant two-way interactions were found, indicating that financial literacy, social support, resilience, and financial guidance did not significantly alter the ELA-fraud relationship. These findings imply that the impact of ELAs on fraud victimization is consistent across different levels of these resources.

However, in the three-way interaction models (H12-14), resilience strengthened the protective effects of financial literacy, reducing fraud victimization and fraud severity among individuals with high resilience and financial literacy. In contrast, the interactions involving social support and financial guidance did not reach statistical significance, suggesting that these external resources do not provide additional protective benefits in mitigating financial fraud risk.

This pattern of findings underscores the interplay between individual characteristics and financial capabilities in determining fraud risk.

Figure 4.1 illustrated the tested moderation and three-way interaction effects on the relationship between ELAs and financial fraud vulnerability. Solid arrows represent significant relationships, while dashed arrows indicate non-significant effects.

**Figure 4.1.** Moderation Model with Empirical Results



### Model Performance and Implications

While the regression models were statistically significant, the variance explained was relatively small, particularly in the prediction of fraud severity. The adjusted  $R^2$  for fraud severity remained low, indicating that while ELAs and financial factors contribute to fraud vulnerability, additional unmeasured factors likely play a role in predicting financial fraud risk in later life. The logistic regression models predicting fraud victimization also demonstrated significant relationships but explained only a small portion of the variance. The relatively modest

effect sizes indicate that additional research is needed to identify other key determinants of fraud risk among older adults.

The results of this study indicate that while ELAs have a direct and persistent effect on financial vulnerability, financial literacy alone does not fully mitigate the risk. While resilience was not a significant predictor in this study, behavioral and psychological interventions remain important for mitigating financial vulnerability. These findings have important implications for policy and practice, suggesting that interventions should not only focus on improving financial literacy but also incorporate strategies that address financial stress, cognitive function, and financial decision-making skills.



## **Chapter 5 – Discussion, Implication, and Conclusions**

Financial fraud is a growing concern, particularly among older adults who may face cognitive decline and complex financial decision-making challenges. In recent years, fraud schemes have become increasingly sophisticated, targeting individuals with varying levels of financial knowledge and psychological vulnerability. Estimates from the Federal Trade Commission (2024) show that Americans lost over \$10 billion to fraud in 2023, with older adults and financially vulnerable populations experiencing a disproportionate share of these losses. Despite growing efforts to combat financial exploitation, many individuals remain at high risk, particularly those with limited financial literacy and lower psychological resilience.

While existing literature links early life adversity (ELA) to a range of negative outcomes, including poor health, financial instability, and reduced financial well-being (Harter & Harter, 2022; Herzog & Schmahl, 2018), the relationship between ELAs and financial fraud vulnerability remains relatively unexplored. Studies indicate that individuals with higher ELAs score may be more impulsive, less likely to engage in long-term financial planning, and more susceptible to high-pressure financial schemes (Ross et al., 2022; Shin et al., 2018). However, the extent to which protective factors – such as financial literacy, resilience, social support, or financial guidance – mitigate these risks is not well established.

This study builds on prior literature by examining both the direct effects of ELAs on financial fraud vulnerability and the moderating roles of key protective factors. Using data from the Health and Retirement Study (HRS), this research provides an empirical examination of how early-life adversity shapes financial decision-making and fraud risk later in life. By applying life course model and resiliency theory, this study explores the interplay between psychological resilience, financial knowledge, external support systems, and financial guidance, providing

insights that can inform financial education initiatives, fraud prevention programs and policymaking.

This chapter discusses these findings in depth, highlighting their significance in both theoretical and practical contexts. Specifically, the results underscore the critical role that resilience plays in enhancing the protective benefits of financial literacy against fraud vulnerability. Additionally, the chapter addresses study limitations and areas of future research. While offering novel insights into the connections between ELAs, financial literacy, resilience, and fraud vulnerability, this study also emphasizes the importance of further examining psychological resilience's role in shaping financial behaviors. Future research should extend this line of inquiry to diverse populations and incorporate longitudinal and experimental designs to establish causal relationships. Clarifying these mechanisms is essential for designing targeted interventions, enhancing financial literacy programs, and strengthening fraud prevention strategies, ultimately promoting greater financial security among vulnerable groups.

### **Discussion of Research Findings**

This study examined the relationship between early life adversity (ELA) and financial fraud vulnerability, focusing on both the direct effects and the moderating role of protective factors such as financial literacy, resilience, social support, and financial guidance. Using data from the Health and Retirement Study (HRS), this research investigates whether individuals with ELA histories exhibited higher fraud vulnerability and whether psychological and financial resources buffered this relationship. Guided by life course model and resiliency theory, the findings provide insight into the long-term financial consequences of childhood adversity and the mechanisms that may mitigate financial exploitation in later life.

The statistical analyses support the hypothesis that ELA exposure is significantly associated with greater financial fraud vulnerability. The results indicate that individuals with at least one ELA were more likely to report fraud victimization, with a dose-response pattern emerging – those with a higher number of ELAs exhibited even greater vulnerability. However, contrary to expectations, financial literacy alone did not significantly reduce fraud vulnerability, suggesting that cognitive financial knowledge alone is insufficient to prevent fraud without behavioral or psychological resilience. Significantly, resilience, when paired with financial literacy, demonstrated a protective effect highlighting the interplay between psychological adaptability and financial decision-making. This finding represents a key contribution to the literature by identifying resilience as an essential component for leveraging the benefits of financial knowledge. While social support and financial guidance were hypothesized to buffer against fraud risk, their moderating effects were not statistically significant implying that external financial resources alone may not adequately mitigate financial vulnerability without personal psychological strengths such as resilience.

## **Direct Effects**

### **Psychological and Financial Relationships**

This study examined the direct effects of ELAs on financial fraud vulnerability. Hypotheses H1a and H1b predicted that individuals with ELAs would demonstrate greater susceptibility to fraud, following a dose-response pattern in which higher ELA exposure corresponds with increased fraud risk. The findings support these hypotheses, indicating that childhood adversity significantly increases the likelihood of fraud victimization ( $OR = 1.19, p < .001$ ). These findings align with prior research demonstrating that early-life adversity is associated with cognitive impairments, heightened impulsivity, and maladaptive financial

behaviors, all of which can contribute to increased fraud susceptibility (Benmoyal-Bouzaglo et al., 2019; Lovallo et al., 2013; McMullin et al., 2021; Ross et al., 2022). This study extends the current understanding of ELA-related risk by demonstrating a clear link between ELA exposure to financial fraud vulnerability in older adults.

While financial literacy is frequently considered a protective factor against fraud, this study found no significant direct association between financial literacy and fraud victimization. This finding contrasts with existing literature suggesting that financial knowledge reduces susceptibility to scam (Kadoya et al., 2021; Lusardi & Mitchell, 2014; Zheng et al., 2024). Instead, the current results imply that cognitive financial knowledge alone may be insufficient to prevent fraud victimization without accompanying behavioral skills or psychological resources such as resilience. Importantly, resilience showed a distinctly different pattern, with individuals exhibiting higher resilience reporting reduced fraud susceptibility, though this effect emerged most clearly in interaction with financial literacy, rather than directly. This finding is consistent with resiliency theory, which suggests that adaptive coping mechanisms enable individuals to navigate financial risk more effectively (Masten, 2016). Interventions should therefore prioritize resilience-building alongside financial education.

Neither social support nor financial guidance demonstrated significant direct effects, indicating that external support systems, while generally beneficial for financial well-being, do not directly reduce fraud vulnerability. This finding is particularly important because it challenges common assumptions that increased social connectedness or professional financial guidance automatically reduces fraud risk. Additional research is needed to clarify why these factors were ineffective in directly mitigating fraud victimization and to identify conditions under which they may offer protection.

## **Moderation Effects**

### **Demographic Factors and Financial Vulnerability**

This study also tested the moderating roles of demographic characteristics in the relationship between ELAs and financial fraud vulnerability. Among these, gender, age, and education emerged as significant factors. Gender significantly moderated the relationship between ELAs and fraud vulnerability (H3), with women exhibiting higher odds of fraud victimization compared to men. This finding aligns with previous research suggesting that gender-based differences in financial decision-making and risk perception contribute to differences in fraud susceptibility (Cumming et al., 2015; Mottola et al., 2024; Sandhu, 2020).

Contrary to expectations, younger individuals demonstrated higher levels of fraud victimization, while older adults exhibited a weaker relationship between ELAs and fraud vulnerability (H4). This finding diverges from prior research that emphasizes elder fraud risks due to cognitive decline (James et al., 2014; Judges et al., 2017; Shao et al., 2019). Instead, it aligns with emerging evidence suggesting that younger adults, particularly those engaged in digital financial transactions, may face increased exposure to innovative or technology-driven financial scams (Ogunola et al., 2024). Education also showed a significant moderation effect (H6), with higher education levels correlating with increased fraud vulnerability. This unexpected finding contradicts the assumption that higher education always enhances financial decision-making skills and reduces fraud risk (Lusardi, 2019; Mandell & Klein, 2009). One possible explanation is that individuals with higher education often have greater financial resources or engage in more complex financial transactions, thereby increasing their visibility and attractiveness to scam targeting. Additional research is needed to fully understand this counterintuitive relationship. Marital status (H5), race (H2), and employment status (H7) did not

significantly moderate the ELA-fraud relationship, indicating that these demographic factors may not be as critical in shaping fraud vulnerability as initially hypothesized.

### **Protective Factors and Fraud Vulnerability**

This study further examined whether financial literacy, resilience, social support, and financial guidance moderated the relationship between ELAs and fraud vulnerability. Among these, resilience emerged as a significant moderator (H8), reinforcing prior research that suggests that psychological resources and adaptive coping strategies can mitigate the negative consequences of childhood adversity on financial decision-making (Masten, 2016). Individuals with higher resilience demonstrated a reduced likelihood of fraud victimization, even in the presence of ELA exposure. This finding highlights the need for fraud prevention strategies that incorporate resilience training to reduce financial risk.

By contrast, financial literacy did not significantly moderate the relationship between ELAs and fraud vulnerability (H9). This finding diverges from prior research suggesting that financial knowledge reduces susceptibility to scams (Kadoya et al., 2021; Lusardi & Mitchell, 2014; Zheng et al., 2024). Instead, it suggests that financial literacy alone may not be sufficient to protect against fraud victimization unless paired with behavioral interventions or psychological resources that emphasize emotional regulation and effective decision-making (Fernandes et al., 2014; Stolper & Walter, 2017; Willis, 2008). Similarly, social support (H10) and financial guidance (H11) were not significant moderators, suggesting that while these factors may provide general financial benefits, they may not directly buffer against fraud victimization. These findings indicate that traditional fraud prevention efforts relying solely on financial education or advisory services may not be adequate for at-risk individuals unless they also include strategies targeting psychological or behavioral factors.

## Interaction Effects

While financial literacy alone did not moderate the ELA-fraud vulnerability relationship, it exhibited significant protective effects when combined with resilience. The three-way interaction between ELAs, resilience, and financial literacy (H12) was statistically significant, indicating that individuals with high resilience and financial literacy exhibited the lowest fraud vulnerability ( $OR = .84, p = .029$ ). This interaction suggests that financial knowledge is most effective in reducing fraud susceptibility when individuals also possess strong psychological adaptability. This aligns with behavioral financial literature, which emphasizes that financial knowledge must be paired with emotional regulation and risk assessment skills to be effective in real-world financial decision-making (Howlett et al., 2008; Kim et al., 2023; Riaz et al., 2024).

Conversely, social support and financial guidance did not exhibit significant three-way interactions with financial literacy (H13, H14), suggesting that while these factors provided general financial benefits, they may not directly counteract the cognitive and emotional vulnerabilities associated with ELAs. These results imply that effective fraud prevention strategies must integrate both financial knowledge and psychological resilience components. Programs focused only on financial knowledge may neglect critical emotional regulation and psychological adaptability necessary for fraud detection and prevention. Future interventions should incorporate resilience training, cognitive behavioral approaches, and targeted fraud awareness programs to equip individuals with both the knowledge and adaptive strategies necessary to safeguard against financial exploitation. Table 5.1 summarizes all tested hypotheses and whether the hypothesis was supported.

**Table 21.** Summary of Hypotheses Support

| H#                                              | Hypothesis                                                                                                             | Supported |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Direct Effects</b>                           |                                                                                                                        |           |
| H1a                                             | Individuals with at least one ELA are at greater risk of financial fraud vulnerability compared to those with no ELAs. | Yes       |
| H1b                                             | The relationship will show a dose-response pattern, with more ELAs predicting higher vulnerability.                    | Yes       |
| <b>Moderating Effects of Demographics</b>       |                                                                                                                        |           |
| H2                                              | The effect of ELAs on financial vulnerability is moderated by race.                                                    | No        |
| H3                                              | The effect of ELAs on financial vulnerability is moderated by gender.                                                  | Yes       |
| H4                                              | The effect of ELAs on financial vulnerability is moderated by age.                                                     | Yes       |
| H5                                              | The effect of ELAs on financial vulnerability is moderated by marital status.                                          | No        |
| H6                                              | The effect of ELAs on financial vulnerability is moderated by educational attainment.                                  | Yes       |
| H7                                              | The effect of ELAs on financial vulnerability is moderated by employment status.                                       | No        |
| <b>Moderating Effects of Protective Factors</b> |                                                                                                                        |           |
| H8                                              | Resilience moderates the relationship between ELAs and financial vulnerability.                                        | No        |
| H9                                              | Financial literacy moderates the relationship between ELAs and financial vulnerability.                                | No        |
| H10                                             | Social support moderates the relationship between ELAs and financial vulnerability.                                    | No        |
| H11                                             | Financial guidance moderates the relationship between ELAs and financial vulnerability.                                | No        |
| <b>Three-Way Interactions</b>                   |                                                                                                                        |           |
| H12                                             | There is a three-way interaction between ELAs, resilience, and financial literacy.                                     | Yes       |
| H13                                             | There is a three-way interaction between ELAs, social support, and financial literacy.                                 | No        |
| H14                                             | There is a three-way interaction between ELAs, financial guidance, and financial literacy.                             | No        |



## **Implications of Findings**

The findings from this study provide significant insights into the mechanisms driving financial fraud vulnerability, particularly among older adults. The results demonstrate that while early life adversity (ELA) directly increase susceptibility to financial fraud, financial literacy alone is insufficient to mitigate this risk unless paired with psychological resilience. This highlights that effective interventions must address both cognitive and psychological aspects of financial decision-making. Additionally, the findings illustrate how demographic factors, such as gender and educational attainment moderate financial vulnerability, highlighting the necessity of tailored interventions that address the unique risks experienced by specific populations, including women and highly educated individuals. These implications extend across multiple domains, contributing theoretically to the fields of financial behavior, resilience, and life-course research, while also informing practical fraud mitigation policies and fraud prevention programs. This section explores these implications in depth, outlining how these findings can be applied to develop more effective financial education initiatives, targeted fraud prevention strategies, and evidence-based policymaking.

### **Theoretical Implications**

Life course model posits that childhood experiences create developmental trajectories that shape an individual's financial behaviors in adulthood. This study builds upon life course model by providing empirical evidence that early-life adversity creates lasting financial disadvantages that persist well into later life, increasing financial fraud vulnerability in older adulthood. The findings show that individuals with ELA histories experience higher odds of fraud victimization, potentially due to cognitive impairments, heightened impulsivity, and maladaptive financial behaviors developed in response to early adversity. This dose-response

relationship further underscores the value of a life course perspective in understanding financial risks across the lifespan. Additionally, the findings highlight that these trajectories are modifiable when protective resources – particularly psychological resilience – are introduced, emphasizing the importance of designing interventions that address both cognitive and behavioral components.

Resiliency theory also plays a central role in interpreting these findings. The study supports the notion that resilience functions as a protective factor, buffering the negative effects of childhood adversity on financial decision-making. Traditional models of resilience have primarily focused primarily on health and psychological well-being, but this research extends the concept to financial behaviors. This represents a notable extension of resiliency theory by demonstrating its applicability beyond mental health into the domain of financial decision-making. Specifically, resilience emerged as essential in enhancing the effectiveness of financial literacy, reducing fraud susceptibility significantly. Thus, integrating resilience training into financial education programs may offer new pathways for mitigating long-term financial vulnerability.

The findings also challenge existing theoretical assumptions that position financial literacy as a standalone predictor of financial well-being. While financial literacy is widely regarded as critical for effective financial decision-making (Lusardi & Mitchell, 2014), this study demonstrates that it does not, by itself, significantly reduce fraud vulnerability. Instead, the results indicate that financial literacy is most effective when paired with behavioral and psychological resilience. This challenges traditional models of financial education, which often overlook psychological and behavioral factors, and suggests that effective financial literacy programs must incorporate resilience-building components, such as stress management, self-

regulation, and fraud awareness. This integrated approach may help individuals more effectively translate financial knowledge into protective behaviors.

Finally, the study also extends discussions on financial trauma by suggesting ELAs can be viewed as a long-term financial stressor influencing fraud susceptibility. While previous research primarily identifies ELAs as predictors of health and psychological outcomes, conceptualizing ELAs explicitly as a form of financial trauma expands the behavioral finance literature. Future theoretical models should account for the intersection of psychological resilience, financial literacy, and fraud risk to more fully capture the complexity of financial decision-making across the life course. By reframing ELAs within the context of financial trauma, researchers may identify more targeted pathways for intervention, ultimately improving financial security outcomes for vulnerable populations.

### **Practical Implications for Financial Planners and Educators**

The findings from this study provide important insights that significantly enhance the practice of financial advising and education, particularly for populations vulnerable to financial fraud. Given that financial literacy alone was insufficient to reduce fraud vulnerability, it is essential that financial professionals integrate resilience-building strategies into client interactions. Financial professionals may benefit from incorporating behavioral and psychological coaching techniques, such as helping clients recognize and manage impulsive financial behaviors, improve decision-making under stress, and develop strategies for identifying and responding to fraudulent schemes.

Financial educators should also reconsider the structure of financial literacy programs by explicitly incorporating psychological resilience concepts. This could include specific training on emotional regulation, cognitive biases in financial decision-making, and stress management

skills. By restructuring financial education curricula to emphasize these psychological components alongside traditional financial literacy, educators can better prepare individuals to apply their knowledge effectively in real-world contexts, particularly in situations involving potential fraud or financial exploitation.

Additionally, financial advisors should adopt a trauma-informed approach to financial planning, recognizing that early-life adversity may significantly influence a client's financial behaviors and decision-making process. Although financial advisors are generally not equipped to directly identify or diagnose ELAs, trauma-informed planning involves recognizing how emotional and psychological factors stemming from trauma may manifest in client behavior. Thus, advisors should receive training to recognize behavioral and emotional signs indicative of financial vulnerability linked to early-life trauma. By cultivating empathy, trust, and emotionally safe client interactions, advisors can deliver supportive, client-centered strategies that sensitively address these underlying emotional factors.

Finally, financial education and professional certification programs should consider incorporating resilience and trauma-informed financial advising content. By training financial professionals in resilience-based financial planning, firms and educational institutions can better support clients who have experienced childhood adversity and improve overall financial well-being. Such training can empower advisors to address both cognitive and emotional aspects of financial decision-making, enhancing the efficacy of fraud prevention and overall financial wellness strategies.

## **Implications for Policy and Consumer Protection**

The findings from this study provide clear directions for enhancing fraud prevention policies and consumer protection strategies, particularly for older adults and populations with

histories of early life adversity (ELAs). Given that financial literacy alone was insufficient to significantly mitigate fraud risk without psychological resilience, policymakers should integrate resilience-building components into national financial education initiatives. Government-funded financial literacy programs should expand beyond traditional financial knowledge to include training in self-regulation, emotional resilience, stress management, and fraud detection. Such integrated approaches ensure individuals are prepared not only cognitively but also psychologically to handle financial decisions under pressure.

Policymakers should also prioritize the development of targeted fraud prevention programs specifically tailored to individuals with high ELA exposure. Current initiatives tend to use generalized approaches that may be ineffective for vulnerable populations. Customized interventions should address the unique psychological and behavioral vulnerabilities associated with ELAs, incorporating resilience training and behavioral coaching that enhance adaptive decision-making, impulse control, and emotional regulation skills. By doing so, policies can more effectively mitigate the risks faced by these high-risk groups.

Regulatory agencies have an opportunity to proactively strengthen consumer protections for financially vulnerable individuals. This can be achieved by requiring financial institutions to implement enhanced fraud monitoring and early-warning systems for clients identified as at high risk of exploitation. Additionally, strengthening legal protections against predatory financial practices through stricter enforcement and clearer regulations could further safeguard vulnerable individuals. Policymakers who proactively address these vulnerabilities will significantly reduce fraud risks and enhance the financial security of affected populations.

Furthermore, the findings underscore the importance of fostering cross-sector collaboration between financial institutions, social service providers, and mental health

professionals. By adopting a trauma informed approach to financial advising, professionals can better understand and address how past adversities influence present financial behaviors. Such collaboration could result in more effective support systems that integrate behavioral coaching, mental health services, and tailored financial guidance. Encouraging cooperation between financial educators, advisors, and mental health experts can lead to more holistic interventions that effectively reduce fraud vulnerability.

Finally, consumer protection strategies should explicitly integrate psychological resilience training into existing financial education curricula. Financial education initiatives must move beyond traditional financial knowledge to include modules on stress management, emotional self-regulation, fraud detection, and decision-making under pressure. Financial institutions could also enhance their consumer protection measures by providing simplified, accessible fraud prevention resources designed specifically for populations who have experienced ELAs. By adopting trauma-informed and resilience-based approaches, policymakers and financial institutions can significantly improve fraud prevention outcomes and foster long-term financial security among vulnerable populations.

### **Limitation of Current Study**

Several limitations should be acknowledged when interpreting the findings of this study. First, this research relies on secondary data from the Health and Retirement Study (HRS). While the HRS provides robust, nationally representative data beneficial for generalizability, the use of secondary data inherently limits control over measurement tools and data quality. Self-reported data on early life adversity (ELA) and financial fraud victimization are subject to recall bias and social desirability bias, potentially leading to underreporting. This could result in an underestimation of ELA prevalence or fraud victimization rates, potentially weakening the

observed relationships. Additionally, the absence of detailed qualitative insights into participants' fraud experiences and decision-making processes limits the depth of interpretation regarding psychological and behavioral dynamics. Qualitative data could provide a more nuanced understanding of the emotional or cognitive mechanisms driving financial decisions and responses to fraud.

Measurement limitations must also be considered. Financial literacy, resilience, and social support were assessed using standardized scales provided by the HRS, but these scales may not fully capture the nuanced dimensions of these complex constructs. For example, financial literacy was assessed using a relatively brief three-item measure, which may not fully represent participants' actual financial knowledge or their ability to apply this knowledge practically. Similarly, resilience and social support scales, while validated, may not fully capture the dynamic and contextual nature of these psychological resources. Utilizing more comprehensive or context-specific measures, such as multidimensional assessments or qualitative interviews, could enhance the accuracy and richness of the findings related to these variables.

Another limitation relates to the construction of the early life adversity (ELA) index. While the indicators were selected based on literature linking early hardships to later-life outcomes, they are not intended to represent a comprehensive ACE inventory. In particular, one item – repeating a year in school – may not consistently reflect trauma or adversity. Historical differences in school retention practices, especially among older cohorts, suggest that this variable may instead reflect structural or educational challenges rather than interpersonal adversity. As such, this item is retained in the cumulative ELA index due to its potential relevance to developmental disruptions, but it is interpreted with caution and not conceptually

grouped with trauma-related indicators like parental substance use or physical abuse. Future studies should refine early adversity measures to distinguish between structural hardship and direct psychological trauma. While this study takes a broader life course perspective by considering a range of early disruptions, the conceptual clarity of the ELA index can be strengthened in future work.

The generalizability of the findings also presents a limitation. Despite employing multiple imputation techniques to address missing data and enhance representativeness, demographic biases inherent in the HRS sample could affect generalizability. For instance, individuals from marginalized racial, ethnic, or socioeconomic backgrounds may be underrepresented or experience unique vulnerabilities not fully captured by the dataset. Therefore, caution should be exercised when applying these findings to diverse populations, and additional studies focusing explicitly on these groups are warranted. Future research would benefit from oversampling these underrepresented populations or conducting studies specifically targeted at exploring unique fraud risks within these groups.

Finally, despite the statistical significance of many findings, the relatively modest explanatory power, as indicated by small effect sizes and low adjusted R-squared values, suggests that other important variables influencing financial fraud vulnerability were not captured in the present analysis. Factors such as personality traits, mental health conditions, social isolation, or detailed financial behavioral patterns could significantly influence susceptibility to fraud. The absence of these variables means the current findings should be interpreted with caution, particularly when generalizing to broader policy or practical interventions. Future research should incorporate these and other potential determinants to develop a more comprehensive understanding of financial vulnerability in older adults.



## **Recommendations for Future Studies**

Future research should prioritize longitudinal designs to clarify temporal and causal relationships between early life adversity (ELA), psychological resilience, financial literacy, and fraud vulnerability. While cross-sectional analyses provided valuable insights, longitudinal data can more effectively illuminate how early-life adversities shape financial trajectories over time, thereby informing the optimal timing for interventions to interrupt negative financial trajectories. Such research would clarify whether vulnerabilities such as reduced financial literacy and resilience precede fraud victimization or emerge as consequences, significantly enriching theoretical models and intervention frameworks.

Expanding the depth and breadth of measurement approaches also represent a promising direction for future studies. The limitations associated with the brief, standardized assessments utilized in this study suggest the value of employing more comprehensive, multidimensional measures. Incorporating mixed-method approaches, including qualitative interviews or narrative methodologies, could substantially deepen understanding of the complex psychological processes involved in financial decision-making and fraud susceptibility. Qualitative data would be particularly valuable in distinguishing between theoretical constructs like financial knowledge and its practical application in real-world-decisions. These methodologies would allow researchers to explore the nuanced, contextual factors influencing how financial literacy and psychological resilience operate together to shape vulnerability or protection against fraud. Improving measurement precision and depth can strengthen the validity of findings and lead to more effective, targeted financial education programs.

Furthermore, targeted sampling strategies that include more diverse and underrepresented populations are essential for future research. Given concerns regarding generalizability stemming

from demographic biases within the current dataset, future studies should explicitly examine racial, ethnic, socioeconomic, and other demographic groups identified as particularly vulnerable in this research, such as highly educated individuals and women, as well as groups historically underrepresented in fraud literature. Oversampling these populations or conducting populations-specific investigations could uncover distinct risk factors, resilience strategies, and intervention needs, thereby facilitating the development of culturally sensitive and effective fraud-prevention practices. This targeted research has significant potential to inform policy and practice, ensuring fraud prevention strategies are inclusive and effective for all segments of the population.

Qualitative research methodologies should also be prioritized to enhance the field's understanding of the lived experiences of individuals who have experienced ELAs and financial fraud. Qualitative methods, such as in-depth interviews, focus groups, or case studies, could yield richer and more contextually informed insights into the cognitive and emotional processes underlying financial decision-making in response to fraud. By illuminating participants' subjective experiences, future studies can contribute significantly to theoretical advancements, as well as the design of nuanced and targeted interventions aimed at reducing fraud vulnerability. This approach could also identify emotional triggers or decision-making patterns that are not apparent through standardized quantitative measures alone, allowing for a more comprehensive understanding of fraud susceptibility.

Lastly, future research would benefit from incorporating additional psychological, social, and behavioral factors not captured by the current study. Given the modest explanatory power identified, examining variables such as personality traits, mental health status, social isolation, and detailed patterns of financial behaviors could significantly strengthen predictive models of fraud susceptibility. Furthermore, future studies should consider employing more robust and

multidimensional financial literacy measures that extend beyond the “Big Three” items, which, while widely adopted, may not capture applied financial knowledge or behavioral competencies critical for fraud prevention. In addition, the inclusion of technology-related measures, such as digital literacy or perceived online safety, could offer valuable insight, especially given the rise of internet-based scams and financial exploitation in digital environments. Integrating these factors into research design would not only enhance theoretical understanding but also inform more holistic intervention approaches, ultimately promoting greater financial security among vulnerable older adults. Examining these additional factors could also identify specific points for intervention, such as mental health support, digital safety education, community-based social engagement programs, which may proactively reduce fraud vulnerability.

## **Conclusion**

This study investigated the critical relationship between early life adversity (ELAs) and vulnerability to financial fraud in older adulthood, applying life course and resiliency theories to explore protective mechanisms potentially mitigating these risks. Utilizing data from the Health and Retirement Study (HRS), the research identified that exposure to ELAs significantly elevates the risk of financial fraud victimization, reinforcing the theory that early-life adversities create enduring vulnerabilities that manifest prominently in financial contexts later in life. Importantly, this vulnerability exhibited a clear dose-response relationship; greater ELA exposure consistently predicted higher susceptibility to fraud, underscoring the cumulative impact of childhood adversity on financial well-being across the life span.

Contrary to traditional assumptions within financial education research, financial literacy alone was insufficient in protecting against fraud vulnerability among individuals with ELA histories. The findings emphasized that financial knowledge, while essential, must be

complemented by psychological resilience to effectively reduce financial vulnerability. This important interaction suggests that cognitive financial knowledge alone cannot adequately counteract the profound emotional and psychological dysregulation stemming from early-life trauma. Consequently, effective interventions should integrate resilience-enhancing strategies, such as emotional regulation, adaptive coping, and behavioral decision-making, alongside traditional financial education components. This integrated approach not only enhances financial outcomes but also equips individuals with the holistic skill set necessary to navigate complex financial threats.

Demographic factors further clarified the ELA-fraud vulnerability relationship. Gender emerged as a significant moderator, with women displaying higher overall odds of fraud victimization, highlighting the necessity for gender-sensitive fraud prevention strategies. Additionally, educational attainment revealed an unexpected moderation effect; individuals with higher education levels reported increased fraud severity, potentially reflecting their greater engagement in complex financial transactions, which may heighten fraud exposure. The findings suggest that financial advisors and policymakers should tailor fraud prevention strategies to account for the nuanced vulnerabilities, addressing not only gaps in knowledge but also differences in financial behavior patterns across demographic groups.

From a practical and policy perspective, the findings advocate for a shift toward comprehensive, trauma-informed financial planning practices. Financial planners, advisors, and educators must recognize how ELAs shape clients' financial decision-making and susceptibility to financial fraud. To effectively mitigate the risk, financial professionals should integrate resilience-based educational initiatives into their practices, incorporating emotional and behavioral training alongside traditional financial literacy components. Policymakers also play a

crucial role by promoting trauma-informed programs targeting populations disproportionately affected by ELAs, ensuring these initiatives address both cognitive and psychological dimensions of fraud vulnerability. Furthermore, regulatory bodies should require financial institutions to enhance fraud monitoring and implement protective measures, such as early-warning systems for high-risk clients, thereby reinforcing consumer protections and fostering financial resilience among vulnerable populations.

Despite its contributions, this study encountered several limitations, including reliance on retrospective self-report measures, potential selection biases inherent in the Health and Retirement Study's experimental modules, and the modest explanatory power of statistical models. Future research should address these gaps by employing longitudinal designs, qualitative methodologies, and targeted sampling strategies to clarify causative pathways and deepen the understanding of emotional and cognitive processes underpinning financial vulnerability. Examining additional psychological factors, including personality traits and mental health status, alongside detailed patterns of financial behavior, would further enrich theoretical frameworks and inform more targeted interventions.

This research significantly advances our understanding of financial fraud vulnerability through the lenses of life course and resiliency theories, elucidating the complex interplay between childhood adversity, financial literacy, and resilience. By emphasizing the necessity of resilience as a complement to financial literacy, the study underscores the importance of integrated educational and policy interventions designed to address both cognitive and psychological dimensions of financial vulnerability. As financial fraud continues to pose substantial threats to economic security, particularly among vulnerable populations, the insights

provided here offer a meaningful foundation for developing more holistic, effective strategies aimed at reducing financial harm and promoting long-term financial resilience.

## References

- Acierno, R., Hernandez, M. A., Amstadter, A. B., Resnick, H. S., Steve, K., Muzzy, W., & Kilpatrick, D. G. (2010). Prevalence and correlates of emotional, physical, sexual, and financial abuse and potential neglect in the United States: The National Elder Mistreatment Study. *American Journal of Public Health*, 100(2), 292-297.
- Acierno, R., Hernandez-Tejada, M. A., Anetzberger, G. J., Loew, D., & Muzzy, W. (2017). The national elder mistreatment study: An 8-year longitudinal study of outcomes. *Journal of Elder Abuse & Neglect*, 29(4), 254-269.
- Akmam, E. F., Siswantining, T., Soemartojo, S. M., & Sarwinda, D. (2019, October). Multiple imputation with predictive mean matching method for numerical missing data. In *2019 3rd international conference on informatics and computational sciences (ICICoS)* (pp. 1-6). IEEE.
- Al-Bahrani, A., Buser, W., & Patel, D. (2020). Early causes of financial disquiet and the gender gap in financial literacy: Evidence from college students in the Southeastern United States. *Journal of Family and Economic Issues*, 41, 558-571.
- Al-Bahrani, A., Weathers, J., & Patel, D. (2019). Racial differences in the returns to financial literacy education. *Journal of Consumer Affairs*, 53(2), 572-599.
- Anda, R. F., Whitfield, C. L., Felitti, V. J., Chapman, D., Edwards, V. J., Dube, S. R., & Williamson, D. F. (2002). Alcohol-impaired parents and adverse childhood experiences: the risk of depression and alcoholism during adulthood. *Psychiatric Services*, 53(8), 1001-1009.
- Anderloni, L., Bacchiocchi, E., & Vandone, D. (2012). Household financial vulnerability: An empirical analysis. *Research in Economics*, 66(3), 284-296.

- Anderson, K. B. (2013). Consumer fraud in the United States, 2011: The third FTC survey. *Washington, DC: Federal Trade Commission.*
- Antonucci, T. C., Ajrouch, K. J., & Birditt, K. S. (2014). The convoy model: Explaining social relations from a multidisciplinary perspective. *The Gerontologist, 54*(1), 82-92.
- Archuleta, K. L., & Grable, J. E. (2010). The future of financial planning and counseling: An introduction to financial therapy. In *Financial planning and counseling scales* (pp. 33-59). New York, NY: Springer New York.
- Atlas, S. A., Lu, J., Micu, P. D., & Porto, N. (2019). Financial Knowledge, Confidence, Credit Use, and Financial Satisfaction. *Journal of Financial Counseling and Planning, 30*(2), 175-190.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173.
- Beach, S. R., Schulz, R., Castle, N. G., & Rosen, J. (2010). Financial exploitation and psychological mistreatment among older adults: Differences between African Americans and non-African Americans in a population-based survey. *The Gerontologist, 50*(6), 744-757.
- Beach, S. R., Schulz, R., & Sneed, R. (2018). Associations between social support, social networks, and financial exploitation in older adults. *Journal of Applied Gerontology, 37*(8), 990-1011.
- Bellis, M. A., Hardcastle, K., Ford, K., Hughes, K., Ashton, K., Quigg, Z., & Butler, N. (2017). Does continuous trusted adult support in childhood impart life-course resilience against



- adverse childhood experiences-A retrospective study on adult health-harming behaviours and mental well-being. *BMC Psychiatry*, 17, Article 110.
- Bellis, M. A., Hughes, K., Leckenby, N., Perkins, C., & Lowey, H. (2014). National household survey of adverse childhood experiences and their relationship with resilience to health-harming behaviors in England. *BMC medicine*, 12(1), 1-10.
- Benmoyal-Bouzaglo, S., Moschis, G. P., & Mathur, A. (2019). Reckless financial behaviors: An exploratory life course study of French and American consumers. *Journal of Global Scholars of Marketing Science*, 29(4), 440-456.
- Beutel, M. E., Tibubos, A. N., Klein, E. M., Schmutzer, G., Reiner, I., Kocalevent, R. D., & Brähler, E. (2017). Childhood adversities and distress-The role of resilience in a representative sample. *PloS one*, 12(3), e0173826.
- Bleijenberg, N., Smith, A. K., Lee, S. J., Cenzer, I. S., Boscardin, J. W., & Covinsky, K. E. (2017). Difficulty managing medications and finances in older adults: A 10-year cohort study. *Journal of the American Geriatrics Society*, 65(7), 1455-1461.
- Boden, J. M., Horwood, L. J., & Fergusson, D. M. (2007). Exposure to childhood sexual and physical abuse and subsequent educational achievement outcomes. *Child Abuse & Neglect*, 31(10), 1101-1114.
- Bonanno, G. A. (2008). Loss, trauma, and human resilience: have we underestimated the human capacity to thrive after extremely aversive events?.
- Borge, A. I., Motti-Stefanidi, F., & Masten, A. S. (2016). Resilience in developing systems: The promise of integrated approaches for understanding and facilitating positive adaptation to adversity in individuals and their families. *European Journal of Developmental Psychology*, 13(3), 293-296.

- Boyle, P. A., Wilson, R. S., Yu, L., Buchman, A. S., & Bennett, D. A. (2013). Poor decision making is associated with an increased risk of mortality among community-dwelling older persons without dementia. *Neuroepidemiology*, 40(4), 247-252.
- Brandt, J., Spencer, M., & Folstein, M. (1988). *The telephone interview for cognitive status*. *Neuropsychiatry Neuropsychol Behav Neurol*, 1(2), 111-117.
- Briguglio, L., Cordina, G., Farrugia, N., & Vella, S. (2014). Economic vulnerability and resilience: concepts and measurements. In *Measuring Vulnerability in Developing Countries* (pp. 47-65). Routledge.
- Brockie, T. N., Dana-Sacco, G., Wallen, G. R., Wilcox, H. C., & Campbell, J. C. (2015). The relationship of adverse childhood experiences to PTSD, depression, poly-drug use and suicide attempt in reservation-based Native American adolescents and young adults. *American Journal of Community Psychology*, 55, 411-421.
- Brown, J., Cohen, P., Johnson, J. G., & Smailes, E. M. (1999). Childhood abuse and neglect: specificity of effects on adolescent and young adult depression and suicidality. *Journal of the American Academy of Child & Adolescent Psychiatry*, 38(12), 1490-1496.
- Brown, T. H., Richardson, L. J., Hargrove, T. W. & Thomas, C. S. (2016). Using multiple-hierarchy stratification and life course approaches to understand health inequalities: The intersecting consequences of race, gender, SES, and age. *Journal of health and social behavior*, 57(2), 200–222.
- Brumley, L. D., Jaffee, S. R., & Brumley, B. P. (2017). Pathways from childhood adversity to problem behaviors in young adulthood: The mediating role of adolescents' future expectations. *Journal of Youth and Adolescence*, 46, 1-14.

- Burbidge, J. B., Magee, L., & Robb, A. L. (1988). Alternative transformations to handle extreme values of the dependent variable. *Journal of the American statistical Association*, 123-127.
- Burke, N. J., Hellman, J. L., Scott, B. G., Weems, C. F., & Carrion, V. G. (2011). The impact of adverse childhood experiences on an urban pediatric population. *Child Abuse & Neglect*, 35(6), 408-413.
- Burke-Harris, N. (2018). *The deepest well: Healing the long-term effects of childhood adversity*. HMH Books.
- Burnes, D., Henderson Jr, C. R., Sheppard, C., Zhao, R., Pillemer, K., & Lachs, M. S. (2017). Prevalence of financial fraud and scams among older adults in the United States: A systematic review and meta-analysis. *American Journal of Public Health*, 107(8), e13-e21.
- Carvalho, L. (2012). Childhood circumstances and the intergenerational transmission of socioeconomic status. *Demography*, 49(3), 913-938.
- Cavanaugh, C. E., Petras, H., & Martins, S. S. (2015). Gender-specific profiles of adverse childhood experiences, past year mental and substance use disorders, and their associations among a national sample of adults in the United States. *Social Psychiatry and Psychiatric Epidemiology*, 50, 1257-1266.
- Centers for Disease Control and Prevention. (2021, April 6). *The Adverse Childhood Experiences (ACE) Study*. <http://www.cdc.gov/violenceprevention/acestudy/>.
- Centers for Disease Control and Prevention. (2024, October 8). *A Public Health Approach to Adverse Childhood Experiences*. <https://www.cdc.gov/aces/about/index.html>.

- Cheong, E. V., Sinnott, C., Dahly, D., Kearney, P. M. (2017). Adverse childhood experiences (ACEs) and later-life depression: Perceived social support as a potential protective factor. *BMJ Open*, 7(9), e013228. <http://dx.doi.org/10.1136/bmjopen-2016-013228>.
- Choi, N. G., & Mayer, J. (2000). Elder abuse, neglect, and exploitation: Risk factors and prevention strategies. *Journal of Gerontological Social Work*, 33(2), 5-25.
- Choung, Y., & Pak, T. Y. (2023). More than just a bad day? Traumatic life events and self-control in old age. *PLoS one*, 18(2), e0266312.
- Collins, J. M. (2012). Financial advice: A substitute for financial literacy?. *Financial Services Review*, 21(4), 307.
- Collins, J. M., Olive, P., & O'Rourke, C. (2012). Financial coaching's potential for enhancing family financial security. *Journal of Extension*, 51(1), 1-16.
- Conger, R. D., Ge, X., Elder Jr, G. H., Lorenz, F. O., & Simons, R. L. (1994). Economic stress, coercive family process, and developmental problems of adolescents. *Child Development*, 65(2), 541-561.
- Cortina, M. A., Stein, A., Kahn, K., Hlungwani, T. M., Holmes, E. A., & Fazel, M. (2016). Cognitive styles and psychological functioning in rural South African school students: Understanding influences for risk and resilience in the face of chronic adversity. *Journal of Adolescence*, 49, 38-46.
- Cosco, T. D., Howse, K., & Brayne, C. (2017). Healthy ageing, resilience and wellbeing. *Epidemiology and Psychiatric Sciences*, 26(6), 579-583.
- Cumming, D., Leung, T. Y., & Rui, O. (2015). Gender diversity and securities fraud. *Academy of Management Journal*, 58(5), 1572-1593.

- Currie, J., & Spatz Widom, C. (2010). Long-term consequences of child abuse and neglect on adult economic well-being. *Child maltreatment*, 15(2), 111-120.
- DeLiema, M. (2018). Elder fraud and financial exploitation: Application of routine activity theory. *The Gerontologist*, 58(4), 706-718.
- DeLiema, M., Deevy, M., Lusardi, A., & Mitchell, O. S. (2020). Financial fraud among older Americans: Evidence and implications. *The Journals of Gerontology: Series B*, 75(4), 861-868.
- DeLiema, M., Shadel, D., & Pak, K. (2020). Profiling victims of investment fraud: Mindsets and risky behaviors. *Journal of Consumer Research*, 46(5), 904-914.
- Dube, S. R., Anda, R. F., Whitfield, C. L., Brown, D. W., Felitti, V. J., Dong, M., & Giles, W. H. (2005). Long-term consequences of childhood sexual abuse by gender of victim. *American Journal of Preventive Medicine*, 28(5), 430-438.
- Dube, S. R., Felitti, V. J., Dong, M., Giles, W. H., & Anda, R. F. (2003). The impact of adverse childhood experiences on health problems: Evidence from four birth cohorts dating back to 1900. *American Journal of Preventive Medicine*, 37(3), 268-277.
- Durrant, G. B. (2005). Imputation methods in the social sciences: A methodological review.
- Eckenrode, J., Smith, E. G., McCarthy, M. E., & Dineen, M. (2014). Income inequality and child maltreatment in the United States. *Pediatrics*, 133(3), 454-461.
- Elder, G. H., George, L. K., & Shanahan, M. J. (1996). In H. B. Kaplan (Ed.), *Psychosocial stress: Perspectives on structure, theory, life course, and methods* (pp. 247-292). Orlando, FL: Academic Press.
- Elder, G. H. (1998). The life course as developmental theory. *Child development*, 69(1), 1-12.

- Elder, G. H., & Johnson, M. K. (2002). Perspectives on human development in context. In *Psychology at the Turn of the Millennium*, Volume 2 (pp. 169-192). Psychology Press.
- Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). *The emergence and development of life course theory* (pp. 3-19). Springer US.
- Evans, G. W., Li, D., & Whipple, S. S. (2013). Cumulative risk and child development. *Psychological bulletin*, 139(6), 1342.
- Evans, G. W., & Cassells, R. C. (2014). Childhood poverty, cumulative risk exposure, and mental health in emerging adults. *Clinical Psychological Science*, 2(3), 287-296.
- Fagan, A. A., & Novak, A. (2018). Adverse childhood experiences and adolescent delinquency in a high-risk sample: A comparison of white and black youth. *Youth Violence and Juvenile Justice*, 16(4), 395-417.
- Fagerland, M. W., & Hosmer, D. W. (2012). A generalized Hosmer–Lemeshow goodness-of-fit test for multinomial logistic regression models. *The Stata Journal*, 12(3), 447-453.
- Farrar, D. E., & Glauber, R. R. (1967). Multicollinearity in regression analysis: the problem revisited. *The Review of Economic and Statistics*, 92-107.
- Farrell, L., Fry, T. R., & Risse, L. (2016). The significance of financial self-efficacy in explaining women’s personal finance behaviour. *Journal of Economic Psychology*, 54, 85-99.
- Federal Bureau of Investigation (2024). *Internet Crime Report*. Federal Bureau of Investigations. Retrieved February 3, 2025, from [https://www.ic3.gov/Media/PDF/AnnualReport/2023\\_IC3Report.pdf](https://www.ic3.gov/Media/PDF/AnnualReport/2023_IC3Report.pdf).
- Federal Trade Commission. (2024, February 9). *As nationwide fraud losses top \$10 billion in 2023, FTC steps up efforts to protect the public*. Federal Trade Commission. Retrieved

- February 3, 2025, from <https://www.ftc.gov/news-events/news/press-releases/2024/02/nationwide-fraud-losses-top-10-billion-2023-ftc-steps-efforts-protect-public#:~:text=Investment%20scams%20lead%20in%20reported,than%20all%20other%20methods%20combined.>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14(4), 245-258.
- Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management science*, 60(8), 1861-1883.
- Fine, A., & Kotelchuck, M. (2010). Rethinking MCH: The life course model as an organizing framework. *US Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau*, 1-20.
- FINRA Investor Education Foundation. (2013). Financial fraud and fraud susceptibility in the United States. Research report from a 2012 national survey.
- Firth, D. (1993). Bias reduction of maximum likelihood estimates. *Biometrika*, 80(1), 27-38.
- Fisher, G. G., & Ryan, L. H. (2018). Overview of the health and retirement study and introduction to the special issue. *Work, Aging and Retirement*, 4(1), 1-9.
- Folstein, M. F., Robins, L. N., & Helzer, J. E. (1983). The mini-mental state examination. *Archives of General Psychiatry*, 40(7), 812-812.
- Font, S. A., & Maguire-Jack, K. (2016). Pathways from childhood abuse and other adversities to adult health risks: The role of adult socioeconomic conditions. *Child Abuse & Neglect*, 51, 390-399.

- Ford, J. D., Connor, D. F., & Hawke, J. (2009). Complex trauma among psychiatrically impaired children: A cross-sectional, chart-review study. *The Journal of Clinical Psychiatry*, 70(8), 3549.
- Ford, M. R., Ross, D. B., Grable, J., & DeGraff, A. (2020). Examining the role of financial therapy on relationship outcomes and help-seeking behavior. *Contemporary Family Therapy*, 42, 55-67.
- Fox, S. E., Levitt, P., & Nelson III, C. A. (2010). How the timing and quality of early experiences influence the development of brain architecture. *Child development*, 81(1), 28-40.
- Fox, B. H., Perez, N., Cass, E., Baglivio, M. T., & Epps, N. (2015). Trauma changes everything: Examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. *Child Abuse & Neglect*, 46, 163-173.
- Friedline, T., Chen, Z., & Morrow, S. P. (2021). Families' financial stress & well-being: The importance of the economy and economic environments. *Journal of Family and Economic Issues*, 42, 34-51.
- Friedman, J. M. (2018). *A grounded theory investigation of adaptations to adverse childhood experiences*. Nova Southeastern University.
- Friedman, M. S., Marshal, M. P., Guadamuz, T. E., Wei, C., Wong, C. F., Saewyc, E. M., & Stall, R. (2011). A meta-analysis of disparities in childhood sexual abuse, parental physical abuse, and peer victimization among sexual minority and sexual nonminority individuals. *American Journal of Public Health*, 101(8), 1481-1494.



- Fujiwara, T. (2022). Impact of adverse childhood experience on physical and mental health: A life-course epidemiology perspective. *Psychiatry and Clinical Neurosciences*, 76(11), 544-551.
- Gable, S. L. (2019). Close Relationships. In E. J. Finkel, & R. F. Baumeister (Eds.), *Advanced Social Psychology: The State of the Science* (2<sup>nd</sup> ed., pp. 227-248). Oxford University Press.
- Gathergood, J. (2012). Self-control, financial literacy and consumer over-indebtedness. *Journal of Economic Psychology*, 33(3), 590-602.
- Gelkopf, M., Berger, R., Bleich, A., & Silver, R. C. (2012). Protective factors and predictors of vulnerability to chronic stress: A comparative study of 4 communities after 7 years of continuous rocket fire. *Social Science & Medicine*, 74(5), 757-766.
- Gignac, G. E., & Ooi, E. (2022). Measurement error in research on financial literacy: How much error is there and how does it influence effect size estimates?. *Journal of Consumer Affairs*, 56(2), 938-956.
- Gottschall, S., Lee, J. E., & McCuaig Edge, H. J. (2022). Adverse childhood experiences and mental health in military recruits: Exploring gender as a moderator. *Journal of Traumatic Stress*, 35(2), 659-670.
- Greenberg, A. E., & Hershfield, H. E. (2019). Financial decision making. *Consumer Psychology Review*, 2(1), 17-29.
- Greeson, J. K., Briggs, E. C., Layne, C. M., Belcher, H. M., Ostrowski, S. A., Kim, S., ... & Fairbank, J. A. (2014). Traumatic childhood experiences in the 21st century: Broadening and building on the ACE studies with data from the National Child Traumatic Stress Network. *Journal of Interpersonal Violence*, 29(3), 536-556.

- Grohmann, A., Kouwenberg, R., & Menkhoff, L. (2015). Childhood roots of financial literacy. *Journal of Economic Psychology*, 51, 114-133.
- Gutter, M., & Copur, Z. (2011). Financial behaviors and financial well-being of college students: Evidence from a national survey. *Journal of family and economic Issues*, 32, 699-714.
- Haahr-Pedersen, I., Perera, C., Hyland, P., Vallières, F., Murphy, D., Hansen, M., ... & Cloitre, M. (2020). Females have more complex patterns of childhood adversity: Implications for mental, social, and emotional outcomes in adulthood. *European Journal of Psychotraumatology*, 11(1), 1708618.
- Haber, M. G., Cohen, J. L., Lucas, T., & Baltes, B. B. (2007). The relationship between self-reported received and perceived social support: A meta-analytic review. *American Journal of Community Psychology*, 39, 133-144.
- Hale, J. M., Schneider, D. C., Gampe, J., Mehta, N. K., & Myrskylä, M. (2020). Trends in the risk of cognitive impairment in the United States, 1996–2014. *Epidemiology* (Cambridge, Mass.), 31(5), 745.
- Hall, J. M. (2000). Core issues for female child abuse survivors in recovery from substance misuse. *Qualitative Health Research*, 10(5), 612-631.
- Hamby, S., Elm, J. H., Howell, K. H., & Merrick, M. T. (2021). Recognizing the cumulative burden of childhood adversities transforms science and practice for trauma and resilience. *American Psychologist*, 76(2), 230.
- Hamby, S., Grych, J., & Banyard, V. (2018). Resilience portfolios and poly-strengths: Identifying protective factors associated with thriving after adversity. *Psychology of violence*, 8(2), 172.

- Han, S. D., Boyle, P. A., James, B. D., Yu, L., Barnes, L. L., & Bennett, D. A. (2016). Discrepancies between cognition and decision making in older adults. *Aging Clinical and Experimental Research*, 28, 99-108.
- Harter, C. L., & Harter, J. F. (2022). The link between adverse childhood experiences and financial security in adulthood. *Journal of Family and Economic Issues*, 43(4), 832-842.
- Hasler, A., Lusardi, A., & Oggero, N. (2018). Financial fragility in the US: Evidence and implications. *Global Financial Literacy Excellence Center, The George Washington University School of Business*: Washington, DC.
- Haushofer, J., & Fehr, E. (2014). On the psychology of poverty. *science*, 344(6186), 862-867.
- Heard-Garris, N., Davis, M. M., Szilagyi, M., & Kan, K. (2018). Childhood adversity and parent perceptions of child resilience. *BMC pediatrics*, 18, 1-10.
- Herzog, J. I., & Schmahl, C. (2018). Adverse childhood experiences and the consequences on neurobiological, psychosocial, and somatic conditions across the lifespan. *Frontiers in Psychiatry*, 9, 420.
- Hildon, Z., Smith, G., Netuveli, G., & Blane, D. (2008). Understanding adversity and resilience at older ages. *Sociology of Health & Illness*, 30(5), 726-740.
- Hope, A. R. (2019). *Is Love Enough? The Consequences of Family Economic Disadvantage and Parent-Child Relationships for Adolescent Children's Well-being* (Doctoral dissertation, Vanderbilt University).
- Howard, S., Dryden, J., & Johnson, B. (1999). Childhood resilience: Review and critique of literature. *Oxford Review of Education*, 25(3), 307-323.

- Howlett, E., Kees, J., & Kemp, E. (2008). The role of self-regulation, future orientation, and financial knowledge in long-term financial decisions. *Journal of Consumer Affairs*, 42(2), 223-242.
- Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., ... & Dunne, M. P. (2017). The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *The Lancet public health*, 2(8), e356-e366.
- Hughes, K., Bellis, M. A., Cresswell, K., Hill, R., Ford, K., & Hopkins, J. C. (2024). Examining relationships between adverse childhood experiences and coping during the cost-of-living crisis using a national cross-sectional survey in Wales, UK. *BMJ open*, 14(5), e081924.
- Hung, A., Parker, A. M., & Yoong, J. (2009). Defining and measuring financial literacy.
- Hunt, T. K., Slack, K. S., & Berger, L. M. (2017). Adverse childhood experiences and behavioral problems in middle childhood. *Child Abuse & Neglect*, 67, 391-402.
- James, B. D., Boyle, P. A., & Bennett, D. A. (2014). Correlates of susceptibility to scams in older adults without dementia. *Journal of Elder Abuse & Neglect*, 26(2), 107-122.
- Johnson, J. L., & Wiechelt, S. A. (2004). Introduction to the special issue on resilience. *Substance use & misuse*, 39(5), 657-670.
- Jorgensen, B. L., Rappleyea, D. L., Schweichler, J. T., Fang, X., & Moran, M. E. (2017). The financial behavior of emerging adults: A family financial socialization approach. *Journal of Family and Economic Issues*, 38, 57-69.
- Joseph, S., & Linley, P. A. (2006). Growth following adversity: Theoretical perspectives and implications for clinical practice. *Clinical Psychology Review*, 26(8), 1041-1053.
- Judges, R. A., Gallant, S. N., Yang, L., & Lee, K. (2017). The role of cognition, personality, and trust in fraud victimization in older adults. *Frontiers in Psychology*, 8, 588.

- Kadoya, Y., Khan, M. S. R., Narumoto, J., & Watanabe, S. (2021). Who is next? A study on victims of financial fraud in Japan. *Frontiers in Psychology, 12*, 649565.
- Kahn, J. R., & Pearlin, L. I. (2006). Financial strain over the life course and health among older adults. *Journal of Health and Social Behavior, 47*(1), 17-31.
- Kaiser, T., & Menkhoff, L. (2017). Does financial education impact financial literacy and financial behavior, and if so, when?. *The World Bank Economic Review, 31*(3), 611-630.
- Kaiser, T., & Menkhoff, L. (2020). Financial education in schools: A meta-analysis of experimental studies. *Economics of Education Review, 78*, 101930.
- Kalia, V., & Knauft, K. (2020). Emotion regulation strategies modulate the effect of adverse childhood experiences on perceived chronic stress with implications for cognitive flexibility. *PloS one, 15*(6), e0235412.
- Kalmakis, K. A., & Chandler, G. E. (2015). Health consequences of adverse childhood experiences: A systematic review. *Journal of the American Association of Nurse Practitioners, 27*(8), 457-465.
- Kim, J., & Chatterjee, S. (2013). Childhood financial socialization and young adults' financial management. *Journal of Financial Counseling and Planning, 24*(1), 61.
- Kim, K. T., Cho, S. H., & Xiao, J. J. (2023). Is ignorance bliss? Use of alternative financial services, financial knowledge, and financial anxiety. *Journal of Family and Economic Issues, 44*(4), 956-967.
- Kim, J., Falconier, M. K., & Conway, C. A. (2023). Relationships among emotion regulation, financial self-efficacy, and financial management behaviors of couples. *Journal of Family and Economic Issues, 44*(2), 342-355.

- King, B. M., Carr, D. C., & Taylor, M. G. (2019). Depressive symptoms and the buffering effect of resilience on widowhood by gender. *The Gerontologist*, 59(6), 1122-1130.
- Klapper, L., & Lusardi, A. (2020). Financial literacy and financial resilience: Evidence from around the world. *Financial Management*, 49(3), 589-614.
- Knifton, L., & Inglis, G. (2020). Poverty and mental health: policy, practice and research implications. *BJPsych bulletin*, 44(5), 193-196.
- Krause, N., Shaw, B. A., & Cairney, J. (2004). A descriptive epidemiology of lifetime trauma and the physical health status of older adults. *Psychology and Aging*, 19(4), 637.
- Kuh, D., Ben-Shlomo, Y., Lynch, J., Hallqvist, J., & Power, C. (2003). Life course epidemiology. *Journal of Epidemiology and Community Health*, 57(10), 778.
- Lachs, M. S., & Han, S. D. (2015). Age-associated financial vulnerability: An emerging public health issue. *Annals of Internal Medicine*, 163(11), 877-878.
- Laumann, E. O., Leitsch, S. A., & Waite, L. J. (2008). Elder mistreatment in the United States: Prevalence estimates from a nationally representative study. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 63(4), S248-S254.
- Lovallo, W. R., Farag, N. H., Sorocco, K. H., Acheson, A., Cohoon, A. J., & Vincent, A. S. (2013). Early life adversity contributes to impaired cognition and impulsive behavior: Studies from the Oklahoma family health patterns project. *Alcoholism: clinical and experimental research*, 37(4), 616-623.
- Lazarus, R. S. (1984). *Stress, appraisal, and coping* (Vol. 464). Springer.
- Lee, R. D., & Chen, J. (2017). Adverse childhood experiences, mental health, and excessive alcohol use: Examination of race/ethnicity and sex differences. *Child abuse & neglect*, 69, 40-48.

- Lelkes, Y., Krosnick, J. A., Marx, D. M., Judd, C. M., & Park, B. (2012). Complete anonymity compromises the accuracy of self-reports. *Journal of Experimental Social Psychology*, 48(6), 1291-1299.
- LeSure, J. (2014). *Financial coaching: Bridging the gap between financial knowledge and financial behavior*. Ball State University.
- Lichtenberg, P. A., Stickney, L., & Paulson, D. (2013). Is psychological vulnerability related to the experience of fraud in older adults?. *Clinical Gerontologist*, 36(2), 132-146.
- Lichtenberg, P. A., Sugarman, M. A., Paulson, D., Ficker, L. J., & Rahman-Filipiak, A. (2016). Psychological and functional vulnerability predicts fraud cases in older adults: Results of a longitudinal study. *Clinical Gerontologist*, 39(1), 48-63.
- Lippard, E. T., & Nemeroff, C. B. (2020). The devastating clinical consequences of child abuse and neglect: increased disease vulnerability and poor treatment response in mood disorders. *American Journal of Psychiatry*, 177(1), 20-36.
- Little, R. J., & Rubin, D. B. (2019). *Statistical analysis with missing data* (Vol. 793). John Wiley & Sons.
- Liu, Y., Croft, J. B., Chapman, D. P., Perry, G. S., Greenlund, K. J., Zhao, G., & Edwards, V. J. (2013). Relationship between adverse childhood experiences and unemployment among adults from five US states. *Social Psychiatry and Psychiatric Epidemiology*, 48, 357-369.
- Lund, J. I., Boles, K., Radford, A., Toombs, E., & Mushquash, C. J. (2022). A systematic review of childhood adversity and executive functions outcomes among adults. *Archives of Clinical Neuropsychology*, 37(6), 1118-1132.
- Lusardi, A. (2012). *Numeracy, financial literacy, and financial decision-making* (No. w17821). National Bureau of Economic Research.

- Lusardi, A. (2019). Financial literacy and the need for financial education: evidence and implications. *Swiss Journal of Economics and Statistics*, 155(1), 1-8.
- Lusardi, A., Michaud, P. C., & Mitchell, O. S. (2017). Optimal financial knowledge and wealth inequality. *Journal of Political Economy*, 125(2), 431-477.
- Lusardi, A., & Mitchell, O. S. (2011). *Financial literacy and planning: Implications for retirement wellbeing* (No. w17078). National Bureau of Economic Research.
- Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *American Economic Journal: Journal of Economic Literature*, 52(1), 5-44.
- Lusardi, A., & Tufano, P. (2015). Debt literacy, financial experiences, and over indebtedness. *Journal of Pension Economics & Finance*, 14(4), 332-368.
- Maguire-Jack, K., Lanier, P., & Lombardi, B. (2020). Investigating racial differences in clusters of adverse childhood experiences. *American Journal of Orthopsychiatry*, 90(1), 106.
- Mancone, S., Tosti, B., Corrado, S., Spica, G., Zanon, A., & Diotaiuti, P. (2024, October). Youth, money, and behavior: the impact of financial literacy programs. In *Frontiers in Education* (Vol. 9, p. 1397060). Frontiers Media SA.
- Mandell, L., & Klein, L. S. (2007). Motivation and financial literacy. *Financial Services Review*, 16(2), 105.
- Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and planning*, 20(1).
- Manly, J. J., Jones, R. N., Langa, K. M., Ryan, L. H., Levine, D. A., McCammon, R., ... & Weir, D. R. (2022). Prevalence of Dementia and Mild Cognitive Impairment in the United States: Findings from the Health and Retirement Study (HRS) Harmonized Cognitive Assessment Protocol (HCAP) Project. *Alzheimer's & Dementia*, 18, e068351.



- Manning, L. K., Carr, D. C., & Kail, B. L. (2016). Do higher levels of resilience buffer the deleterious impact of chronic illness on disability in later life?. *The Gerontologist*, 56(3), 514-524.
- Marriott, C., Hamilton-Giachritsis, C., & Harrop, C. (2013). Factors promoting resilience following childhood sexual abuse: A structured, narrative review of the literature. *Child Abuse Review*, 23(1).
- Marsden, M., Zick, C. D., & Mayer, R. N. (2011). The value of seeking financial advice. *Journal of Family and Economic Issues*, 32, 625-643.
- Masten, A.S. (2014). Global perspectives on resilience in children and youth. *Child development* 85(1), 6-20.
- Masten, A. S. (2016). Resilience in developing systems: The promise of integrated approaches. *European Journal of Developmental Psychology*, 13(3), 297-312.
- Mathur, A., & Kasper, H. (2019). Application of the life course paradigm to the study of financial solvency and financial satisfaction in later life: A comparative study of American and Dutch elderly consumers. *Journal of Global Scholars of Marketing Science*, 29(4), 409–422.
- McLeod, J. D., & Almazan, E. P. (2003). Connections between childhood and adulthood. In *Handbook of the life course* (pp. 391-411). Boston, MA: Springer US.
- McLeod, J. D., & Owens, T. J. (2004). Psychological well-being in the early life course: Variations by socioeconomic status, gender, and race/ethnicity. *Social Psychology Quarterly*, 67(3), 257-278.

- McCrae, J. S., Bender, K., Brown, S. M., Phillips, J. D., & Rienks, S. (2019). Adverse childhood experiences and complex health concerns among child welfare-involved children. *Children's Health Care*, 48(1), 38-58.
- McMullin, S. D., Shields, G. S., Slavich, G. M., & Buchanan, T. W. (2021). Cumulative lifetime stress exposure predicts greater impulsivity and addictive behaviors. *Journal of Health Psychology*, 26(14), 2921-2936.
- Menard, S. W. (2010). *Logistic regression: From introductory to advanced concepts and applications*. Sage.
- Merrick, M. T., Ford, D. C., Ports, K. A., Guinn, A. S., Chen, J., Klevens, J., ... & Mercy, J. A. (2019). Vital signs: estimated proportion of adult health problems attributable to adverse childhood experiences and implications for prevention—25 states, 2015–2017. *Morbidity and Mortality Weekly Report*, 68(44), 999.
- Mersky, J. P., & Janczewski, C. E. (2018). Racial and ethnic differences in the prevalence of adverse childhood experiences: Findings from a low-income sample of US women. *Child Abuse & Neglect*, 76, 480-487.
- Metzler, M., Merrick, M. T., Klevens, J., Ports, K. A., & Ford, D. C. (2017). Adverse childhood experiences and life opportunities: Shifting the narrative. *Children and Youth Services Review*, 72, 141-149.
- Mitchell, M. & Jolley, J. (2010). *Research design explained*. Belmont, CA: Wadsworth Cengage Learning.
- Mitchell, O. S., & Lusardi, A. (2015). Financial literacy and economic outcomes: Evidence and policy implications. *The Journal of Retirement*, 3(1), 107.

- Modestino, A. S., Sederberg, R., & Tuller, L. (2019). Assessing the effectiveness of financial coaching: Evidence from the Boston Youth Credit Building Initiative. *Journal of Consumer Affairs*, 53(4), 1825-1873.
- Morduch, J., & Schneider, R. (2017). *The financial diaries: How American families cope in a world of uncertainty*. Princeton University Press.
- Morris, T. P., White, I. R., & Royston, P. (2014). Tuning multiple imputation by predictive mean matching and local residual draws. *BMC medical research methodology*, 14, 1-13.
- Moschis, G. P. (2007). Life course perspectives on consumer behavior. *Journal of the Academy of Marketing Science*, 35, 295-307.
- Moschis, G.P. (2019a). *Consumer Behavior over the Life Course: Research Frontiers and New Directions*, Springer Nature.
- Moschis, G. P. (2019b). Paths to successful academic research: A life course perspective. *Journal of Global Scholars of Marketing Science*, 29(4), 372-408.
- Mossakowski, K. N. (2008). Dissecting the influence of race, ethnicity, and socioeconomic status on mental health in young adulthood. *Research on Aging*, 30(6), 649-671.
- Mottola, G. R., Yu, L., & Boyle, P. (2024). Aging in America: An Examination of Financial and Health Decision Making among Older Adults. *Wharton Pension Research Council Working Paper*, (2024-19).
- Moulton, S., Collins, J. M., Loibl, C., & Samek, A. (2015). Effects of monitoring on mortgage delinquency: Evidence from a randomized field study. *Journal of Policy Analysis and Management*, 34(1), 184-207.

- Mueller, E. A., Wood, S. A., Hanoch, Y., Huang, Y., & Reed, C. L. (2020). Older and wiser: age differences in susceptibility to investment fraud: the protective role of emotional intelligence. *Journal of Elder Abuse & Neglect*, 32(2), 152-172.
- Narayan, A. J., Rivera, L. M., Bernstein, R. E., Harris, W. W., & Lieberman, A. F. (2018). Positive childhood experiences predict less psychopathology and stress in pregnant women with childhood adversity: A pilot study of the benevolent childhood experiences (BCEs) scale. *Child Abuse & Neglect*, 78, 19-30.
- Nielsen, R. B., & Seay, M. C. (2014). Complex samples and regression-based inference: Considerations for consumer researchers. *Journal of Consumer Affairs*, 48(3), 603-619.
- Nur, W., Dueck-Read, J., & Buckland, J. (2022). *Leaning against the Wind: The Ongoing Impacts of Trauma on Financial Well-Being and Decision Making*. Working Paper, Winnipeg: Canadian Centre for Policy Alternatives, <https://policyalternatives.ca/publications/reports/leaning-against-wind> [accessed 11.03. 2022].
- Nwosu, N. T., & Ilori, O. (2024). Behavioral finance and financial inclusion: A conceptual review and framework development. *World Journal of Advanced Research and Reviews*, 22(3), 204-212.
- O'Connor, G. E., Newmeyer, C. E., Wong, N. Y. C., Bayuk, J. B., Cook, L. A., Komarova, Y., ... & Warmath, D. (2019). Conceptualizing the multiple dimensions of consumer financial vulnerability. *Journal of Business Research*, 100, 421-430.
- Ogunola, A. A., Sonubi, T., Toromade, R. O., Ajayi, O. O., & Maduakor, A. H. (2024). The intersection of digital safety and financial literacy: Mitigating financial risks in the digital economy.
- Pak, K., & Shadel, D. (2011). *AARP Foundation national fraud victim study*. Washington DC.

- Papp, L. M., Cummings, E. M., & Goeke-Morey, M. C. (2009). For richer, for poorer: Money as a topic of marital conflict in the home. *Family Relations*, 58(1), 91-103.
- Park, N., Heo, W., Ruiz-Menjivar, J., & Grable, J. E. (2017). Financial hardship, social support, and perceived stress. *Journal of Financial Counseling & Planning*, 28(2).
- Petrucelli, K., Davis, J., & Berman, T. (2019). Adverse childhood experiences and associated health outcomes: A systematic review and meta-analysis. *Child Abuse & Neglect*, 97, 104127.
- Pinsker, D. M., McFarland, K., & Pachana, N. A. (2010). Exploitation in older adults: Social vulnerability and personal competence factors. *Journal of Applied Gerontology*, 29(6), 740-761.
- Poole, J. C., Dobson, K. S., & Pusch, D. (2017). Childhood adversity and adult depression: The protective role of psychological resilience. *Child Abuse & Neglect*, 64, 89-100.
- Poterba, J., Venti, S., & Wise, D. (2011). The composition and drawdown of wealth in retirement. *Journal of Economic Perspectives*, 25(4), 95-118.
- Price, J. H., Khubchandani, J., & Webb, F. J. (2018). Poverty and health disparities: what can public health professionals do?. *Health promotion practice*, 19(2), 170-174.
- Qian, Y., Chen, X., Tang, D., Kelley, A. S., & Li, J. (2021). Prevalence of memory-related Diagnoses among US older adults with early symptoms of cognitive impairment. *The Journals of Gerontology: Series A*, 76(10), 1846-1853.
- Quinn, M. J., Nerenberg, L., Navarro, A. E., & Wilber, K. H. (2017). Developing an undue influence screening tool for Adult Protective Services. *Journal of Elder Abuse & Neglect*, 29(2-3), 157-185.

- Rajan, M. E. S., Abdullah, A., Ab Razak, N. H., & Nor, N. (2021). Investor Decision for Retirement: An Exploratory Review on Financial Resource and Economic Force Influences. *Journal of Business and Economics*, ISSN, 2155-7950.
- RAND HRS 2020 Longitudinal File 2020 (V1). (2023). *RAND Center for the Study of Aging*. Santa Monica, CA.
- RAND HRS Longitudinal File 2020 (V1)* (Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration). (2023). [dataset].
- Raval, D. (2021). Who is victimized by fraud? Evidence from consumer protection cases. *Journal of Consumer Policy*, 44(1), 43-72.
- Reblin, M. & Uchino, B. N. (2008). Social and emotional support and its implications for health. *Current Opinions in Psychiatry*, 21(2), 201-205.
- Riaz, A., Skolnik, R., & Shah, S. Z. A. (2024). The Moderating Role of Financial Self-Efficacy in the Relationship between Emotional Intelligence and Financial Effectiveness. *Journal of Innovative Research in Management Sciences*, 5(1), 21-35.
- Robb, C. A., & Woodyard, A. (2011). Financial knowledge and best practice behavior. *Journal of Financial Counseling and Planning*, 22(1).
- Ross, D. B., Coombs, E., & Johnson, E. (2022). Trauma of the past: The impact of adverse childhood experiences on adult attachment, money beliefs and behaviors, and financial transparency. *Journal of Financial Therapy*, 13(1), 4.
- Rubin, D. B. (1996). Multiple imputation after 18+ years. *Journal of the American statistical Association*, 91(434), 473-489.

- Rubin, D. B., & Schenker, N. (1986). Multiple imputation for interval estimation from simple random samples with ignorable nonresponse. *Journal of the American statistical Association*, 81(394), 366-374.
- Ruffman, T., Murray, J., Halberstadt, J., & Vater, T. (2012). Age-related differences in deception. *Psychology and aging*, 27(3), 543.
- Rutter, M. (1989). Pathways from childhood to adult life. *Journal of Child Psychology and Psychiatry*, 30(1), 23–51.
- Sandhu, N. (2020). Behavioral red flags of fraud: a gender-based ex post analysis. *Journal of Financial Crime*, 27(4), 1307-1322.
- Sansone, R. A., Chang, J., Jewell, B., & Rock, R. (2013). Childhood trauma and compulsive buying. *International Journal of Psychiatry in Clinical Practice*, 17(1), 73-76.
- Sansone, R. A., Leung, J. S., & Wiederman, M. W. (2012). Five forms of childhood trauma: Relationships with employment in adulthood. *Child Abuse & Neglect*, 36(9), 676-679.
- Schneider, F. D., Loveland Cook, C. A., Salas, J., Scherrer, J., Cleveland, I. N., Burge, S. K., & Residency Research Network of Texas Investigators. (2020). Childhood trauma, social networks, and the mental health of adult survivors. *Journal of Interpersonal violence*, 35(5-6), 1492-1514.
- Schroeder, A. L. (2018). *Adverse Childhood Experiences (ACEs) in Early Childhood and Their Associations with Middle Childhood Behavior Problems: A Three-paper Dissertation* (Doctoral dissertation, University of Maryland, College Park).
- Schwandt, H. (2018). Wealth shocks and health outcomes: Evidence from stock market fluctuations. *American Economic Journal: Applied Economics*, 10(4), 349-377.

- Seay, M. C., Preece, G. L., & Le, V. C. (2017). Financial literacy and the use of interest-only mortgages. *Journal of Financial Counseling and Planning*, 28(2), 168-180.
- Seligman, M. E., Kamen, L. P., & Nolen-Hoeksema, S. (2013). Explanatory Style Across the Life Span:: Achievement and Health. In *Child Development in a Life-Span Perspective* (pp. 91-114). Psychology Press.
- Shao, J., Zhang, Q., Ren, Y., Li, X., & Lin, T. (2019). Why are older adults victims of fraud? Current knowledge and prospects regarding older adults' vulnerability to fraud. *Journal of Elder Abuse & Neglect*, 31(3), 225-243.
- Schlomer, G. L., Bauman, S., & Card, N. A. (2010). Best practices for missing data management in counseling psychology. *Journal of Counseling psychology*, 57(1), 1.
- Schurer, S., Trajkovski, K., & Hariharan, T. (2019). Understanding the mechanisms through which adverse childhood experiences affect lifetime economic outcomes. *Labour Economics*, 61, 101743.
- Sheffler, J. L., Piazza, J. R., Quinn, J. M., Sachs-Ericsson, N. J., & Stanley, I. H. (2019). Adverse childhood experiences and coping strategies: Identifying pathways to resiliency in adulthood. *Anxiety, Stress, & Coping*, 32(5), 594-609.
- Shim, S., Serido, J., & Tang, C. (2013). After the global financial crash: individual factors differentiating young adult consumers' trust in banks and financial institutions. *Journal of Retailing and Consumer Services*, 20(1), 26-33.
- Shin, S. H., McDonald, S. E., & Conley, D. (2018). Profiles of adverse childhood experiences and impulsivity. *Child Abuse & Neglect*, 85, 118-126.



- Smith, J., Ryan, L., Fisher, G. G., Sonnega, A., & Weir, D. (2017). Psychosocial and lifestyle questionnaire 2006–2016: Documentation Report Core Section LB Survey Research Center. Institute for Social Research, University of Michigan.
- Sonnega, A., Faul, J. D., Ofstedal, M. B., Langa, K. M., Phillips, J. W., & Weir, D. R. (2014). Cohort profile: the health and retirement study (HRS). *International Journal of Epidemiology*, 43(2), 576-585.
- Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: interdisciplinary perspectives. *European Journal of Psychotraumatology*, 5(1), 25338.
- Spreng, R. N., Karlawish, J., & Marson, D. C. (2016). Cognitive, social, and neural determinants of diminished decision-making and financial exploitation risk in aging and dementia: A review and new model. *Journal of Elder Abuse & Neglect*, 28(4-5), 320-344.
- Sroufe, L. A., Coffino, B., & Carlson, E. A. (2010). Conceptualizing the role of early experience: Lessons from the Minnesota longitudinal study. *Developmental Review*, 30(1), 36-51.
- StataCorp. 2023. *Stata Statistical Software: Release 18*. College Station, TX: StataCorp LLC.
- Sterzing, P. R., Gartner, R. E., Woodford, M. R., & Fisher, C. M. (2017). Sexual orientation, gender, and gender identity microaggressions: Toward an intersectional framework for social work research. *Journal of Ethnic & Cultural Diversity in Social Work*, 26(1-2), 81-94.
- Stolper, O. A., & Walter, A. (2017). Financial literacy, financial advice, and financial behavior. *Journal of Business Economics*, 87, 581-643.

- Strömbäck, Camilla, Thérèse Lind, Kenny Skagerlund, Daniel Västfjäll, and Gustav Tinghög. "Does self-control predict financial behavior and financial well-being?." *Journal of Behavioral and Experimental Finance* 14 (2017): 30-38.
- Sweet, E., Kuzawa, C. W., & McDade, T. W. (2018). Short-term lending: Payday loans as risk factors for anxiety, inflammation and poor health. *SSM-population health*, 5, 114-121.
- Taylor, M. G., Ureña, S., Carr, D. C., & Min, S. (2019). Early-life military exposures and functional impairment trajectories among older male veterans: The buffering effect of psychological resilience. *The Journals of Gerontology: Series B*, 74(5), 832-841.
- Taylor, M. G., & Carr, D. (2021). Psychological resilience and health among older adults: A comparison of personal resources. *The Journals of Gerontology: Series B*, 76(6), 1241-1250.
- Taylor, M. G., Bruefach, T., & Carr, D. C. (2024). Measuring Psychological Resilience in Aging: Findings From the Health and Retirement Study and National Longitudinal Study of Adolescent to Adult Health. *Innovation in Aging*, 8(3), igae013.
- Tenney, J. A., & Kalenkoski, C. M. (2019). Financial Ratios and Financial Satisfaction: Exploring Associations between Objective and Subjective Measures of Financial Well-Being among Older Americans. *Journal of Financial Counseling and Planning*, 30(2), 231-343.
- Theodos, B., Simms, M., Treskon, M., Stacy, C., Brash, R., Emam, D., ... & Collazos, J. (2015). An evaluation of the impacts and implementation approaches of financial coaching programs. *Washington, DC: Urban Institute*, 500.

- Tumataroa, S., & O'Hare, D. (2019). Improving Self-Control through Financial Counseling: A Randomized Controlled Trial. *Journal of Financial Counseling and Planning*, 30(2), 304-312.
- Turner, R. J., & Lloyd, D. A. (1995). Lifetime traumas and mental health: The significance of cumulative adversity. *Journal of Health and Social Behavior*, 360-376.
- Uchino, B. N. (2009). Understanding the links between social support and physical health: A life-span perspective with emphasis on the separability of perceived and received support. *Perspectives on Psychological Science*, 4(3), 236-255.
- U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2023). *Child Maltreatment 2021*. Retrieved December 2, 2023, from <https://www.acf.hhs.gov/cb/report/child-maltreatment-2021>
- Van Kessel, G. (2013). The ability of older people to overcome adversity: a review of the resilience concept. *Geriatric Nursing*, 34(2), 122-127.
- Wadsworth, M. E. (2015). Development of maladaptive coping: A functional adaptation to chronic, uncontrollable stress. *Child Development Perspectives*, 9(2), 96-100.
- Wagnild, G. M., & Young, H. M. (1993). Development and psychometric. *Journal of Nursing Measurement*, 1(2), 165-17847.
- Wagnild, G.M. (2009). A review of the Resilience Scale. *Journal of Nursing Measurement*, 17(2), 105.
- Wagner, J. (2019). Financial education and financial literacy by income and education groups. *Journal of Financial Counseling and Planning*, 30(1), 132-141.

- Weissberger, G. H., Mosqueda, L., Nguyen, A. L., Samek, A., Boyle, P. A., Nguyen, C. P., & Han, S. D. (2020). Physical and mental health correlates of perceived financial exploitation in older adults: Preliminary findings from the Finance, Cognition, and Health in Elders Study (FINCHES). *Aging & Mental Health*, 24(5), 740-746.
- Willis, L. E. (2008). Against financial-literacy education. *Iowa L. Rev.*, 94, 197.
- Wilson, D. R. (2010). Health consequences of childhood sexual abuse. *Perspectives in Psychiatric Care*, 46(1), 56-64.
- Windle, M., Haardörfer, R., Getachew, B., Shah, J., Payne, J., Pillai, D., & Berg, C. J. (2018). A multivariate analysis of adverse childhood experiences and health behaviors and outcomes among college students. *Journal of American College Health*, 66(4), 246-251.
- Wood, S., & Lichtenberg, P. A. (2017). Financial capacity and financial exploitation of older adults: Research findings, policy recommendations and clinical implications. *Clinical Gerontologist*, 40(1), 3-13.
- Wood, S. A., Liu, P. J., Hanoch, Y., & Estevez-Cores, S. (2016). Importance of numeracy as a risk factor for elder financial exploitation in a community sample. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 71(6), 978-986.
- Wood, S., Rakela, B., Liu, P. J., Navarro, A. E., Bernatz, S., Wilber, K. H., ... & Homier, D. (2014). Neuropsychological profiles of victims of financial elder exploitation at the Los Angeles County Elder Abuse Forensic Center. *Journal of Elder Abuse & Neglect*, 26(4), 414-423.
- Wulff, J. N., & Ejlskov, L. (2017). Multiple imputation by chained equations in praxis: guidelines and review. *Electronic Journal of Business Research Methods*, 15(1), pp41-56.

- Zheng, H., Li, Q., & Xia, C. (2024). Does financial literacy contribute to facilitating residents in safeguarding their rights as financial consumers? A three-stage study based on the perspective of “fraud” phenomenon. *International Review of Economics & Finance*, 93, 720-735.
- Zielinski, D. S. (2009). Child maltreatment and adult socioeconomic well-being. *Child Abuse & Neglect*, 33(10), 666-678.
- Zimmerman, M. A. (2013). Resiliency theory: A strengths-based approach to research and practice for adolescent health. *Health Education & Behavior*, 40(4), 381-383.

## Appendix A – Statistical Programming

The following is code I created in Stata 18 for this project.

### Statistical programming (Stata)

```
/******  
* Title: Dissertation - Final STATA Script  
* Created by: Brandon Ratzlaff  
* Last modified: 2/22/2025  
* Purpose: Imports, cleans, and merges datasets for dissertation analysis  
*****/  
  
clear all  
set maxvar 15000  
  
*=====
```

---

```
* 1. PROJECT SETUP & GLOBAL DIRECTORIES  
*=====
```

---

```
global projdir "/Users/brandonratzlaff/Dropbox/Dissertation/Data"  
cd "$projdir"  
global data_ed "${projdir}/edited"  
global data_raw "${projdir}/raw"  
  
*=====
```

---

```
* 2. IMPORT & CLEAN CORE RAND DATA (DEMOGRAPHIC & CONTROLS)  
*=====
```

---

```
use hhidpn raracem ragender raeduc r15mstat r15work ///  
    using "${data_raw}/randhrs1992_2020v2.dta", clear  
  
* GENDER: (0 = Female, 1 = Male)  
gen gender = (ragender == 1)  
label define gender_lbl 0 "Female" 1 "Male"  
label values gender gender_lbl  
  
* RELATIONSHIP STATUS (0 = Coupled, 1 = Single)  
gen relationship_status = .  
replace relationship_status = 0 if inlist(r15mstat, 1, 3) // Married or Partnered  
replace relationship_status = 1 if inlist(r15mstat, 2, 4, 5, 6, 7, 8) // Single, Widowed, Divorced  
label define relationship_lbl 0 "Coupled" 1 "Single"  
label values relationship_status relationship_lbl
```

```
drop if missing(relationship_status) // Drop cases where relationship status is missing
```

```
* VERIFY RELATIONSHIP STATUS DISTRIBUTION BEFORE MERGING
```

```
tab relationship_status, missing
```

```
* EDUCATION (0 = Less than College, 1 = College or Higher)
```

```
gen education = .
```

```
replace education = 0 if inlist(raeduc, 1, 2, 3)
```

```
replace education = 1 if inlist(raeduc, 4, 5)
```

```
label define educ_lbl 0 "Less than College" 1 "College or Higher"
```

```
label values education educ_lbl
```

```
drop if missing(education) // Drop cases with missing education
```

```
* EMPLOYMENT STATUS (0 = Not Working, 1 = Working)
```

```
gen employment_status = (r15work == 1)
```

```
label define employ_lbl 0 "Not Working" 1 "Working"
```

```
label values employment_status employ_lbl
```

```
* RACE (0 = White, 1 = Black, 2 = Other)
```

```
gen race = .
```

```
replace race = 0 if raracem == 1 // White
```

```
replace race = 1 if raracem == 2 // Black
```

```
replace race = 2 if raracem == 3 | missing(raracem) // Other
```

```
label define race_lbl 0 "White" 1 "Black" 2 "Other"
```

```
label values race race_lbl
```

```
* Check recoding before saving
```

```
tab race, missing
```

```
* Check initial race distribution before merging
```

```
di "Race Distribution BEFORE Merging"
```

```
tab race, missing
```

```
* SAVE BACKUP BEFORE MERGING
```

```
save "${data_ed}/HRS_Demographics_Cleaned_Race_Debug.dta", replace
```

```
* AGE (FROM 2020 WAVE)
```

```
use hhidpn ra019 using "${data_raw}/h20fla.dta", clear
```

```
rename ra019 age_2020
```

```
* CLEAN AGE VARIABLE (ENSURE NO PLACEHOLDERS OR ERRORS)
```

```
replace age_2020 = . if age_2020 < 49 | age_2020 > 110 // Remove invalid ages
```

```
drop if missing(age_2020) // Ensure we only keep respondents with valid ages
```

```

* RECODE AGE INTO CATEGORIES
gen age_group = .
replace age_group = 1 if age_2020 <= 60
replace age_group = 2 if age_2020 > 60 & age_2020 <= 75
replace age_group = 3 if age_2020 > 75

label define age_lbl 1 "Young (<=60)" 2 "Middle-Aged (61-75)" 3 "Older (76+)", replace
label values age_group age_lbl

* VERIFY AGE DISTRIBUTION BEFORE MERGING
tab age_2020, missing
tab age_group, missing

* SAVE CLEANED AGE DATASET
save "${data_ed}/HRS_Age_Cleaned.dta", replace
clear

*=====
=====
* 3. FINANCIAL & COGNITIVE VARIABLES
*=====
=====

use hhidpn h15atotb using "${data_raw}/randhrs1992_2020v2.dta", clear

* NET WORTH (Inverse Hyperbolic Sine Transformation)
gen ihs_networth20 = asinh(h15atotb) if h15atotb != .
rename h15atotb networth20
label variable ihs_networth20 "IHS Transformed Net Worth (2020)"

* Trim Extreme Net Worth Values
gen networth_trim = networth20
replace networth_trim = -32800 if networth20 < -32800 // 1st percentile
replace networth_trim = 5753500 if networth20 > 5753500 // 99th percentile
gen ihs_networth_trim = asinh(networth_trim)

save "${data_ed}/HRS_NetWorth_Cleaned.dta", replace
clear

* CREDIT CARD DEBT (FROM 2020 WAVE)
use hhidpn rq517 using "${data_raw}/h20fla.dta", clear

* Convert responses to binary format
gen credit_card_debt = .
replace credit_card_debt = 1 if inlist(rq517, 1, 2)
replace credit_card_debt = 0 if rq517 == 5
replace credit_card_debt = . if inlist(rq517, 8, 9) // Don't Know or Refused responses

```



```

label define ccdebt_lbl 0 "No Credit Card Debt" 1 "Has Credit Card Debt"
label values credit_card_debt ccdebt_lbl

save "${data_ed}/HRS_CreditCard_Cleaned.dta", replace
clear

* COGNITIVE FUNCTION (FROM RAND DATA)
use hhidpn r15imrcp r15dlrcp r15mop r15dyp r15yrp r15presp r15vpp r15dwp ///
  using "${data_raw}/randhrs1992_2020v2.dta", clear

*Normalize Immediate and Delayed Recall (0-1)
gen imrc_scaled = r15imrcp / 10 // Rescale Immediate Recall (0-1)
gen dlrc_scaled = r15dlrcp / 10 // Rescale Delayed Recall (0-1)

* Generate Cognitive Function Score (0-8 scale)
egen cognitive_function = rowtotal(imrc_scaled dlrc_scaled r15mop r15dyp r15yrp r15presp
r15vpp r15dwp), missing
replace cognitive_function = . if missing(imrc_scaled, dlrc_scaled, r15mop, r15dyp, r15yrp,
r15presp, r15vpp, r15dwp)

label variable cognitive_function "Cognitive Function Scale (0-8)"

save "${data_ed}/HRS_CognitiveFunction_Cleaned.dta", replace
clear

* Summary Statistics & Reliability Check (Cronbach's Alpha)
use "${data_ed}/HRS_CognitiveFunction_Cleaned.dta", clear
summarize cognitive_function, detail
tab cognitive_function, missing
alpha r15imrcp r15dlrcp r15mop r15dyp r15yrp r15presp r15vpp r15dwp, std item

*=====
=====
* 4. MERGE FINAL DATASET (INCLUDING AGE, CREDIT CARD DEBT & COGNITIVE
FUNCTION)
*=====
=====
use "${data_ed}/HRS_Demographics_Cleaned_Race_Debug.dta", clear

merge 1:1 hhidpn using "${data_ed}/HRS_NetWorth_Cleaned.dta"
drop if _merge == 2
drop _merge

merge 1:1 hhidpn using "${data_ed}/HRS_Age_Cleaned.dta"
drop if _merge == 2

```

```

drop _merge

merge 1:1 hhidpn using "${data_ed}/HRS_CreditCard_Cleaned.dta"
drop if _merge == 2
drop _merge

merge 1:1 hhidpn using "${data_ed}/HRS_CognitiveFunction_Cleaned.dta"
drop if _merge == 2
drop _merge

di "Race Distribution AFTER merging Cognitive Function data"
tab race, missing

save "${data_ed}/HRS_Final_Controls.dta", replace
clear

*=====
=====
* 5. ADVERSE CHILDHOOD EXPERIENCES (ACE) PROCESSING (2008-2012)
*=====
=====

foreach year in 2008 2010 2012 {
  if "`year'" == "2008" {
    use hhidpn llb037k llb037m llb037n llb037l using "${data_raw}/h08f3a.dta", clear
    local schover_var llb037k
    local drnkdrgr_var llb037m
    local phyabuse_var llb037n
    local policetrbr_var llb037l
  }
  else if "`year'" == "2010" {
    use hhidpn mllb037k mllb037m mllb037n mllb037l using "${data_raw}/hd10f6a.dta", clear
    local schover_var mllb037k
    local drnkdrgr_var mllb037m
    local phyabuse_var mllb037n
    local policetrbr_var mllb037l
  }
  else if "`year'" == "2012" {
    use hhidpn nllb037k nllb037m nllb037n nllb037l using "${data_raw}/h12f3a.dta", clear
    local schover_var nllb037k
    local drnkdrgr_var nllb037m
    local phyabuse_var nllb037n
    local policetrbr_var nllb037l
  }
}

* CREATE ACE VARIABLES
gen schover = .

```

```

replace schover = 0 if inlist(`schover_var', 5, -8)
replace schover = 1 if `schover_var' == 1
drop `schover_var'

gen drnkdrgr = .
replace drnkdrgr = 0 if inlist(`drnkdrgr_var', 5, -8)
replace drnkdrgr = 1 if `drnkdrgr_var' == 1
drop `drnkdrgr_var'

gen phyabuse = .
replace phyabuse = 0 if inlist(`phyabuse_var', 5, -8)
replace phyabuse = 1 if `phyabuse_var' == 1
drop `phyabuse_var'

gen policetrbr = .
replace policetrbr = 0 if inlist(`policetrbr_var', 5, -8)
replace policetrbr = 1 if `policetrbr_var' == 1
drop `policetrbr_var'

rename schover schover_`year'
rename drnkdrgr drnkdrgr_`year'
rename phyabuse phyabuse_`year'
rename policetrbr policetrbr_`year'

save "${data_ed}/HRS`year'_ACES.dta", replace
clear
}

*=====
=====
* 6. MERGE ACE DATA ACROSS YEARS (2008-2012)
*=====
=====

use "${data_ed}/HRS2008_ACES.dta", clear
merge 1:1 hhidpn using "${data_ed}/HRS2010_ACES.dta", nogen
merge 1:1 hhidpn using "${data_ed}/HRS2012_ACES.dta", nogen

foreach var in schover drnkdrgr phyabuse policetrbr {
    gen `var'_final = `var'_2012
    replace `var'_final = `var'_2010 if missing(`var'_final) & !missing(`var'_2010)
    replace `var'_final = `var'_2008 if missing(`var'_final) & !missing(`var'_2008)
}

* CREATE ACE SUM SCORE & EXPOSURE CATEGORIES
gen ace_sum = schover_final + policetrbr_final + drnkdrgr_final + phyabuse_final
replace ace_sum = . if missing(schover_final, policetrbr_final, drnkdrgr_final, phyabuse_final)

```

```
label variable ace_sum "Cumulative ACE Score (0-4)"
```

```
gen ace_category = .  
replace ace_category = 0 if ace_sum == 0  
replace ace_category = 1 if ace_sum == 1  
replace ace_category = 2 if ace_sum >= 2 & ace_sum < .  
label define ace_cat_lbl 0 "No ACEs" 1 "1 ACE" 2 "2+ ACEs"  
label values ace_category ace_cat_lbl  
label variable ace_category "ACE Exposure Category"
```

```
save "${data_ed}/HRS_ACE_Final.dta", replace  
clear
```

```
*=====
```

```
* 7. MERGE ACE DATA INTO FINAL ANALYSIS DATASET
```

```
*=====
```

```
use "${data_ed}/HRS_Final_Controls.dta", clear  
merge 1:1 hhidpn using "${data_ed}/HRS_ACE_Final.dta"  
drop if _merge == 2  
drop _merge
```

```
save "${data_ed}/HRS_Final_Analysis.dta", replace  
clear
```

```
use "${data_ed}/HRS_Final_Analysis.dta", clear
```

```
* VERIFY AGE DISTRIBUTION BEFORE MERGING
```

```
tab age_2020, missing  
tab age_group, missing
```

```
save "${data_ed}/HRS_Final_Analysis.dta", replace  
clear
```

```
*=====
```

```
* 8. MODERATING VARIABLES PROCESSING (FINANCIAL LITERACY)
```

```
*=====
```

```
* IMPORT FINANCIAL LITERACY DATA FROM 2010 FINANCIAL SOPHISTICATION  
MODULE
```

```
use hhid hhidpn pn mv351 mv352 mv353 using "${data_raw}/hd10f6a.dta", clear
```

```
* CLEAN AND CODE FINANCIAL LITERACY VARIABLES
```

```

** Interest Rate Knowledge (mv351) **
gen interest_rate_2010 = .
replace interest_rate_2010 = 1 if mv351 == 1 // Correct: "More than $102"
replace interest_rate_2010 = 0 if inlist(mv351, 2, 3) // Incorrect
replace interest_rate_2010 = . if inlist(mv351, 8, 9) // DK/NA/RF set to missing

** Inflation Knowledge (mv352) **
gen inflation_rate_2010 = .
replace inflation_rate_2010 = 1 if mv352 == 3 // Correct: "Less than today"
replace inflation_rate_2010 = 0 if inlist(mv352, 1, 2) // Incorrect
replace inflation_rate_2010 = . if inlist(mv352, 8, 9) // DK/NA/RF set to missing

** Stock vs. Mutual Fund Knowledge (mv353) **
gen stock_mutual_fund_2010 = .
replace stock_mutual_fund_2010 = 1 if mv353 == 5 // Correct: "False"
replace stock_mutual_fund_2010 = 0 if mv353 == 1 // Incorrect
replace stock_mutual_fund_2010 = . if inlist(mv353, 8, 9) // DK/NA/RF set to missing

* CREATE FINANCIAL LITERACY SCORE (0-3)
egen financial_literacy_2010 = rowtotal(interest_rate_2010 inflation_rate_2010
stock_mutual_fund_2010), missing

* Ensure missing values are handled correctly
replace financial_literacy_2010 = . if missing(interest_rate_2010) &
missing(inflation_rate_2010) & missing(stock_mutual_fund_2010)

label variable financial_literacy_2010 "Financial Literacy Score (0-3)"

* SAVE FINANCIAL LITERACY DATASET
save "${data_ed}/HRS_2010_Financial_Literacy.dta", replace
clear

*=====
=====
* 9. MODERATING VARIABLES ((IMPORT )SOCIAL SUPPORT, RESILIENCE, AND
FINANCIAL GUIDANCE DATA (2010 & 2012 WAVES)
*=====
=====
use hhidpn plb004a plb004b plb004c /// Spouse/Partner
    plb007a plb007b plb007c /// Children
    plb011a plb011b plb011c /// Other Family
    plb015a plb015b plb015c /// Friends
    plb022e plb002c plb018h plb002a plb002d plb021c /// Resilience
    plb022b plb018g plb018a plb022a plb033g plb021e /// Resilience
    pv106 pv108ml /// Financial Guidance

```

```

using "${data_raw}/h16f2c.dta", clear

* PROCESS SOCIAL SUPPORT VARIABLES
foreach var in plb004a plb004b plb004c /// Spouse/Partner
               plb007a plb007b plb007c /// Children
               plb011a plb011b plb011c /// Other Family
               plb015a plb015b plb015c /// Friends
{
  replace `var' = . if inlist(`var', 8, 9) // DK/NA set to missing
  replace `var' = 0 if `var' == 1 // Not at all
  replace `var' = 1 if `var' == 2 // A little
  replace `var' = 2 if `var' == 3 // Some
  replace `var' = 3 if `var' == 4 // A lot
}

* Compute mean scores for each relationship type
egen spouse_support = rowmean(plb004a plb004b plb004c)
egen children_support = rowmean(plb007a plb007b plb007c)
egen family_support = rowmean(plb011a plb011b plb011c)
egen friends_support = rowmean(plb015a plb015b plb015c)

* Create overall social support index
egen social_support = rowmean(spouse_support children_support family_support
friends_support)
label variable spouse_support "Spouse/Partner Support (0-3)"
label variable children_support "Children Support (0-3)"
label variable family_support "Other Family Support (0-3)"
label variable friends_support "Friends Support (0-3)"
label variable social_support "Overall Social Support Index (0-3)"

* Summary Statistics & Reliability Check (Cronbach's Alpha)
summarize social_support, detail
tab social_support, missing
misstable summarize social_support
alpha spouse_support children_support family_support friends_support, std item

* PROCESS RESILIENCE VARIABLES

* Handle Missing Values
foreach var in plb022e plb002c plb018h plb002a plb002d plb021c ///
               plb022b plb018g plb018a plb022a plb033g plb021e {
  replace `var' = . if inlist(`var', 8, 9) // Set "Don't Know", "NA", and "Refused" to missing
}

* Convert 7-point scale variables to 5-point scale

```

```

foreach var in plb002a plb002c plb002d {
  replace `var' = 1 if `var' == 1 // Strongly Disagree
  replace `var' = 2 if `var' == 2 // Somewhat Disagree
  replace `var' = 3 if inlist(`var', 3, 4, 5) // Merge Slightly Agree/Disagree & Neutral
  replace `var' = 4 if `var' == 6 // Somewhat Agree
  replace `var' = 5 if `var' == 7 // Strongly Agree
}

* Convert 6-point scale variables to 5-point scale
foreach var in plb018h plb018g plb018a plb021c plb021e plb022a plb022b plb022e plb033g {
  replace `var' = 1 if `var' == 1 // Strongly Disagree
  replace `var' = 2 if `var' == 2 // Somewhat Disagree
  replace `var' = 3 if inlist(`var', 3, 4) // Merge Slightly Agree/Disagree into Neutral
  replace `var' = 4 if `var' == 5 // Somewhat Agree
  replace `var' = 5 if `var' == 6 // Strongly Agree
}

* Reverse Code Negatively Worded Items
replace plb018h = 6 - plb018h // "The future seems hopeless to me..."
replace plb018g = 6 - plb018g // "I feel it is impossible to reach my goals..."
replace plb018a = 6 - plb018a // "If something can go wrong for me, it will..."
replace plb021c = 6 - plb021c // "What happens in my life is beyond my control..."
replace plb021e = 6 - plb021e // "There is no way I can solve my problems..."

* Standardize Items To a 0-1 Scale
foreach var in plb002a plb002c plb002d plb022a plb022b plb022e plb033g ///
  plb018h plb018g plb018a plb021c plb021e {
  gen `var'_std = (`var' - 1) / 4 // Normalize responses to 0-1 scale
}

* Create Final Resilience Score (0-12 SCALE)
egen resilience_std = rowtotal(plb002a_std plb002c_std plb002d_std plb022a_std plb022b_std
plb022e_std plb033g_std ///
  plb018h_std plb018g_std plb018a_std plb021c_std plb021e_std), missing

replace resilience_std = . if missing(plb002a_std, plb002c_std, plb002d_std, plb022a_std,
plb022b_std, ///
  plb022e_std, plb033g_std, plb018h_std, plb018g_std, plb018a_std, ///
  plb021c_std, plb021e_std)

label variable resilience_std "Standardized Resilience Score (0-12)"

* Summary Statistics & Reliability Check (Cronbach's Alpha)
summarize resilience_std, detail // Get mean, standard deviation, min, max
tab resilience_std, missing // Show frequency distribution of resilience scores

```

```

misstable summarize resilience_std // Check missing data summary
alpha plb002a_std plb002c_std plb002d_std plb022a_std plb022b_std plb022e_std ///
    plb033g_std plb018h_std plb018g_std plb018a_std plb021c_std plb021e_std, std item

```

**\* PROCESS FINANCIAL GUIDANCE VARIABLES**

```

gen financial_guidance = .
replace financial_guidance = 1 if pv106 == 1 // Yes
replace financial_guidance = 0 if pv106 == 5 // No
replace financial_guidance = . if inlist(pv106, 8, 9) // Set DK & RF to missing

```

label variable financial\_guidance "Receives Financial Guidance (1=Yes, 0=No)"

**\* CATEGORIZE SOURCES OF FINANCIAL GUIDANCE (MULTIPLE RESPONSES)**

**\* Professional Guidance: Financial advisors, accountants, lawyers, bankers**

```

gen guidance_professional = 0
replace guidance_professional = 1 if inlist(pv108m1, 4, 5, 6)

```

label variable guidance\_professional "Financial Guidance from Professional Source"

**\* Family & Friends Guidance: Children, relatives, friends**

```

gen guidance_family_friend = 0
replace guidance_family_friend = 1 if inlist(pv108m1, 1, 2, 3)

```

label variable guidance\_family\_friend "Financial Guidance from Family or Friends"

**\* Institutional Guidance: Online calculators, HR staff, Social Security reps**

```

gen guidance_institutional = 0
replace guidance_institutional = 1 if inlist(pv108m1, 7, 8, 9, 10)

```

label variable guidance\_institutional "Financial Guidance from Institutions"

**\* CREATE COMPOSITE FINANCIAL GUIDANCE VARIABLE (ANY GUIDANCE RECEIVED)**

```

gen guidance_any_source = (guidance_professional == 1 | guidance_family_friend == 1 |
guidance_institutional == 1)
label variable guidance_any_source "Receives Financial Guidance from Any Source"

```

**\* CREATE INDICATOR FOR MULTIPLE SOURCES OF GUIDANCE (IF RECEIVED FROM 2+ SOURCES)**

```

gen guidance_multiple_sources = (guidance_professional + guidance_family_friend +
guidance_institutional >= 2)
label variable guidance_multiple_sources "Receives Guidance from Multiple Sources"

```

**\* CHECK DISTRIBUTION OF FINANCIAL GUIDANCE VARIABLES**



```

tab financial_guidance, missing
tab guidance_professional, missing
tab guidance_family_friend, missing
tab guidance_institutional, missing
tab guidance_multiple_sources, missing

```

```

* SAVE PROCESSED MEDIATORS DATASET
save "${data_ed}/HRS_Mediators_Cleaned.dta", replace
clear

```

```

*=====
=====
* 10. MERGE MEDIATING VARIABLES INTO FINAL ANALYSIS DATASET
*=====
=====

```

```

use "${data_ed}/HRS_Final_Analysis.dta", clear
merge 1:1 hhidpn using "${data_ed}/HRS_2010_Financial_Literacy.dta"
drop if _merge == 2
drop _merge

```

```

merge 1:1 hhidpn using "${data_ed}/HRS_Mediators_Cleaned.dta"
drop if _merge == 2
drop _merge

```

```

* VERIFY AGE DISTRIBUTION BEFORE MERGING
tab age_2020, missing
tab age_group, missing

```

```

save "${data_ed}/HRS_Final_Analysis.dta", replace
clear

```

```

*=====
=====
* 11. DEPENDENT VARIABLE PROCESSING (FINANCIAL FRAUD VULNERABILITY &
SEVERITY)
*=====
=====

```

```

* Load Main Fraud Dataset (2016)
use "${data_ed}/fraud2016.dta", clear

```

```

* Merge in Additional Fraud Data (2008, 2010, 2012, 2020)
foreach year in 2008 2010 2012 2020 {
    merge 1:1 hhidpn using "${data_ed}/fraud`year'.dta"

```

```

    // Keep all master observations

```

```

    replace _merge = 1 if _merge == 2
    rename _merge _merge_`year' // Rename merge variable to avoid conflicts
}

* CHECK FRAUD VARIABLES BEFORE FIXING
misstable summarize fraud_freemeal fraud_invest fraud_award fraud_2008 fraud_2010
fraud_2012 fraud_2020

* HANDLE MISSING FRAUD VARIABLES (Set Missing to 0 Only if Data Exists)
foreach var in fraud_freemeal fraud_invest fraud_award fraud_2008 fraud_2010 fraud_2012
fraud_2020 {
    replace `var' = 0 if missing(`var') & !missing(hhidpn)
}

* CREATE FRAUD VICTIMIZATION VARIABLE (Avoid Incorrect Missing Values)
gen fraud_victim_final = (fraud_freemeal == 1 | fraud_invest == 1 | fraud_award == 1 | ///
    fraud_2008 == 1 | fraud_2010 == 1 | fraud_2012 == 1 | fraud_2020 == 1)

replace fraud_victim_final = 0 if missing(fraud_victim_final) & !missing(fraud_freemeal) &
!missing(fraud_invest) & !missing(fraud_award) & !missing(fraud_2008) &
!missing(fraud_2010) & !missing(fraud_2012) & !missing(fraud_2020)

label define fraud_label 0 "No Fraud" 1 "Fraud Victim"
label values fraud_victim_final fraud_label

tab fraud_victim_final, missing

* CREATE FRAUD SEVERITY SCORE (Ensure No Overwriting)
gen fraud_severity_new = .
replace fraud_severity_new = 0 if fraud_victim_final == 0
replace fraud_severity_new = 2 if fraud_freemeal == 1 | fraud_award == 1 | fraud_invest == 1
replace fraud_severity_new = 1 if fraud_severity_new == . & (fraud_2008 == 1 | fraud_2010 ==
1 | fraud_2012 == 1 | fraud_2020 == 1)

label define fraud_severity_new_label 0 "No Fraud" 1 "HRS-Reported Fraud" 2 "Other Financial
Fraud"
label values fraud_severity_new fraud_severity_new_label

tab fraud_severity_new, missing

* SUMMARY STATISTICS & RELIABILITY TEST
tab fraud_victim_final
summarize fraud_victim_final
tab fraud_severity_new
summarize fraud_severity_new

```

```

* CHECK FRAUD VARIABLE CORRELATIONS
corr fraud_freemeal fraud_invest fraud_award fraud_2008 fraud_2010 fraud_2012 fraud_2020

misstable summarize fraud_victim_final fraud_severity_new fraud_freemeal fraud_invest
fraud_award fraud_2008 fraud_2010 fraud_2012 fraud_2020

* SAVE PROCESSED FRAUD DATASET
save "${data_ed}/HRS_fraud_severity_2008_2020.dta", replace
clear

*=====
=====
* 12. MERGE DEPENDENT VARIABLE INTO FINAL ANALYSIS DATASET
*=====
=====
use "${data_ed}/HRS_Final_Analysis.dta", clear
merge 1:1 hhidpn using "${data_ed}/HRS_fraud_severity_2008_2020.dta"
drop if _merge == 2
drop _merge

* VERIFY AGE DISTRIBUTION BEFORE MERGING
tab age_2020, missing
tab age_group, missing

save "${data_ed}/HRS_Final_Analysis.dta", replace
clear

*=====
=====
* 13. FINAL DATA VALIDATION & REGRESSION PREPARATION
*=====
=====

* Load Final Dataset
use "${data_ed}/HRS_Final_Analysis.dta", clear

* Summary Statistics
summarize

* Verify Age Data (Ensure No Unexpected Changes)
summarize age_2020
tab age_2020, missing // Confirm no missing values were introduced

**Recreate Age Group Categories (Ensure Correct Categorization)**
capture drop age_group // Remove existing `age_group` variable if it exists
gen age_group = .

```

```

replace age_group = 1 if age_2020 <= 60
replace age_group = 2 if age_2020 > 60 & age_2020 <= 75
replace age_group = 3 if age_2020 > 75
label define age_lbl 1 "Young (<=60)" 2 "Middle-Aged (61-75)" 3 "Older (76+)", replace
label values age_group age_lbl

```

\* Verify Age Groups

```

tab age_group, missing // Ensure correct categorization

```

\* Fix Missing Race Values

```

replace race = 0 if missing(race) & raracem == 1 // White
replace race = 1 if missing(race) & raracem == 2 // Black
replace race = 2 if missing(race) & raracem == 3 // Other
replace race = 2 if missing(race) // Assign remaining missing race as "Other"
drop raracem // Remove duplicate race variable after assignment

```

\* Verify Race Distribution

```

di "Race Distribution AFTER Fix"

```

```

tab race, missing

```

```

tab race employment_status, missing

```

```

tab race fraud_victim_final, missing

```

\* Check Missing Values Before Imputation

```

misstable summarize ace_category financial_literacy_2010 social_support resilience_std ///
    financial_guidance cognitive_function credit_card_debt

```

\* Fix Incorrect Missing Values (Convert Placeholders to `.`)

```

foreach var in financial_literacy_2010 social_support resilience_std financial_guidance ///
    cognitive_function credit_card_debt {
    capture replace `var' = . if `var' < 0 // Convert negative placeholders to missing
    capture replace `var' = . if `var' >= 999 // Convert 999 placeholders to missing
}

```

```

misstable summarize financial_literacy_2010 social_support resilience_std financial_guidance ///
    cognitive_function credit_card_debt

```

\* Fix Credit Card Debt Variable

```

tab credit_card_debt, missing // Check missing pattern before imputation

```

```

replace credit_card_debt = 0 if missing(credit_card_debt) & employment_status == 0 // Possible
assumption

```

\* Collapse Financial Literacy Categories

```

gen finlit_simplified = .

```

```

replace finlit_simplified = 0 if financial_literacy_2010 <= 1

```

```

replace finlit_simplified = 1 if financial_literacy_2010 >= 2

```

```

save "${data_ed}/HRS_Final_Analysis.dta", replace // Save corrected dataset

*=====
=====
* 14. HANDLING MISSING DATA (MULTIPLE IMPUTATION FOR KEY VARIABLES)
*=====
=====

use "${data_ed}/HRS_Final_Analysis.dta", clear

* Set up multiple imputation framework
mi set mlong

* VERIFY AGE DISTRIBUTION BEFORE IMPUTATION (ONLY ON ORIGINAL DATA)
tab age_2020 if _mi_m == 0, missing
tab age_group if _mi_m == 0, missing

* Run Missing Data Diagnostics Before Imputation
misstable summarize financial_literacy_2010 social_support resilience_std financial_guidance ///
    cognitive_function credit_card_debt

* Register Imputation Variables
mi register imputed financial_literacy_2010 social_support resilience_std financial_guidance ///
    cognitive_function credit_card_debt

* Perform Multiple Imputation Using Chained Equations (PMM)
mi impute chained (pmm, knn(10)) financial_literacy_2010 social_support resilience_std
financial_guidance ///
    cognitive_function credit_card_debt, add(10) rseed(12345) force

* Ensure fraud_victim_recode is correctly generated
capture drop fraud_victim_recode // Drop if it exists to avoid conflicts
gen fraud_victim_recode = fraud_victim_final

replace fraud_victim_recode = 1 if fraud_severity_new >= 1 // Broaden definition to include all
fraud types
label variable fraud_victim_recode "Expanded Fraud Victimization (Includes All Fraud Types)"

* Verify that fraud_victim_recode is not missing
tab fraud_victim_recode if _mi_m == 0, missing // Check if values exist
sum fraud_victim_recode if _mi_m == 0, detail // Check distribution statistics

/* Verify that fraud_victim_recode is not missing
tab fraud_victim_recode, missing // Check if values exist

```

```
sum fraud_victim_recode, detail // Check distribution statistics*/
```

```
* Save Imputed Dataset
```

```
save "${data_ed}/HRS_Imputed.dta", replace
```

```
*=====
=====
* 15. REGRESSION MODELS FOR RESEARCH QUESTIONS & HYPOTHESES
*=====
=====
```

```
use "${data_ed}/HRS_Imputed.dta", clear
```

```
mi describe // Verify that the dataset is still MI formatted
```

```
* VERIFY AGE DISTRIBUTION AFTER IMPUTATION (ONLY ON ORIGINAL DATA)
```

```
tab age_2020 if _mi_m == 0, missing
```

```
tab age_group if _mi_m == 0, missing
```

```
* Re-establish MI settings if necessary
```

```
mi set mlong
```

```
capture mi register imputed financial_literacy_2010 social_support resilience_std
```

```
financial_guidance ///
```

```
    cognitive_function credit_card_debt
```

```
* Logistic Regression for Fraud Victimization
```

```
mi estimate: logit fraud_victim_recode ace_category financial_literacy_2010 social_support  
resilience_std ///
```

```
    financial_guidance race gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function, or
```

```
* OLS Regression for Fraud Severity
```

```
mi estimate: reg fraud_severity_new ace_category financial_literacy_2010 social_support  
resilience_std ///
```

```
    financial_guidance race gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function
```

```
* VERIFY AGE DISTRIBUTION AFTER IMPUTATION (ONLY ON ORIGINAL DATA)
```

```
tab age_2020 if _mi_m == 0, missing
```

```
tab age_group if _mi_m == 0, missing
```

```
* Save Imputed Dataset Before Extracting
```

```
save "${data_ed}/HRS_Imputed.dta", replace
```

```

*=====
=====
* 16. CHECK MULTICOLLINEARITY (VIF TEST) - ONLY FOR OLS REGRESSION
*=====
=====

* Extract First Imputed Dataset for VIF Test
mi extract 1

* Run OLS Regression on Extracted Dataset
regress fraud_severity_new ace_category financial_literacy_2010 social_support resilience_std
///
    financial_guidance credit_card_debt cognitive_function

* Check Variance Inflation Factors (VIF) - Ensure No Multicollinearity Issues
vif

use "${data_ed}/HRS_Imputed.dta", clear

* VERIFY AGE DISTRIBUTION AFTER IMPUTATION (ONLY ON ORIGINAL DATA)
tab age_2020 if _mi_m == 0, missing
tab age_group if _mi_m == 0, missing

**Re-load the full MI dataset to restore MI structure**
*mi import flong, replace // **Fix: Restore MI structure instead of `use`**
mi describe

* Save Regression-Ready Dataset **with MI settings**
save "${data_ed}/HRS_Regression_Ready.dta", replace
clear

*=====
=====
* 17. DESCRIPTIVE STATISTICS (DEMOGRAPHIC CHARACTERISTICS OF THE
SAMPLE)
*=====
=====

* Load Regression-Ready Dataset
use "${data_ed}/HRS_Regression_Ready.dta", clear

* Ensure MI Structure is Maintained
mi describe

* Verify Age Distribution Before Running MI Commands (Non-Imputed)
tab age_2020 if _mi_m == 0, missing // Check for inflation

```

```

tab age_group if _mi_m == 0, missing // Confirm correct categorization

* Summary Statistics for Continuous Variables (Only Imputed Variables)
di "Descriptive Statistics for Continuous Variables"
mi xeq: noisily summarize ihs_networth_trim cognitive_function ace_sum ///
    financial_literacy_2010 resilience_std social_support

* Frequency Tables for Categorical Variables (Fraud, Gender, Race, Education NOT Imputed)
di "Frequency Tables for Categorical Variables"
tab gender, missing
tab race, missing
tab education, missing
tab relationship_status, missing
tab employment_status, missing
mi xeq: tab credit_card_debt, missing
tab fraud_victim_recode if _mi_m == 0, missing
tab age_group if _mi_m == 0, missing // Ensure correct sample size

* Save Cleaned Descriptive Statistics Dataset
save "${data_ed}/HRS_Descriptive_Stats.dta", replace
clear

use "${data_ed}/HRS_Descriptive_Stats.dta", clear

* Confirm Sample Sizes Across Key Variables (Restricting to Non-Imputed Data)
summarize age_2020 ihs_networth_trim cognitive_function ///
    financial_literacy_2010 resilience_std social_support if _mi_m == 0

* Confirm Categorical Distributions (Restricting Where Needed)
tab gender, missing
tab race, missing
tab education, missing
tab relationship_status, missing
tab employment_status, missing
tab fraud_victim_recode if _mi_m == 0, missing
tab credit_card_debt if _mi_m == 0, missing
tab age_group if _mi_m == 0, missing // This should be 15,681

* Save Cleaned Descriptive Statistics Dataset (Non-Imputed Data Only)
save "${data_ed}/HRS_Descriptive_Stats.dta", replace
clear

*=====
=====
* 18. BIVARIATE CORRELATIONS & PRELIMINARY ANALYSES (FINAL)

```



```
*=====
```

```
use "${data_ed}/HRS_Regression_Ready.dta", clear
```

```
* Verify MI Structure Before Running MI Commands
mi describe
```

```
* Bivariate Correlations Among Continuous Variables
```

```
di "Bivariate Correlations Among Key Variables"
```

```
* Verify Available Data for Non-Imputed Correlations
```

```
di "Checking available observations for correlation matrix"
```

```
summarize ace_sum financial_literacy_2010 resilience_std social_support financial_guidance ///
cognitive_function ihs_networkth_trim credit_card_debt fraud_severity_new if _mi_m == 0
```

```
* Correlation Matrix for Non-Imputed Data (m = 0)
```

```
cor ace_sum financial_literacy_2010 resilience_std social_support financial_guidance ///
cognitive_function ihs_networkth_trim credit_card_debt fraud_severity_new if _mi_m == 0
```

```
* Compute & Store Pooled Correlations Across Imputations
```

```
di "Pooled Bivariate Correlations (Imputed Data)"
```

```
mi xeq: correlate ace_sum financial_literacy_2010 resilience_std social_support
financial_guidance ///
cognitive_function ihs_networkth_trim credit_card_debt fraud_severity_new
```

```
pwcorr ace_sum financial_literacy_2010 resilience_std social_support financial_guidance ///
cognitive_function ihs_networkth_trim credit_card_debt fraud_severity_new, sig
```

```
* Save Correlation Matrix for Future Reference
```

```
preserve
```

```
matrix cor_matrix = r(C)
```

```
svmat cor_matrix
```

```
save "${data_ed}/HRS_Correlation_Matrix.dta", replace
```

```
restore
```

```
* Chi-Square Tests for Categorical Variables
```

```
di "Chi-Square Tests for Key Categorical Variables"
```

```
tempname chi_results
```

```

postfile `chi_results' str20(var1) str20(var2) float(chi2 p_val) using
"${data_ed}/HRS_ChiSquare_Results.dta", replace

foreach var in gender race education relationship_status employment_status {
  quietly tab `var' fraud_victim_recode if _mi_m == 0, chi2
  post `chi_results' ("`var'") ("fraud_victim_recode") (r(chi2)) (r(p))
}

postclose `chi_results'

* Display Summary of Chi-Square Tests
use "${data_ed}/HRS_ChiSquare_Results.dta", clear
list

* Restore Original Dataset Before T-Tests & ANOVA

use "${data_ed}/HRS_Regression_Ready.dta", clear
mi describe

* Mean Comparisons for Fraud Severity (T-Tests & ANOVA)

di "Mean Comparisons for Fraud Severity"

* T-Test for Gender Differences in Fraud Severity
ttest fraud_severity_new if _mi_m == 0, by(gender)

* One-Way ANOVA for Age Group Differences in Fraud Severity
oneway fraud_severity_new age_group if _mi_m == 0, tabulate

* One-Way ANOVA for Education Differences in Fraud Severity
oneway fraud_severity_new education if _mi_m == 0, tabulate

* One-Way ANOVA for Employment Status Differences in Fraud Severity
oneway fraud_severity_new employment_status if _mi_m == 0, tabulate

* One-Way ANOVA for Relationship Status Differences in Fraud Severity
oneway fraud_severity_new relationship_status if _mi_m == 0, tabulate

* One-Way ANOVA for Race Differences in Fraud Severity
oneway fraud_severity_new race if _mi_m == 0, tabulate

* Verify Normality Assumption for Fraud Severity
di "Checking Normality Assumption for Fraud Severity"

* Skewness & Kurtosis Measures (Preferred for Large Samples)
summarize fraud_severity_new, detail // Provides skewness & kurtosis

```

```
* D'Agostino-Pearson Skewness-Kurtosis Test for Normality
sktest fraud_severity_new
```

```
* Visual Normality Checks (Graphical Methods)
hist fraud_severity_new, bin(20) normal title("Histogram of Fraud Severity (m=0)")
kdensity fraud_severity_new, normal title("Kernel Density Plot - Fraud Severity")
qnorm fraud_severity_new // Q-Q Plot
```

```
* Log-Transform Fraud Severity (Only If Needed)
di "Checking valid range before log transformation"
summarize fraud_severity_new if _mi_m == 0
```

```
gen log_fraud_severity = log(fraud_severity_new + 0.01) if fraud_severity_new > 0 & _mi_m
== 0
hist log_fraud_severity if _mi_m == 0, bin(20) normal title("Log-Transformed Fraud Severity")
```

```
* Save Results Before Proceeding to Regression Analyses
save "${data_ed}/HRS_Preliminary_Analyses.dta", replace
clear
```

```
*=====
=====
* 19. REGRESSION ANALYSES AND HYPOTHESIS TESTING
*=====
=====
```

```
use "${data_ed}/HRS_Regression_Ready.dta", clear
```

```
* Verify MI Structure Before Running MI Commands
mi describe
```

```
* Logistic Regression: Predicting Fraud Victimization (H1a-H7)
di "Logistic Regression: Predicting Fraud Victimization"
```

```
* Logistic Regression Model (Odds Ratios)
mi estimate, or: logit fraud_victim_recode ace_category financial_literacy_2010 social_support
resilience_std ///
    financial_guidance race gender age_group education relationship_status employment_status
ihs_network_trim credit_card_debt ///
    cognitive_function
```

```
* Store Regression Results
estimates store logit_fraud_victim
```

```

* Compute AIC & BIC for MI Model (Alternative Method)
mi extract 1 // Extract first imputed dataset
logit fraud_victim_recode ace_category financial_literacy_2010 social_support resilience_std ///
    financial_guidance race gender age_group education relationship_status employment_status
    ihs_networth_trim credit_card_debt ///
    cognitive_function
estat ic // Compute AIC & BIC

```

```

* Restore Full MI Dataset
use "${data_ed}/HRS_Regression_Ready.dta", clear

```

```

* Save Logistic Regression Output
estimates save "${data_ed}/logit_fraud_victim.ster", replace

```

```

* Save Results Table for APA Reporting
outreg2 using "${data_ed}/Table_4.6_Logit_FraudVictimization.doc", replace word ///
    label dec(3) title("Logistic Regression Predicting Fraud Victimization")

```

```

* OLS Regression: Predicting Fraud Severity (H8-H14)
di "OLS Regression: Predicting Fraud Severity"

```

```

* OLS Regression Model
mi estimate: reg fraud_severity_new ace_category financial_literacy_2010 social_support
resilience_std ///
    financial_guidance race gender age_group education relationship_status employment_status
    ihs_networth_trim credit_card_debt ///
    cognitive_function

```

```

* Store Regression Results
estimates store ols_fraud_severity

```

```

* Compute AIC & BIC for MI Model (Alternative Method)
mi extract 1 // Extract first imputed dataset
reg fraud_severity_new ace_category financial_literacy_2010 social_support resilience_std ///
    financial_guidance race gender age_group education relationship_status employment_status
    ihs_networth_trim credit_card_debt ///
    cognitive_function
estat ic // Compute AIC & BIC

```

```

* Restore Full MI Dataset
use "${data_ed}/HRS_Regression_Ready.dta", clear

```

```

* Save OLS Regression Output
estimates save "${data_ed}/ols_fraud_severity.ster", replace

```

\* Save Results Table for APA Reporting

```
outreg2 using "${data_ed}/Table_4.7_OLS_FraudSeverity.doc", replace word ///  
label dec(3) title("OLS Regression Predicting Fraud Severity")
```

\* Prepare for Interaction & Moderation Analyses (Section 20)

\* Load Correct Dataset (Before Creating Interaction Terms)

```
use "${data_ed}/HRS_Regression_Ready.dta", clear
```

\* Ensure Interaction Terms Don't Exist Before Creating (Prevent Errors)

```
capture drop ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance  
capture drop resilience_x_finlit social_x_finlit guidance_x_finlit  
capture drop ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

\* Generate Interaction Terms

```
gen ace_x_resilience = ace_category * resilience_std  
gen ace_x_social = ace_category * social_support  
gen ace_x_finlit = ace_category * financial_literacy_2010  
gen ace_x_guidance = ace_category * financial_guidance
```

```
gen resilience_x_finlit = resilience_std * financial_literacy_2010  
gen social_x_finlit = social_support * financial_literacy_2010  
gen guidance_x_finlit = financial_guidance * financial_literacy_2010
```

\* Generate Three-Way Interaction Terms (H12-H14)

```
gen ace_resilience_finlit = ace_category * resilience_std * financial_literacy_2010  
gen ace_social_finlit = ace_category * social_support * financial_literacy_2010  
gen ace_guidance_finlit = ace_category * financial_guidance * financial_literacy_2010
```

\* Register Interaction Terms as Passive Variables \*\*AFTER\*\* They Are Created

```
mi register passive ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance  
mi register passive resilience_x_finlit social_x_finlit guidance_x_finlit  
mi register passive ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

\* Verify Creation of Interaction Terms

```
describe ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///  
resilience_x_finlit social_x_finlit guidance_x_finlit ///  
ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

\* Save Regression Dataset with Interaction Terms for Section 20

```
save "${data_ed}/HRS_Regression_Ready_Interactions.dta", replace
```

```
use "${data_ed}/HRS_Regression_Ready_Interactions.dta", clear
```

\* Verify presence and summary of interaction terms

```
describe ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///
         resilience_x_finlit social_x_finlit guidance_x_finlit ///
         ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

```
misstable summarize ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///
         resilience_x_finlit social_x_finlit guidance_x_finlit ///
         ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

mi describe

```
*=====
=====
* 20. INTERACTION & MODERATION ANALYSES
*=====
=====
```

use "\${data\_ed}/HRS\_Regression\_Ready\_Interactions.dta", clear

\* Verify MI Structure Before Running MI Commands

mi describe

\* Verify Presence of Interaction Terms

```
describe ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///
         resilience_x_finlit social_x_finlit guidance_x_finlit ///
         ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

```
misstable summarize ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///
         resilience_x_finlit social_x_finlit guidance_x_finlit ///
         ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

\* Logistic Regression: Moderation Analyses for Fraud Victimization (H8-H11)

di "Logistic Regression: Moderation Effects on Fraud Victimization"

\* Model 1: Two-Way Interactions

```
mi estimate, or: logit fraud_victim_recode ace_category financial_literacy_2010 social_support
resilience_std ///
         financial_guidance gender age_group education relationship_status employment_status
ihs_networkth_trim credit_card_debt ///
         cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance
```

\* Store Regression Results

```
estimates store logit_fraud_victim_int
```

\* Model 2: Three-Way Interactions (H12-H14)

```
mi estimate, or: logit fraud_victim_recode ace_category financial_literacy_2010 social_support  
resilience_std ///
```

```
    financial_guidance gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///  
    ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

\* Store Regression Results

```
estimates store logit_fraud_victim_threeway
```

\* Compute AIC & BIC for Model Fit Comparison

```
mi extract 1
```

```
logit fraud_victim_recode ace_category financial_literacy_2010 social_support resilience_std ///  
    financial_guidance gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance  
estat ic // Compute AIC & BIC
```

```
logit fraud_victim_recode ace_category financial_literacy_2010 social_support resilience_std ///  
    financial_guidance gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///  
    ace_resilience_finlit ace_social_finlit ace_guidance_finlit  
estat ic // Compute AIC & BIC
```

\* Restore Full MI Dataset

```
use "${data_ed}/HRS_Regression_Ready_Interactions.dta", clear
```

\* Save Logistic Regression Outputs

```
estimates save "${data_ed}/logit_fraud_victim_int.ster", replace  
estimates save "${data_ed}/logit_fraud_victim_threeway.ster", replace
```

\* Save Results Table for APA Reporting

```
outreg2 using "${data_ed}/Table_4.8_Logit_FraudInt.doc", replace word ///  
    label dec(3) title("Logistic Regression: Moderation Effects on Fraud Victimization")
```

```
outreg2 using "${data_ed}/Table_4.9_Logit_FraudVictim_ThreeWay.doc", replace word ///  
    label dec(3) title("Logistic Regression: Three-Way Interaction Effects on Fraud  
Victimization")
```

\* OLS Regression: Moderation Analyses for Fraud Severity (H8-H14)

```
di "OLS Regression: Moderation Effects on Fraud Severity"
```

\* Model 1: Two-Way Interactions

```
mi estimate: reg fraud_severity_new ace_category financial_literacy_2010 social_support  
resilience_std ///
```

```
    financial_guidance gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance
```

\* Store Regression Results

```
estimates store ols_fraud_severity_int
```

\* Model 2: Three-Way Interactions (H12-H14)

```
mi estimate: reg fraud_severity_new ace_category financial_literacy_2010 social_support  
resilience_std ///
```

```
    financial_guidance gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///  
    ace_resilience_finlit ace_social_finlit ace_guidance_finlit
```

\* Store Regression Results

```
estimates store ols_fraud_severity_threeway
```

\* Compute AIC & BIC for Model Fit Comparison

```
mi extract 1
```

```
reg fraud_severity_new ace_category financial_literacy_2010 social_support resilience_std ///  
    financial_guidance gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance  
estat ic // Compute AIC & BIC
```

```
reg fraud_severity_new ace_category financial_literacy_2010 social_support resilience_std ///  
    financial_guidance gender age_group education relationship_status employment_status  
ihs_networth_trim credit_card_debt ///  
    cognitive_function ace_x_resilience ace_x_social ace_x_finlit ace_x_guidance ///  
    ace_resilience_finlit ace_social_finlit ace_guidance_finlit  
estat ic // Compute AIC & BIC
```

\* Restore Full MI Dataset

```
use "${data_ed}/HRS_Regression_Ready_Interactions.dta", clear
```

\* Save OLS Regression Outputs

```
estimates save "${data_ed}/ols_fraud_severity_int.ster", replace  
estimates save "${data_ed}/ols_fraud_severity_threeway.ster", replace
```

\* Save Results Table for APA Reporting

```
outreg2 using "${data_ed}/Table_4.9_OLS_FraudSevInt.doc", replace word ///
```



```

label dec(3) title("OLS Regression: Moderation Effects on Fraud Severity")

outreg2 using "${data_ed}/Table_4.11_OLS_FraudSeverity_ThreeWay.doc", replace word ///
label dec(3) title("OLS Regression: Three-Way Interaction Effects on Fraud Severity")

* Save Final Interaction Dataset for Future Use

save "${data_ed}/HRS_Final_Regression_Interactions.dta", replace

*=====
=====
* * * * * END OF CODE * * * * *
*=====
=====

*=====
=====
* APPENDIX CODE: COMPARE OBSERVED VS. IMPUTED DATA
*=====
=====

* Load the imputed dataset
use "${data_ed}/HRS_Imputed.dta", clear

* Step 1: Display Summary Statistics for Observed (Original) Data Only
di "Summary Statistics for Observed (Original) Data Only"
summarize financial_literacy_2010 social_support resilience_std financial_guidance
credit_card_debt if _mi_m == 0

* Step 2: Display Summary Statistics for Imputed (Pooled) Data
di "Summary Statistics for Imputed (Pooled) Data"
mi estimate: mean financial_literacy_2010 social_support resilience_std financial_guidance
credit_card_debt

* Step 3: Display Distribution Comparison for Observed vs. Imputed Data
di "Comparison of Observed vs. Imputed Data"
mi xeq: summarize financial_literacy_2010 social_support resilience_std financial_guidance
credit_card_debt if _mi_m == 0
mi xeq: summarize financial_literacy_2010 social_support resilience_std financial_guidance
credit_card_debt if _mi_m > 0

* Step 4: Save the dataset (if needed for documentation)
save "${data_ed}/HRS_Imputed_Comparison.dta", replace

```

clear

/\*Explanation of What Each Step Does:

1. Step 1: Summarizes only the original (non-imputed) data to understand missingness patterns.
2. Step 2: Uses mi estimate: mean to calculate the pooled mean across imputations for comparison.
3. Step 3: Runs two mi xeq: summarize commands to compare observed vs. imputed data distributions.
4. Step 4: Optionally saves the dataset in case you want to document the imputation differences.

How to Interpret:

- If observed and imputed means are similar → imputation worked well (no distortion).
- If large differences exist → potential issue with missing data assumptions.

/\*