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Mediating the relation between workplace stressors and distress in ID support staff: Comparison between the roles of psychological inflexibility and coping styles

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ABSTRACT

The present study examined how different patterns of coping influence psychological distress for staff members in programs serving individuals with intellectual disabilities. With a series of path models, we examined the relative usefulness of constructs (i.e., wishful thinking and psychological inflexibility) from two distinct models of coping (i.e., the transactional model and the psychological flexibility models, respectively) as mediators to explain how workplace stressors lead to psychological distress in staff serving individuals with intellectual disabilities. Analyses involved self-report questionnaires from 128 staff members (84% female; 71% African American) from a large, state-funded residential program for individuals with intellectual and physical disabilities in the southern United States of America. Cross-sectional path models using bootstrapped standard errors and confidence intervals revealed both wishful thinking and psychological inflexibility mediated the relation between workplace stressors and psychological distress when they were included in separate models. However, when both variables were included in a multiple mediator model, only psychological inflexibility remained a significant mediator. The results suggest psychological inflexibility and the psychological flexibility model may be particularly useful for further investigation on the causes and amelioration of workplace-related stress in ID settings.

1. Introduction

Staff serving those with intellectual disabilities (ID) may experience significant work-related stress (Skirrow & Hatton, 2007) which may lead to deleterious mental health outcomes such as burnout and increased general psychological distress (Devereux, Hastings, & Noone, 2009). Such heightened levels of stress may lead to unwanted performance outcomes such as increased absenteeism and staff turnover (Hastings, Horne, & Mitchell, 2004), as well as fewer positive interactions between staff and the individuals they serve (Lawson and O'Brien, 1994; Rose et al., 1998).

Inadequate training, long hours, lack of opportunity for advancement, exposure to challenging client behaviors, and a sense of disparity between job demands and rewards have been identified as correlates of job related stress in ID settings (Hatton, Emerson, et al., 1999, Hatton & Lobban, 2007; Skirrow & Hatton, 2007). Further, staff members reporting high levels

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of stress also tend to feel unclear about job roles and to experience conflicting demands at work or between work and home (Hatton & Lobban, 2007). Stressed staff also report feeling unsupported by their coworkers and supervisors, and may use maladaptive coping strategies in dealing with clients (Hatton, Emerson, et al., 1999).

Although changes in the structure of treatment settings, such as hiring better-trained staff, improving compensation of workers, or altering the level of control workers exert over their work environments would be beneficial, such interventions are often impractical for financial and structural reasons. However, we can readily provide in-service interventions to these staff which target coping processes that may be of relevance in altering the ways that staff members relate to work stressors, thus improving well-being at work and attenuating associated unwanted outcomes such as turnover, absenteeism, and decreased client contact. However, the development of such interventions would need to be predicated on an understanding of the relationship between work stressors, coping, and psychological distress. To this end, the current study examines the usefulness of constructs from two distinct theoretical models in explaining how work stressors may lead to psychological distress in staff providing services to individuals diagnosed with ID.

1.1. Problem- and emotion-based coping

Research suggests that coping strategies may be important variables in determining whether staff serving those with ID experience negative psychological outcomes in the presence of perceived work stressors (Devereux, Hastings, & Noone, 2009). One predominant coping model is the cognitive-behavioral model (i.e., the transactional model) based in the work of Lazarus and Folkman (1984). According to this framework, stress is neither inherent in the person nor the work environment, but results from the transactional relationship between the person and the environment. Thus, individuals may differ in their stress response, even when they are exposed to similar situations (Devereux, Hastings, & Noone, 2009).

The development of stress is influenced by the processes of appraisal and coping. Appraisal concerns the initial evaluation of a situation, and is comprised of two types: primary and secondary appraisal. Primary appraisal concerns the assessment of a situation to determine whether a threat or stressor is present. Secondary appraisal involves making a judgment about whether one is able to cope with a stressor and deciding how to cope with the stressor. Coping has been defined as the "cognitive and behavioral efforts a person makes to manage demands that tax or exceed his or her personal resources" (Lazarus, 1995, p. 6). Coping is suggested to act as a mediator of the emotional outcome of an encounter with a perceived stressor (Lazarus, 1999).

Lazarus (1995) describes two main types of coping. Problem-focused, or practical, coping involves the individual changing his or her overt behavior in order to change the environment such that the stressor is removed or attenuated. Emotion-focused coping seeks to manage emotional distress associated with the stressor. This may be accomplished through avoidance, denial, or attempting to change one's emotional reaction to the situation, rather than the situation itself (Devereux, Hastings, & Noone, 2009).

Studies that have employed the cognitive-behavioral framework to examine coping among staff in ID programs have generally shown positive relationships between emotion-focused coping and staff stress (Devereux, Hastings, Noone, Firth, & Totsika, 2009; Hastings & Brown, 2002; Hatton, Rivers, et al., 1999). For example, Devereux, Hastings, Noone, Firth, et al. (2009) examined the roles of practical coping and wishful thinking as mediators of the relation between work stressors and psychological distress in support staff serving individuals with ID. Wishful thinking is an emotion-focused coping strategy characterized by attempting to avoid or alter one's emotional reactions to a stressful situation, rather than attempting to alter the situation itself (Hatton & Emerson, 1993). Devereux, Hastings, Noone, Firth, et al. (2009) found that wishful thinking coping partially mediated the relationship between work stressors and burnout in support staff, such that staff who engaged in wishful thinking reported higher levels of burnout. Practical coping was not found to mediate the relation between work stressors and burnout, but rather was found to be a positive predictor of staff perceptions of personal accomplishment in their work (Devereux, Hastings, Noone, Firth, et al., 2009). The authors further suggested that psychological interventions designed to reduce avoidance-based coping strategies, such as Acceptance and Commitment Therapy, might be useful to enhance well-being at work.

1.2. Psychological flexibility

The positive relationship between emotion-focused coping and work stress is consistent with the idea that deliberately attempting to avoid, alter, or otherwise control one's internal experiences may lead to, or exacerbate psychological distress, because when personal resources are concentrated on experiential avoidance, fewer resources are available to devote to more effective behavior. Conversely, a willingness to experience difficult thoughts and emotions, and to relinquish one's efforts to control the same, may lead to more effective behavior and less distress.

Such "psychological flexibility" (Bond et al., 2011, p. 678) in responding to aversive internal events is a major determinant of mental health and behavioral functioning according to the empirically based theory of psychopathology which underlies Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). Psychological flexibility may be defined as "the ability to fully contact the present moment and the thoughts and feelings it contains without needless defense, and, depending on what the situation affords, persisting in or changing behavior in the pursuit of goals and values" (Bond et al., 2011, p. 678). Conversely, psychological inflexibility "entails the rigid dominance of psychological reactions over chosen values and contingencies in guiding action" (Bond et al., 2011, p. 678). Psychological inflexibility occurs when people

attempt to avoid unwanted private events at the expense of personal values, and has been associated with increased levels of general psychological distress (Kashdan, Barrios, Forsyth, & Steger, 2006; Lloyd, Bond, & Flaxman, 2013).

Studies examining the influence of psychological flexibility on work-related stress and performance outcomes have indicated that it is an important factor (Bond, Flaxman, & Bunce, 2008) For example, Lloyd and colleagues (2013) examined the effectiveness of a workplace group-based ACT intervention designed to increase psychological flexibility among human-service employees of a UK government organization. Data indicated that the ACT intervention decreased burnout and strain relative to a control condition, and that the decrease in burnout observed in the ACT condition was mediated by an increase in psychological flexibility relative to the controls.

With regard to staff in ID settings, Noone and Hastings (2011) found that psychological flexibility was negatively correlated with emotional exhaustion component of burnout in a sample of ID support staff, such that staff who reported more psychological flexibility reported less emotional exhaustion. Further, emerging evidence suggests that ACT-based interventions which aim to increase psychological flexibility are effective in reducing general psychological distress among staff serving individuals with ID (Noone & Hastings, 2009, 2010; Bethay, Wilson, Schnetzer, Nassar, & Bordieri, 2013; McConachie, McKenzie, Morris, & Walley, 2014), and that this can occur despite the perception of the level of work stressors remaining unchanged (Noone & Hastings, 2009, 2010; McConachie et al., 2014). Noone and Hastings (2010) have suggested that these latter findings occur due to increased psychological flexibility in response to work stressors. However, these studies did not include designs that specifically examined the potential role of psychological flexibility as a mediator of therapeutic change. Thus, only tentative conclusions can be made regarding the role of psychological flexibility as a mediator of the relation between perceived work stressors and psychological distress among staff in ID settings.

1.3. The present study

The aim of the present study is to examine how different reactions to workplace stressors (i.e., patterns of coping) influence psychological distress. Our ultimate goal is to provide clues as to which domains of focus would be useful to include in interventions designed to help ID staff more effectively deal with workplace stressors, potentially decreasing ID staff burnout and facilitating higher quality interactions between them and the individuals they serve. Toward that aim, we present a series of regression-based path models examining the usefulness of two constructs—wishful thinking (a subtype of emotion-focused coping) and psychological inflexibility—as mediators to explain how workplace stressors lead to psychological distress in ID staff.

As a baseline hypothesis, we expected perceived workplace demands would predict psychological distress, such that increases in perceived workplace demands would predict increases in psychological distress (Hypothesis 1).

Based on the findings of Devereux, Hastings, Noone, Firth, and colleagues' (2009) application of Lazarus's (1995) coping model to ID staff, we expected that wishful thinking coping, but not practical coping, would mediate the relation between perceived workplace demands and psychological distress (Hypothesis 2). This hypothesis implied that increases in wishful thinking coping associated with perceived workplace demands would partly explain why perceived workplace demands are associated with psychological distress. However, practical coping would not mediate that relation.

Based on previous work of the psychological flexibility model applied to ID support staff (e.g., Bethay et al., 2013; Noone & Hastings, 2011) we expected that psychological inflexibility would mediate the relation between perceived workplace demands and psychological distress (Hypothesis 3). This hypothesis implied that the increases in psychological inflexibility associated with perceived workplace demands will partly explain why perceived workplace demands are associated with greater psychological distress.

In the case that variables from both the models proposed by Hypotheses 2 and 3 mediate the relation between perceived workplace demands and psychological distress, we planned to examine a multiple mediation model. Based on the previous hypotheses, we proposed (Hypothesis 4) that the multiple mediation model would include both wishful thinking coping and psychological inflexibility. Thus, this hypothesis implied that increases in wishful thinking, in psychological inflexibility, or in both will partly explain why perceived workplace demands are associated with greater psychological distress.

2. Method

2.1. Participants

Participants were employees recruited from a large, state-funded residential program for individuals with intellectual and physical disabilities in the southern United States of America. The program provides 24-hour care to several hundred adults. The individuals served range between mild and profound levels of intellectual and adaptive deficits in functioning.

2.2. Measures

2.2.1. Demographic questionnaire

On the demographic questionnaire participants recorded their basic demographic data (e.g., age, gender, ethnicity) as well as demographic data relevant to their work environment (e.g., job title, department).

2.2.2. Depression, Anxiety, and Stress Scales-21

Psychological distress was measured with the 21-item version of the Depression, Anxiety, and Stress Scales (DASS-21; Lovibond & Lovibond, 1995), a self-report questionnaire. Statements such as "I found it difficult to relax" and "I felt downhearted and blue" are rated on a four-point Likert-type scale ranging from 0 (*Did not apply to me at all—NEVER*) to 3 (*Applied to me very much, or most of the time—ALMOST ALWAYS*). The DASS-21 yields a sum score and three seven-item subscales: Depression, Anxiety, and Stress (Lovibond & Lovibond, 1995; cf. Henry & Crawford, 2005). For each subscale, scores range from 0 to 21, with higher scores indicating higher levels of depression, anxiety, or stress. In a recent ethnically diverse sample of undergraduates in a Southern university, overall sample internal consistencies for the subscales ranged from fair to good and varied marginally between ethnic groups (Norton, 2007). Evidence for good convergent, discriminant, and construct validity for the DASS-21 in clinical and non-clinical samples is provided in several papers (e.g., Antony, Bieling, Cox, Enns, & Swinson, 1998; Brown, Chorpita, Korotitsch, & Barlow, 1997; Crawford & Henry, 2003; Henry & Crawford, 2005), as well as its usefulness for tracking clinical outpatient progress (Ng et al., 2007). The DASS-21 has also been used in prior research with intellectual disability support staff (Mutkins, Brown, & Thorsteinsson, 2011). In the present study, reliability coefficients ranged from fair to good for the subscales (α = .86, .73, and .81 for Depression, Anxiety, and Stress, respectively) and very good for the sum score (α = .91). As our hypotheses concerned general psychological distress, only the sum score was used in regression analyses.

2.2.3. Staff Stressor Questionnaire

Perceived workplace demands were assessed using the Staff Stressor Questionnaire (Hatton, Rivers, et al., 1999), a 33-item self-report measure. Items such as "How stressful do you find the physical work conditions?" are rated on a 5-point Likert-type scale ranging from 0 (*Not at all*) to 4 (*A great deal*). Higher scores indicate higher levels of perceived workplace demands. The principal component analysis by Hatton, Rivers, and colleagues (1999) yielded 7 subscales: (1) User challenging behavior, (2) Poor user skills, (3) Lack of staff support, (4) Lack of resources, (5) Low status job, (6) Bureaucracy, and (7) Work-home conflict. Due to poor internal inconsistency with subscales 5–7 (αs = .68, .64, and .53, respectively; cf. Hatton, Rivers, et al., 1999), only the sum score was used in the present study. Internal consistency for the sum score was good (α = .94). Evidence for construct validity of the SSQ is presented in Hatton, Rivers, and colleagues (1999) and Vassos and Nankervis (2012).

2.2.4. Acceptance and Action Questionnaire-II

Psychological inflexibility was measured with the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011), a seven-item self-report measure. Statements such as "I'm afraid of my feelings" are rated on a seven-point Likert-type scale ranging from 1 (*never true*) to 7 (*always true*). Scores range from 7 to 49, with higher scores indicating greater psychological inflexibility. Factor analyses indicate the AAQ-II is unidimensional with acceptable psychometric characteristics (Bond et al., 2011; Fledderus, Oude Voshaar, ten Klooster, & Bohlmeijer, 2012). In addition to initial convergent and divergent validity (Bond et al., 2011), the AAQ-II has shown incremental validity beyond, for example, facets of mindfulness in predicting measures of depression, anxiety, and positive mental health (Fledderus et al., 2012), and beyond other ways of coping in predicting measures of perceived stress and quality of life (Karekla & Panayiotou, 2011). In the present study, internal consistency for the AAQ-II consistency was very good (α = .92).

2.2.5. Shortened Ways of Coping-Revised

Two coping styles were assessed with a shortened version of the Shortened Ways of Coping-Revised (SWC-R; Hatton & Emerson, 1995), a modified version of the original Ways of Coping Questionnaire (Folkman and Lazarus, 1985). Hatton and Emerson's SWC-R includes 14 items such as "I wish that I could change how I feel" that are rated on a four-point Likert-type sale ranging from 0 (*not used*) to 3 (*used a great deal*). There are two proposed 7-item subscales, Wishful Thinking and Practical Coping, with higher scores indicating greater utilization of the subscale coping style. Though the SWC-R has been used in several studies (e.g., Devereux, Hastings, & Noone, 2009; Devereux, Hastings, & Noone, Firth, et al., 2009; Hatton et al., 2001), it has not been examined in a factor analysis prior to this study. In response to findings by Norris and Lecavalier (2010) that factor analytic techniques have been underutilized in the ID literature, we conducted factor analyses of the SWC-R according to guidelines provided by Schmitt (2011) to examine its psychometric characteristics before using it to test our hypotheses.

Using a post hoc Monte Carlo power analysis (Muthén & Muthén, 2002; see also Schmitt, 2011), we determined our sample (N = 134) was adequately powered for factor analysis (i.e., power above .80). We tested the 14-item model using exploratory structural equation modeling (Asparouhov & Muthén, 2009; see also Marsh, Liem, Martin, Morin, & Nagengast, 2011), a method combining exploratory and confirmatory analytic techniques. For the analysis, we used robust weighted least squares estimation (see Rhemtulla, Brosseau-Liard, & Savalei, 2012) with Geomin rotation (see Schmitt & Sass, 2011). The initial results showed poor fit for the proposed two-factor, 14-item model: (χ^2 (64, N = 134) = 157.757, $p < .001$). CFI = .927, WRMR = .849, and RMSEA = .105 (90%CI [0.084, 1.125]). In stepwise fashion, we removed 6 problematic items (i.e., items 2, 6, 9, 10, 12, and 14), after which a good-fitting two-factor model emerged (hereby referred to as the SWC-R-8): (χ^2 (13, N = 134) = 13.443, p = .414). CFI = 1.000, WRMR = .299, and RMSEA = .016 (90% CI [0.000, 0.088]). The resulting 4-item Wishful Thinking (i.e., items 1, 4, 11, and 13) and Practical Coping (i.e., items 3, 5, 7, and 8) subscales had good internal consistencies (αs = .803 and .819, respectively) and correlated highly with the corresponding 7-item subscales proposed by

Hatton and Emerson (1995) (*rs* = 0.955) (95% BCa CI [0.939, 0.968] and 0.922 (95% BCa CI [0.891, 0.946]), respectively). We interpreted the high correlations between the 4- and 7-item subscales as suggestive that previous work on the construct validity of the SWC-R may generalize to the SWC-R-8. The Wishful Thinking SWC-R subscale has been positively correlated with stress and emotional exhaustion and negatively correlated with job satisfaction, life satisfaction, and personal accomplishment. The Practical Coping SWC-R subscale has been positively correlated with personal accomplishment (Devereux, Hastings, Noone, Firth, et al., 2009; Hatton & Emerson, 1995).

2.3. Procedure

The current study is a secondary analysis of a cross-sectional dataset collected for a graduate thesis (Ladner-Graham, in preparation). The parent study examined the relation between work stress and deleterious health and work outcomes and if meaning in life acts as a buffer between those variables. Participants were initially recruited by in-department oral presentations and/or emails. After obtaining permission from departmental supervisors, research assistants attended regularly scheduled, on-site department meetings. The research assistants read standardized instructions to potential participants. Those who chose to participate completed an informed consent and the pen and paper questionnaire batteries during the usual meeting time. In exchange for participation, participants were entered into a drawing for one of two $25 gift cards to a local business.

2.4. Statistical analyses

Using Statistical Package for the Social Sciences, version 21 (SPSS; IBM Corp., 2012), we checked for univariate and multivariate outliers and for deviation from normal distribution using skewness, kurtosis, and Shapiro–Wilk statistics. To accommodate non-normal data, we employed bootstrap standard errors (Efron, 1979, 1987) for all outcome variables in all path models. Unlike parametric procedures such as ordinary least squares regression, non-parametric bootstrapping procedures do not assume normality of the sample nor the population. Rather, non-parametric bootstrapping procedures assume (a) the distribution of the sample is representative of the distribution of the population and (b) that the cases are independent (for an easily digestible introduction to bootstrapping, see Wright, London, & Field, 2011). Furthermore, Russell and Dean (2000) provided Monte Carlo simulation evidence that bootstrapping with non-normal data performs better than logarithmic transformation.

Using SPSS, we screened the full dataset for missing data on self-reports using a missing values analysis, which revealed 0.6% of the values were missing. Little's MCAR test (Little, 1988) revealed values were MCAR ($\chi^2(4911, N = 134) = 1874.95$, $p = 1.000$), and thus well handled by data imputation (see Graham, 2009). In order to maximize power (Acock, 2012), we imputed missing values using the expectation maximization algorithm (Dempster, Laird, & Rubin, 1977), a maximum likelihood procedure that produces unbiased point estimates when missing data are MCAR (for a review, see Graham, 2009).

For all path models, we used the maximum likelihood estimator in M*plus*, version 7.11 (Muthén & Muthén, 1998–2012). We examined cross-sectional mediation using the procedures outlined by Hayes (2013; 2009; cf. MacKinnon, 2008) adapted for use in M*plus*. We considered these procedures superior to the traditional causal steps procedures (Baron & Kenny, 1986) because they include the explicit testing of the significance of indirect effect with procedures suitable for handling the often nonnormal distribution of the indirect effects (see Hayes, 2009). For all path models, the SSQ sum score was the *x* (i.e., predictor) variable and the DASS-21 sum score was the *y* (i.e., outcome) variable. See Fig. 1 for the basic cross-sectional mediation path model. In this basic model, the pathways (e.g., *a*, *b*, *c*′, etc.) are quantified by unstandardized regression coefficients. The direct effect of the SSQ on the DASS-21 corresponds to the *c*′ pathway, the indirect effect via the mediating variable corresponds to the *ab* pathway (i.e., the product of the *a* and *b* pathways), and the total effects correspond to the sum of the direct and indirect pathways (i.e., $c = c' + ab$). This is the conceptual model we used to examine if psychological inflexibility was a mediator in a simple model, as in Hypothesis 3. Models may also include multiple proposed mediators, the advantages of which include: reducing bias resulting from empirically meaningful missing variables and allowing for direct

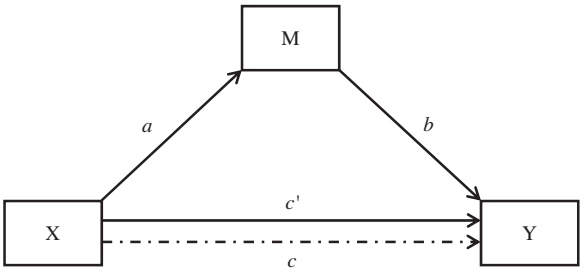

Fig. 1. The basic cross-sectional mediation model (see Hayes, 2013; MacKinnon, 2008). *Note*: *a* = the direct pathway from X to M; *b* = the direct pathway from M to Y; *c*' = the direct pathway from X to Y; *c* = the total effect of X on Y (i.e., $c = c' + ab$); X = the SSQ and Y = the DASS-21 in all models in the present study; M = the mediating variable, which varied between models.

comparisons between the magnitudes of multiple indirect effects (see Preacher & Hayes, 2008). In multiple mediator models, we specified an additional bidirectional pathway (i.e., *d*) between potential mediators in order to allow them to covary (see Hayes, 2013). As the SWC-R-8 subscales might be expected to covary with each other and with the AAQ-II, we elected to estimate those relations directly by adding *d* pathways in our multiple mediator models for Hypotheses 2 and 4. To assess the significance of indirect effects, we used bias-corrected and accelerated bootstrapped confidence intervals (95% BCa CI; Efron, 1987; see also Kelley, 2005), which have performed well for this purpose in simulation research (e.g., MacKinnon, Lockwood, & Williams, 2004; Williams & MacKinnon, 2008).

We used the R^2 statistic to examine the effect size of each model for predicting the DASS-21 (see Kelley & Preacher, 2012) and calculated confidence intervals for R^2s using the software provided by Soper (2013). For all point estimates and R^2s, 95% confidence intervals not containing zero were treated as indicating statistical significance. For our results, we chose to report confidence intervals rather than the more commonly reported *p*-values because (a) they are more informative than *p*-values (see Cohen, 1994) and (b) methodological literature on the frequently nonnormal distributions of indirect effects frequently highlights the usefulness bias-corrected and accelerated bootstrapped confidence intervals. For a primer on confidence intervals, see Cumming and Finch (2001).

3. Results

3.1. Demographics

One hundred and thirty-five participants consented to the present study. One participant dropped out after filling out three of the self-report measures. Of the remaining 134 participants, the majority were female (83.7%), with an average age of 33.69 ($SD = 12.12$) years. Concerning highest level of education, 37.0% indicated they had some college, 17% indicated a master's degrees, 15.3% indicated they had a high school diploma/GED, 14.1% indicated a bachelor's degree, 12.6% indicated they had an associate's degree, and 1.5% indicated they had a doctoral degree. Ethnically, the majority identified as African American (71.1%), followed by Caucasian (25.9%), Native Hawaiian/Pacific Islander (0.7%), and multiracial (0.7%). Departments participants reported working in were Resident Living (57.8%), Education (16.3%), Psychology (14.8%), Nursing (7.4%), and Social Work (0.7%).

3.2. Outliers and normality

We excluded six participants from further analyses due to univariate outlier scores (i.e., $|z| > 3.0$). Two of those six participants also showed a multivariate outlier pattern of responding ($D^2(5, N = 134) > 20.515, p < .001$). After removal of the outliers, 128 participants remained. Tests of normality (i.e., the skewness, kurtosis, Shapiro–Wilk statistics) revealed noteworthy departures from normality for the DASS-21, AAQ-II, and the subscales of the SWC-R-8. See Table 1 for means, standard deviations, and normality coefficients for the self-report measures.

3.3. Models

3.3.1. Hypothesis 1: Regressing the DASS-21 on the SSQ

To test the simple regression model of Hypothesis 1, we regressed the DASS-21 on the SSQ and demographic covariates: gender (coded female = 0, male = 1), age, and ethnicity (coded black = 0, white = 1). Results indicated the SSQ significantly predicted the DASS-21 ($B = 0.182, SE = 0.030, z = 6.134$, 95% BCa CI [0.125, 0.239]). This simple regression model accounted for 25.9% of the variance of DASS-21 ($R^2 = 0.259, SE = 0.067, z = 3.855$, 95% CI [0.134, 0.384]). These results are consistent with Hypothesis 1; higher perceived workplace demands results in increases in psychological distress.

None of the demographic covariates were significant predictors of the DASS-21: gender ($B = 2.085, SE = 2.213, z = 0.942$, 95% BCa CI [−2.172, 6.539]), age ($B = -0.002, SE = 0.057, z = -0.030$, 95% BCa CI [−0.106, 0.118]), ethnicity ($B = -1.085, SE = 1.702, z = -0.638$, 95% BCa CI [−4.477, 2.234]). Nor were the demographic controls significant predictors of the DASS-21 in subsequent models. Though we retained the demographic covariates as control variables in subsequent analyses, we elected not to report their statistics for the sake of space and interpretive parsimony.

Table 1
Data characteristics for self-report measures ($n = 128$).

Measure	*M*	*SD*	Skewness	Kurtosis	*S–W*
Workplace demands	32.290	21.461	0.438	−0.488	0.963
Psychological distress	8.880	7.807	1.230	1.282	**0.884**
Psychological inflexibility	14.158	7.807	1.377	2.116	**0.864**
Wishful thinking	4.657	3.125	0.556	−0.250	**0.947**
Practical coping	8.195	2.988	−0.561	−0.705	**0.927**

Note. *M* = mean; *SD* = standard deviation; *S–W* = Shapiro–Wilk. Shapiro–Wilk coefficients for which $p < .001$ (see Meyers, Gamst, & Guarino, 2006) are in boldface.

Table 2
Statistics for the mediation model of Hypothesis 2, Wishful Thinking, but not Practical Coping, mediating the relation between Perceived Workplace Demands and Psychological Distress.

Predictor	Pathway	Estimate	*SE*	*Z*	95% CI	
					LL	*UL*
Wishful Thinking on:						
Workplace Demands	a_1	0.046	0.012	**3.890**	0.022	0.069
Practical Coping on:						
Workplace Demands	a_2	−0.008	0.012	−0.621	−0.032	0.017
Psychological Distress on:						
Workplace Demands	c'	0.147	0.033	**4.484**	0.082	0.211
Wishful Thinking	b_1	0.647	0.237	**2.723**	0.211	1.163
Practical Coping	b_2	−0.235	0.191	−1.232	−0.603	0.144
Wishful Thinking with:						
Practical Coping	d	3.241	0.717	**4.519**	1.945	4.820
Indirect effect via:						
Wishful Thinking	a_1b_1	0.030	0.013	**2.314**	0.010	0.064
Practical Coping	a_2b_2	0.002	0.005	0.401	−0.002	0.017
Total effect	c	0.179	0.030	**5.936**	0.115	0.236
Psychological Distress	R^2	0.305	0.068	**4.447**	0.179	0.430

Note. *Z*-scores corresponding to $p < .05$ are in boldface (i.e., $|Z| > 1.960$; White, 1970). All confidence intervals for regression coefficients and covariances are bias-corrected and accelerated bootstrap confidence intervals based on 10,000 samples. All confidence intervals for R^2s are standard, non-bootstrapped confidence intervals. LL = lower limit; UL = upper limit.

3.3.2. Hypothesis 2: Mediation by the SWC-R-8, Wishful Thinking Subscale but not the Practical Coping Subscale

To test the mediation model of Hypothesis 2, the direct, indirect, and total effects of the SSQ on the DASS-21 were examined with the inclusion of the SWC-R-8 Wishful Thinking and Practical Coping subscales as potential mediating variables. Results from the analysis are shown in Table 2. All direct pathways between the SSQ, the DASS-21, and the Wishful Thinking subscale were positive and significant. The direct pathways including the Practical Coping subscale were not significant, with the exception of the *d* pathway, which linked the two SWC-R-8 subscales, allowing them to covary within the model. The indirect effect of the SSQ on the DASS-21 via the Wishful Thinking subscale was positive and significant. The indirect effects via the Practical Coping subscale were not significant. Results indicated this model explained 30.5% of the variance of the DASS-21. See Fig. 2 for the path model and regression coefficients.

This model predicts that with the SWC-R-8 subscales held constant, two cases that differ by one unit on the SSQ would differ by 0.147 units on the DASS-21 (i.e., c'). The significant indirect effect in the model predicts that two cases that differ by one unit on the SSQ would differ by 0.030 units on the DASS-21 as a result of the indirect effect of the SSQ through the Wishful Thinking subscale (i.e., a_1b_1). Thus, with the inclusion with the Wishful Thinking subscale as a mediator, the model predicts that two cases that differ by one unit on the SSQ would differ by 0.179 units on the DASS-21 (i.e., c). These results are consistent with the hypothesis that wishful thinking coping, but not practical coping, would mediate the relation between perceived workplace demands and psychological distress such that increases in the wishful thinking coping strategy partly explain why perceived workplace demands are associated with increases in psychological distress.

3.3.3. Hypothesis 3: Mediation by the AAQ-II

To test the simple mediation model of Hypothesis 3, we examined the direct, indirect, and total effects of the SSQ on the DASS-21 with the inclusion of the AAQ-II as a mediating variable (in contrast to the Wishful Thinking subscale, as in the model in the previous section). Results from the analysis are shown in Table 3. All direct pathways between the SSQ, the DASS-21, and the AAQ-II were positive and significant. The indirect effect of the SSQ on the DASS-21 via the AAQ-II was

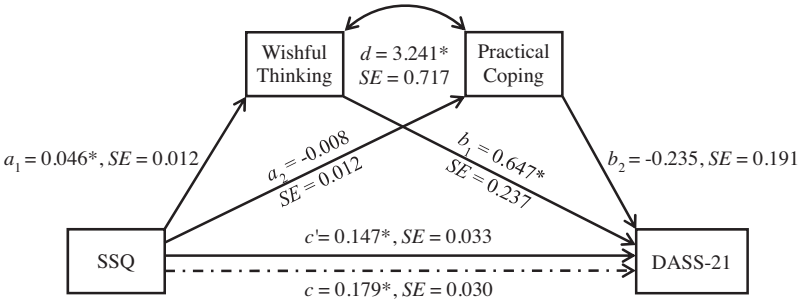

Fig. 2. The mediation model for Hypothesis 2. *Note*: * indicates 95% BCa confidence intervals not containing zero.

Table 3
Statistics for the simple mediation model of Hypothesis 3, Psychological Inflexibility mediating the relation between Perceived Workplace Demands and Psychological Distress.

Predictor	Pathway	Estimate	*SE*	*Z*	95% CI	
					LL	*UL*
Psychological Inflexibility on:						
Workplace Demands	*a*	0.136	0.032	**4.288**	0.074	0.199
Psychological Distress on:						
Workplace Demands	*c′*	0.109	0.031	**3.466**	0.047	0.170
Psychological Inflexibility	*b*	0.520	0.100	**5.216**	0.338	0.733
Indirect effect via:						
Psychological Inflexibility	*ab*	0.071	0.019	**3.773**	0.040	0.109
Total effect	*c*	0.179	0.030	**5.975**	0.122	0.229
Psychological Distress	R^2	0.440	0.065	**6.725**	0.318	0.562

positive and significant. Results indicated this model explained 44.0% of the variance of the DASS-21. See Fig. 3 for the path model and regression coefficients.

This model predicts that with the AAQ-II held constant, two cases that differ by one unit on the SSQ would differ by 0.109 units on the DASS-21 (i.e., *c′*). The indirect effect in the model predicts that two cases that differ by one unit on the SSQ would differ by 0.071 units on the DASS-21 as a result of the indirect effect of the SSQ through the AAQ-II (i.e., *ab*). Thus, with the inclusion with the AAQ-II as a mediator, the model predicts that two cases that differ by one unit on the SSQ would differ by 0.179 units on the DASS-21 (i.e., *c*). These results are consistent with the hypothesis that psychological inflexibility would mediate the relation between perceived workplace demands and psychological distress such that increases in psychological inflexibility partly explain why perceived workplace demands are associated with increases in psychological distress.

3.3.4. Multiple mediator model

Finally, we included the significant mediating variables from the models proposed by Hypotheses 2 and 3 into a multiple mediator model. In this model, both the Wishful Thinking subscale and the AAQ-II were entered as potential mediators. As in the model for Hypothesis 2, an additional pathway (i.e., *d*) was specified to explicitly model the expected covariance between Wishful Thinking and the AAQ-II.

Results from the analysis are shown in Table 4. All direct pathways between the four variables were positive and significant, with the exception of the b_1 pathway between the Wishful Thinking subscale and the DASS-21, which was not significant. Of the two indirect pathways, the one via the AAQ-II (i.e., a_2b_2) was positive and significant. However, the indirect pathway via the Wishful Thinking subscale (i.e., a_1b_1) was positive but not significant. The results, displayed in Fig. 4, indicated this model explained 45.2% of the variance of the DASS-21.

This model predicts that with both the Wishful Thinking subscale and AAQ-II held constant, two cases that differ by one unit on the SSQ would differ by 0.098 units on the DASS-21 (i.e., *c′*). The only significant indirect effect in the model predicts that two cases that differ by one unit on the SSQ, but with the Wishful Thinking subscale held constant, would differ by 0.067 units on the DASS-21 as a result of the indirect effect of the SSQ through the AAQ-II (i.e., a_2b_2). Thus, with the inclusion of the AAQ-II as a mediator, this mediation model predicts that two cases that differ by one unit on the SSQ would differ by 0.178 units on the DASS-21 (i.e., *c*). These results are consistent with a hypothesis that psychological inflexibility alone mediates the relation between perceived workplace demands and psychological distress. That is, when the model includes both psychological flexibility and wishful thinking coping, only psychological inflexibility remains a mediating variable for the indirect effects of perceived workplace demands on psychological distress.

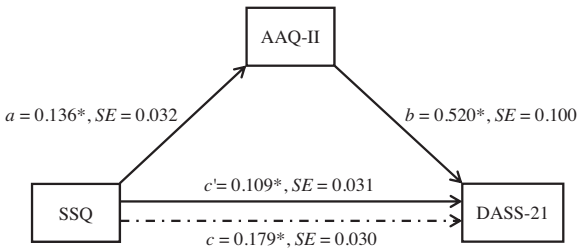

Fig. 3. The basic mediation model for Hypothesis 3.

Table 4
Statistics for the multiple mediator model: Wishful Thinking and Psychological Inflexibility mediating the relation between Perceived Workplace Demands and Psychological Distress.

Predictor	Pathway	Estimate	*SE*	*Z*	95% CI	
					LL	*UL*
Wishful Thinking on:						
Workplace Demands	a_1	0.046	0.012	**3.890**	0.022	0.069
Psychological Inflexibility on:						
Workplace Demands	a_2	0.136	0.032	**4.288**	0.074	0.199
Psychological Distress on:						
Workplace Demands	c'	0.098	0.033	**3.017**	0.034	0.162
Wishful Thinking	b_1	0.274	0.191	1.431	−0.084	0.669
Psychological Inflexibility	b_2	0.492	0.094	**5.233**	0.321	0.690
Wishful Thinking with:						
Psychological Inflexibility	d	5.360	1.920	**2.791**	1.723	9.262
Indirect effect via:						
Wishful Thinking	a_1b_1	0.013	0.010	1.279	−0.003	0.038
Psychological Inflexibility	a_2b_2	0.067	0.018	**3.704**	0.036	0.109
Total effect	c	0.178	0.030	**5.902**	0.120	0.236
Psychological Distress	R^2	0.452	0.065	**6.935**	0.332	0.572

4. Discussion

In the present study, we examined the relation between perceived workplace demands and psychological distress in staff serving individuals with ID. Drawing from theory and previous research, we examined four regression-based models. First, we proposed and found that perceived workplace demands predicted psychological distress (Hypothesis 1). Specifically, staff members indicating they perceived greater workplace demands also tend to endorse experiencing higher levels of psychological distress. After establishing the simple regression model, we examined the inclusion of candidate mediating variables proposed by two distinct theoretical models.

First, similar to the findings of Devereux, Hastings, Noone, Firth, and colleagues (2009), we found evidence that coping characterized by wishful thinking mediated the relation between perceived workplace demands and psychological distress for staff such that greater endorsement of wishful thinking increased the deleterious effects of perceived workplace demands (Hypothesis 2). Also like Devereux and colleagues, we found that the practical coping style did not act as a mediator. Though wishful thinking coping was a significant mediator, the magnitude of its indirect effect was modest. This is evidenced in that the effect size of this model's predictive usefulness for psychological distress ($R^2 = 0.305$) was only marginally larger than the effect size for the simple regression model in Hypothesis 1 in which perceived workplace stress was the sole predictor of psychological distress ($R^2 = 0.259$).

Next, to build on Noone and Hastings' (2011) findings that psychological flexibility is negatively related to burnout in staff serving individuals with ID, we proposed and found evidence that psychological inflexibility did mediate the relation between perceived workplace demands and psychological distress (Hypothesis 3). Greater perceptions of workplace demands predicted greater psychological inflexibility, which in turn predicted greater levels of psychological distress. These findings are consistent with the hypothesis that reacting to difficult workplace situations in an inflexible way leads to increases in felt stress greater than would be expected if one were to react in a more open, less rigid way. The magnitude of psychological inflexibility as a mediator in this model was substantial. That is, the effect size ($R^2 = 0.440$) resulting from the inclusion of psychological inflexibility as a mediator indicated the explanatory usefulness of the model for predicting psychological distress in staff members nearly doubled that of the previous two models.

Finally, though side-by-side comparisons of the single mediator models suggested psychological inflexibility was a more potent mediator than wishful thinking coping, we elected to compare the mediators directly with their joint inclusion in our

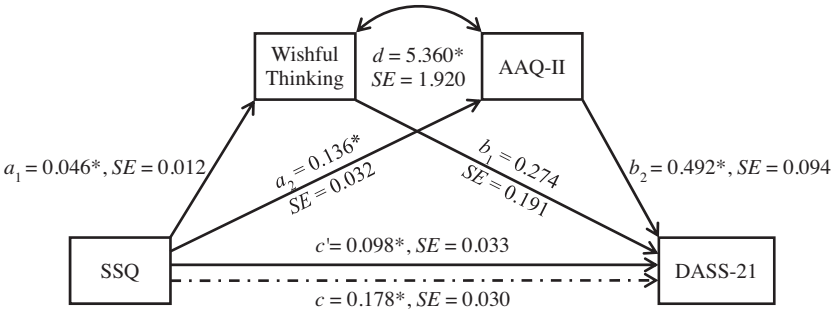

Fig. 4. The multiple mediation model integrating the models from Hypotheses 2 and 3. *Note*: Though the direct pathways for Wishful thinking are significant, the indirect pathway via Wishful Thinking (i.e., a_1b_1) is not significant.

final, multiple mediator model. This allowed for a simultaneous comparison of the potency of each variable for showing indirect effects for perceived workplace demands leading to psychological distress. In this model, the indirect effect for wishful thinking dropped below statistical significance while the indirect effect for psychological inflexibility remained robust. The effect size for this model ($R^2 = 0.452$) was substantial and the largest of all the models tested. It should be noted that as the effect size was only trivially larger than that for the single mediator model using psychological inflexibility. Thus, those interested in a parsimonious model may prefer the single mediator model with psychological inflexibility to the more complex model with both psychological inflexibility and wishful thinking.

We believe that the analyses in the current study, along with other similar work (e.g., of Devereux, Hastings, Noone, Firth, et al., 2009), contribute to an empirical understanding of the theoretically implied mechanisms of work-related stress in staff serving individuals with ID. Though both the transactional model and the psychological flexibility model (see Hayes, Levin, Plumb-Vilardaga, Villatte, & Pistorello, 2013 for a recent review of the psychological flexibility model) have been applied in numerous settings, in this study the construct proposed by the latter model was more precise (i.e., explained more outcome variance) than was the one by the more established, former model. We believe further comparisons between these two models may clarify which one is more useful for understanding stress in settings in which those with ID are served. Furthermore, we suspect theoretical models with greater explanatory usefulness may better aid in the development of more effective interventions and preventative guidelines. All in all, the results from the four models presented in this paper suggest psychological inflexibility, and by extension, the psychological inflexibility model, may be particularly useful for further investigation on the causes and amelioration of workplace-related stress in programs serving individuals with ID (e.g., Bethay et al., 2013).

4.1. Strengths and limitations

Our study participants were diverse along several demographic factors, such as age, education, and job title. However, the modest number of participants and unequal proportions along demographic variables were inadequate to examine differential relations between those factors. The ethnic distribution of our sample was a study strength in that a large number of the participants were of an ethnic minority (i.e., African American) that has been generally under-studied in comparison to Caucasians. However, it is unclear if results from our largely African American sample will generalize to staff of different ethnicities or living in different areas. More so, our participants were not randomly drawn from the greater population of staff serving individuals with ID, nor even from the subpopulation of employees within their program of employment. As such, inferences from this study are limited because of non-random recruitment. The validity of the analyses in the present study is limited in that they relied on self-report data. A multi-method examination approach would increase the likelihood that the constructs of interest were adequately assessed (Campbell & Fiske, 1959). The present study also relied on cross-sectional data to test mediation, which has been criticized by some in the methodological literature (e.g., Maxwell and Cole, 2007). Though we agree that longitudinal deigns are superior for mediation analysis, their greater cost in time and resources makes them prohibitive in the absence of strong theory and compelling prior research. We assert, in conjunction with Hayes (2013), that cross-sectional mediation analyses are useful in early stages of theory building and when there are restrictions on time and resources. Finally, we consider a major strength for our study was the inclusion and comparison of mediating variables from two distinct theoretical models, which has the potential to impact what types of interventions are used for stress reduction in programs wherein staff serve individuals with ID.

4.2. Future directions

Though preliminary, findings from this study and those it builds upon (e.g., Bethay et al., 2013; Noone & Hastings, 2011) suggest cautious optimism for applying the psychological flexibility model within programs wherein staff serve individuals with ID. Future studies might explore the usefulness of other variables related to psychological inflexibility. A recent study by Krasner and colleagues (2009), for example, evidenced mindfulness practices may decrease burnout and increase emotional stability among primary care physicians. Barnard and Curry (2012) found that a related construct, self-compassion, was a robust predictor of satisfaction and emotional exhaustion in clergy members. Further preliminary survey research and pilot trials may shed further light on which process variables are the most useful and what intervention formats are the most appropriate for applying the psychological flexibility model within programs serving individuals with ID.

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