Depressive Symptoms and Household Income: The Consequences of Perceived Financial Strain in the Transition to Adulthood

By

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INTRODUCTION

In the United States, existing research consistently shows that young people transitioning to adulthood experience more elevated levels of psychological distress, including depressive symptoms, compared to any other stage in the life course (Adkins et al. 2009; Graham et al. 2007; Needham 2007). The distress associated with this period of life is related to many unique, developmental stressors. For instance, there are many demanding tasks central to the lives of young adults, including individuation from the family of origin, the building of key interpersonal and romantic relationships, and the achievement of financial independence. Pressure to conquer such developmental tasks can challenge the adaptive capability of the individual and result in varying levels of distress.

Among the many factors central to the good mental health of young adults is financial security, with many scholars having documented the positive relationship between socioeconomic resources and psychological well-being (Avison and Turner 1988; Elliot 2001; Lorant 2003; Plagnol 2006; Mayer 2009; Muntaner et al. 2013). Socioeconomic attainment and positive socioeconomic indicators (e.g., gainful employment) decrease psychological distress and improve mental health outcomes (Miech and Shanahan 2000; Zimmerman and Katon 2005; Kim and Durden 2007). Alternatively, long term financial hardship or the inability to make ends meet interferes with psychological well-being and harms mental health by limiting the resources available to meet the economic demands of daily life, to cope with emotional and cognitive difficulties, and to plan for the future (Kahn and Pearlin 2006; Walsemann, Geronimus, and Gee 2008; Thoits 2010; McLeod 2013).

Investigations seeking to understand the relationship between economic resources and mental health often rely on reports of household income, educational attainment (e.g., completion of a bachelor's degree), or employment status (e.g., salaried versus hourly work) as markers of socioeconomic status (Bjelland et al. 2008; Kim and Durden 2007; Bridges and Disney 2010). Although existing research suggests that an individual's perception of his or her circumstances shapes mental health outcomes, less attention has been paid to perceived financial hardship or subjective financial well-being (for an exception see Arber, Fenn, and Meadows 2014). In this paper, I redress this gap in the literature by assessing the impact of both perceived financial strain and household income on the mental health of a large, representative sample of youth transitioning to adulthood. Specifically, across the age range of 18 to 35 years old, I explore whether the impact of perceived financial strain boosts depressive symptoms as individuals mature into adulthood and whether perceived financial strain weakens the ability of income to reduce depressive symptomatology.

This research will add three innovations to the existing literature. First, this investigation considers the impact of financial strain on young adults in light of the modern transition to adulthood. That is, the process of maturing into adulthood has shifted dramatically over the past two decades (see e.g., Eliason et al. 2015), resulting in less being known about the role of financial strain among contemporary young adults. By way of illustration, consider marriage. In 1970, the age at first marriage was 23 for men and 20 for women; by 2015, those ages had risen to 29 and 27, for men and women, respectively (U.S. Census Bureau 2015). Moreover, many young people are delaying or forgoing the adoption of adult roles such as marriage and parenthood because of changing attitudes and economic demands for higher education (Hogan and Astone 1986; Shanahan 2000; Stanger-Ross, Collins, Stern 2005; Benson and Furstenberg

2006; Silva 2012; Arnett 2014). Earlier ages of first marriage and/or first parenthood would make it necessary for young adults to be financially self-sufficient much sooner than present-day trends do. Therefore, in the age range under consideration (i.e., 18 to 35 years), I consider the possibility that age magnifies the effects of economic strain on depressive symptoms, such that the impact is felt most in the late twenties and early thirties – when young adults are most likely to transition to adult roles.

Second, this research improves on prior research by considering reports of household income as well as the respondent's level of perceived financial strain. The inclusion of both measures will provide a more complete picture of mental health of young adults, to the extent that prior research (see e.g., Christie-Mizell, Steelman, and Stewart 2003) has shown that perceptions of individual circumstance can be more proximal indicators of mental health outcomes than more commonplace or objective measures of resources (cf. Eliason et al. 2015). This approach will further allow me to assess whether perceived financial strain amplifies the harmful effects of low income or alternatively mutes the assumed positive effects of higher income. Third, the data for the study are longitudinal and a nationally representative sample of young people, ages 18 to 35. Other studies that have assessed the relationship between economic resources and mental health during the transition to adulthood have utilized more localized sample, making generalizability to larger populations more difficult. The information for this study was collected from 2000 to 2012, which allows enough variation, data points, and time-varying measures to properly assess the relationships among depressive symptoms, household income, and perceived financial strain.

BACKGROUND AND THEORY

I utilize general life course theory as well as the cumulative disadvantage hypothesis to motivate this study. Life course theory predicts that psychological adjustment in the transition to adulthood is, in part, dependent on successfully accomplishing the tasks and roles associated with adulthood (Benson and Furstenberg 2006; Booth, Rustenbach and McHale 2008; Elder 1998; Miech and Shanahan 2000; Willson, Shuey, and Elder 2007; Wickrama, Noh, and Elder 2009). On average, depressive symptomatology follows a curvilinear pattern across the life course. As individuals age, they experience relatively high depressive symptoms in early adulthood which lessen through middle adulthood and rise again in old age (Mirowsky and Ross 1992; Sutin 2013; Walsemann, Gee, and Geronimus 2009). In the current study, I do not focus on the full life course, but rather the transition to adulthood, focusing on the age range of 18 to 35. Nevertheless, the extant research also shows that the relationship from late adolescence into adulthood is curvilinear and driven by life course dependent transitions (e.g., ability to be financially independent, marriage, parenthood) (Andrew, Eggerling-Boeck, Sandefur et al. 2006; Benson and Furstenberg 2006; Booth, Rustenbach and McHale 2008; Galambos and Krahn 2008).

The timing of these normative transitions can be demanding for those entering adulthood, and therefore, lead to higher symptoms of depression. For example, having traversed the world of high school and earned a high school diploma, an 18 year old may feel successful, excited to move toward independence from the family of origin, and relatively little distress. However, through the mid-twenties, as that same individual begins to inhabit adult roles (e.g., employment, marriage, parenthood) stress and ambiguity intensify and may result in increased depressive

symptoms. Nevertheless, with more maturation, individuals will acclimate to expectations of adulthood, feel a greater sense of ownership, stress will subside, and depressive symptoms will lessen as the individuals move through the late twenties and into the early thirties.

Cumulative Disadvantage Hypothesis. The cumulative disadvantage hypothesis extends from life course theory and offers an explanation for continued and even escalating disadvantage throughout the life course, with implications for mental health (Willson, Shuey, and Elder 2007). Cumulative disadvantage is a result of social stratification and the fact that individuals have varying access to resources. The associated hypothesis purports that relative disadvantage is magnified with age, wherein initial disadvantage leads to subsequent disadvantage and continuing restricted access to resources (Dannefer 1988; Ferraro et al. 2009; O'Rand 2001; O'Rand and Hamil-Luker 2005). In this paper, I focus on economic resources in two forms. First, I assess the impact of household income on depressive symptoms from 18 to 35 years old (i.e., the transition to adulthood). Second, I also focus on perceived financial strain during the same period of time. The highest levels of perceived financial strain may be especially associated with elevated depressive symptoms, because such perceptions are likely representative of other accumulated disadvantages (e.g., low education, lack of employment opportunities, a lack of social support, or minority status). The cumulative disadvantage hypothesis has three implications for the relationships among depressive symptoms, income, and perceived financial strain.

In general, one implication is that the more income the individual has access to across the transition to adulthood, the lower depressive symptoms. Alternatively, young adults beginning the transition to adulthood with higher economic disadvantage are at risk of experiencing enduring disadvantage which may lead to diminished immediate and long term mental health

(McLeod and Owens 2014). A second thing implicit in the cumulative disadvantage hypothesis is that perceived financial strain may be especially important in understanding depressive symptoms during the transition to adulthood. For instance, a financially struggling 18 year old college student may certainly perceive the economic burden of having to rely on student loans and feelings of deprivation with little cash to finance daily living. However, this financial struggle, which is a normative part of life for many college students, may not translate into depressed mood in the same way it would be for an unemployed 29 year old, married father of two young children. That is, for the husband and father, his perceptions of financial strain may be even more distressing because his unemployment is dissonant with the roles of spouse and parent. Perceived financial strain captures not only how well the individual is doing in terms of income and other economic resources, but also may encapsulate how well the individual feels important roles are being enacted. Experiencing problems in the adequate fulfillment in adult transitions is positively related with higher levels of depressive symptoms and exacerbated by socioeconomic difficulties (Miech and Shanahan 2000; Eliason et al. 2015; Wickrama, Noh, and Elder 2009). Therefore, given that many key, normative transitions that are fundamental to establishing full adulthood occur in the late twenties (McLeod and Owens 2014; Eliason et al. 2015), I anticipate that depressive symptoms will be highest at this period and most affected by perceived financial strain. After assuming or even deciding to forgo or delay some roles, I also expect that as individuals move into their thirties that depressed mood will begin to subside.

A final implication of the cumulative disadvantage hypothesis is that perceived financial strain likely amplifies the negative consequences of low income or weakens the otherwise helpful effects of higher income on depressive symptoms. For example, as individuals mature

into adulthood, damage to mental health will accumulate more quickly if high levels of perceived financial strain is routinely combined with low levels of income.

Other Important Factors. The relationships among depressive symptoms, income, perceived financial strain, and age are impacted by several demographic characteristics including gender and race. Women experience higher levels of depressive symptoms, during the transition to adulthood because of the greater role expectations and conflict (Christie-Mizell and Erickson 2007). Moreover, women earn less money and are more likely to perceive their financial status as more tenuous then their male counterparts (Leach, Hayhoe and Turner 1999; Adler, Epel, Castellazzo, and Ickovics 2000; Arber, Fenn, and Meadows 2014).

Race-ethnicity also plays a role in understanding the impact of income and perceived financial strain on depressive symptoms. In this paper, we evaluate outcomes for three groups: African Americans, Hispanics, and whites. Although racial and ethnic minorities do not espouse higher levels of clinical depression, African American and Hispanics do tend to experience higher levels of depressive symptoms and other types of psychological distress (Christie-Mizell, Steelman and Stewart 2003). Compared to their white counterparts, one contributing factor to higher levels of distress has to minority status and disadvantaged socioeconomic position, including lower income and economic hardship (Lorant 2003; Adler et al. 2009; Hudson et al. 2012; Allen et al. 2014).

In addition to income and perceptions of financial hardship, I also incorporate educational attainment and employment status in the models developed below. Prior research has clearly established a positive relationship between educational attainment and health, with clear benefits to both mental and physical health outcomes (Ross and Mirowsky 2010). Moreover, gainful employment also benefits health to the extent that it provides resources that

may be spent to maintain health and to cope with distress. Employment is also conceptualized in the research on the transition to adulthood as an important adult role that prompts and supports other helpful roles transitions, including marriage/cohabitation and parenthood (see e.g., Christie-Mizell and Peralta 2009). As discussed above, entering adult roles such as employment, marriage /cohabitation, and parenthood are linked to finances and such transitions may also create additional emotional demands and influence levels of depressive symptoms in young adults (Benson and Furstenberg 2006).

Finally, researchers have also identified that depressive symptoms are influenced by religiosity, neighborhood context, and region of residence (Mitchell and Weatherly 2000; Ross and Mirowsky 2003; Goldberg and Goodyear 2005). Religious attendance and adherence have direct implications for mental health and depressive symptoms. For example, the social support derived from religious attendance may provide a buffer to acute life events as well as offer financial support in times of need (Lim and Putnam 2010). Also, when faith is important to the individual, religion may represent a set of beliefs that helps the individual cope by avoiding the internalization of personal blame and thereby lowering distress and financial angst (Scnittiker 2001; Green and Elliot 2010; Krause 2011). In terms of neighborhood environments, research in this area often contrasts rural with urban areas and the southern region of the U.S. to the Northeast, Midwest, and West regions. In sum, rural and southern contexts are characterized by lower income and greater economic hardship, and have less access to mental health service – which could lead to worse mental health, including higher levels of depressive symptoms (Parcel and Dufur 2009; Zuvekas and Meyerhoefer 2009; Haines, Beggs, Hurlbert 2011),

Summary and Hypotheses

Previous literature indicates that depressive symptoms are relatively high as youth transition to adulthood (Mirowsky and Ross 1992; Walsemann, Gee, and Geronimus 2009; Sutin et al. 2013). Another characteristic of this developmental period is economic uncertainty and hardship, which may accumulate as individuals mature into adulthood and amplify depressive symptoms (McLeod and Owens 2014). Yet, most research in this area has yet to explore exactly how these factors (i.e., economic hardship combined with aging) jointly produce mental outcomes during the transition to adulthood. Utilizing a nationally representative sample, with an age range of 18 to 35, the main goal of this paper is to investigate the relationships among depressive symptoms, age, household income, and perceived financial strain. I have developed five straightforward hypotheses for this research.

I hypothesize that the relationship between age and depressive symptoms is curvilinear (H1). Specifically, I predict that at age 18, youth start with relatively low depressed mood that rises through the middle twenties, but then relents again as the young adult approaches 30 years old. Next, I anticipate that the relationship between household income and depressive symptoms will be negative (H2), whereas the association between perceived financial strain and depressed mood will be positive (H3). Also, I hypothesize that the impact of household income (H4a) and perceived financial strain (H4b) will be moderated by age. I expect that age will modify the effects of household income such that this resource is more beneficial as individuals mature and such that perceived financial strain is increasingly harmful with age with a leveling off at older ages. Finally, I hypothesize that perceived financial strain will weaken the impact of household income on depressive symptoms (H5a) and that this relationship (i.e., financial strain × household income) will be amplified as individuals mature, with a decline in symptoms of

depression in the early thirties (H5b). That is, I expect that as people age that perceived financial strain will increasingly weaken the otherwise beneficial effects of household income on depressed mood, resulting in higher levels of depressive symptoms until around age 30.

METHODS

Data and Sample

Data for this study are drawn from the National Longitudinal Survey of Youth (NLSY) and the National Longitudinal Survey of Youth – Young Adult (NLSY-YA) sample. The NLSY is a representative sample of non-institutionalized Americans and is part of a larger project sponsored by the U. S. Departments of Labor and Defense under a grant to the Center for Human Resource Research at The Ohio State University (Center for Human Resource Research, 2004). Respondents in the NLSY were interviewed each year from 1979 to 1994 and every other year after 1994. In the initial sampling, African Americans, Hispanics, and economically disadvantaged white youth are overrepresented, and initial ages ranged from 14 to 22 years old. In 1994 and biennially thereafter, youth who were the offspring of the women of the NLSY and who were 15 years of age and older were surveyed for the young adult sample (NLSY-YA). This survey gathered information germane to social, physical, and emotional development, mental health, delinquent activities, substance use, and transitions to adult roles.

The present study spans 12 years, over 7 waves of data from 2000 to 2012. I restrict this study to these years, because one of my focal independent variables, perceived financial strain, is only asked during this period of time. The analyses for this paper is based on 6,726 respondents, with 18,379 observations. I take advantage of the longitudinal nature of the data and variables described below are constructed as time-varying measures, with, of course, the exception of race-ethnicity and gender. All analyses below are weighted to correct for the oversampling of African American, Hispanic, and disadvantaged white respondents. Table 1 below includes the descriptive statistics for all study variables.

Table 1. Weighted Means, Percents and Standard Deviations (SD) for All Study Variables. National Longitudinal Survey of Youth – Young Adult Sample, 2000-2012.

Variables	Mean/ Percent	SD
Depressive symptoms 0 (lower symptoms) to 21 (higher symptoms)	4.340	2.791
Gender, Race, Age		
Female (1=Yes)	48.526%	—
African American (1=Yes)	16.768%	—
Hispanic (1=Yes)	8.072%	—
White (1=Yes)	75.160%	—
Age (years)	23.588	3.101
Education, Income, Employment, and Financial Strain		
Education (years)	12.711	1.522
Household income (1000s of dollars)	7.256	5.709
Employed (1=Yes)	87.916%	—
Financial strain 1 (never) to 5 (all the time)	1.852	.792
Marriage, Parenthood, Religion, and Residence		
Married (1=Yes)	4.608%	—
Cohabitating (1=Yes)	.710%	—
Parenthood (1=Yes)	22.242%	—
Religious Attendance 1 (not at all) to 6 (more than once of week)	2.697	1.185
Religious Importance 1 (not at all important) to 4 (very important)	3.060	.750
Southern residence (1=Yes)	38.414%	—
Urban residence (1=Yes)	72.146%	—

Note: N = 6,726 and 18,379 observations.

Measures

Dependent and Independent Variables. My dependent variable was depressive symptoms, measured using a 7-item version of the Center for Epidemiological Studies Depression scale (CES-D). Each item is prefaced with "in the past week," and asked how often the respondent 1) had not felt like eating, 2) had trouble keeping your mind on what you were doing, 3) felt depressed, 4) felt like everything you did took great effort, 5) experienced restless sleep, 6) felt sad, and 7) could not get going. All items were coded to reflect depressed mood, summed to create a scale and ranged from 0 (rarely or none of the time) to 21 (most or all of the time). Across all waves of data the average alpha coefficient was .73 and the mean was 4.340 (See Table 1).

This study includes three independent variables: age, household income, and perceived financial strain. *Age* is coded in years, with average age across all waves of 23.588 and a range of 18 to 35 years old. *Household income* was measured in dollars (mean = $72,559) and logged in the analyses below to correct for skewness. Finally, *perceived financial strain* asked how often the respondent or household puts off buying something necessary, such as food, clothing, medical care, or housing, because of not having enough money. The question is coded as 1) never, 2) rarely, 3) occasionally, 4) frequently, and 5) all of the time. The score for perceived financial strain across all waves of data is 1.852.

Control Variables. All models estimated below are adjusted for several covariates. I hold constant gender (1=female; 49%) and include dummy variables that compare African American (17%) and Hispanic (8%) respondents to whites (75%). Education was measured in years and employment was coded 1 for those who report working and compares them to those who report not working. The mean for education was 12.711 years, and 88% of the sample

reported being employed across the period of study. Further, I compared those who are married (1=yes; 5%) or cohabiting (1=yes; .71%) to all others and parents (coded 1; 22%) to non-parents coded 0). Religious attendance is coded to range from 1 (not at all) to 6 (more than once a week), whereas religious importance, which assesses how essential religion is to the respondent's life, was coded to range from 1 (not important at all) to 4 (very important). The means for religious attendance and religious importance were 2.70 and 3.06, respectively. I coded region of residence into four census categories: South, Northeast, North Central and West, and in my analyses, I compared all groups to the South (38.41%). Urban residence (1=yes; 72%) was dummy coded and compared to rural areas.

Analytic Strategy

Because I utilize 7 waves of data from 2000 to 2012, I have multiple measures of depressive symptoms for a majority of my sample. On average, there are 2.73 observations per respondent (18,379 observations/N = 6,726), with a range of 1 to 6 observations. To account for the non-independence of repeated measures nested within individuals, I utilized a multilevel mixed modeling strategy with fixed coefficient estimates and random intercepts (Raudenbush and Bryk 2002). My model estimation proceeded in four steps. First, I regressed depressive symptoms on all independent and control variables. This first model helped me test my hypotheses that there is a curvilinear relationship between age and depressive symptoms (H1), a negative association between household income and depressive symptoms (H2), and a positive relationship between perceived financial strain and depressive symptoms (H3). My second and third steps were to add two interactions to the model: 1) age × household income, 2) age × financial strain. These interactions tested hypotheses 4a-b which seeks to test whether age

modifies the impact of household income and financial strain on depressive symptoms. My final step was the estimation of an equation that helps me test whether financial strain weakens the beneficial impact of household income on depressive symptoms (financial strain × household income; H5a) and whether age modifies the joint effects of financial strain and household income on depressive symptoms (age × financial strain × household income; H5b).

The following equation summarizes my basic modeling approach:

$$Y_{ti} = \beta_0 + \beta_1 \mathbf{Age}_{ti} + \beta_2 \mathbf{Income}_{ti} + \beta_3 \mathbf{Strain}_i + \beta_4 \mathbf{SEI}_{ti} + \beta_5 \mathbf{FAM}_{ti} + \beta_6 \mathbf{RLRS}_{ti} + u_i + \varepsilon_{ti}$$

Y_{ti} is the depressive symptoms score for person *i* at time *t*. $\mathbf{Age}_{ti}$ represents the linear, quadratic, and cubic age terms centered at age 25 to allow the intercept (β_0) to be interpreted as the mean level of depressive symptoms at age 25. I selected age 25, because it is roughly the mid-point sample's age range and allows time for respondents to start taking on the adult roles. $\mathbf{Income}_{ti}$ and $\mathbf{Strain}_{ti}$ represents my other key independent variables, household income and perceived financial strain. Each uppercase bold term represents a vector of related independent and control variables. $\mathbf{SEI}_{ti}$ stands for two socioeconomic indicators, education and employment, whereas $\mathbf{FAM}_{ti}$ represents family roles – specifically, marriage, cohabitation, and parenthood. Finally, $\mathbf{RLRS}_{ti}$ is a block of variables representing religious attendance, religious importance, southern residence, and urbanicity.

Random effects (level 2) were estimated for the intercept to account for the non-independence of repeated measures. This calculation is represented in the equation above by the term u_i. The individual (level 1) residual is specified by the term, ε_{ti}. As mentioned above, a series of interactions were added to this basic estimation to evaluate two of my key hypotheses (H4 and H5).

Table 2. Multilevel Models for Depressive Symptoms during the Transition to Adulthood, with Selected Interactions. National Longitudinal Survey of Youth – Young Adult Sample, 2000-2012.

	Model 1		Model 2		Model 3	
Variables	*b*	*se*	*b*	*se*	*b*	*se*
Intercept (at age 25)	6.159***	.287	6.113***	.290	6.196***	.292
Gender, Race, Age						
Female (1=Yes)	.660***	.075	.662***	.075	.658***	.074
African American (1=Yes)	.181	.094	.175	.094	.186*	.094
Hispanic (1=Yes)	-.352**	.109	-.356**	.109	-.344**	.109
Age	-.048***	.015	-.009	.032	-.151***	.026
Age^2	-.007***	.001	.0002	.003	-.012***	.003
Age^3	.0003	.0003	.0006	.001	.002***	.0005
Socioeconomic Indicators						
Education (years)	-.221***	.019	-.226***	.019	-.221***	.019
Logged household income	-.135***	.041	-.076	.053	-.137***	.041
Employed (1=Yes)	-.046	.080	-.044	.080	-.046	.080
Financial strain	.590***	.025	.589***	.025	.569***	.034
Family Roles, Religion, and Residence						
Married (1=Yes)	-.311**	.114	-.316**	.114	-.301**	.114
Cohabitating (1=Yes)	.239	.279	.240	.279	.230	.279
Parenthood (1=Yes)	.383***	.088	.389***	.088	.371***	.088
Religious Attendance (Past Year)	-.070***	.021	-.070***	.021	-.070***	.021
Religious Importance	-.014	.036	-.014	.036	-.016	.036
Southern residence (1=Yes)	.085	.073	.085	.073	.087	.073
Urban residence (1=Yes)	.011	.064	.014	.064	.016	.064
Age Interactions						
Age × Logged household income			-.022	.016		
Age^2 × Logged household income			-.003	.002		
Age^3 × Logged household income			.0005	.0004		
Age × Financial strain					.054***	.011
Age^2 × Financial strain					.003**	.001
Age^3 × Financial strain					-.001***	.0002
Individual-level error variance	4.703***		4.699***		4.690***	
Between-person error variance	7.818***		7.816***		7.810***	
-2 Log Likelihood	101015.8		101010.0		100990.3	

Note: *N* = 6,826 and 18,379 observations; *p<.05; **p<.01;***p<.001 (two-tailed tests).

RESULTS

The results of the multilevel modeling for this study are in Table 2. Model 1 provides evidence for the assessment of hypotheses 1-3. The findings show that the relationship between age and depressive symptoms is curvilinear, with significant, negative linear and quadratic terms for age. However, this finding does not support H1as outlined above. Even though there is curvilinearity, recall that I suggested a cubic relationship with age in which initially depressive symptoms would be relatively low, but rise through the mid-twenties and then decline again around age 30. Instead these quadratic, main effects reveal that depressive symptoms decline over time, with an accelerated decline in later ages (i.e., around age 30).

Model 1 also shows that household income is inversely related to depressive symptoms and provides support for H2. Moreover, the pattern of effects show that perceived financial strain is positively related to depressive symptoms, and this finding supports H3. Additionally, the results show that women express higher depressive symptoms, and Hispanic young adults have less depressed mood than their white counterparts. Further, educational attainment, marriage, and religious attendance are negatively related to depressive symptoms, while parenthood is positively associated with depressive symptomatology.

Table 2, Model 2 tests H4a and my contention the beneficial effects of household income would increase as individuals mature. The non-significant interactions between age and household income do not support H4a. However, similar to Model 1, being female, financial strain, and parenthood increase depressive symptoms, whereas being Hispanic, education, marriage, and religious attendance decrease depressed mood.

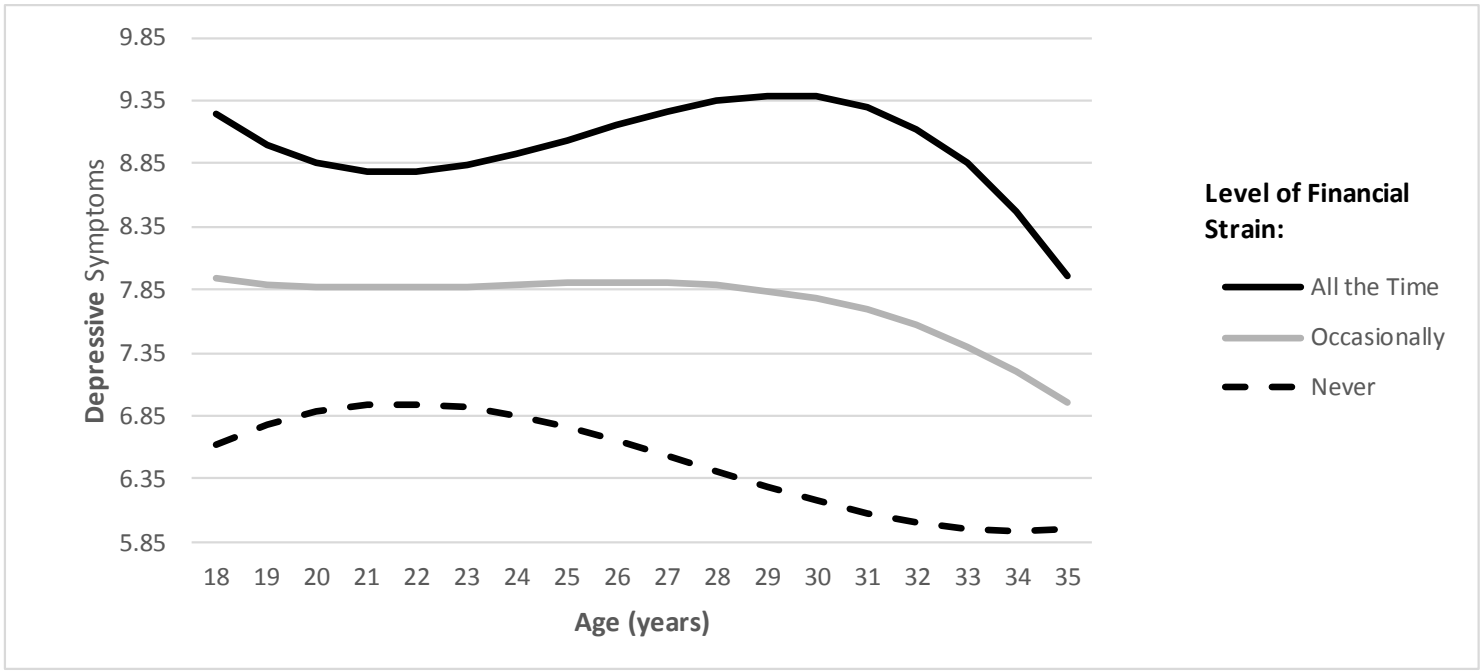

Figure 1. The Influence of Financial Strain on Depressive Symptoms during the Transition to Adulthood.

Table 2, Model 3 assesses H4b and whether perceived financial strain is increasingly harmful with age, with a leveling off effect at older ages. I find support for H4b. The linear (age × financial strain) and quadratic (age^2 × financial strain) interaction terms are significant and positive, showing that, in general, age exacerbates the impact of perceived financial strain. However and also as hypothesized, the significant and negative cubic term (age^3 × financial strain) does reveal that this inclining pattern does level off at older ages.

In Figure 1, I dissect this overall curvilinear pattern to understand how it applies at three levels of perceived financial strain: all the time, occasionally, and never. At age 18, respondents who report feeling financial strain "all of the time" start with the highest levels of depressive symptoms (9.25). In turn, those who "occasionally" perceive financial strain have the next highest levels of depressed mood (7.94), followed by those who "never" perceive financial hardship (6.63). At both high (all the time) and low (never) levels of perceived financial strain, respondents experience noticeable increases in depressive symptoms. However, these inclines happen at different points. For those who experience strain "all of the time," the highest incline begins around age 22 until age 30, with declines from age 30 to age 35. For those who "never" perceived strain, a slight incline happens from ages 21 to 23. After age 23, this group experiences a decline and flattening of depressive symptomatology until age 35. The pattern differs for those at moderate (occasionally) levels of perceived financial strain. For this group, they do not experience an incline, but instead experience relatively flat levels of depressive symptoms until about age 30, when they begin a decline until age 35.

Comparable to the first two models, Table 2, Model 3 reaffirms that women and parents experience elevated depressive symptoms. Moreover, being Hispanic, education, household income, marriage, and religious attendance are inversely related to depressed mood.

Interestingly, a finding emerges in this model not seen in the Models 1-2. Once accounting for how age moderates perceived financial strain, being African American is now positively associated with depressive symptoms.

Table 3. Multilevel Models for Depressive Symptoms Estimating the joint influence of Financial Strain and Household Income by Age during the Transition to Adulthood. National Longitudinal Survey of Youth – Young Adult Sample, 2000-2012.

Variables	*b*	*se*
Intercept (at age 25)	5.698***	.323
Gender, Race, Age		
Female (1=Yes)	.662***	.074
African American (1=Yes)	.183	.094
Hispanic (1=Yes)	-.346**	.109
Age	-.034	.062
Age^2	.005	.006
Age^3	.001	.001
Socioeconomic Indicators		
Education (years)	-.226***	.019
Logged household income	.171	.095
Employed (1=Yes)	-.041	.080
Financial strain	.805***	.075
Age, Financial Strain, and Income Interactions		
Age × Financial Strain	-.003	.025
Age^2 × Financial Strain	.004	.003
Age^3 × Financial Strain	.0002	.001
Age × Household Income	-.065*	.032
Age^2 × Household Income	-.010**	.032
Age^3 × Household Income	.001	.001
Financial Strain × Household Income	-.140***	.042
Age × Financial Strain × Household Income	.033*	.014
Age^2 × Financial Strain × Household Income	.004*	.002
Age^3 × Financial Strain × Household Income	-.007*	.003
Individual-level error variance	4.692***	
Between-person error variance	7.797***	
-2 Log Likelihood	100968.9	

Note: The model above is adjusted for family roles, religion, and residence. *N* = 6,826 and 18,379 observations; *p<.05; **p<.01;***p<.001 (two-tailed tests).

Table 3 provides my exploration of my final hypothesis in which I anticipated that perceived financial strain would weaken the impact of household income on depressive symptoms (H5a) and that this relationship (i.e., financial strain × household income) will be magnified as individuals mature, with a decline during the early thirties (H5b). Both H5a and H5b are supported. Note that the interaction between perceived financial strain and household income is negative and significant (b=-.140, se = .042, p<.001), suggesting that beneficial main effects of household income are diluted by perceived financial strain. Furthermore, this relationship (financial strain × household income) is modified by age. The linear (age × financial strain × household income) and quadratic (age^2 × financial strain × household income) interaction terms are significant and positive, showing that age amplifies the impact of perceived financial strain. Also corresponding to H5b, the significant and negative cubic term (age^3 × financial strain × household income) does reveal that the increase in depressed mood does level off at older ages. Figure 2A-C displays these findings. To fully illustrate the variation in the joint impact of perceived financial strain and household income across the young adult age gradient, I have graphed the findings at three levels of household income: high income (1 standard deviation above the mean), mean income, and low income (1 standard deviation below the mean).

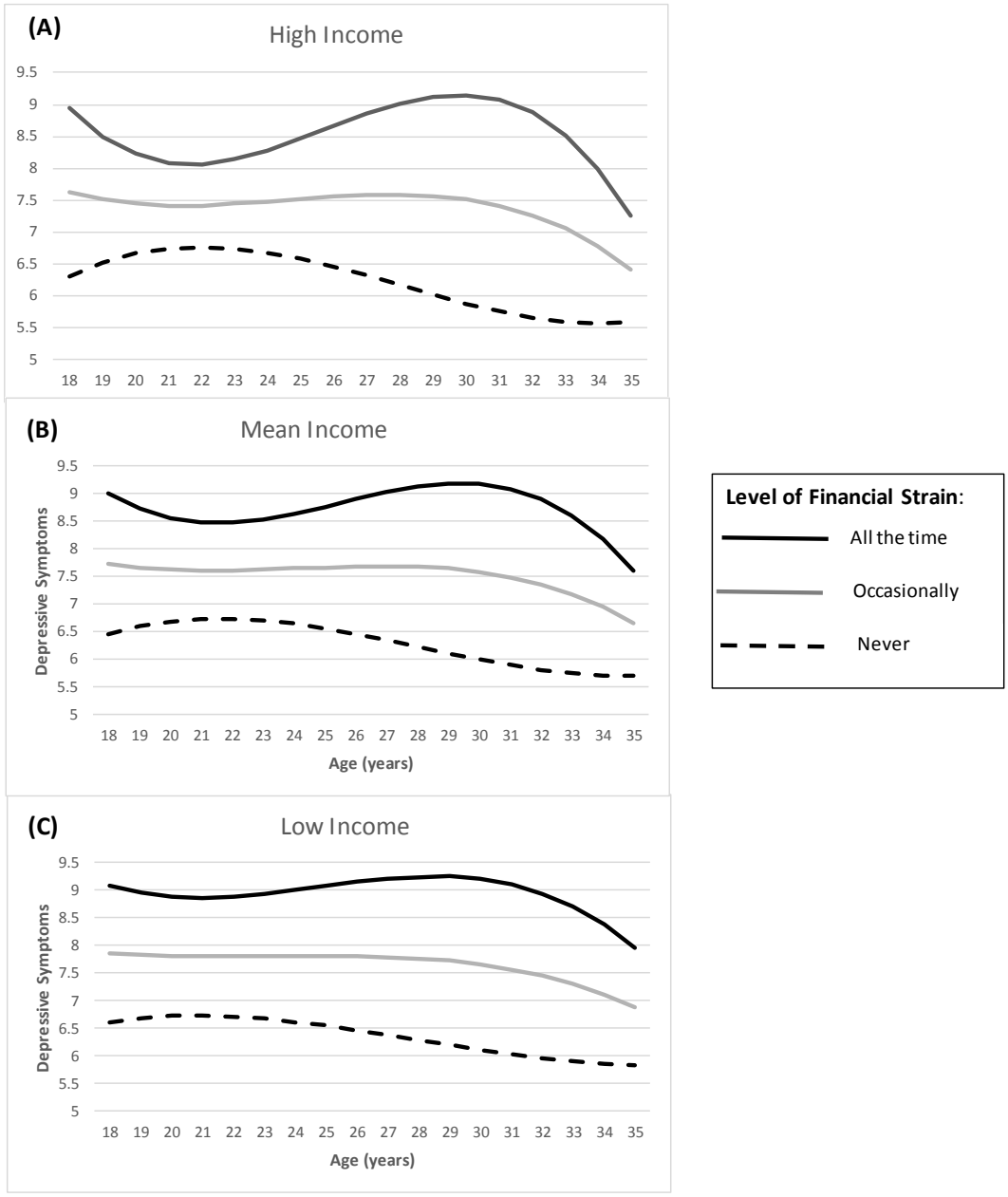

Figure 2A-C. The Impact of Financial Strain and Income Level on Depressive Symptoms during the Transition to Adulthood.

Across Panels A-C in Figure 2, the most striking pattern is that perceptions of the respondent's financial situation appear to drive mental health much more so than household income. That is, regardless of income level, those who perceive financial strain "all of the time" have higher levels of depressive symptoms than those who "occasionally" or "never" perceive strain. Further, respondents who report "occasionally" perceiving financial strain have more depressed mood, compared to those who "never" experience such strain – across all levels of income. With little variation (slope tests not shown), perceived financial strain is such a powerful predictor of depressive symptoms that it mutes the benefits of high income over mean income and low income. To be exact, the "all of the time," "occasionally," and "never" categories do not differ significantly across income levels.

Within income groups, perceived financial strain moderates household income such that those in the "never" category are better off than those in the "occasionally" and "all of the time categories." In turn, the "occasionally" category nets significantly lower depressive symptoms than the "all of the time" category. Therefore, within and between income levels, perceived financial strain acts to considerable shape symptoms of depression.

DISCUSSION AND CONCLUSIONS

The main goal of this research was to investigate how both household income and perceived financial strain impact the mental health of young people transitioning to adulthood. The specific age range covered in the study was 18 to 35 years old. I utilized life course theory, which predicts that psychological adjustment in the transition to adulthood may be challenged as youth mature by planning, enacting, and refining new adult roles (Benson and Furstenberg 2006; Willson, Shuey, and Elder 2007; Wickrama, Noh, and Elder 2009). Extending from life course theory, I also employed the cumulative disadvantage hypothesis to explain why high levels of perceived financial strain, which would exist in the contexts of other accumulated disadvantages, is positively related to higher levels of psychological problems, including depressive symptoms.

The results of this study show that during the transition to adulthood that the relationship between age and depressive symptoms is curvilinear. Initially, I predicted a cubic relationship, wherein at the outset (i.e., age 18) depressive symptoms would be relatively low, but rise through the mid-twenties and then decline again around age 30. Instead, I found quadratic main effects, in which depressive symptoms decline over time, with an accelerated decline from ages 30 to 35. These findings suggest that as young adults age that one outcome of maturation is a decline in depressive symptoms. As young people become more experienced at handling the roles and circumstances associated with aging their mental health improves. Even though the transition to adulthood is full of turmoil and distress, individuals acclimate, plan and settle into life in ways that lessens problematic affect.

Other results showed that income was inversely related to depressive symptoms and that perceived financial strain was positively related to depressed mood. On the one hand, income

likely improves mental health by providing resources needed to afford the necessities of daily life (i.e., food, clothing, shelter), to deal with emotional problems, to plan for a productive future, and to care for loved ones. On the other hand, perceived financial strain increases depressive symptoms not only because of the immediate worry and angst associated without not being able to make ends meet, but also because such perceived hardship is antithetical to being able to take on and enact the roles and transitions (e.g., marriage and parenthood) that confirm adulthood.

With respect to age, I expected that age would moderate the impact of household income and perceived financial strain on depressive symptoms. There was no moderation between age and household income; however, age moderated financial strain such that age maintains or amplifies the impact of perceived financial strain on depressive symptoms from age 18 through the late twenties and then the incline levels off into the early thirties. This pattern of results indicates that in the period from ages 18 to 35 that individuals are especially susceptible to perceived financial strain until about the early to mid-twenties with declining influence into to the early thirties. The decline comes later for those who perceive financial strain all of the time and occasionally, compared to those who reported that they never perceived financial strain (see Figure 1).

Finally, I found that perceived financial strain weakens the beneficial, decreasing impact of household income on depressive symptoms. Moreover, the joint effects of perceived financial strain and household income on depressive symptoms vary by age. Across levels of income (i.e., high income, mean income, low income), perceived financial strain dilutes the helpful benefits of high income such that perceptions of economic hardship similarly impacts individuals regardless of actual income level. Within income brackets, those respondents who reported never experiencing financial strain are better off than those who stated they experience hardship

occasionally or all of the time. Moreover, those who reported occasionally perceiving strain had significantly lower depressive symptoms than those who detailed perceiving financial strain all of the time. Altogether, this last set of results indicate that perceived financial strain is more so a driver of mental health than household income. To the extent that perceptions verify who we are, what our experiences have been, and how individuals are likely to behave and feel in the future (Demo 1992; Eliason et al. 2015), perceived financial strain represents an accumulation of experience and appears to even change the otherwise beneficial effects of household income. Those who report never perceiving economic hardship have the best outcomes, followed by those who occasionally perceive problems, with those who perceive strain all of the time having the highest levels of depressive symptoms.

Despite the strengths of my findings, including the use of longitudinal data, multiple measures, and nationally representative data, there are a few limitations. First, although we utilize a widely recognized measure of depressive symptoms, we cannot rule out whether our findings would differ across other measures of mental health and psychological adjustment (e.g., self-rated mental health, anxiety, alcohol use, or self-concept). Establishing how income and perceived financial strain individually and jointly impact the adjustment of young people during the transition to adulthood will require that researchers broaden outcomes. For instance, other research should incorporate not only other measures of mental health, but also carefully consider the impact of income and perceived hardship on physical health outcomes (e.g., self-rated health, hypertension) and physiological functioning (e.g., sleep patterns). Second, while we focus on household income, future research should expand into a careful examination of other socioeconomic indicators, including, but not limited to, wealth, experience with poverty, employment history, educational attainment, and social class of the family of origin. Finally,

while we adjust our models for race and gender, a next step in this line of research should be to more carefully examine how the impact of socioeconomic indicators and perceived financial strain are shaped by intersections of race and gender. This research as well as other studies (see e.g., Adkins et al. 2009) show clear differences in depressive symptoms by race and gender during the transition to adulthood, but less research has tackled the extent to which these differences are conditioned by the combined impact (e.g., African American men versus Hispanic women) of race-ethnicity and gender. Moreover, given my data source, I am limited to three race-ethnic groups (i.e., African Americans, Hispanics, and whites), but further research should broaden to other populations (e.g., Asian Americans, Native Americans). While minorities in the U.S. may share many commonalities, differential histories and migration patterns will likely interact with socioeconomic indicators that shape mental health in varying ways.

In conclusion, it is undeniable that the contemporary transition to adulthood differs in many ways compared to a generation ago (Eliason et al. 2015). Moreover, research shows the transitions and expectations associated with moving into adulthood are distressing for youth and can lead to relatively high depressive symptoms (Needham 2007; Wickrama, Noh, and Elder 2009; Eliason et al. 2015). Therefore, it is important to establish good mental health in this period of the life course in terms of proceeding into the future and meeting the demands of adulthood, midlife, and eventually older age. To that end, this research represents one effort to understand how household income combines with perceptions of how difficult it is to make ends meet impacts mental health by age. This study both confirms and extends existing research on the importance of how perceptions and the social psychology of the individual is integral to understanding health outcomes. Work of this nature is important not only because it elucidates

the complex processes that shape individual outcomes, but also because of its implications for our understanding of how normative transitions and expectations combine with socioeconomic factors to shape mental health.

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