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Occupational Attainment and Depressive Symptoms in Young Adulthood\*

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## Occupational Attainment and Depressive Symptoms in Young Adulthood

### Abstract

Past studies have shown that various aspects of occupational attainment (unemployment, job instability, low occupational status, and low earnings) are associated with poor mental health, but each of these studies focused on one or two aspects of occupational attainment, and it remains unclear whether their associations are independent of each other. Further, little is known about whether negative self assessments of occupational attainment are linked to poor mental health. We sought to overcome these limitations of past research while focusing on depressive symptoms as a mental health outcome and young adulthood as a life stage context. The study analyzed US data from the National Longitudinal Study of Adolescent to Adult Health (n=13,178) using OLS models. The analysis showed that all aspects of occupational attainment were associated with depressive symptoms in the expected directions. Further, unemployment, job instability, and negative self assessment of career progress showed stronger associations, and those associations were independent of other occupational attainment variables. Overall, the results suggested that understanding requires close attention to the life stage context.

**Keywords:** depression; employment; mental health; occupational attainment; socioeconomic status; young adults

## Occupational Attainment and Depressive Symptoms in Young Adulthood

Occupational attainment refers to the process in which people join the labor force and gain positions in the occupational hierarchy (Kerckhoff, 2003; Sewell & Hauser, 1980).

Occupational attainment has been a central concept in social sciences as it strongly shifts one's life chances in major domains including family, social networks, and health (Krueger & Burgard, 2011; Shanahan, 2000; Warren, Hauser, & Sheridan, 2002) and also contributes to the production and reproduction of inequality at the societal level (Blau & Duncan, 1967).

Mental health is another important consequence of occupational attainment, and past research has shown that some aspects of occupational attainment such as job stability and earnings strongly predict mental health whereas other aspects such as occupational status (or occupational standing) are unrelated or only show weak associations (Burgard, Brand, & House, 2007; Ross and Mirowsky, 1995). These studies generally used samples that included adults of all ages and provided an important overview for the adult population, but not many studies have considered the possibility that mental health consequences of occupational attainment are unique to life stages.

Among several major life stages, we focus on young adulthood in this study because of its theoretical importance in the occupational attainment literature. People develop their career aspirations in childhood and adolescence, and they work toward those aspirations by attending schools and training programs, gathering information about the occupations, and gaining internship and volunteer experiences (Kerckhoff, 2003; Mortimer et al., 2002). Many people transition from school to the labor market as they enter adulthood, and their occupational attainment in this life stage represents the initial outcome of these efforts. Further, as people transition from school and college to the labor force, many people start spending a substantial

portion of their time working, and work comes to strongly structure everyday routines (Hauser & Warren, 1997). Consequently, work becomes an important **part of** self identity (Smith, 2007).

The occupational attainment process continues until people leave the labor market (or stop looking for jobs), but attainment in young adulthood may be particularly consequential for mental health. This is because early jobs strongly affect career trajectories (MacDonald, 2009; Sewell & Hauser, 1980), which may increase the subjective importance of occupational attainment and psychological reactions in young adulthood, relative to later stages of adulthood. Further, young adults may be particularly vulnerable to mental health consequences of low occupational attainment because many of them are already under a great degree of stress during their transition to adulthood roles and because they have not fully developed skills to cope with stress (Lee et al., 2019). Other findings suggest that mental health consequences of occupational attainment may be weaker in young adulthood, however. For example, young adults tend to view their current jobs as only temporary and stay optimistic about achieving their goals over time, regardless of their current occupational attainment (Sicherman & Galor, 1990). Such a view would reduce negative mental health consequences of low attainment and therefore weaken the overall association between occupational attainment and mental health among young adults. These opposing arguments highlight the importance of examining mental health consequences of occupational attainment in young adulthood.

Although some past studies have attempted to answer the question, they considered only one or two aspects of occupational attainment at a time (Burgard et al., 2007; Janlert & Hammarström, 2009; Mossakowski, 2009). This is an important limitation because these aspects of occupational attainment correlate with each other. Consequently, little is known about whether the key aspects of occupational attainment are associated with depressive symptoms

independent of each other. Further, subjective aspects of occupational attainment, such as perception of career progress and achievement (Heinz, 2002; Mortimer et al., 2008), have received limited attention in mental health research. We seek to fill these gaps in the literature by analyzing US data from the National Longitudinal Study of Adolescent to Adult Health (Add Health). The analysis includes five key aspects of occupational attainment (occupational status, employment status, job stability, earnings, and perceived career progress). As a mental health outcome, we focus on depressive symptoms, which are effective in assessing emotional responses to status attainment outcomes, as shown in previous studies (Hardie, 2014; Hounkpatin et al., 2015). Depression is also one of the most common yet debilitating mental illnesses, which often starts in young adulthood (Kessler et al., 2005), and it may initiate negative life trajectories by impacting major life domains such as romantic, social, and work life (Berndt et al., 2000; Link & Phelan, 2010; Rudolph et al., 2009).

Like previous studies in this area (e.g., Janlert & Hammarström, 2009; Ross & Mirowsky, 1992), we develop our arguments from the stress framework. The theory proposes that undesirable and unexpected life events demand people to make adjustments in their life routines, which drains their psychological resources and manifests in an array of physical and mental health problems over time (Lazarus & Folkman, 1984; Thoits, 2011). Among various life events, those that threaten self concepts are particularly consequential (Thoits, 2013). Stressors may not necessarily be discrete life events, but they may represent persisting conditions that create everyday struggles (“chronic strains”; Pearlin et al., 1991). Further, stressors may generate other stressors and intensify the impacts on health (“stress proliferation,” Pearlin et al., 2005). Below, we illustrate these points as we conceptualize a failure in each aspect of occupational attainment as a stressor and review past findings on mental health consequences.

## Occupational Status

Occupational status refers to one's position in the occupational hierarchy, and it measures the level of success in occupational attainment while focusing on the hierarchical structure of occupations (Hauser & Warren, 1997; Nam & Boyd, 2004). Measures of occupational status generally consider two factors—the level of educational preparations required for the occupation and the level of reward the occupation provides.<sup>1</sup> Low occupational status may be linked to poor mental health because it causes chronic strains in work and economic life such as employment instability and low earnings (Hauser & Warren, 1997). Low occupational status may also create a sense of relative deprivation because it shows that many other people have landed in higher-status occupations than they did (Laurijssen & Spruyt, 2015). Relative deprivation is another chronic strain that threatens self concept and strongly impacts mental health (Adler, 2000; Kunz-Ebrecht et al., 2004). Empirical evidence for mental health consequences of occupational status has been limited and mixed, however. Some studies reported that for adults in general, lower occupational status is related to higher levels of depressive symptoms (Burgard et al., 2007), whereas other studies reported null results (Pudrovska & Karraker, 2014).

## Employment Status and Job Stability

Whereas occupational status indicates one's position in the occupational hierarchy, current employment status (employed or unemployed) and job stability show one's ability to keep a job while negotiating opportunities and constraints in the local labor market and the broader economic condition. In general, youth have become more ambitious in their occupational aspirations over the last few decades, and many adolescents believe that they will be able to obtain jobs that they desire (Asakawa et al., 2001; Reynolds et al., 2006).

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<sup>1</sup> Occupational status is related to but distinct from occupational prestige, which considers the level of respect people receive for holding the occupation, as well as educational requirements and earnings (Hauser and Warren 1997).

Consequently, experience of unemployment in young adulthood creates a strong sense of failure and disappointment and undermines a sense of mastery (Ross & Mirowsky, 1992).

Unemployment also lowers income, which in turn creates financial struggles in everyday life such as not having enough money to pay bills and purchase necessary goods and services (Ross & Mirowsky, 1995). In other words, unemployment may initiate a “stress proliferation process” (Pearlin et al., 2005). Consistent with these arguments, unemployment is associated with higher levels of depressive symptoms among young adults (Janlert & Hammarström, 2009; Lee et al. 2019; McGee & Thompson, 2015; Mossakowski, 2009) and adults in general (Reneflot & Evensen, 2014).

Past research has also shown that job instability predicts higher levels of depressive symptoms in the broader adult population (Burgard et al., 2009; Jefferis et al., 2011). Evidence for young adults is lacking, however. In the US, many young adults move across different jobs to find the right careers for them (Kerckhoff, 2003; Staff et al., 2010), and such voluntary and strategic job changes may not have strong impacts on mental health. Nonetheless, workers may experience job instability due to involuntary job loss, which may result from various factors including a lack of job opportunities in the industry and workers’ poor performance (Brand, 2006; Kalleberg, 2011). Involuntary job loss is stressful for workers because it creates financial constraints, requires adjustments in work environments, and undermines a sense of personal control (Burgard et al., 2007; Ross & Mirowsky, 1995). Involuntary job loss also shortens tenures within specific work organizations and delays the beginning of career progress for young adults. For these reasons, we focus on involuntary job loss among various forms of job instability and expect that it is associated with higher levels of depressive symptoms.



## Earnings from Work

Earnings represent the major external reward that people receive for their work. Low earnings not only restrict lifestyles one could afford but also create financial struggles in everyday life. Low earnings also threaten self concepts by causing a sense of alienation and relative deprivation and by undermining a sense of mastery, especially in the US, where one's life success is often defined in a monetary term (Cohen-Marks & Stout, 2011). Past studies have consistently shown that low earnings are associated with higher levels of depressive symptoms (e.g., Hounkpatin et al., 2015; Ross & Huber, 1985). Mental health consequences of earnings remain unclear for young adults, however. On the one hand, the overall low level of earnings in this life stage may exacerbate the mental health consequences because lower earnings may directly impact one's life quality. On the other hand, mental health consequences may be small in this life stage because individual variations in earnings are limited among young adults and because lower-earning young adults may anticipate that their earnings will increase in later life stages (Sicherman & Galor, 1990). These opposing arguments underscore the importance of testing the effect of earnings.

## Subjective Assessment

So far, we have discussed objective aspects, but occupational attainment also has subjective aspects because young people continuously assess their ongoing success in occupational attainment (Heinz, 2002). People may assess their occupational attainment in different ways, but one important dimension is the extent to which they have achieved their long-term career goals or at least got on the right track to achieve those goals. Perceived career progress depends on occupations, earnings, current work hours (Heinz, 2002; Mortimer et al., 2008). In general, a failure in goal attainment and negative thoughts about oneself are linked to

poor mental health, as shown in stress research (Thoits, 2013). To our knowledge, however, no study has directly examined mental health consequences of perceived career progress. Our measure focuses on progress that young adults believe they have made toward their current career goals. As people enter the labor market, many of them downgrade the ambitious career goals that they developed in adolescence (Jacobs, Karen, & McClelland, 1991). Identifying a more realistic career goal and quickly getting on the right track are important tasks for young adults (Zimmer-Gembeck & Mortimer, 2007). We expect that those who have come to perceive that they have not good progress toward their goals will have higher levels of depressive symptoms.

#### This Study

The present study examines whether occupational attainment is associated with depressive symptoms in young adulthood while considering five aspects of occupational attainment (occupational status, employment status, job stability, earnings, and perceived career progress). Past studies tended to use a sample consisting of people in various stages of adulthood (e.g., Burgard et al. 2007; Reneflot & Evensen, 2014), and the mental health implications for young adults have been unclear. Although some studies used young adult samples (e.g., Janlert & Hammarström, 2009; Mossakowski, 2009), none of them examined mental health implications of subjective assessments of occupational attainment. Further, these studies focused on one or two aspects of occupational attainment at a time and therefore could not address whether those aspects are associated with mental health, independent of each other. This question is important because the key aspects of occupational attainment correlate with each other and because some aspects of occupational attainment may affect mental health through other aspects as hinted in the literature discussed above. For example, the effect of perceived

progress may be mediated by earnings, which may be further mediated by employment status and involuntary job loss. The rationale is that one's ability to get and keep a job influences earnings, which in turn impacts one's subjective evaluation of career progress. These mediation processes remain untested, however. We seek to overcome these limitations by using a young adult sample and considering several aspects of occupational attainment simultaneously.

## Methods

### Data and Sample

Add Health is an ongoing survey study that assesses health and attainment outcomes and their social antecedents in the US (Harris et al., 2009). In 1995, a nationally representative sample was drawn from students attending US schools, and respondents were interviewed at their homes (Wave 1 In-Home Interviews; N=18,924; response rate = 79%). Follow-up interviews were conducted in 1996 (Wave 2), between 2001 and 2002 (Wave 3), and between 2008 and 2009 (Wave 4). The present study focuses on people who participated in Wave 4 (80.3% of Wave 1 respondents who were eligible for follow-up interviews). Most respondents were aged between 26 and 31 in this wave—an age range compatible with a common definition of young adulthood in the US (e.g., between 20 and 39 as defined by Erikson, 1968), and they had recently existed a transitional stage called “emerging adulthood” (age 18 through 25 as defined by Arnett, 2000). Although some occupational information was collected in a prior wave (Wave 3), we elected not to use it because a large number of people were still in college and have not fully transitioned to the labor market. In Wave 4, about 1.7% of respondents reported in that they had not worked at least 10 hours a week for at least 9 weeks since 2001. We excluded these people from the analysis because they did not have data for the most occupational attainment variables. An additional 9.3% were in prison, on active duty, or out of

the labor force due to disability, school/college attendance, keeping the house, or just not looking for work. We also excluded these people from the analysis because it did not make sense to measure the success and failure in occupational attainment for these people who did not seek for (non-military) jobs.<sup>2</sup> Those excluded from the analysis were more likely to be female and have lower levels of education and higher levels of depressive symptoms both in adolescence and young adulthood. The final operational sample included 6,681 women and 6,497 men.

### *Measures*

*Depressive symptoms.* Depressive symptoms, the dependent variable, were measured by a five-item version of the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). Only the short form was administered in this wave, unlike earlier waves. The scale asked about physiological and psychological symptoms during the past seven days (“You felt depressed”; “You felt life was not worth living”; “You were happy”; “You could not shake off the blues”; and “It was hard to get started doing things”). Each item had four response categories ranging from 0 (never or rarely) to 3 (most of the time or all of the time). A past study has established that this five-item version has good reliability and validity like the original scale (Perreira et al., 2005). In the current operational sample, Cronbach’s alpha was .80 for women and .77 for men.

*Occupational attainment variables.* *Current employment status* included three categories—not working, working part time (less than 35 hours), and full time (35 hours or more). As a measure of job stability, we used *involuntary job loss*, which represented the number of times the respondent was fired, let go, or laid off since 2001. Information prior to 2001 was not available. Due to the extreme positive skewness, the variable was trichotomized as

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<sup>2</sup> The analysis excluded people who had military jobs because Add Health focused on civilian jobs for the collection of occupational data, and these people’s data were missing in some of the occupational attainment variables used in the analysis.

none, once, and twice or more. Some people may have experienced job instability because of voluntary job loss, but it was not directly relevant to the current investigation because it did not necessarily indicate workers' failure to keep their jobs. As a measure of *occupational status*, we used Duncan's Socioeconomic Index (1961), which combined educational requirements for the occupation and average level of earnings for the occupation. In Wave 4, Add Health respondents reported current or most recent occupations, and for many of them, these occupations were fairly recent—56.5% worked at this job during the past year, and 80.0% worked at this job during the past two years. For this question, respondents' occupations were recorded using the 2000 Standard Occupational Classification (SOC), and we matched the information to Duncan's Socioeconomic Index. *Earnings from work* were measured in US dollars. To reduce skewness, we transformed the variable by taking a natural log. It should be noted that there was no measurement contamination between occupational status and education and between occupational status and earnings although these variables correlated with each other. For example, high-status occupations required high levels of education and provided high levels of earnings on average, but some respondents who held such occupations had low education, low earnings, or both.

As a measure of subjective assessment of occupational attainment, the analysis included *perceived career progress*. The question asked, "Which one of the following best describes your primary job?" The variable had four response categories (1=do not have a long-term career or work goals; 2=not related to my long-term career or work goals; 3=preparation for my long-term career or work; and 4=part of my long-term career or work goals). We assumed that among the last three categories, "part of goal" represented the most positive assessment, and that "not related" represented the most negative assessment of career progress. Although the meaning of

“do not have a long-term goal” seems unclear, we argue that it is even more negative than “not related.” As we discussed before, not many people achieve career aspirations that they developed in adolescence, and they develop more realistic goals and new work values as they spend the early part of their careers moving across jobs and learning more about them (Heinz, 2002; Johnson, 2001). Therefore, early work experience is an important resource for articulating career goals. In this sense, having no career goal in young adulthood may mean that the person has not obtained jobs that would have helped the person articulate his or her goal. Consistent with this argument, an exploratory analysis showed that people who reported having no long-term goal tended to come from disadvantaged background (black, had not finished high school, raised by parents who did not have a college degree) and show lower levels of occupational attainment in other indicators (lower occupational status, not working or working part time currently, and lower levels of earnings).

*Control variables.* The analysis controlled for several sociodemographic correlates of mental health and occupational attainment (Burgard et al. 2007; Janlert & Hammarström, 2009; Mossakowski, 2009). *Sex* was coded as 0=men and 1=women (Wave 1). *Age* was measured in years (Wave 4). *Race* consisted of five dummy variables including non-Hispanic white, non-Hispanic black, Asian, Hispanic, and others (Wave 1). *Highest educational degree* consisted of the following five dummy variables (Wave 4): (1) less than high school; (2) high school graduate; (3) associate degree or post-secondary vocational/technical certificate; (4) bachelor’s degree; and (5) graduate or professional degree. *Marital status* distinguished between people who were married (coded 1) and those who were not (coded 0) (Wave 4). *Number of children* consisted of four dummy variables: no children, one child, two children, and three or more children (Wave 4). Direct measures of *work experience* were not available in Add Health, so we

created a proxy variable by subtracting the age of obtaining the first fulltime job from the age in Wave 4. We focused on full-time jobs in this control variable because work experience that considered part-time work was not strongly associated with the level of success in occupational attainment in young adulthood. *Self-rated health* was based on a five-point item, “In general, how is your health?” (Wave 4). The response categories ranged from 1 (poor) to 5 (excellent). The analysis also included three variables for parents’ socioeconomic status all measured in Wave 1: (1) *parent education* based on mother’s or father’s education whichever was higher (less than high school, high school or GED, some college, and college or more); (2) *parent occupation* (1=either parent had a managerial, professional, or technical occupation; 0=otherwise); and (3) *annual family income* (transformed by taking a natural log).

As one examines the association between occupational attainment and mental health, it is important to consider causal ordering because the observed association may reflect selection processes to some extent. That is, people with poorer mental health come to be unemployed or drift to lower-status occupations and lower-earning jobs. Some studies reported that such selection processes account for the association between lower attainment and higher levels of depressive symptoms (e.g., Mulatu & Schooler, 2002) while others found no evidence (e.g., Warren, 2009). The selection processes may result from depressed persons’ lowered educational attainment and reduced productivity at work (Berndt et al., 2000) as well as employers’ hesitation to hire those people (Biggs et al., 2010). To fully account for selection effects, repeated measures of occupational attainment are needed. Unfortunately, such data are not available in Add Health, but we control for *depressive symptoms in adolescence* to help interpret the causal order. The variable was measured by a sum of 19 CES-D items in Wave 1.

### *Analytical Procedure*

We used OLS models for the multivariate analysis (Table 3). Because the dependent variable, depressive symptoms, had a positively skewed distribution, we conducted a parallel analysis using negative binomial models, which produced conclusions similar to the main analysis based on OLS (results available upon request). We first entered each occupational attainment variable in separate models (Models 1 through 5) and then ran a full model that included all occupational attainment variables (Model 6). All models included the control variables discussed above.

As explained above, the literature suggested that some aspects of occupational attainment mediate the effects of other aspects of occupational attainment on depressive symptoms. To test these mediation processes, we observed how the coefficient of each occupational attainment variable changed from Models 1 through 5 to Model 6. Statistical significance for each mediation process was obtained using Sobel-Goodman test (Sobel, 1982). The test is generally viewed as superior to the traditional approach to mediation, which does not provide a specific p value but instead bases the conclusion on whether the coefficient of the key independent variable changes from significant to non-significant (e.g., Baron & Kenny, 1986).

Missing data were multiply imputed in chained equations using Stata's "mi" command (Stata, 2017). The analyses also used Stata's "svy" command to correct standard errors for the nested data structure (respondents attending same schools in adolescence) and weight estimates for the oversampling of certain sociodemographic groups such as blacks from high socioeconomic families, Cubans, Puerto Ricans, and Chinese (see Chantala, 2006 for details).



## Results

### Descriptive Statistics

Table 1 presents descriptive statistics. In Wave 4, 78.6% of respondents were working full time, 12.4% were working part time, and 9% were not working. Occupational status score averaged at 43.9 and varied considerably across individuals ( $SD=23.4$ ). Although a majority of participants had no experience of involuntary job loss, it was not uncommon—21.5% experienced it once, and 10.4% experienced it twice or more. Earnings were low overall because these young adults were in the early stages of their careers and because not all worked full time. The perception of career progress varied substantially—the largest percentage of people (42.3%) described their jobs as part of their long-term goals, about a quarter of people (25.8%) described their jobs as only preparation, and another quarter (25.1%) described their jobs as unrelated. A small group of people (6.9%) reported having no long-term career goals.

Insert Table 1 Here

As a part of preliminary analysis, we also estimated correlations among occupational attainment variables (see Table 2). Most pair-wise correlations had significant coefficients with expected signs, and some correlations were stronger than others (e.g., between occupational status and subjective socioeconomic status; between current work status and earnings). Although these correlations were overall moderate, they might still be consequential in multivariate analysis because each occupational attainment variable was only moderately associated with depressive symptoms (to be shown below). Therefore, the correlation analysis highlighted the importance of considering occupational attainment simultaneously in OLS models.

Insert Table 2 Here

## The Association between Occupational Attainment and Depressive Symptoms

Table 3 presents results from OLS models that predicted depressive symptoms. Models 1 through 5 entered each occupational attainment variable separately while controlling for sociodemographic variables. Model 1 showed that occupational status was associated with depressive symptoms. Although significant at the .001 level, the association ( $b = -.005$ ) was weak—one standard deviation decrease in occupational status translated into a .12 point increase in depressive symptoms or a .05 standard deviation increase. Model 2 showed that current work status was also associated with depressive symptoms. Specifically, the average depressive symptom score was .93 point higher for those who were unemployed ( $p < .001$ ) and .32 point higher for those working part time ( $p < .05$ ) than those with full-time jobs. Involuntary job loss was also associated with depressive symptoms, as shown in Model 3. Experience of one involuntary job loss was associated with a .23 point increase in depressive symptoms ( $p < .01$ ), and experience of two or more losses was associated with a .61 point increase ( $p < .001$ ), relative to no involuntary job loss. Model 4 showed a significant effect of personal earnings ( $b = -.076$ ,  $p < .001$ ) although the effect was small—one standard deviation increase in logged earnings translated into only a .15 point decrease in depressive symptoms. In Model 5, perceived career progress also showed a significant association. People working for jobs that they viewed only as preparation or unrelated to their plans had higher levels of depressive symptoms ( $b = .278$ ,  $p < .001$  and  $b = .335$ ,  $p < .001$  respectively) than those who viewed their current jobs as part of their plans. Depressive symptoms were even higher among people who reported that they did not have goals ( $b = .378$ ,  $p < .001$ ). This result made sense because not having a goal at this point of life stage indicated that they had not obtained jobs that would allow them to articulate their goals, as mentioned earlier.

## Insert Table 3 Here

Model 6 entered all occupational attainment variables and showed that the coefficients did not change very much for employment status, involuntary job loss, and perceived career progress, indicating that the association between each of these occupational attainment variables and depressive symptoms was independent of other occupational attainment variables. However, coefficients for two variables showed greater reductions in size and lost significance in Model 6. One of these two variables was occupational status, whose coefficient decreased and lost significance in Model 6 although the degree of coefficient change was modest (-.005 to -.003). A follow-up analysis (not shown here) indicated that the change was due to employment status and perceived career progress although these mediations were not strong enough to reach statistical significance in Sobel-Goodman tests. One interpretation is that low occupational status increased depressive symptoms by heightening the risk of unemployment or part-time employment and undermining one's sense of career progress. Personal earnings was the other variable that showed a reduction in the coefficient in Model 6. The coefficient changed from -0.076 to -0.031 and lost significance. A follow-up analysis showed that this change was due to employment status. The result indicated that people who earned less money had higher levels of depressive symptoms because they were also more likely to be unemployed or working part time, as opposed to working full time. Between personal earnings and employment status, the latter was more strongly associated with depressive symptoms. Significance test of mediation was not conducted for this coefficient change because it did not make sense to conceptualize employment status as a mediator for earnings.

The primary analysis shown above included people in different occupational groups, but we also conducted a series of supplemental analyses separately for each occupational group to

examine whether the association between each aspect of occupational attainment and depressive symptoms differed across occupational groups. The analysis revealed that each occupational attainment variable was significant for some occupational groups and insignificant for other groups, and these associations did not seem to show any meaningful pattern. The issue deserves attention in future research.

### Discussion

Although each objective aspect of occupational attainment was significantly associated with depressive symptoms, current employment status and involuntary job loss showed stronger associations. Past research has shown that these aspects of occupational attainment predict depressive symptoms in the broader adult population (Jefferis et al., 2011; Reneflot & Evensen, 2014), but evidence has been lacking, particularly for the effect of involuntary job loss in the young adult population. The current results fill this gap in the literature. Further, unlike previous studies, the present study demonstrated that these effects of employment status and involuntary job loss were independent of other occupational attainment variables. This result suggests that work status and involuntary job loss affect mental health through other factors outside the occupational attainment process, for example, by undermining a sense of personal control, by disrupting the existing daily routines, and by reducing the source of social support and self identity (Burgard et al., 2007; Janlert & Hammarström, 2009). Unfortunately, Add Health did not include any information about these processes and did not allow further analysis.

Perceived career progress was also associated with depressive symptoms as expected. The status attainment literature highlights its importance for young adults by pointing out the consequences for work commitment and career planning (Heinz, 2002; Mortimer et al., 2008), but mental health consequences have not been identified. In the present study, higher levels of

depressive symptoms were found among young adults who reported that they were still preparing for their career goals or that their current (or most recent) jobs were not related to their goals, compared to those who consider their current jobs as part of career goals. The result indicates that subjective aspects of occupational attainment, along with objective aspects, have important mental health implications.

To elaborate on the current findings, future research should also examine whether the association between occupational attainment and mental health differs across social groups. We began to answer this question by testing gender differences in an exploratory analysis. The literature suggests the possibility of gender differences. The labor market continues to be gendered, and women continue to face career disadvantages (Blau & Kahn 2017; Padavic & Reskin 2002). To help them counter their disadvantages in the labor market, parents emphasize girls' schooling more than boys (Carter & Wojtkiewicz, 2000; Reynolds & Burge, 2008). Thus, the meaning of occupational attainment may differ between women and men. Despite these arguments, our exploratory analysis showed very little gender differences in the association between occupational attainment and depressive symptoms (detailed analysis available upon request).

Because this study used a young adult sample, the current results may or may not apply to later life stages. It is possible that disadvantages linked to unsuccessful occupational attainment accumulate and exacerbate the mental health consequences over the life course, as seen for other dimensions of social disadvantages such as race (Pearlin et al., 2005). This scenario is especially likely for earnings, which showed only a weak association with depressive symptoms in young adulthood partly due to the limited variability across individuals. Past studies that included adults of all ages emphasized the mental health implications of earnings

(Hounkpatin et al., 2015; Ross & Huber, 1985). In that context, a weak effect of young adult earnings is an important finding. As the variability increases across life stages, the association with depressive symptoms may strengthen. A different scenario is possible, however. People who have been less successful in occupational attainment may adapt over time and develop appreciation for their jobs (Johnson, 2001), and successful people may come to take their advantages for granted. These processes would instead weaken the association between occupational attainment and mental health over time. Future research needs to test these possibilities.

The results have important policy implications. Among the key aspects of occupational attainment, policy makers should pay close attention to employment status, involuntary job loss, and perceived career progress in their effort to promote young adults' mental health because these aspects of occupational attainment showed stronger associations, which were independent of other aspects of occupational attainment. Temporary unemployment and involuntary job loss are not uncommon among young adults particularly in this era of job precariousness (MacDonald, 2009), but the current results suggest that these things should not be taken lightly. The results also indicate that people who negatively evaluate their career progress and those who do not have long-term career plans deserve special attention from policy makers because some of them may seem successful when judged in objective aspects of occupational attainment. These young adults may be invisible to policy makers unless they are asked to report their perceptions of career progress. More broadly, the current results based on a young adult sample endorses early intervention and prevention efforts because occupational disadvantages may accumulate over time and because having depression, or mental illness more broadly, constrains many aspects of young adults' lives including intimate relationships, social engagement, and work performance

and start negative life trajectories (Berndt et al., 2000; Link & Phelan, 2010; Rudolph et al., 2009).

The study has three important limitations that need to be addressed in future research. First, the study did not directly test the reciprocal relationship between occupational attainment and depressive symptoms. Therefore, the causal ordering of the associations reported in this study remains tentative. The analysis controlled adolescent depressive symptoms (and many demographic characteristics) to reduce selection bias, but it is still possible that unobserved factors affect occupational status outcomes and adult mental health. One way to address this issue more directly is to analyze longitudinal data using fixed effect models. Unfortunately, currently available waves of Add Health were not ideal for such an analysis. Although occupational attainment outcomes were measured in Wave 3, as well as in Wave 4, many respondents were still in college in Wave 3 and thus did not allow meaningful analysis. Second, the study did not include any objective measures of career progress such as the one Hardie (2014) employed in her study by examining the match between aspired and attained occupations. The relative importance of perceived career progress and objectively measured progress needs to be examined in future research that includes both of these measures. Third, the present study focused on depressive symptoms, but other outcomes need to be considered in future research. Our exploratory analysis included alcohol use (overall frequency and binge drinking) as additional outcome variables to capture behavioral stress responses, as opposed to emotional ones, but none of the occupational attainment measures was strongly associated with these outcomes for both women and men.

## Conclusions

This study examined the association between several key aspects of occupational attainment and depressive symptoms in young adulthood. Unlike previous research, the study examined these aspects simultaneously and demonstrated that employment status, involuntary job loss, and perceived career progress showed stronger associations, which were independent of other aspects of occupational attainment. Occupational status and earnings showed only weak associations, perhaps because young people who have been unsuccessful in these aspects anticipate improvements in later stages and because individual variations were limited in this life stage. Overall, the results suggested that research on occupational attainment requires close attention to life stages, and that future research needs to examine mental health consequences of occupational attainment in each of the remaining stages of adulthood while considering the unique meaning of occupational attainment in each stage.



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**Table 1. Sample Characteristics**

	Mix	Max	Mean or %	SD
Depressive symptoms (5 items)	0	15	2.53	2.50
Occupational status	4.00	95.42	43.89	23.35
Current employment status				
Unemployed	0	1	9.0%	
Working part time	0	1	12.4%	
Working full time	0	1	78.6%	
# involuntary job loss				
0	0	1	68.1%	
1	0	1	21.5%	
2 or more	0	1	10.4%	
Personal earnings (logged)	0.00	13.82	9.91	1.95
Perceived progress				
No goal	0	1	6.9%	
Not related to goal	0	1	25.1%	
Preparation for goal	0	1	25.8%	
Part of goal	0	1	42.1%	
Education				
Less than high school	0	1	6.8%	
High School	0	1	42.8%	
Associate or technical	0	1	19.6%	
Bachelors	0	1	23.6%	
Graduate or professional	0	1	7.2%	
Age <sup>a</sup>	24	34	28.34	1.84
Female	0	1	46.5%	
Race				
White	0	1	67.5%	
Black	0	1	15.7%	
Hispanic	0	1	12.1%	
Asian	0	1	3.2%	
Others	0	1	1.6%	
Parents' education (ref=high school)				
Less than high school	0	1	11.2%	
High school	0	1	39.8%	
Associate or tech.	0	1	14.5%	
Bachelor's, graduate, or prof.	0	1	34.4%	
Parent professional	0	1	39.4%	
Parent family income (logged)	0	13.81	10.35	1.27
Self rated health	1	5	3.67	0.90
Married	0	1	41.0%	
# of children				
0	0	1	59.4%	
1	0	1	19.3%	
2	0	1	14.5%	
3 or more	0	1	6.8%	
Work experience	0	18	8.29	3.52
Adolescent depression (19 items)	0	56	10.77	7.35

Note: n=13,178.

**Table 2. Correlations Among Occupational Attainment Variables (Pearson Correlation Coefficients Shown)**

	1	2	3	4	5	6	7	8	9	10	11	12
1. Occupational status	1.00											
Current employment status												
2. Unemployed	-.123***	1.00										
3. Working part time	-.087***	-.113***	1.00									
4. Working full time	.156***	-.612***	-.717***	1.00								
# involuntary job loss												
5. None	.171***	-.185***	.004	.127***	1.00							
6. One	-.090***	.081***	.004	-.060***	-.771***	1.00						
7. Two or more	-.142***	.176***	-.012	-.114***	-.494***	-.174***	1.00					
8. Personal earnings (logged)	.156***	-.259***	-.141***	.294***	.097***	-.059***	-.069***	1.00				
Perceived progress												
9. No goal	-.122***	.102***	.017	-.085***	-.029	.016	.023**	-.088***	1.00			
10. Not related to goal	-.217***	.124***	.129***	-.190***	-.124***	.080***	.082***	-.162***	-.148***	1.00		
11. Preparation for goal	.053***	-.035***	-.028**	.046***	.005	-.006	.000	.015	-.157***	-.348***	1.00	
12. Part of goal	.201***	-.127***	-.097***	.166***	.118***	-.073***	-.083***	.171***	-.220***	-.489***	-.518***	1.00

Note: n=13,178. \*p<.05; \*\*p<.01; \*\*\*p<.001.

**Table 3. OLS Regression Models Predicting Depressive Symptoms**

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Occupational status	-0.005***					-0.003
Current employment status (ref=full time)						
Unemployed		0.932***				0.760***
Working part time		0.332***				0.256**
Involuntary job loss (ref=no experience)						
Once			0.231**			0.155*
Twice or more			0.610***			0.478***
Personal earnings (logged)				-0.076***		-0.031
Perceived progress (ref=part of goal)						
No goal					0.378**	0.209
Not related to goal					0.335***	0.175*
Preparation for goal					0.278***	0.243**
Education (ref=HS)						
Less than high school	0.531***	0.466**	0.552***	0.523***	0.550***	0.426**
Associate or tech.	-0.069	-0.082	-0.069	-0.073	-0.058	-0.039
Bachelor's	-0.208*	-0.241**	-0.251**	-0.252**	-0.235**	-0.113
Graduate or prof.	-0.211*	-0.283**	-0.287**	-0.309**	-0.255*	-0.089
Age	-0.007	-0.012	-0.005	-0.008	-0.004	-0.005
Female	0.487***	0.424***	0.502***	0.425***	0.433***	0.460***
Race (ref=white)						
Black	0.354***	0.336***	0.333***	0.347***	0.318***	0.268**
Hispanic	0.032	0.036	0.029	0.018	0.008	0.049
Asian	0.019	0.009	0.017	0.017	-0.007	0.038
Others	0.002	-0.043	-0.020	-0.023	-0.037	-0.068
Parents' education (W1; ref=high school)						
Less than high school	0.034	0.054	0.042	0.025	0.031	0.028
Associate or tech.	-0.041	-0.034	-0.045	-0.039	-0.046	-0.018
Bachelor's, graduate, or prof.	-0.009	-0.025	-0.016	-0.017	-0.020	-0.009
Parent professional	-0.004	-0.005	-0.005	-0.004	-0.008	0.002
Parent family income (logged)	0.019	0.015	0.018	0.017	0.018	0.023
Self rated health	-0.475***	-0.459***	-0.463***	-0.467***	-0.469***	-0.444***
Married	-0.290***	-0.264***	-0.267***	-0.286***	-0.269***	-0.213***
# of children (ref=0)						
1	-0.334***	-0.343***	-0.320***	-0.320***	-0.319***	-0.340***
2	-0.188*	-0.198*	-0.191*	-0.197*	-0.184*	-0.203*
3 or more	-0.103	-0.120	-0.074	-0.125	-0.107	-0.131
Work experience	0.005	0.011	0.004	0.009	0.007	0.010
Adolescent depression	0.077***	0.077***	0.076***	0.077***	0.077***	0.074***
Constant	3.613***	3.389***	3.209***	4.176***	3.112***	3.251***

Note: n=13,178. \*p<.05; \*\*p<.01; \*\*\*p<.001.