A Longitudinal Examination of Re-employment Quality on Internalizing Symptoms and Job-Search Intentions

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Abstract

Underemployed workers—those receiving less pay, working fewer hours, or using fewer skills than they would prefer—appear to experience negative mental health outcomes similar to the unemployed. Prior cross-sectional research provides mixed empirical evidence for this conclusion, however. The current study sought to clarify the impact of underemployment longitudinally, assessing mental health five times over eight months following job loss. In addition to the commonly used indicators of underemployment, we designed a measure of cognitive complexity using the Occupational Information Network (O*NET), an extensive government database used to organize and categorize occupational information. Replicating past research, we found concurrent associations between all indexes of re-employment job quality and internalizing symptoms in the period immediately after re-employment. However, when controlling for quality of prior employment, all indicators except our measure for cognitive complexity became non-significant. As participants transitioned from unemployment to re-employment, only reductions in cognitive complexity were associated with sustained general internalizing symptoms. We also found that although changes in cognitive complexity had an immediate impact on the well-being of the recently re-employed, only the number of available weekly hours (full-time vs. part-time status) was relevant 6-12 weeks later. Our longitudinal model thus provides significant nuance to the current understanding of underemployment and mental health.

Keywords

With a June unemployment rate of 6.1%, 2014 has been a difficult time for many Americans. This rate has decreased in recent months, but emerging evidence suggests that a related indicator, underemployment, is on the rise (Sum & Khatiwada, 2010).

Underemployed workers are those who work fewer hours, use fewer skills, or receive less pay than they would if they were working at full capacity. Most research suggests that the underemployed experience negative mental health outcomes similar to those experienced by the unemployed (Cassidy & Wright, 2008; Dooley, 2003; Ginexi, Howe, & Caplan, 2000; Kinicki, Prussia, & McKee-Ryan, 2000; McKee-Ryan & Harvey, 2011; Leana & Feldman, 1995). However, other research has been less conclusive. Several studies have found conflicting evidence suggesting that underemployment is unrelated to a variety of the same indicators, including job satisfaction (Kahn & Morrow, 1991), life satisfaction (Burke, 1998; Feldman & Turnley, 1995) and physical health (Johnson & Johnson, 1997). Indeed, the literature provides mixed support for the premise that underemployment represents a form of harmful employment (Friedland & Price, 2006). This inconsistency may be the result of an overreliance on cross-sectional designs. Underemployment researchers have primarily employed cross-sectional and retrospective examinations and so are unable to test time-dependent effects. There has been a call for research to explore the relationship between underemployment and well-being across various time points (Friedland & Price, 2003). The current study is designed to address this gap through the use of a multi-wave measurement model that followed participants for eight months following job loss.

The use of a longitudinal design allows us to track participants from a common starting point to examine patterns of change. The time following involuntary job loss may be an ideal period to study the longitudinal profile of underemployment because it allows us to bypass the problems associated with comparing individuals who have been underemployed for varying amounts of time (Borrero, 1980). That is, some aspects of job quality may be immediately relevant whereas the influence of others may take time to develop. To our knowledge, the only study to comprehensively examine the longitudinal relationships between underemployment and mental health (Friedland & Price, 2003) did not account for this potential confound, such that a participant who had been underemployed for 10 years was considered equivalent to one who had just recently become underemployed.

Differences in employment quality may be particularly salient during the transition between jobs. Relative Deprivation Theory posits that an individual's satisfaction with work stems from the discrepancy between their actual status and the status to which they feel entitled (Feldman, Leana, & Bolino, 2002; Winefield, 2002). For the recently reemployed, the status to which they feel entitled might be informed by the quality of their previous employment. Thus, a worker who is reemployed in a job that involves fewer hours, less pay, or less skill than their previous job may derive less relief than a worker whose new job is of equal or higher quality than their previous job. Past research supports this notion, suggesting that people tend to infer their job satisfaction in large part through a simple comparison of their current employment with their previous employment (Borgen, Amundson, & Harder, 1988; Boswell, Shipp, Payne, & Culbertson, 2009; Grün, Hauser, & Rhein, 2010). The difference in quality between previous and new employment may therefore be a useful heuristic for assessing underemployment; the current study indexes underemployment using this discrepancy.

Assessing Job Quality and Underemployment

Consistent across all conceptualizations of underemployment is the assumption that it represents a form of life stress caused by inadequate employment (Brown & Harris, 1978; McKee-Ryan & Harvey, 2011). Adequacy of employment has been conceptualized using a variety of objective criteria, including involuntary part-time or temporary employment status (Kalleberg, Reskin, & Hudson, 2000; Steffy & Jones, 1990; Tipps & Gordon, 1985), underpayment (Feldman & Turnley, 1995; Kalleberg et al., 2000; Zvonkovic, 1998), or person-job skill mismatch (Clogg & Shockley, 1985; Maynard, Joseph, & Maynard, 2006).

The aforementioned objective measures of employment quality are also concurrently related to subjective measures, such as work satisfaction (Eberhardt & Shani, 1984; Steffy & Jones, 1990), organizational commitment (Maynard, Joseph, & Maynard, 2006), depressive affect (Dooley, 2003), and perceived job complexity (Caplan, 1987; Gottfredson, 1986; Gould, 1979). Subjective job fitness is an important component of underemployment and is frequently considered in the literature (Bolino & Feldman, 2000; Creed, Lehmann, & Hood, 2009; Maynard, Joseph, & Maynard, 2006; Thorsteinson, 2003). However, subjective measures can become problematic when used as predictors of mental health outcomes if reports of subjective job fit are themselves influenced by current mood, such that more depressed individuals are more likely to see their work in a negative light. The influence of mood on self-report has been found in studies of stressful life events, particularly when measures of stressors involve ratings of subjective impact (Cohen, Towbes, & Flocco, 1988). Use of cross-sectional designs exacerbates this problem, because such designs do not allow investigators to include independent controls for current mood. For these reasons, the current study uses objective measures within a longitudinal design to characterize quality of employment.

Reductions in cognitive complexity as an element of underemployment

Underemployment scholars have consistently called for empirical contributions that can be readily integrated into existing theoretical frameworks (Feldman, 1996; Latack, Kinicki, & Prussia, 1995; McKee-Ryan & Harvey, 2011). In this study we focus on cognitive complexity, defined as the degree of complication and mental challenge required by a job (Hadden, Kravets, & Muntaner, 2004). Although cognitive complexity is relatively understudied and theoretically underdeveloped compared to other popular metrics of underemployment, it is readily adaptable to existing theoretical frameworks. Feldman (1996) divided underemployment metrics into several dimensions: one such dimension refers to the requirements and characteristics of a given job. According to his review, there is some support for the proposition that job type (e.g., managers vs. non-managers) has an effect on underemployment (Feldman, 1996). We propose that cognitive complexity of work is a key factor underlying the relationship between job type and underemployment. Cognitive complexity may also subserve theoretically-driven assessments of underemployment, such as person-job fit (e.g., the degree to which the cognitive capacities of a worker match the cognitive requirements of the job; Edwards, 1991), relative deprivation theory (e.g., the discrepancy between complexity desired by the worker and that provided by the current employment; Feldman et al., 2002), or the coping and control theory

(e.g., the change in cognitive complexity between previous and current employment; Latack et al., 1995).

Subjective assessments of underemployment, such as perceived overqualification or skill underutilization may also be inherently tied to cognitive complexity, which would index the degree of skill required for a given job (McKee-Ryan & Harvey, 2011). Use of cognitive complexity as a measure of job quality may also circumvent certain measurement challenges related to employee education; research suggests that highly educated workers tend to minimize the effects of underemployment on their mental health by making external attributions for their underemployment (e.g., that structural market conditions were responsible for their underemployment rather than internal characteristics; Borgen et al., 1988). By focusing on the qualities of the job rather than on the qualifications of the employee, researchers may better avoid these complications. In sum, we believe that cognitive complexity represents a useful measure of objective underemployment (McKee-Ryan & Harvey, 2001), with clear ties to several theories of underemployment.

Some research has examined perceived cognitive complexity as an indicator of employment quality. An early examination of the subject found that cognitively complex jobs were associated with job satisfaction even after controlling for salary, tenure status, sex, and seniority (Gould, 1979). Among a sample of recently re-employed executives, sudden declines in skill utilization (cf. cognitive complexity) played the greatest role in negative reactions to underemployment, more so than pay cuts or demotions in status (Feldman et al., 2002). Indeed, the degree to which a job provides an opportunity for diverse and challenging tasks has been found to be a robust predictor of a variety of well-being variables (Morrison, Cordery, Girardi, & Payne, 2005; O'Brien, 1982; O'Brien, 1983), suggesting that cognitive complexity may have a strong immediate impact on mental health following reemployment. Although some research suggests that cognitive complexity may remain relevant in the long-term (O'Brien & Feather, 1990), more recent research suggests that changes in employment content, such as cognitive complexity, may be most relevant in the period immediately following reemployment. As individuals transition between jobs, positive aspects of work content have a strong influence on job satisfaction, but the strength of this effect tapers off as the novelty wears off (Boswell, Boudreau, & Tichy, 2005; Boswell et al., 2009). Thus, cognitive complexity may most strongly affect internalizing symptoms early in the reemployment process, while the complexity remains novel.

With regard to measuring cognitive complexity, past research has relied on subjective assessments of skill utilization, asking participants to rate the degree to which they feel their job provides interesting and diverse assignments that capitalize on their skill-set. Given the potential importance of cognitive complexity to understanding underemployment, we assert the need for an objective measure of this construct. To this end, we used the Department of Labor's Occupational Information Network (O*NET) to generate a cognitive complexity rating for each of the database's 1102 occupations.

Objective economic conditions as elements of underemployment

The financial aspects of underemployment (e.g., underpayment, part-time/temporary work) are among the most popular in underemployment research, and have been shown to be particularly important for a variety of physical and mental health outcomes (Vinokur, Price, & Caplan, 1996). Research suggests, however, that financial underemployment may become more impactful the longer that the individual in question remains underemployed. Sustained economic hardship has been shown to elicit growing frustration and depression (Price, van Ryn, & Vinokur, 1992) as well as systemic difficulties in family and marital functioning (Berkowitz, 1989; Price, 1992). In the long-term, difficulties with money may also potentiate future life stressors and poorer mental health (Price, Choi, & Vinokur, 2002). Indeed, research suggests that financial underemployment acts on mental health through a mediating chain of events that may take some time to develop (Conger et al., 1990). The current study tracked changes in income and work status across the six month period following job loss to test whether renewed employment that fell short of prior employment would be associated with continued symptoms of emotional distress.

Measuring Mental Health Outcomes

A substantial research literature has reliably documented that emotional distress (e.g., depression and anxiety) increases after loss of employment (Paul & Moser, 2009), and that return to employment is associated with reductions in such symptoms (Ginexi, Howe, & Caplan, 2000). This suggests that longitudinal studies of unemployed workers may provide a unique opportunity for studying the prospective effects of underemployment. A substantial percentage of workers will find new work over time, but these will vary in whether new jobs match prior employment in terms of cognitive complexity, income, or permanence. If underemployment and unemployment produce similar effects on mental health (Cassidy & Wright, 2008; Dooley, 2003; Maynard et al., 2006), then individuals who fail to acquire adequate reemployment should continue to exhibit any symptoms of depression and/or anxiety that they exhibited while unemployed.

Although most studies have focused separately on depression or anxiety, there is substantial research indicating that these symptoms are strongly co-occurring, both at any given time, (Simms, Grös, Watson, & O'Hara, 2008), as well as when studying symptom trajectories over time (Howe et al., 2012). This raises the intriguing possibility that depression and anxiety partially reflect some common underlying mechanism. Tackett et al. (2013) found evidence that common variance in depression and anxiety disorders is associated with specific genetic markers, and Howe et al. (2012) also report predictors of common slope variance in an unemployed sample. Based on these findings, and the fact that our symptom measures were strongly correlated, we used latent variable modeling of depression, general anxiety, and social anxiety to index commonality in symptoms. We referred to this construct as internalizing.

The Current Study

The current study combined O*NET job ratings with other indicators of re-employment status, including part-time or full-time status, temporary or permanent status, and change in

income. We measured mental health outcomes at various measurement intervals to accommodate a repeated measures design. This also allowed us to test models reflecting different directions of effect; we compared models wherein changes in employment quality predict changes in mental health with alternate models wherein earlier mental health predicts patterns of re-employment.

We hypothesized that cognitive complexity would be the strongest predictor of mental health during the period immediately following re-employment. In contrast, we hypothesized that the financial aspects of underemployment (e.g., underpayment, part-time/ temporary work) would be emerge as relevant predictors of mental health in the longer-term, during the measurement periods following the initial reemployment period. Finally, we hypothesized that unfavorable changes in employment quality would result in an intention to continue searching for a job—this effect is robust in the literature (Burris, 1983; Feldman et al., 2002; Leana & Feldman, 1995; Robinson, Kraatz, & Rousseau, 1994).

Method

All procedures were reviewed and approved by the George Washington University Institutional Review Board. Data collection procedures are outlined in detail in Howe, Hornberger, Weihs, Moreno, and Neiderhiser (2012); here we give a brief summary.

Participants and Recruitment

Sampling began in February 2007 and ended in December 2008. At this time, both national and state unemployment rates had been low and stable for several years, and continued to be low throughout much of this period. We sampled from six counties with varying unemployment rates: the county with the lowest rate began at 2.5% and grew to 3.4%, while the county with the highest rate began at 5.9% and grew to 7.4% over this period. Individuals who had recently lost their jobs were identified and contacted with the help of a state unemployment service. 1056 people volunteered for screening, and 643 met eligibility criteria. The final sample consisted of 426 individuals who agreed to participate, could be interviewed within the required time frame, and had not yet found employment. This purposive sampling approach, though not random, allowed us to insure broad variation on important demographic factors. Of this sample, 275 had become re-employed by the end of the study. This subsample consists of 144 women and 131 men, ranging in age from 19 to 81 (M = 46 years), and is the focus of this report. Fifty-four percent identified as white, 34% African-American, 6% more than one race, and 6% unknown or other (American Indian, Asian, Pacific Islander). On average, participants had completed 14.6 years of education (SD = 2.64), ranging from 8 to 20 years. Median household income was $41,714 before job loss.

Data Collection

Participants completed a series of five interviews over the seven months following loss of employment. The initial interview took place in person, generally in the home of the participants; follow-up interviews were conducted by telephone. Time 2 interviews were scheduled 12 weeks after the date of job loss, and the remaining interviews were scheduled

every 6 weeks. Eighty-five percent of the participants completed the Time 2 interviews, 74% the Time 3 interview, and 72% the Time 4 interview. We extended the window for the final T5 interview, which had an 88% completion rate. Participants were compensated $15/hour.

Measures

Re-employment Status—Employment status variables were collected through a semi-structured interview. At T1, this interview included questions concerning the job held just prior to job loss. Later interviews inquired about any job obtained since the previous interview. Three questions assessed the nature of the work, job title, and the type of employer. A single question assessed whether the job was considered temporary or permanent. Two questions asked for salary rate and hours worked.

Occupation coding—Job information acquired during the semi-structured interview was used to assign each occupation a unique five-digit code from the O*NET, a database maintained by the Department of Labor (http://www.O*NETonline.org). This process was completed independently by two raters, who showed high agreement (ICC = .86). The O*NET is considered the primary source for all United States occupational information, containing information on hundreds of standardized and occupation-specific descriptors along with a unique five-digit code for each of 1102 occupations. Version 15.0 was used for this study.

O*NET factor analysis—The O*NET uses a bank of approximately 500 attributes to describe each of the jobs contained in the database. These attributes are used to specify the key characteristics of workers and occupations. We created a list of 121 attributes that we deemed relevant to assessing employment complexity and challenge by combining conceptually similar traits (e.g., hand steadiness with finger dexterity) and excluding conceptually irrelevant traits (e.g., attributes that refer instead to job market characteristics).

Using this list, we conducted an exploratory factor analysis using MPLUS version 6.1 with geomin oblique rotation. Inspection of eigenvalues indicated the presence of one major factor (eigenvalue = 43.13) with a number of smaller factors having eigenvalues above 1 but gradually decreasing. Inspection of solutions indicated that the first two factors were conceptually distinct, while the remaining smaller factors appeared to involve highly specific content differences among small subsets of jobs. The first factor involved strong loadings on 59 of the attributes, with content that closely paralleled that described by Hadden et al. (2004) for their primary dimension of cognitive complexity and challenge. This factor included ratings of content knowledge (e.g., computers, mathematics), skills (e.g., negotiation, complex problem solving), and abilities (e.g., oral expression, deductive reasoning). The second factor appeared similar to the physical demands factor identified by Hadden et al. (2004), although it accounted for a much smaller amount of variance than the cognitive complexity factor.

Based on this analysis, we chose to include only the first factor in subsequent analyses. We constructed a summary score of cognitive complexity by averaging ratings across these 59 attributes. This allowed us to create a job cognitive complexity rating for all jobs held by

participants prior to job loss, as well as a second rating for new jobs following re-employment.

Other job characteristics—We used salary data to calculate *annual income* in dollars for each job. We also assigned dummy codes for *permanent/temporary status* for both pre-job-loss and post-re-employment jobs (permanent work = 1). To assess change in status, we used three dummy coded variables for different patterns of stability and change (temporary to temporary, permanent to temporary, or temporary to permanent), using those who lost and then returned to permanent employment as the reference category. Finally, using the standard Department of Labor definition for full-time work as working at least 35 hours per week, we assigned a dummy code for *full-time/part-time employment* (full-time = 1), and created three dummy coded variables for the various patterns of stability or change.

Measures of Internalizing Symptoms

Depression symptoms—To measure depressive symptoms, we used an abbreviated version of the Center for Epidemiological Study Depression Scale (CES-D) which was developed to measure symptoms of depression in the general population (Radloff, 1977). This instrument asks the individual to indicate on a four point scale how often they have experienced various symptoms in the past week. We administered the full 20 item measure during the first wave of data collection, and a shorter 12 item version at each of the four subsequent waves. T1 total scores for the full and abbreviated versions of the measure were correlated .98, indicating excellent comparability. Only the shorter version was used in the analyses for this study for all five waves. Consistent with previous research using the abbreviated scale (Cole, Rabin, Smith & Kaufman, 2004), we found Cronbach's alpha ranging from 0.75 to 0.89 for waves 1 through 5.

General anxiety symptoms—The Penn State Worry Scale was used to assess general levels of worry (Meyer et al., 1990). This 16-item instrument asks participants to rate items such as, "I know I should not worry about things, but I just cannot help it," and "once I start worrying, I cannot stop" on a 5 point scale ranging from "very typical" to "not at all typical." This measure has shown high internal consistency and good test-retest reliability (Meyer et al., 1990). In the current study, Cronbach's alpha ranged from 0.75 to 0.88.

Social anxiety symptoms—We used the Brief Social Phobia Scale (BSPS) to measure participants' social anxiety symptoms (Davidson, Miner, De Veaugh-Geiss, Tupler, Colket & Potts, 1997). This 18 item measure consists of three subscales; fear, avoidance, and physiological arousal, which were combined into a total score. The BSPS asks participants to rate on a 5-point scale their level of fear or anxiety in a number of different situations, including, "speaking in public or in front of others" and "talking to people in authority." This measure also asks participants to rate how often they tend to avoid each situation on a 5-point rating scale from "never" to "always." The BSPS has shown good test-retest reliability and internal consistency (Davidson et al., 1997). Cronbach's alpha ranged from 0.92 to 0.95 in the current study.

Results

Strategy of data analysis

Participants varied in participation across the four follow-up waves. In addition, some participants refused to provide data on re-employment income, and in rare instances the O*NET system did not have quality data on specific occupations. We therefore chose to use multiple imputation to deal with missing data. We included all study variables reported in Table 2, as well as other measures of anxiety symptoms. We used SAS PROC MI (SAS Version 9.2) to create 50 imputed data sets, and MPLUS Version 6.2 to analyze the imputed data and to combine findings across datasets for final parameter estimates. Following the recommendations of Enders (2010), we used imputed values for all categorical variables, with one exception. Because we planned to use our measure of intention to continue searching for a job after re-employment as a dependent variable, we used adaptive rounding to assign imputed values to one of the two binary values (Enders, 2010, p. 262), allowing us to model this variable using generalized linear mixed modeling.

Zero-order correlations

All re-employment quality indicators were inter-correlated, with higher income jobs strongly associated with higher levels of cognitive complexity ($r = .51$, $p < .001$), and with permanent ($r = .32$, $p < .001$) and full-time status ($r = .59$, $p < .001$). All indicators were also associated with current depressive symptoms (rs $= -.16$ to $-.31$, ps $< .05$) and with intention to continue the job search (rs $= -.21$ to $-.52$, ps $< .001$), such that participants who were re-employed in jobs with lower income, less cognitive complexity, and of temporary or part-time status reported more depressive symptoms and more intention to continue their job search. Social anxiety was also inversely related with re-employment income ($r = -.12$, $p < .001$), permanent status ($r = -.09$, $p < .05$), and cognitive complexity ($r = -.22$, $p < .001$). General worry was only correlated with re-employment cognitive complexity ($r = -.18$, $p < .01$).

Prior and new income levels were strongly correlated ($r = .50$, $p < .001$), as were the cognitive complexity ratings of old and new jobs ($r = .52$, $p < .001$). Although full-time and permanent status were correlated over time (rs $= .21$ and $.17$, respectively, ps $< .01$), each showed substantial change after re-employment. Seventy people moved from full-time to part-time work, and 5 from part-time to full-time; 69 people moved from permanent to temporary work, and 102 moved from temporary to permanent work.

Convergent and discriminant validity of cognitive complexity

Correlations in Table 1 also provide evidence concerning the validity of our new cognitive complexity measure. Cognitive complexity was correlated only weakly with work status (temporary or part-time), and with demographic factors including age, gender, and ethnicity. As expected, it was more strongly correlated with income and education levels. It was also correlated in a theoretically consistent direction with the one subjective index of re-employment quality, such that new jobs of higher cognitive complexity were associated less intention to continue seeking new employment. These findings provide evidence of both convergent and discriminant validity.

Change in internalizing symptoms

We used latent change scores (Ferrer & McArdle, 2010) to characterize change in internalizing symptoms from unemployment to re-employment. Given the strong correlation among our indicators of depression and anxiety, we constructed latent variables that loaded on depression, general anxiety, and social anxiety measures. We then specified a latent change score model to index change in internalizing from the measurement wave prior to re-employment to the wave immediately afterwards. Latent change score models provide a more complete and unbiased estimation of change compared to autoregressive models. They are able to model both initial state and rate of change independent of one another, and are not limited to estimations of rank-order change.

We first tested whether demographic factors and characteristics of employment prior to job loss were associated with subsequent change in internalizing. We regressed change in internalizing on demographic factors including gender, age, education, and two dummy codes for African American or other minority status, using white status as the comparison. This model also included measures of employment quality prior to job loss, including income (logged), cognitive complexity, and dummy variables for permanent (as compared to temporary) status and full-time (as compared to part-time) status. Results indicated that none of these factors was significantly associated with change in internalizing (Table 2).

Immediate change in internalizing

To test our first hypothesis, that change in cognitive complexity upon reemployment would be associated with an immediate change in internalizing symptoms, we tested a model that included all demographic variables as well as indexes of change in the quality of employment. These included change in income, change in cognitive complexity, and dummy coded variables carrying information about stability or change in part-time/full-time and temporary/permanent status. Consistent with our hypotheses, change in cognitive complexity was significantly associated with change in internalizing in the period immediately following re-employment, with those moving to jobs of higher cognitive complexity reporting a greater reduction in internalizing symptoms, b = −1.62, SE =.677, β = −.338, p < .01. Changes in income as well as part-time/full-time and temporary/permanent status, however, were unassociated with change in general internalizing symptoms (Table 2).

Longer-term change in internalizing

To test our second hypothesis regarding longer-term effects, we repeated models with the subset of participants who were re-employed by the second, third, or fourth data collection points, studying change in symptoms from the period prior to re-employment to the second wave of data collection after re-employment (from 6 to 12 weeks later). This allowed us to test whether effects might emerge over a longer time frame. This was in fact the case. After 6 to 12 weeks, changes in employment status (full-time vs. part-time) became the sole significant predictor of change in internalizing symptoms. Controlling for all other predictors, participants who reported moving from full-time to part-time status showed a greater increase in internalizing symptoms compared to those who returned to full-time status, b = 2.332, SE = .817, β = .736, p < .01. Although part-time status was correlated with

income, $r = -.59$, $p < .001$, participants' re-employment income itself was unrelated to internalizing symptoms in the longer-term.

Associations with job search intentions

Finally, we ran a generalized linear mixed model to examine the relationship between change in employment quality and intention to continue searching for a job, using indexes of re-employment quality to predict intention to continue job searching. Indexes of prior employment quality and race were included as covariates (Table 3).

Change in employment quality was significantly associated with job searching intentions. Participants who had been in temporary work and returned to temporary work, as well as those who had been in permanent work and were re-employed in temporary work, were more likely to report intention to continue the job search, compared to those who had been in permanent work and returned to permanent work, $b = 1.72$, $SE = .489$, $\beta = .695$ and $b = 2.77$, $SE = .639$, $\beta = 1.12$, respectively. In addition, participants reporting a lower re-employment income were more likely to report intention to continue searching compared to participants reporting equal or higher pay, $b = -.814$, $SE = .358$, $\beta = -.310$. Of the covariates, only minority status was associated with job search intentions. African Americans, $b = .969$, $SE = .368$, $\beta = .392$, and other minorities, $b = 1.11$, $SE = .528$, $\beta = .450$, were more likely to continue the search after gaining re-employment, compared to whites.

Potential differences due to time to re-employment

We indexed time to re-employment using a four point scale reflecting the follow-up wave where re-employment was first reported. Variables were created to index information concerning possible interactions of time to re-employment with each of the four quality indicators, multiplying each by the time to re-employment variable. These were included in a fourth model that also included all variables in Model Two for both internalizing and job search intentions. None of the interaction terms reached significance, indicating that associations were not moderated by time to re-employment.

Testing opposite direction of effect

We also specified models that regressed each of the four re-employment quality variables on internalizing symptoms prior to re-employment. For cognitive complexity and income, we included prior employment indicators and demographics as covariates, resulting in an autoregressive linear regression model. We used a 4-category nominal indicator of permanent/temporary status, and a similar indicator of full/part-time status, regressing these on the same internalizing latent variable and demographic covariates using generalized linear mixed models. We found no evidence that earlier internalizing symptoms were related to change in any of the indicators of re-employment quality.

Discussion

Our results suggest that underemployment may operate differently depending on the aspects of employment quality under examination and the research design used to study them.

Specifically, our data show that a longitudinal analysis presents a different picture of the relationship between underemployment and mental health than a similar cross-sectional one. During the period immediately following re-employment, only cognitive complexity remained significant after controlling for prior employment quality. However, our subsequent analysis of multiple time points suggests that not all effects occur within the same time-frame. Specifically, we found that a reduction in cognitive complexity was associated with more persistent general internalizing symptoms, but only in the period immediately after re-employment. This pattern of arousal is consistent with the adjustment model summarized by Zapf, Dormann, and Frese (1996): after having time to adjust to their new working conditions, participants reported similar levels of internalizing symptoms regardless of earlier change in cognitive complexity. Once the worker grows accustomed to the new conditions, the link to mental health falls away. In contrast, change from full-time to part-time status was only associated with elevated internalizing symptoms over a longer time period. After 6-12 weeks, participants employed in part-time work reported a spike in internalizing symptoms relative to their previous measurement period. This lagged effect suggests that the disadvantages of part-time work may only become relevant after some time, a pattern of arousal consistent with the sleeper effect model summarized by Zapf et al. (1996). These results show that context matters when interpreting the relative impact of various metrics of employment quality, and that it is important for research to account for timing effects when studying the impact of underemployment on mental health. Our research is the first to consider the long-term effects of underemployment and the change in internalizing symptoms over several measurement periods.

Interestingly, the purely financial aspect of underemployment—income—was unrelated to both immediate and long-term internalizing symptoms after controlling for other aspects of underemployment. Instead, income only seems to be relevant for job search intentions. Individuals who were re-employed into work with lower pay were more likely to report a desire to continue searching for work. The same effect was observed for individuals who were reemployed into temporary work. Being reemployed with a low income or in temporary work may motivate additional job searching as a result of practical considerations. That is, if a worker is not being paid enough to sustain their lifestyle they should be motivated to seek new employment, regardless of how interesting or complex the work is. Temporary employees are subject to similarly pragmatic pressures, as low job security can threaten unemployment at a moment's notice.

In contrast, cognitive complexity and part-time status were unrelated to job search intentions after controlling for other indicators.[1] Indicators of employment quality that were relevant to anxiety and depression were thus irrelevant to job search intentions, and vice-versa. Although aspects of underemployment related to finances and job security may matter in a practical sense (i.e., a temporary or underpaid worker needs to seek employment to guarantee a certain standard of living), the content and availability of work (i.e., how

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[1]Some research has shown that there may be a discrepancy between job-search intentions and job-search behaviors (Bockerman & Ilmakunnas, 2009). Specifically, underemployed workers may report no intention to continue the job search while nonetheless doing just that. It is possible that these workers are sufficiently unsatisfied to search but not unsatisfied enough to describe their searching behaviors as a concerted effort. This discrepancy requires additional exploration.

interesting the job is and how many hours are available) may be primarily relevant to anxiety and depression. Research suggests that being cognitively engaged is crucial for avoiding boredom (Sommers & Vodanovich, 2000), and jobs that involve few cognitive demands and low skill variety tend to elicit more boredom, anxiety, and depression (Wiesner, Windle, & Freeman, 2005). Thus, a worker securely employed in a job that offers sufficient pay may avoid seeking additional employment, but may nonetheless experience anxiety or depression if the job offers insufficient cognitive engagement.

In our sample, workers employed in part-time work also tended to earn less income. Although income itself was not predictive of internalizing symptoms, the close relationship between part-time employment and underpayment prevents us from fully discounting the influence of financial underemployment. The effect of part-time employment on depression and anxiety may instead stem from a combination of financial and cognitive pressures: part-time workers, in addition to being paid less, may also feel cognitively under-engaged due to restricted hourly work. Although we did not provide a measure of boredom outside of work, part-time employment may nonetheless represent a form of cognitive under-engagement. This interpretation is purely speculative, however, and should be explored by future research.

Limitations and Future Directions

The use of a recently unemployed sample represents only one of several possible scenarios for studying underemployment. Just as time since re-employment has an effect on underemployment-related mental health outcomes, length of unemployment may also have some effect on the relative balance of employment goals. Associations between underemployment and mental health may be different for those who are re-employed after longer periods of time, or for those who are seeking employment for the first time. Furthermore, changes in work quality that occur during employment may also reflect different processes, as when hours are reduced or wages are cut. Future research should test these possibilities.

The sample used in this study shows substantial variation in age, education, gender, and ethnicity. However, the study was limited to one region of the country and our results may be constrained by the pattern of employment opportunities found in this region, which included the suburbs of Washington DC as well as suburbs and inner city neighborhoods in and around Baltimore. Replication in other regions will provide more data on generalizability. Another relevant question concerns whether there are individual differences in how re-employment quality influences symptom resolution, due to personality characteristics such as neuroticism, impulsivity, or sociability, or due to other work history variables such as duration of prior employment. Future work will be necessary to study whether such factors operate as diatheses to intensify or diminish the effects of under-employment.

Finally, values concerning work may be multidimensional, such that failure to return to a state of fit will vary depending on which value set is most important. Career-focused individuals may be more sensitive to amount and complexity of work, while income-focused individuals are more sensitive to economic payoff of work. By including assessments of

personal values, future research could provide further nuance to underemployment outcomes. Use of objective indicators of employment quality combined with measurement of goals and values will be important to advance our understanding of underemployment.

Implications

This study carries important implications for job-seeking individuals. Our research suggests that the most important considerations for job-seekers' anxiety and depression stem from employment content and availability. Downward changes in work challenge and complexity are associated with an immediate spike in depression and anxiety, and part-time employment carries similar risks, but is only relevant in the longer-term. Thus, after becoming unemployed, individuals should prioritize seeking full-time employment of complexity commensurate with (or greater than) their previous job. Although job security and finances are important practical considerations, these factors may be less relevant for employee mental health.

The use of these measures within a longitudinal design represents an important step forward from past research, as prediction models that rely exclusively on self-report for both independent and dependent variables may artificially inflate the relationship between the two by capitalizing on shared variance in response tendencies. Furthermore, the fact that the impact of underemployment on mental health varied according to the window of time used to measure it suggests that a more nuanced assessment of underemployment is required for future research. Longitudinal designs can track changes in employment status over time and provide an excellent opportunity for studying change in employment quality and its effect on well-being.

Conclusion

Underemployment is associated with a host of negative mental health outcomes, and has recently become a major topic of investigation for employment researchers (Ginexi, Howe, & Caplan, 2000; McKee-Ryan & Harvey, 2011). Although income, full-time versus part-time, permanent versus temporary, and cognitive complexity were all significantly predictive of internalizing symptoms after re-employment, only cognitive complexity remained significant after controlling for quality of previous employment. A decrease in cognitive complexity in re-employment resulted in changes in internalizing symptoms, such that individuals finding less cognitively complex work showed less abatement of anxiety and depression.

Examination of these variables in the time following re-employment revealed that while changes in cognitive complexity had an immediate impact on the well-being of the recently re-employed, only employment status (full-time vs. part-time) was relevant 6-12 weeks later. These findings are the first to consider the effect of underemployment duration on well-being and advance our understanding of the longitudinal associations between employment quality and mental health.

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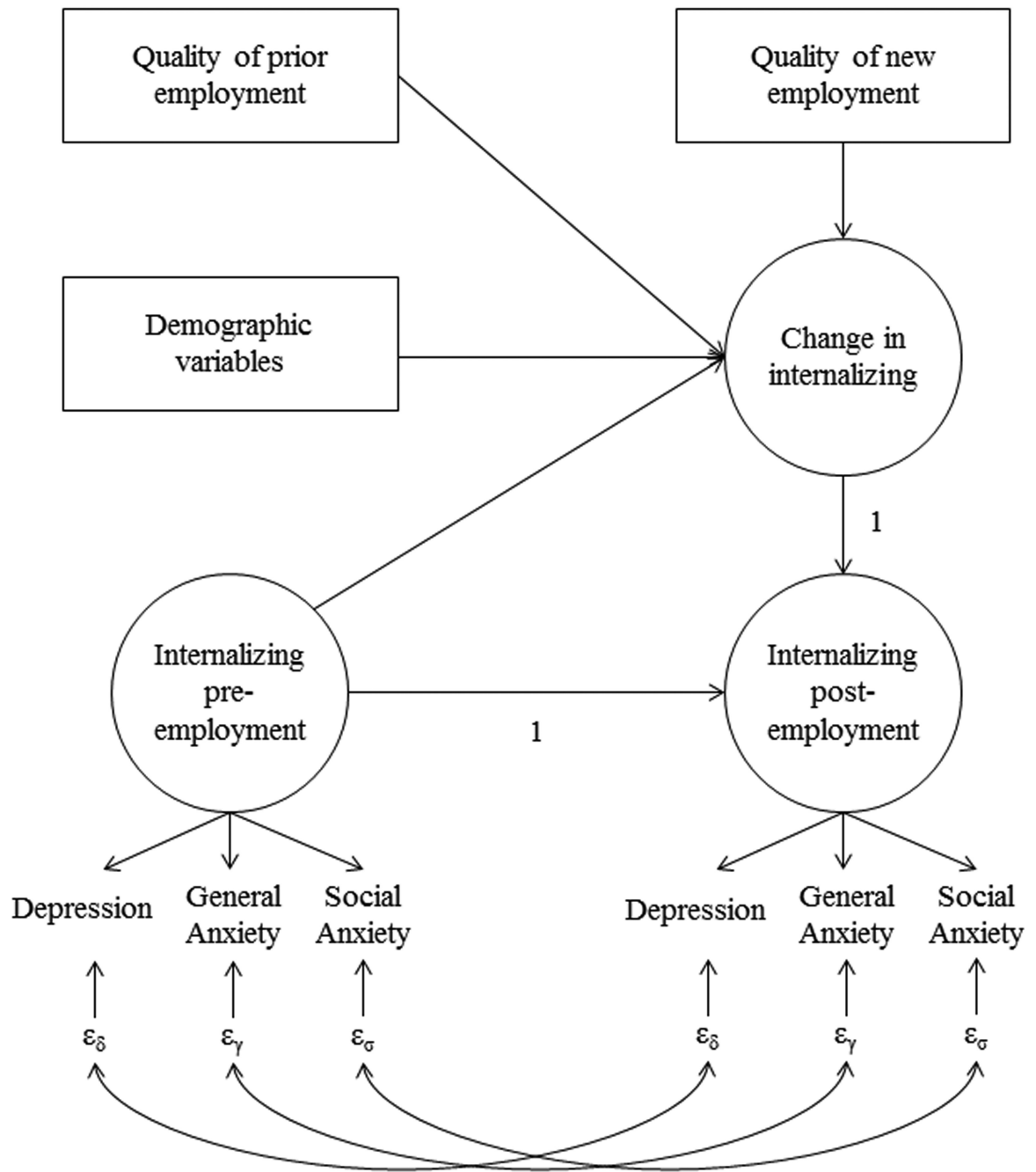
Figure 1.
Latent change model.

Table 1

Means, standard deviations, and correlations among variables.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Mood and Intention																	
1 Current worry																	
2 Current social anxiety	.49***																
3 Current depression	.46***	.51***															
4 Intention to continue job search	.03	.14***	.32***														
Employment prior to layoff																	
5 Full-time	−.09	−.03	−.08	−.02													
6 Permanent	−.02	−.15	−.05	−.05	.00												
7 Cognitive complexity	−.20***	−.22***	−.27***	−.14*	.26***	.15*											
8 Income (log)	−.18**	−.19***	−.18**	−.15*	.39***	.09	.60***										
New employment																	
9 Full-time	.01	.00	−.16*	−.27***	.21***	.02	.15*	.16*									
10 Permanent	−.00	−.09**	−.24***	−.52***	.05	.17**	.05	.05	.32***								
11 Cognitive complexity	−.18**	−.22***	−.31***	−.21***	.06	.03	.52***	.48***	.19**	.13*							
12 Income (log)	−.11	−.12***	−.27***	−.37***	.25***	.10	.48***	.50***	.59***	.32***	.51***						
Demographics																	
13 Gender	.13*	.07	−.04	.01	−.05	.06	.03	−.20***	.02	.02	−.01	−.07					
14 Age	−.18**	−.27***	−.09	.00	−.05	.08	.23***	.26***	.05	−.03	.13*	.10	−.17**				
15 Education	−.14**	−.25***	−.17*	−.10	.00	.11	.45***	.43***	.00	.03	.54***	.32***	−.05	.19**			
16 African American	−.02	.08	.16*	.19**	.02	−.08	−.27***	−.28***	.01	−.11	−.29***	−.19***	.06	−.19***	−.28***		
17 Other minority	.03	−.02	−.02	.00	−.01	−.03	.03	.04	.01	.12*	.12*	.06	.07	−.13*	.07	−.26***	
Mean or percent	41.40	17.33	6.80	51%	94%	73%	2.96	3.70	70%	59%	2.93	3.33	52%	45.95	14.64	34%	12%
SD	14.21	11.40	7.54				.53	.62			.56	.94		12.19	2.64		

NOTE:

*
p < .05;

**
p < .01;

***
p < .001

Table 2

Unstandardized and standardized parameters for model of latent change in internalizing regressed on covariates and change in employment quality[1]

	b	SE	ß	t
Measurement Model[2]				
Internalizing by depression	1.000		.753***	
Internalizing by general worry	1.662	.291	.679***	5.715
Internalizing by social anxiety	1.194	.169	.628***	7.076
Covariates				
Internalizing (Prior Wave)	−.129	.057	−.286*	2.244
Gender	−.194	.512	−.072	0.378
Age	.007	.025	.035	0.304
Education	.176	.115	.174	1.525
African American	.621	.595	.110	1.043
Other minority	.713	.737	.086	0.967
Prior employment cognitive complexity	−.507	.610	−.102	0.831
Prior employment log income	.678	.661	.158	0.184
Change in Employment				
Part-time/full-time status				
Return to part-time	1.560	1.529	.587	1.020
Decrease	.512	.750	.193	0.683
Increase	2.452	2.427	.918	1.010
Temporary/permanent status				
Return to temporary	.195	.697	.071	0.280
Decrease	−.158	.804	−.061	0.197
Increase	.549	.700	.204	0.785
New employment cognitive complexity	−1.620	.677	−.338**	2.395
New employment log income	−.071	.388	−.024	0.184

Note:

[1]Model RMSEA = .07, SRMR = .08.

[2]Loading for depression is set to one for model identification. Loadings on general worry and social anxiety are forced to be equal for both internalizing latent constructs (pre-employment and post-employment).

Table 3

Unstandardized and standardized parameters for intention to continue job search regressed on covariates and change in employment quality.

	b	SE	ß	t
Covariates				
Gender	−.112	.343	−.023	0.325
Age	.013	.016	.066	0.832
Education	.008	.078	.009	0.106
African American	.969	.368	.392**	2.631
Other minority	1.113	.528	.450*	2.109
Prior employment cognitive complexity	.157	.408	.008	0.385
Prior employment log income	−.225	.418	−.057	0.539
Change in Employment				
Part-time/full-time status				
Return to part-time	−.367	.928	−.148	0.396
Decrease	.054	.481	.023	0.112
Increase	−1.929	1.265	−.781	1.525
Temporary/permanent status				
Return to temporary	1.716	.489	.695***	3.506
Decrease	2.766	.639	1.121***	4.328
Increase	−.345	.520	−.140	0.662
New employment cognitive complexity	.035	.410	−.008	0.085
New employment log income	−.814	.358	−.310*	2.273