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Coaching for Workers with Chronic Illness: Evaluating an Intervention

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Abstract

Working with chronic illness may present challenges for individuals – for instance, managing symptoms at work, attaining accommodations, and career planning while considering health limitations. These challenges may be stressful and lead to strains. We tested a 12-week, 6-session, phone-based coaching intervention designed to help workers manage these challenges and reduce strains. Using theories of stress and resources, we proposed that coaching would help boost workers' internal resources and would lead to improved work ability perceptions, exhaustion and disengagement burnout, job self-efficacy, core self-evaluations, resilience, mental resources, and job satisfaction, and that these beneficial effects would be stable 12 weeks after coaching ended. Fifty-nine full-time workers with chronic illnesses were randomly assigned to either a coaching group or a waitlisted control group. Participants completed online surveys at enrollment, at the start of coaching, after coaching ended, and 12 weeks post-coaching. Compared with the control group, the coaching group showed significantly improved work ability perceptions, exhaustion burnout, core self-evaluations, and resilience – yet no significant improvements were found for job self-efficacy, disengagement burnout, or job satisfaction. Indirect effects of coaching on work ability, exhaustion and disengagement burnout and job satisfaction were observed through job self-efficacy, core self-evaluations, resilience, and mental resources. No significant differences were found between outcome means post-coaching and 12 weeks later, which provided evidence for the stability of effects. Results suggest that this coaching intervention was helpful in improving the personal well-being of individuals navigating challenges associated with working and managing chronic illness.

Keywords: chronic illness, coaching, burnout, work ability

Coaching for Workers with Chronic Illness: Evaluating an Intervention

Chronic illnesses, such as heart disease, diabetes and cancer, are diseases of long duration and generally slow progression (World Health Organization, 2008). Chronic illnesses are prevalent in the U.S. and may cause problems with work. According to the 2010 U.S. census data, 7.2 percent of people age 16 to 64 (14.4 million) indicated difficulty finding or maintaining a job due to a physical or mental health condition (Brault, 2012). Individuals with chronic illnesses who are employed may face challenges related to maintaining work and developing their careers (e.g., communicating about illness, attaining needed accommodations, and maintaining job performance). These challenges can be stressful and result in strains, which are long-term detriments to physical or psychological well-being. Effective interventions to help workers manage challenges related to working with illness may help prevent or alleviate worker strains and improve worker well-being.

The purpose of this study was to evaluate a coaching intervention designed to help individual workers with chronic illnesses manage challenges stemming from working with illness. The intervention included six one-hour phone-based coaching sessions over 12 weeks. We proposed that the coaching intervention would have positive effects on individual workers' perceived work ability, job satisfaction, and other personal resources, and would help decrease individuals' burnout levels. We tested these propositions using a pragmatic randomized control trial design (e.g., Godwin et al., 2003; Hotopf, 2002) with a waitlisted control group, on a sample of full-time working adults with chronic health conditions.

The current study makes a contribution to the literature answering calls for more intervention-based research in Occupational Health Psychology (DeAngelis, 2010), along with a greater focus on marginalized worker populations in organizational research (Maynard &

Ferdman, 2009), including workers with chronic illnesses (Beatty & Joffe, 2006). It also contributes to a sparse empirical literature base for work-related coaching (Bono, Purvanova, Towler, & Peterson, 2009; Joo, 2005), and provides a resource-based theoretical framework for coaching workers facing adversities. In the remainder of this introduction, we detail challenges facing some individuals who are working with chronic illness. Then, we apply a resource-based theoretical framework to illuminate how coaching can help workers manage these challenges.

Challenges of Working with Chronic Illness

Workers with chronic illnesses face unique work-related challenges that may cause strain. For example, Munir and colleagues (2007) found that work limitations, difficulties managing illness symptoms at work, coming to work when sick, low levels of workplace support, disclosing illness at work, and long-term sickness absence were related to psychological and health-related distress in a sample of working adults with chronic illnesses. Further, threat of stigmatization was found to relate positively to strain and negatively to perceived work ability in a sample of workers with chronic illnesses (McGonagle & Barnes-Farrell, 2013).

First, meeting expectations for regular and consistent work hours may be difficult (Vickers, 2003). Employees have to find ways to balance their health needs – doctor and clinic visits, side effects from medication, and managing symptoms – within the constraints of their job tasks and employment schedules, and typical organizational absenteeism policies are many times inadequate (Munir, Yarker, & Haslam, 2008). If workers come to work when feeling sick, also known as presenteeism, they may experience high levels of burnout (Demerouti, Le Blanc, Bakker, Schaufeli, & Hox, 2009).

Relatedly, self-presentation and impression management may be stressful. Some illnesses have periodic symptom flares, leading to cycles of “good days and bad days” (Charmaz, 1991).

Workers with chronic illnesses may find themselves having to explain or justify their variable performance (Tarasuk & Eakin, 1995; Vickers, 2003), all the more so if their illness symptoms are ambiguous or invisible. Some illnesses are stigmatizing, and fear of discrimination may lead people to hide and suppress information (Clair, Beatty, & MacLean, 2005; Ragins, 2007), which can be both mentally demanding and stressful (Smart & Wegner, 2000). Further, suppression may lead to further harm because it prevents workers from receiving social support to cope. If workers choose to disclose their illness, they must decide what and how much to tell, and whether to handle it through informal or formal channels (Clair et al. 2005; Ragins, 2007). Formal channels are typically necessary if the person expects to receive an accommodation, but they tend to lead to a more adversarial and potentially stressful process (Beatty, 2012).

Career issues may also be of concern. Adjusting to chronic illness may prompt reflection and reprioritization of career goals (Beatty & Joffe, 2006). Additionally, individuals with chronic illness may have lowered career expectations or experience poor person-job fit. For example, in Beatty's (2012) study of individuals with chronic illness, some participants experienced difficulties managing their physical limitations and responded by setting lower career goals. These participants were grateful to have any job; they were also afraid to leave their jobs because they didn't want to lose their health insurance. In some cases they remained in jobs for which they were mismatched or overqualified because changing jobs was too risky. In sum, many features of working with chronic illness are challenging and may be stressful.

A Resource-Based Approach

Coaching is defined as “partnering with clients in a thought-provoking and creative process that inspires them to maximize their personal and professional potential” (International Coach Federation Coaching FAQs, n.d.). Coaching is a non-clinical, future-oriented intervention

to help individuals grow, adapt, and change behaviors – in contrast to more therapeutic interventions designed to address clinical issues by identifying roots of dysfunction (Feldman & Lankau, 2005). While individuals in our study did have clinical issues (chronic illnesses), the focus of the intervention was on helping to boost workers' levels of internal resources to help them manage stress related to working with illness – not to address or improve their clinical issues *per se*.

Our proposal that coaching helps workers through increasing their levels of internal personal resources (e.g., resilience, self-efficacy) expands upon the idea of “resource activation,” which was first proposed by Grawe (2004) in the psychotherapy literature. Resource activation (i.e., activating resources within clients to help them face challenges) is a plausible framework to explain why coaching has positive effects across different samples, designs, and formats (Behrendt, 2004; Greif, 2007). In this study we apply resource activation to workers with chronic illness, drawing upon two theories of stress, the Transactional Model and Conservation of Resources Theory (COR).

In the Transactional Model, Lazarus and Folkman (1984) state that stress is the result of cognitive appraisal. An event or situation becomes a stressor for an individual through a perceived discrepancy between the demands or challenges of a particular situation and his or her physical, psychological or social systems. Specifically, an individual assesses a threat to his or her well-being (primary appraisal) and his or her resources available to meet the demand (secondary appraisal; Lazarus & Folkman, 1984). If the individual does not perceive his or her resources to be adequate to meet the demand, a stressful appraisal will result and various strains may occur. Resources are central to the Transactional Model in that they can prevent stressful appraisals, leading an individual instead to appraise the situation as a manageable challenge.

Resources are also central to the COR (Hobfoll, 1989). Resources are defined as “objects, personal characteristics, conditions or energies that are valued in their own right or that are valued because they act as conduits to the achievement or protection of valued resources” (Hobfoll, 2001, p. 339). Resources can be internal, such as dispositions that aid psychosocial adaptation, or external, such as material resources. Hobfoll (1989) maintains that individuals strive to retain, protect and build resources, and that a threat or actual loss of resources produces stress and strain outcomes (Hobfoll, 1989). Additionally, individuals are able to draw upon available resources to prevent further resource loss. Applying the Transactional Model and COR to the challenges of working with chronic illness, internal personal resources may prevent or diminish stressful appraisals and/or resource losses. It follows that an intervention to boost one’s resources should be effective in preventing resource loss and associated strain-related outcomes.

While the empirical base for coaching may be described as nascent (e.g., Bono et al., 2009; Feldman & Lankau, 2005), some evidence shows that workplace coaching helps to decrease individuals’ stress levels (Grant, Curtayne, & Burton, 2009; Gyllenstein & Palmer, 2005; Ladegård, 2011) and improve their resilience and well-being (Grant et al., 2009). Furthermore, there is evidence to suggest that coaching should be helpful for workers with chronic illness. Duijts, Kant, van den Brandt, and Swaen (2007; 2008) tested the effectiveness of a preventative coaching intervention of 7 to 9 sessions for employees at risk for sickness absence. Compared with a control group, the intervention group showed significant positive effects for self-rated health, life satisfaction, psychological distress, burnout, and need for recovery. However, no significant effects were seen for sickness absence (Duijts et al., 2008).

We propose that a coaching intervention will be effective for workers with chronic illnesses. Specifically, we propose that coaching will be associated with improvements to

individuals' levels of personal resources (job self-efficacy, core self-evaluations, resilience, and mental resources), along with strain-related outcomes (perceived work ability, exhaustion and disengagement burnout, and job satisfaction).

We chose four resources that are important in determining important health and work-related outcomes. It is worthy of note that selecting criteria variables in coaching studies is generally problematic; Smith, Borneman, Brummel, and Connelly (2009) refer to this as a coaching "criterion problem." Researchers evaluating coaching must select criteria that are appropriate for all individuals; yet coaching is inherently targeted toward meeting individuals' goals (which differ by person). We worked to identify criteria that were aligned with our theoretical framework and were also broad enough that they may be affected for most of our coaching participants, regardless of their specific issues and goals for coaching.

First, we examined job self-efficacy, which refers to feelings of competence and confidence in one's abilities to perform one's job effectively (Chen, Goddard, & Casper, 2004). Job self-efficacy is important to consider in that it can buffer the impact of work stressors (e.g., long hours, work overload) on strain (Jex & Bliese, 1999), and it is also related to job performance (e.g., Stajkovic & Luthans, 1998). Second, we examined core self-evaluations, which is "a higher order concept representing the fundamental evaluations that people make about themselves and their functioning in the environment" (Judge, Van Vianen, & De Pater, 2004, p. 326), comprised of self-esteem, generalized self-efficacy, neuroticism and locus of control. Core self-evaluations have been empirically related to job satisfaction (Judge, Locke, Durham, & Kluger, 1998), motivation and performance (Erez & Judge, 2001) and (lower levels of) job burnout (Best, Stapleton, & Downey, 2005). Third, we examined resilience, which refers to positive adaptability or ability to thrive in the face of adversity (Campbell-Sills & Stein, 2007;

Luthans, 2002). Recent research has highlighted the importance of resilience in determining mental health (Lee, Sudom, & Zamorsky, 2013), well-being (Avey, Luthans, Smith, & Palmer, 2010), and sickness absence (Hystad, Eid, & Brevik, 2011). Fourth, we examined mental resources, which are associated with positive mental health and refer to feelings of alertness, hope for the future, and the ability to enjoy daily activities (Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998). Mental resources have recently been shown to be positively affected by a career development training program (Vuori, Toppinen-Tanner, & Mutanen, 2012).

In addition, we examined four outcome variables that are related to strain: perceived work ability, exhaustion burnout, disengagement burnout, and job satisfaction. Perceived work ability refers to a worker's perceived ability to sustain employment in his or her current job in the near future, given the demands of the job and his or her resources (Ilmarinen, Gould, Järvikoski, & Järvisalo, 2008). Workers with chronic illness are particularly vulnerable to declines in work ability and generally report lower levels of work ability than non-chronically ill workers (Gould, Ilmarinen, Järvisalo, & Koskinen, 2008). Perceived work ability has been found to predict sick leave (Ahlstrom, Grimby-Eckman, Hagberg, & Dellve, 2010), mortality and disability (von Bonsdorff et al., 2011).

Burnout, a response to chronic work stress (Halbesleben, 2006), is more prevalent in individuals with physical illness than in healthy individuals (Honkonen et al., 2006). Burnout occurs when job demands are high and job resources are limited (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). More recently, researchers have also included personal resources in predicting strain (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009). Burnout is important to examine because it predicts many important outcomes, including physical health (Melamed, Shirom, Toker, Berliner, & Shapira, 2006), disability (Ahola, Toppinen-Tanner,

Huuhtanen, Koskinen, & Vaananen, 2009), unsafe behaviors and injuries (Halbesleben, 2010), and job performance (Shirom, Nirel, & Vinokur, 2006).

Finally, low levels of job satisfaction represent a strain-related outcome that may stem from challenges related to working and managing illness. Job satisfaction is related to turnover (Saari & Judge, 2004), life satisfaction (Tait, Padgett, & Baldwin, 1989), and absenteeism (Wegge, Schmidt, Parkes, & van Dick, 2007). According to COR and the Transactional Model, increasing workers' resources to handle challenges should help decrease strain outcomes; we therefore expect that coaching will lead to lower levels of exhaustion and disengagement burnout and higher levels of work ability and job satisfaction. We propose the following hypotheses.

H1a-h: Participants who receive coaching will report improved levels of (a) job self-efficacy, (b) core self-evaluations, (c) resilience, (d) mental resources, (e) work ability, (f) exhaustion burnout, (g) disengagement burnout, and (h) job satisfaction from baseline to post-coaching, compared to a control group.

H2a-d: Indirect effects of coaching on (a) work ability, (b) exhaustion burnout, (c) disengagement burnout, and (d) job satisfaction will be observed through job self-efficacy, core self-evaluations, resilience, and mental resources.

We also proposed that the positive effects of coaching on the outcome variables would be stable for an additional three months after coaching ended. This is important to examine, as many studies of workplace coaching do not follow participants after coaching ends.

H3a-h: Post-coaching levels of (a) job self-efficacy, (b) core self-evaluations, (c) resilience, (d) mental resources, (e) work ability, (f) exhaustion burnout, (g) disengagement burnout, and (h) job satisfaction will be stable three months later.

Method

Study Participants

Study participants were recruited from two Midwestern Universities, a health insurance provider, and a pharmaceutical organization. In addition, flyers were posted in three health care clinics and an advertisement was sent out via online social media (Twitter and blogs). At one university, an advertisement was posted on an internal website for faculty and staff; at the other, the advertisement was emailed to faculty. The health insurance provider and the pharmaceutical company posted an advertisement in an online newsletter. Hard copy flyers were posted in waiting rooms of three health clinics. In addition, personal contacts of the researchers who are active bloggers in the areas of health and chronic illness posted information about the study on Twitter and their blogs. We originally expected to attain our sample solely from one of the two organizations, but the online posting was small and obscure. As many employees did not see it and we received few responses, we expanded our recruitment efforts as described.

We received requests for additional information from 78 interested individuals; 59 of them met enrollment criteria and completed a baseline survey. Enrollment criteria included working an average of at least 30 hours per week, having one or more chronic health conditions that caused difficulties with work, and not planning to retire within two years of study enrollment. Of the 59 enrolled, 31 were recruited via online social media, 13 from the two companies, 11 from the universities, and 5 from the health clinics. No monetary incentives were used for recruitment, but all participants received coaching free-of-charge, and were given an incentive worth \$10 to complete the final study survey (12 weeks after coaching ended).

Participants were predominately female (86%), were generally well-educated (73% had a 4-year college degree or graduate degree) and were, on average, 38.7 years of age. Fifty-six

percent of participants reported being the primary breadwinners in their homes, and 41% reported having responsibility for children under age 18 at home. Participants worked an average of 41 hours per week, and had an average of 6.5 years' tenure with their employers. Most participants (69%) reported that their supervisor was aware of their illness, and 66% reported needing a workplace accommodation for their illness. Participants' job titles included: insurance operations ($n = 7$), mid-level or project manager ($n = 7$), vice president or senior manager ($n = 7$), engineering analyst or technician ($n = 6$), healthcare worker ($n = 6$), administrative assistant or clerical worker ($n = 5$), professor or lecturer ($n = 3$), instructional developer or trainer ($n = 3$), marketing or sales ($n = 3$), and researcher ($n = 3$). Participants were asked to report all of their chronic illnesses and to select the one that most affected their lives. The most frequently represented illnesses included: ankylosing spondylitis ($n = 6$), nerve injury or neuropathy ($n = 5$), fibromyalgia ($n = 4$), diabetes (types 1 and 2; $n = 3$), multiple sclerosis ($n = 3$), psoriatic arthritis ($n = 3$), psychiatric illness ($n = 3$), and Sjögren's syndrome ($n = 3$). Chi square tests and t-tests were used to test for differences between the coaching group and waitlisted control group in all demographics and study variables; no significant differences were found (results of t-tests in Table 1; chi square tests available from the first author upon request).

Upon completion of an online baseline survey, each participant was randomly assigned to either an (immediate start) coaching group or a waitlisted control group. Randomization was achieved by a coin flip. The immediate start coaching group participants started their 12-week coaching intervention within 2 weeks of their baseline survey completion. The waitlisted control group participants waited for 12 weeks; they then completed another online survey before starting their 12-week coaching intervention. All participants completed an online survey halfway through coaching (at 6 weeks into coaching) to assess whether the intervention was

consistent with a coaching protocol, an online survey and exit interview at the end of coaching, and a final online survey 12 weeks after coaching ended. See Figure 1 for participant flow.

Study Intervention

All coaching was done over the telephone; clients were offered calling cards to cover the cost of phone calls. The main reason we chose to conduct coaching over the phone is convenience. Because individuals who are working with a chronic illness often have to deal with getting time off work to attend doctor's appointments or other illness management activities, we thought that phone sessions (which could be conducted from any private location before or after work or during a work break) would be more convenient than having to travel to the coach's office for in-person sessions. We also recruited participants from all over the U.S., which made phone coaching the most viable option.

Each individual received six one-hour coaching sessions (one session every other week for 12 weeks). This duration of coaching was chosen as a reasonable amount of coaching to address illness-related issues, giving the coach and client time to establish a relationship and explore major issues. The 12-week intervention period is consistent with other health related coaching, such as that by Butterworth, Linden, McClay, and Leo (2006) which also spanned a three-month period. A review of 190 wellness interventions by Stuifbergen, Morris, Jung, Pierini, and Morgan (2010) found that the majority of the wellness interventions were 12 weeks or less. Examples can also be found in executive coaching supporting this duration of coaching such as Grant et al.'s (2009) study with four coaching sessions over an 8-10 week period.

The coach was certified by the International Coach Federation (ICF) and followed ICF competency guidelines (ICF Core Competencies, n.d.). While the six-session coaching engagement followed a standardized structure, the particular content was tailored to each

individual's needs and goals. The general coaching framework employed follows the GROW model (Alexander, 2006; see also Grant et al., 2009), which outlines a basic process for coaching. The first component is labeled **G**oal, in which the coach and client agree on the topic(s) for discussion, objectives for, and desired outcomes for the current session. The client establishes the agenda so that the coaching sessions are customized to meet their needs. Early in each coaching session, the coach asks the client what he or she would like to work on during the day's call, and the stated goals guide the remainder of the session. The next component is called **R**eality, in which the coach helps the client create awareness of their current situation and how it is affecting the identified outcomes/goals. The coach asks the client for more explanation of their current issues and invites self-assessment. Coaching techniques such as "powerful questioning" (ICF Core Competencies, n.d.) and paraphrasing are used to help the client increase awareness and see their situation from a fresh perspective. The third component is known as **O**ptions, in which possible solutions are identified. The coach invites suggestions from the client; suggestions may also be carefully made by the coach. In the case of chronic illness coaching, the coach's knowledge and expertise of the domain is helpful for offering new alternatives to address the client's particular issues because the client may not be aware of resources or alternatives. For example, the coach may offer suggestions for how to effectively communicate about his or her illness to coworkers. The last component is **W**ay forward, in which the coach helps the client define next steps and develop action plans. Toward the end of each coaching session, the stated goals for the session are reviewed, and assignments are developed for the client to complete prior to the next call. The client may be asked to offer their own ideas on assignments that will address the goals. Examples of assignments include creating task lists and reflecting on them or behavioral routines (such as preparing personal items for the next day the night before they are

needed). They could also be reading, journaling, or meditative exercises. The action plans are specific and measurable, and designed to be accomplished in the time frame between sessions. The client is encouraged to keep records of their actions so they can reflect on them and discuss them at the next call.

As coaching progresses, the client may improve their knowledge of their values and whether they resonate with their situation, along with their ability to define problems, reflect from multiple perspectives, and generate solutions. These skills contribute to feelings of self-efficacy, control, and resilience. If increased knowledge, insight, and solution generation leads to positive behavior change, further resource building may also occur (e.g., achievement of positive behavior change can lead to increased self-efficacy; Bandura, 1994) and mitigation of strain (as more effective thoughts and behaviors replace ineffective ones).

The progression of the 6-session coaching engagement was as follows. All clients completed a coaching self-assessment prior to session one, including: health status and how it affected their current job situation, current work-related challenges and longer-term career prospects. This allowed for reflection and self-observation and helped the client choose desired outcomes for the coaching engagement. During the first coaching call, the coach and client discussed the self-assessment and set specific desired outcomes for the overall coaching engagement. An example is: improving ability to communicate effectively with one's manager and coworkers about illness. The coach gave "homework" between each call that was tailored to the clients' set goals. Prior to calls two through six, clients were also encouraged to complete a "meeting prep" form, which included goals for the upcoming call and issues that came up between calls. Clients were encouraged to take notes during each call. Calls two through six followed a predictable structure so clients could know what to expect and take an active role in

each session. Each of these calls started with a re-cap of relevant experiences clients had since the previous call, along with a check-in regarding homework (to promote accountability). Then, the coach asked clients what they wanted to explore or focus on during the current call and what the desired outcomes for that call were (to promote client direction and control). During each session, the coach emphasized creating awareness, seeing things from different perspectives, and looking for opportunities by using questioning techniques (ICF Core Competencies, n.d.). The coach also aimed to help each client see any gaps between where he or she was currently and where he or she wanted to be and focused conversation around strategies to close these gaps. About five minutes prior to the end of each call, the coach asked the client to re-cap what he or she learned during the session that was particularly helpful. Call six (the final call) included a discussion about lessons learned during coaching and insights or perspectives that were helpful.

Measures

The measures described below were used in each survey (same items at each time point). Coefficient alphas were calculated using the baseline survey data ($n = 59$). Mean composites were computed for each scale, provided there were responses to at least 75% of the items for the scale. In two cases, an individual answered less than 75% of the items in a scale; we did not use those scale composites for those individuals. There were no other composite-level missing data.

Measures of Resources.

Job self-efficacy. The 8-item scale from Chen et al. (2004) was used, e.g., “I can successfully overcome obstacles at work.” The response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). Coefficient alpha (α) = .83.

Core self-evaluations. The 12-item Core Self-Evaluations Scale (Judge, Erez, Bono, & Thoresen, 2003) was used, e.g., “I am confident I get the success I deserve in life.” The response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). $\alpha = .84$.

Resilience. The 10-item version of the Connor-Davidson Resilience Scale was used (Campbell-Sills & Stein, 2007). A sample item is, “I have been able to adapt to change.” The response scale ranged from 0 (*not true at all*) to 4 (*true nearly all the time*). $\alpha = .88$.

Mental resources. The Mental Resources subscale of the Work Ability Index (WAI) was used (Tuomi et al., 1998). A sample item is, “Have you recently felt yourself to be full of hope for the future?” The response scale ranged from 1 (*never*) to 5 (*often*). $\alpha = .81$.

Measures of Strain-Related Outcomes.

Work ability. We used a four-item scale based on the WAI (Tuomi et al., 1998) which was also used in McGonagle et al. (2013). Respondents were asked to rate their current level of work ability compared to their lifetime best, along with their current work ability with respect to the (a) physical, (b) mental, and (c) interpersonal demands of their work. A Likert-type response scale was used, ranging from 1 (*very poor*) to 5 (*very good*). Coefficient $\alpha = .71$.

Burnout. Exhaustion and disengagement dimensions of burnout were measured using the Oldenburg Burnout Inventory (Demerouti, Mostert, & Bakker, 2010). Sample items are, “Over time, one can become disconnected from this type of work” (disengagement) and “After work, I tend to need more time than in the past in order to relax and feel better” (exhaustion). The response scale ranged from 1 (*strongly disagree*) to 4 (*strongly agree*); higher numbers indicate greater levels of burnout. Coefficient alphas were .70 for exhaustion and .83 for disengagement.

Job satisfaction. We used the 3-item scale from Cammann, Fichman, Jenkins, and Klesh (1983). A sample item is, “All in all, I am satisfied with my job.” The response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). $\alpha = .89$.

Other measures.

Illness severity. We used the Consequences subscale of the Revised Illness Perceptions Questionnaire (Moss-Morris et al., 2002), e.g., “My chronic illness has major consequences on my life.” The response scale ranged from 1 (*strongly disagree*) to 5 (*strongly agree*); $\alpha = .80$.

Psychological distress. The Symptom Checklist SCL 10-N was used (Nguyen, Attkisson, & Stegner, 1983). Participants were asked to describe how much distress ten problems had caused them during the past week, e.g., “... feeling lonely?” The response scale ranged from 0 (*not at all*) to 4 (*extremely*); $\alpha = .87$. Müller, Postert, Beyer, Furniss, and Achtergarde (2010) identified a score of 4.00 as a viable cutoff for indicating “high” levels of distress. Participants with sums of exceeding 4.0 ($n = 49$) were reminded that coaching is a non-clinical intervention, and is not a substitute for therapy or other psychological services. When possible, we also pointed them to potentially helpful services (e.g., Employee Assistance Programs).

General self-rated health. We used a single item to rate general health, “Would you say that in general your health is...” 1 (*poor*) to 5 (*excellent*).

Demographics. Participants were asked to report their age, gender, highest level of education attained, breadwinner status, whether they currently needed work accommodations, whether their supervisor was aware of their illness, whether they had any responsibility for children under 18 at home, hours worked per week, organizational tenure, the number of medications they currently take for their illness, the number of medical appointments they had

related to their illness in the past year, and the number of emergency room visits and hospitalizations they had in the past year related to their illness.

Questions assessing fidelity of coaching. The survey administered to each participant halfway through coaching contained questions that were written to assess whether the coaching intervention was consistent with a coaching protocol. We developed six questions based on coaching protocol (e.g., ICF Coaching FAQs, n.d.). Sample questions are “Who set the coaching meeting agenda for the majority of your coaching sessions?” and “If you asked your coach for advice, how did she respond?”

Reaction to coaching. In the post-coaching surveys, we asked participants: “In your opinion, was coaching helpful to you? Feel free to use this space to comment on coaching.”

Data Analysis Plan

We first used chi-square tests and *t*-tests to evaluate differences between the two groups on demographics and other baseline measures in order to determine equivalence at baseline and whether any covariates should be included in further analyses. Then, to determine whether coaching participants had improved their standing on each of the outcome variables after coaching compared with a control group (Hypotheses 1a-h), we ran a repeated measures MANOVA and a series of univariate repeated measures ANOVAs, examining time X group interaction effects. We used MANOVA so we could determine an overall significant omnibus effect prior to assessing univariate effects, given our multiple correlated outcome variables. In order to control for increased risk of Type 1 error given the eight tests, we used *p*-value of .019 to determine statistical significance of each univariate test (we used a Bonferroni correction with family-wise *p* value set at .15). Effect sizes (partial Eta squared or η_p^2) are presented, and interpreted in light of Cohen’s (1988) recommendations (.01 = small, .06 = medium, .14 = large).

Then, we ran analyses to determine indirect effects (Hypotheses 2a-d) using Hayes (2013) process macro, controlling for baseline levels of both the mediators and outcome variables in all equations. Note that, because the control group started coaching when the immediate coaching group ended coaching we do not have data at three months post-coaching for the waitlisted group. Therefore, indirect effects were tested using coaching group as the independent variable, resources at time 2 (post-coaching) as mediators, and strain-related outcomes also at time 2 (post-coaching) as outcomes. Significance of indirect effects was determined via bias-corrected bootstrapped (1,000 draws) 95% confidence intervals.

Following tests of indirect effects, we examined mean scores for each outcome variable over three time points (pre-coaching, post-coaching, 12-week follow-up) using all individuals who went through coaching (immediate start plus waitlisted). We looked for significant main effects of time on each outcome variable using repeated measures MANOVA and univariate ANOVAs (again using a p -value of .019) and effect sizes using η_p^2 . We then conducted a series of paired samples t -tests to check for significant differences in each of the outcome variables between post-coaching and 12 weeks post-coaching (Hypotheses 3a-h). Finally, we ran chi square tests and t -tests to determine whether attriters were different from those who completed coaching, in terms of demographics or baseline measures.

Results

Baseline Analysis

We tested for significant differences between the immediate coaching and waitlisted coaching groups in demographics and baseline measures using independent t -tests and chi square analyses (see Table 1 for t values). No statistically significant differences were found in either

demographics or baseline measures between the two groups. Therefore, we did not include any demographic or other measures as covariates in subsequent analyses.

Group X Time Interactions (Hypotheses 1a-h)

Results of a MANOVA with all 8 outcome variables yielded a statistically significant time X group interaction F -test: Wilks' $\lambda = .56$, $F(8, 39) = 3.52$, $p < .01$, multivariate $\eta_p^2 = .44$. Univariate within-subjects time X group interaction ANOVA tests yielded statistically significant interactions for work ability $F(1, 46) = 5.91$, $p < .019$, $\eta_p^2 = .11$, exhaustion burnout $F(1, 46) = 8.75$, $p < .01$, $\eta_p^2 = .16$, mental resources $F(1, 46) = 18.53$, $p < .001$, $\eta_p^2 = .29$, resilience $F(1, 46) = 7.28$, $p < .01$, $\eta_p^2 = .14$, and core self-evaluations $F(1, 46) = 9.73$, $p < .01$, $\eta_p^2 = .18$. However, no statistically significant interactions were found for job self-efficacy $F(1, 46) = 4.60$, $p > .019$, $\eta_p^2 = .09$, disengagement burnout $F(1, 46) = 0.17$, $p > .05$, $\eta_p^2 = .00$, or job satisfaction $F(1, 46) = 0.52$, $p > .019$, $\eta_p^2 = .01$. See Table 2 for all group X time interactions.

Indirect Effects (Hypotheses 2a-d)

Table 3 contains all direct and indirect effects of coaching on the four strain-related outcome variables. Indirect effects were observed from coaching group to work ability through core self-evaluations ($ab = .16$, $p < .05$), resilience ($ab = .22$, $p < .05$), and mental resources ($ab = .41$, $p < .05$); from coaching group to exhaustion burnout through mental resources ($ab = -.16$, $p < .05$), from coaching group to disengagement through job self-efficacy ($ab = -.10$, $p < .05$), core self-evaluations ($ab = -.09$, $p < .05$), and resilience ($ab = -.09$, $p < .05$), and from coaching group to job satisfaction through job self-efficacy ($ab = .30$, $p < .05$), core self-evaluations ($ab = .25$, $p < .05$), and resilience ($ab = .19$, $p < .05$).

Trajectories over Time and Stability of Results (Hypotheses 3a-h)

To examine overall trajectories of the dependent variables over time, we combined pre-coaching, post-coaching and 12-weeks post-coaching survey results from both groups, excluding two participants with missing data ($n = 35$). Results of a repeated measures MANOVA with eight outcome variables showed a statistically significant overall F -test for the within subjects effects of time: Wilks' $\lambda = .29$, $F(16, 19) = 2.89$, $p < .05$, multivariate $\eta_p^2 = .71$. Due to statistically significant Mauchly's tests of sphericity for mental resources ($\chi^2(2) = 11.06$, $p < .01$), work ability ($\chi^2(2) = 14.73$, $p < .01$), and job satisfaction ($\chi^2(2) = 7.70$, $p < .05$), we report all univariate F -test results with Huynh-Feldt corrections. A significant effect of time was seen for work ability $F(1.52, 34) = 12.78$, $p < .001$, $\eta_p^2 = .27$, exhaustion burnout $F(2, 34) = 15.52$, $p < .001$, $\eta_p^2 = .31$, mental resources $F(1.62, 34) = 13.40$, $p < .001$, $\eta_p^2 = .28$, core self-evaluations $F(1.90, 34) = 8.17$, $p < .01$, $\eta_p^2 = .19$, and resilience $F(1.84, 34) = 5.32$, $p < .01$, $\eta_p^2 = .14$. No statistically significant effects of time were seen for disengagement burnout $F(2, 34) = 1.84$, $p > .019$, $\eta_p^2 = .05$, job self-efficacy $F(1.98, 34) = 2.07$, $p > .019$, $\eta_p^2 = .06$ or job satisfaction $F(1.73, 34) = .21$, $p > .019$, $\eta_p^2 = .01$. Paired samples t -test results indicated no statistically significant differences between post-coaching outcome scores and 12 weeks post-coaching outcome scores, providing support for the stability of effects over 12 weeks post-coaching (Hypotheses 3a-h). Table 4 contains means, F -tests, effect sizes for linear and quadratic effects, and t -test results.

Attrition Analyses

Of the 30 individuals enrolled in the immediate coaching group, 23 completed coaching (23% attrition from coaching). Of the 29 individuals enrolled in the waitlisted group, 25 provided follow-up responses at the end of the waiting period and started coaching (14% attrition during waiting period) – of these, 16 completed coaching (36% attrition from waitlisted start to end of coaching; 44% attrition from enrollment to end of coaching). Results of chi square tests and t -

tests indicated that completers had higher levels of education $\chi^2(4) = 20.84, p < .01$ than attriters; and attriters had higher levels of psychological distress $t(28) = 2.42, p < .05$ than completers. No other significant differences were found between attriters and completers (all attrition analysis results available from the first author, upon request).

Fidelity of Coaching

Ninety-five percent of respondents reported that they set the agenda for coaching or that it was set jointly with the coach. Ninety-three percent of participants stated that the coach did not provide direct advice when asked, but instead asked additional questions, provided additional information, or helped the client come to their own solution. When asked whether the coach told the client how to behave or what to do, 93% responded “a little bit” or “not at all.” When asked whether the coach checked in about meeting the client’s goals for each session, 98% responded affirmatively. All participants reported that they had “homework” and that the homework provided was appropriate, given their goals for coaching. All these features are consistent with a coaching protocol and suggest that the intervention had high levels of coaching fidelity.

Reactions to Coaching

When asked on the survey whether they thought coaching was helpful to them, 95% said “yes” and 5% did not respond. Examples of comments include: *“I feel coaching was extremely helpful! I am better able to organize my day, give myself from freedom when I cannot meet a rigid schedule due to my health, reduce stress, and make a lot more progress in my job.”* *“Helped me break down problems/challenges into small pieces and identify what I can do to improve matters. Equipped me with conversational tools to help with some of my workplace challenges.”* *“It helped me identify my goals and how work and my health intersect in those goals. I then was able to put together a plan to achieve my goals and maintain more balance and*

integration.” The details of these favorable responses suggest that clients learned skills and tools through the coaching intervention, and that they found it to be helpful for coping with the issues of chronic illness.

Supplemental Analyses

Because it is possible that some of the participant background variables were moderators of the effects of coaching (i.e., causing some participants to benefit more from coaching than others), we tested for interactions of time by background variables (illness severity, psychological distress, and whether supervisor was aware of the illness) on each of the study dependent variables using a series of within-subjects univariate ANOVAs. We found no statistically significant interactions; full time X background variable interaction results are available from the first author upon request.

Discussion

Individual workers with chronic illnesses who received coaching showed significantly improved work ability and decreased exhaustion burnout, along with improved mental resources, resilience, and core self-evaluations after participating in a 6-session telephone-based coaching intervention, compared to a control group. In addition, the positive effects of coaching were stable during a 12-week period after coaching ended. Yet, no significant results were seen for effects of coaching on job self-efficacy, disengagement coping, or job satisfaction. Overall, our results suggest that coaching may be a good intervention for individuals who are navigating challenges associated with working and managing a chronic health condition and are looking for improvements to their personal well-being. Our findings are consistent with those reported by Duijts et al. (2008), Grant et al. (2009), and Gyllensten and Palmer (2005) who also found

evidence for the effectiveness of coaching on workers' well-being, and with Ladegård (2011), who found stability of effects on stress reduction for a period after coaching ended.

Our framework for coaching as a helpful intervention was based on the notion of resource activation (Greif, 2007), along with theories of stress and resources (COR, Hobfoll, 1989; the Transactional Model, Lazarus & Folkman, 1984). We argued that workers with chronic illnesses experience unique work-related challenges that can lead to stress and strain, and we proposed that coaching helps build personal internal resources that can help prevent or mitigate strain. In line with this proposition, we found that coaching had positive effects on both personal resource and strain variables (although coaching did not uniformly positively affect all outcomes, as noted). We did not find statistically significant time-by-group interactions for job self-efficacy, job satisfaction or disengagement burnout. Nevertheless, the effect size for job self-efficacy was moderate to large. Similarly, when examining main effects of time on job self-efficacy and disengagement burnout for all clients, effect sizes were moderate despite being non-significant. However, no evidence was seen for coaching positively affecting clients' job satisfaction.

It is possible that the duration of our study was too brief to affect disengagement burnout and job satisfaction. Perhaps some of the personal resources would translate to improved job-specific cognitions, attitudes, and behaviors during a longer time period. For example, a worker who is feeling better about herself may be more proactive in taking on challenges at work as opportunities arise, and therefore feel more efficacious and satisfied with work – yet this would take time to unfold (perhaps longer than 3 months). We see some initial evidence to suggest that this may be the case in the tests for indirect effects: significant indirect effects were observed for disengagement burnout and job satisfaction via job self-efficacy, core self-evaluations, and resilience (despite the fact that direct effects of coaching on these two outcomes were not

observed). Yet, given that both our mediators and outcomes were from the same time point (post-coaching), the indirect effects results should be considered preliminary. Future research should follow participants for a longer time in order to see whether significant direct effects of coaching on job-related outcomes are evident and to provide more rigorous tests of mediation.

Participants in this study were generally young (the average age was 37), which was unexpected, given that the prevalence of chronic health conditions limiting the ability to work increases with age (U.S. Census Bureau, 2013). We can speculate that perhaps individuals around this age are more stressed by their illnesses because they may still be in a career-building stage and may have less autonomy in their jobs than older workers. The interplay of age, chronic illness, and work is an interesting topic for future research.

In addition to assessing coaching's effectiveness, another purpose of this study was to determine its viability. There are several factors to consider in determining viability. First, coaching was designed to be as convenient as possible for individuals who were busy managing work, health, and in many cases, families. The coach used an online scheduling tool that allowed clients to reschedule appointments on their own. Clients were not penalized for rescheduling. Also, coaching being delivered via phone had the effect of making sessions convenient and private for participants.

Despite these efforts, we had an overall attrition rate of 34% (23% overall in the immediate group and 44% overall in the waitlisted group). Our overall attrition rate is similar to the attrition rate for participants in a coaching intervention for sickness absence (27%; Duijts et al., 2008) – yet it is higher than the attrition rate for another workplace stress reduction coaching (13%; Ladegård, 2011) and the attrition rate in another recent (non-coaching) 12-week mind-body workplace stress reduction intervention (14%; Wolever et al., 2012). Note that it is difficult

to make comparisons of our dropout rate with those of other workplace coaching studies because they are not always reported (e.g., Evers, Brouwers, & Tomic, 2006; Grant et al., 2009; Gyllensten & Palmer, 2005). For reference, attrition rates in some other longitudinal studies of workers that do not involve an intervention are as follows: 24% for Schmitt, Zacher, and Frese (2012); 29% for Volmer, Binnewies, Sonnentag, and Niessen (2012); 26% for Wood, Michaelides, and Totterdell (2013). It is difficult to determine causes of attrition in this study because, in most cases, individuals simply stopped communicating with the coach. We also ran into an issue with individuals “no-showing” for coaching appointments (not showing up and not contacting the coach to reschedule); we subsequently implemented a rule partway through the study that if the client no-showed, he or she would forfeit that coaching session; two “no-shows” would result in being removed from the study. We removed just one participant from the study for repeated no-shows.

We saw more attrition in the waitlisted group, in which participants had to wait three months to start coaching. It is likely that initial interest in coaching waned for individuals over the waitlist period, causing more waitlisted individuals to drop out. This speaks to the potential importance of timing – individuals may benefit most from coaching when they are able to start when they desire (and are presumably most engaged). Those with lower education levels and greater levels of psychological distress also dropped out of coaching at a higher rate. It is possible that these individuals saw less potential for improving their situations through coaching, although we cannot determine this with the current study data.

Another issue around viability is who will pay for coaching. Is coaching an intervention that employers might add to benefits programs? Employers may be interested in providing this type of intervention to help with strain, especially because the types of strain studied here are

linked to important work-related outcomes, including workforce exit (von Bonsdorff et al., 2011) and declines in job performance (Wright & Cropanzano, 1998). Offering this type of assistance to employees may also result in them feeling supported by the organization, which could have benefits in terms of work-related attitudes. We did not find evidence in this study supporting benefits for organizations in terms of work attitudes, yet we did not study people in organizations where coaching was sponsored by the organization. Therefore, it is possible that companies may benefit from providing this service to individuals who are working and managing a chronic health condition – yet, additional research is needed.

It is also possible that a client could conclude from coaching that they want to seek alternative employment (for instance, if their current job is not a good fit for his or her needs or values). For this and other reasons, it is important to look beyond employing organizations for sponsorship of coaching for workers. One possibility is illness advocacy groups and foundations, which generally have goals of promoting individuals' levels of functioning and well-being. Individuals may also seek out coaching on their own. However, as one-on-one coaching can be costly (upwards of \$75 for a one-hour session), future interventions should assess cost-effective options (e.g., online components) as add-ons to the type of coaching described herein.

In a review of the executive coaching literature, Feldman and Lankau (2005) described the literature as having a “black box” feel, “...we know it can work but often do not know why it works or how it could work even better” (p. 845). We offer some potential mechanisms through which coaching may have worked to help individuals in this study. Although we cannot evaluate these using our study data, we suggest them as potential areas for future coaching research. First, a coach who understands the specific challenges of working with chronic illness can provide needed validation and social support for these individuals, who may feel isolated and

misunderstood – and this social support can alleviate strain. Also, according to Social Cognitive Theory, supportive coaches can help increase clients' self-efficacy through expressions of beliefs in their abilities and modeling appropriate reactions and behaviors (Bandura, 1994).

Another way coaching “works” is through behavior change. By helping workers develop greater insight and self-awareness (e.g., Feldman & Lankau, 2005) and see opportunities for improvement, coaching invites positive behavior change. Learning also may facilitate behavior change (Joo, 2005; Ladegård, 2011). Clients may learn general coping skills and tactics specific to management of chronic illness at work, which may help develop self-efficacy and resilience. Knowledge of specific tactics could include: effective ways to approach supervisors about needed accommodations, career paths and strategies for continuing one's career with chronic illness, and strategies to help one compensate for a disability at work. More research is needed to help shed light on the black box issues within the coaching research. For instance, different coaching elements or components of coaching may be compared in order to increase our understanding of which components of coaching are most effective in enacting change in clients.

The limitations of our study provide guidance for future research. First, our sole use of self-report outcome measures may be seen as problematic. We were unable to incorporate more “objective” physiological measures into the present study due to logistical limitations and a desire to make the study as convenient as possible for participants. Future larger scale coaching studies should incorporate more objective outcomes (for examples of criteria see Wolever et al., 2012). In addition, it would be beneficial to test for effects of coaching on supervisor ratings of job performance – yet, issues of privacy and confidentiality of chronic illness status must be carefully managed. A second limitation concerns the representativeness of our sample. Participants were predominately female and had high levels of education. Regarding the

preponderance of female participants, it is worth noting that women are more likely to seek help for distress than men (e.g., Oliver, Pearson, Coe, & Gunnell, 2005); women also have greater incidence of autoimmune diseases (which were well-represented in the sample) than men (e.g., Fairweather & Rose, 2004). However, future studies should attempt to recruit more men and those with lower education levels in anticipation of these gaps.

A further concern is whether individuals with chronic illnesses can reliably respond to survey questions about personal resources, burnout, and strain, given inevitable fluctuations in illness symptoms (and possible corresponding fluctuations in participants' affect). This issue has been discussed in the common method variance literature; Podsakoff, MacKenzie, and Podsakoff (2012) note that if respondents are motivated to complete the survey accurately (e.g., by a desire to "tell their story") there is less risk for biased responding. Participants who completed coaching and the surveys were likely to be highly engaged in the study (as indicated by their willingness to spend time and energy on study-related tasks); therefore they were likely motivated to provide accurate responses. We also examined correlations between study variables. If participants responded based on their affect during a given time period, we would expect to see uniformly high correlations between survey variables during each time period. Yet we found many non-significant correlations between outcome variables measured at the same time point. Future research may more fully examine response reliability issues for this population.

In conclusion, a 6-session coaching engagement was effective in improving levels of personal resources (core self-evaluations, resilience, and mental resources) and alleviating strain outcomes (work ability, exhaustion burnout) in a sample of individuals working full-time and managing a chronic illness. These results suggest that coaching may also be successfully applied to boost resources and enhance well-being in other populations of workers facing adversities. We

hope to see continued research on coaching interventions for worker well-being, particularly for workers facing adversities such as chronic illness.

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Table 1

Participant Demographics, Measures at Baseline, and Coefficient Alphas

	<u>Coaching Group (n = 30)</u>	<u>Waitlisted Control (n = 29)</u>		<u>All Combined (n = 59)</u>
Measures (Demographic)	Mean (SD)	Mean (SD)	t	Scale α
Age	38.30 (8.2)	39.07 (7.79)	.37	--
Hours Worked per Week	40.92 (7.29)	41.09 (9.95)	.08	--
Organizational Tenure (Years)	6.47 (6.89)	6.57 (5.30)	.06	--
Illness Severity Scale	3.99 (.49)	4.00 (.82)	.05	.80
Psychological Distress Scale	1.33 (.68)	1.08 (.83)	-1.23	.87
Number of Medications	3.50 (2.90)	4.03 (3.07)	.69	--
Number of Medical Appointments	12.00 (9.17)	13.45 (8.90)	.62	--
Number of ER Visits/ Hospitalizations	.57 (.94)	1.07 (1.83)	1.33	--
General Health	2.50 (.82)	2.45 (.74)	-.26	--
Measures (Study Outcomes)	Mean (SD)	Mean (SD)	t	Scale α
Job Self-Efficacy	3.50 (.65)	3.65 (.58)	.91	.83
Core Self-Evaluations	2.83 (.54)	3.04 (.54)	1.47	.84
Resilience	2.37 (.62)	2.51 (.71)	.77	.88
Mental Resources	2.88 (.80)	3.19 (.93)	1.40	.81
Work Ability	3.35 (.70)	3.27 (.65)	-.47	.71
Exhaustion Burnout	2.96 (.38)	2.87 (.35)	-1.01	.70
Disengagement Burnout	2.44 (.52)	2.49 (.58)	.32	.83
Job Satisfaction	3.61 (.91)	3.56 (.89)	-.21	.89

Note. α = coefficient alpha. There were no significant baseline differences between groups in participant demographics or measures at baseline at $p < .05$.

Table 2

Group x Time Differences between Control and Coaching Groups

Outcome Measures		Coaching Group (<i>n</i> = 23)	Waitlisted Control (<i>n</i> = 25)	<i>F</i>	Partial η^2
		Mean (SD)	Mean (SD)		
Job Self-Efficacy				4.60†	.09
	Pre	3.42 (.66)	3.62 (.57)		
	Post	3.70 (.58)	3.59 (.80)		
Core Self-Evaluations				9.73**	.18
	Pre	2.84 (.48)	3.09 (.55)		
	Post	3.27 (.59)	3.12 (.57)		
Resilience				7.28*	.14
	Pre	2.40 (.57)	2.54 (.73)		
	Post	2.67 (.55)	2.41 (.80)		
Mental Resources				18.53***	.29
	Pre	2.91 (.86)	3.28 (.95)		
	Post	3.72 (.69)	3.13 (.83)		
Work Ability				5.91*	.11
	Pre	3.39 (.75)	3.36 (.66)		
	Post	3.82 (.39)	3.23 (.91)		
Exhaustion Burnout				8.75**	.16
	Pre	2.92 (.40)	2.86 (.38)		
	Post	2.65 (.46)	2.89 (.34)		
Disengagement Burnout				.17	.00
	Pre	2.42 (.55)	2.46 (.56)		
	Post	2.33 (.57)	2.43 (.44)		
Job Satisfaction				.52	.01
	Pre	3.62 (.92)	3.49 (.93)		
	Post	3.53 (.99)	3.59 (1.00)		

†*p* < .05. **p* < .019. ** *p* < .01. ****p* < .001.

Table 3

Results of Tests for Indirect Effects of Coaching on Mediators (Resources) and Outcomes

Outcome Variable	Mediator Variable	Direct Effect	Direct Effect 95% CI	Indirect Effect	Indirect Effect 95% CI
Work Ability	Job Self-Efficacy	.55*	.16, .94	.03	-.04, .22
	Core Self-Evaluations	.48*	.10, .86	.16*	.01, .43
	Resilience	.33	-.03, .69	.22*	.03, .51
	Mental Resources	.32	-.03, .67	.41*	.20, .75
Exhaustion Burnout	Job Self-Efficacy	-.28*	-.48, -.08	-.02	-.13, .05
	Core Self-Evaluations	-.26*	-.47, -.05	-.03	-.14, .05
	Resilience	-.25*	-.46, -.05	-.03	-.14, .02
	Mental Resources	-.13	-.34, .09	-.16*	-.37, -.05
Disengagement Burnout	Job Self-Efficacy	.01	-.22, .24	-.10*	-.30, .001
	Core Self-Evaluations	.003	-.26, .26	-.09*	-.23, .02
	Resilience	.03	-.22, .28	-.09*	-.26, .02
	Mental Resources	.05	-.24, .34	-.14	-.24, .34
Job Satisfaction	Job Self-Efficacy	-.30	-.79, .20	.16*	.002, .50
	Core Self-Evaluations	-.25	-.79, .29	.16*	.01, .46
	Resilience	-.33	-.86, .19	.19*	.01, .57
	Mental Resources	-.27	-.84, .31	.22	-.04, .68

Note. * $p < .05$. Independent variable = group (coaching versus waitlisted control). Direct effect refers to the direct effect of group on the outcome variable. Indirect effect refers to the indirect effect of group on the outcome variable through the mediator. CI = Bias-corrected bootstrapped confidence interval (lower limit, upper limit). 1,000 samples drawn for bootstrap estimates. Both mediator and outcome variables measured at Time 2 (post-coaching for immediate coaching group and post-waitlist period for waitlisted control group). Baseline levels of the mediators and outcome variables were entered as control variables when estimating effects of group on the mediators and effects of mediators on the outcome variables.

Table 4
Mean Effects Over Time for All Participants who Completed Coaching and 12-Week Follow-Up Survey

Outcome Measures	Baseline Mean (SD)	Post Coaching Mean (SD)	12 Weeks Post- Coaching Mean (SD)	Univariate <i>F</i> -Test ^a	Contrast <i>F</i> for Linear Effect	Linear Effect Size Partial η^2	Contrast <i>F</i> for Quadratic Effect	Quadratic Effect Size Partial η^2	<i>t</i> -test for Post- Coaching Mean – 12-Weeks Post-Coaching Mean
Job Self-Efficacy	3.57 (.71)	3.72 (.60)	3.74 (.79)	2.07	2.78	.08	.85	.02	$t(36) = -.42^c$
Core Self-Evaluations	3.01 (.51)	3.26 (.56)	3.28 (.60)	8.17**	11.69**	.26	3.86	.10	$t(36) = .32^c$
Resilience	2.47 (.61)	2.69 (.59)	2.71 (.61)	5.32**	6.92*	.17	2.47	.07	$t(36) = -.10^c$
Mental Resources	3.10 (.82)	3.68 (.73)	3.73 (.70)	13.40***	15.87***	.32	8.01**	.19	$t(36) = -.35^c$
Work Ability	3.35 (.76)	3.74 (.62)	3.84 (.62)	12.78***	15.95***	.32	4.82	.12	$t(35) = -1.07^b$
Exhaustion Burnout	2.93 (.37)	2.61 (.43)	2.61 (.45)	15.52***	20.50***	.38	8.93**	.21	$t(36) = -.26^c$
Disengagement Burnout	2.39 (.51)	2.26 (.55)	2.26 (.55)	1.84	2.45	.07	.96	.03	$t(36) = -.25^c$
Job Satisfaction	3.67 (.99)	3.66 (1.01)	3.75 (1.03)	.21	.23	.01	.17	.01	$t(35) = -.79^b$

Note. ^aHuynh-Feldt corrected. $n = 35$ for all *F*-tests. ^b $n = 36$. ^c $n = 37$. No statistically significant *t*-tests at $p < .05$.

* $p < .019$. ** $p < .01$. *** $p < .001$.

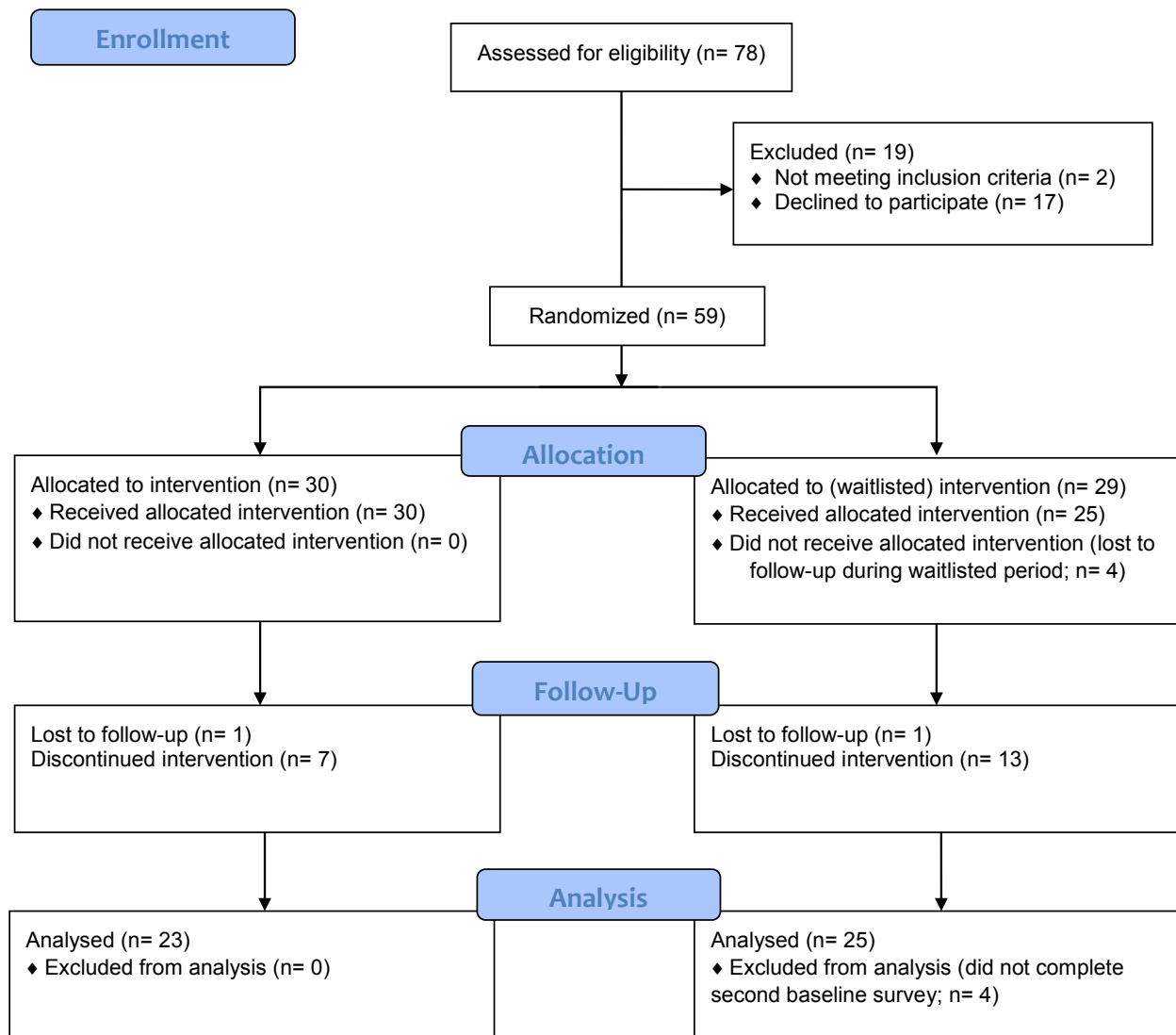


Figure 1. CONSORT participant flow diagram.