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Work stress and depression among direct support professionals: the role of work support and locus of control

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Abstract

Background—Although work stress can impede the capacity of direct support professionals and contribute to mental health challenges, external (i.e. work social support) and internal resources (i.e. an internal locus of control) have been shown to help DSPs cope more actively. We examined how work stress was associated with depression, with a particular focus on the role of resources.

Method—Direct support professionals (n = 323) who serve adults with intellectual and developmental disabilities from five community-based organisations completed a cross-sectional, self-administered survey which measured work stress, work support, locus of control, and depression.

Results—Multiple regression analyses demonstrated that work stress was positively associated with depression, while resources were negatively associated with depression. In particular, work support moderated the effects of client disability stress, supervisory support lessened the effects of role conflict, and locus of control moderated the effects of workload.

Conclusions—Such findings suggest the importance of external and internal resources for staff mental health. This research underscores the need for strong work social support systems and interventions to help staff manage work stressors.

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Keywords

depression; direct care worker; locus of control; work social support; work stress

Introduction

As the number of adults with intellectual and developmental disabilities (ID) in the USA continues to grow (Fujiura 2003), direct care workers play a crucial role in maintaining their health and well-being, as both caregivers and key role models. In some cases, the pool of workers is inadequate to handle the current client demand, coupled with inadequate training and work stress which can diminish the effectiveness of care delivered (Hatton 1999; Institute of Medicine 2008). As services for adults with ID have become more community-based, direct care work has encompassed a wider array of job tasks (Larson & Hewitt 2005). These tasks and stressors include instructing and motivating clients on skill development and vocational goals, and providing personal care, such as medication administration and personal grooming. Inadequate job instruction or definition, particularly a problem when supervision is scarce, adds to confusion about job tasks (Rose *et al.* 2003). Various work demands and caseloads, limited support and instruction, and role confusion contribute to direct care staff work stress and, in turn, mental health problems (Hatton 1999; Ford & Honnor 2000). The negative effects of work stress can have deleterious implications for both direct care workers and their care recipients (Hatton 1999; Skirrow & Hatton 2007). It may decrease the effectiveness of these workers or even prevent them from continuing to serve in these capacities. Moreover, staff turnover limits the continuity of quality care available for clients (Hatton *et al.* 2001).

Importantly, the experience of job stress depends on how it is perceived and whether workers have adequate resources to perform in the job roles and manage the stress (Sharrard 1992). Those who receive adequate supervisory guidance and feedback, and enjoy coworker teamwork or whose personal control beliefs and coping mechanisms help them manage stress, are likely to fare better than those who do not (Koeske & Kirk 1995; Ford & Honnor 2000; Snow *et al.* 2003). The efficacy of resources needed to buffer the effects of such work stress, however, can depend on the types of work stress experienced.

While research about direct care worker stress and coping in the ID field is growing and includes an examination of stressors, resources, and depression, important gaps exist. Specifically, although it is shown that work support helps to lessen the deleterious effects of work stress on mental health outcomes (Ford & Honnor 2000), and that supervisor and coworker support separately have been found to lessen the effects of work stress, there is limited information on what sources of support play a more significant role (Harris & Kacmar 2005; Ducharme *et al.* 2008). Furthermore, not much is known about what types of work stress (e.g. role ambiguity, role conflict), work support, and perceived control are most beneficial (Fox *et al.* 1993; Ducharme *et al.* 2008).

To address the research gaps mentioned above, we examined the interrelationships between work stressors, resources, and depression in a sample of direct care workers who serve persons with ID, known in the field as direct support professionals (DSPs). Our research was guided by a conceptual framework that has been inspired by the Ensel & Lin (1991 , 2004) life stress models and adapted for direct care work settings. While other models share a framework within which to examine the negotiation of stressors within the environment (Lazarus 1966; Karasek 1979; Pearlin *et al.* 1981; Lazarus & Folkman 1984), the Ensel & Lin (1991, 2004) models specifically incorporate psychological and sociological theoretical approaches. This allows for an examination of the intricate relationships among stressors,

both external (i.e. social support) and internal resources (i.e. personality and personal abilities), and outcomes, and more specifically, the main and moderating effects of these interrelationships (Ensel & Lin 1991; Ensel & Lin 2004). These have been adapted for our work stress process models by focusing on the main and moderating roles of external (i.e. work social support) and internal resources (i.e. locus of control) on depression.

Furthermore, Ensel & Lin (1991) tested six alternative models of the stress process. Two of those models guided our study that examines the main effects of work stress and resources on depression, and the potential moderating effects of resources.

We expected that resources of work support (supervisor and coworker support) and an internal locus of control would protect DSPs from depression. Staff perceptions of work support, both instrumental and emotional, from supervisors and coworkers can provide a worker with confidence that work responsibilities and stressors can be adequately addressed. A worker with internal control beliefs, or who relates outcomes to his or her own abilities or efforts, is more likely to manage or actively cope with job-related stress, and would be less likely to be depressed, except in the instance of significant work stress which may be overwhelming for the individual. Generally, an individual with an internal locus of control orientation is less likely to be bothered by work stress, and copes more effectively with circumstances than one with an external locus of control orientation, who believes that she is at the mercy of fate, luck, or chance. We expected that the beneficial association between work support and depression, and an internal locus of control and depression would be stronger for DSPs experiencing higher levels of work stress.

Furthermore, we expected that some resources would work better for certain types of work stress. For example, we hypothesised that work support from both supervisors and coworkers should generally be beneficial for managing the specific work stressors of workload and client-related stressors. Coworkers can help to lighten one's load and lend a hand for onerous tasks, and supervisors can also help clients manage the effects of work stress. An internal locus of control orientation could benefit workers perceiving higher work stress levels of workload, client disability stress and lack of involvement in decision-making: these individuals know that there are resources that can help them to overcome or even alter future stressful events. This general orientation has a favourable impact on mental health status, despite recurring job stress. Finally, we expected that work social support would be most likely to moderate work overload, and locus of control to moderate lack of involvement in decision-making. Workplace help is more likely to matter for those perceiving the most significant workloads, and an internal locus of control is apt to be helpful for one with limited access to work-related decision-making. The following general research questions were considered.

1 How are work stress and resources (i.e. locus of control and work social support) associated with depression, when controlling for sociodemographic and work-related characteristics? (main effects).

2 Is the association between resources (i.e. locus of control and work social support) and depression dependent on the level of work stress? If so, how? (moderating effects).

Method

Sample

We conducted a survey among 323 DSPs from five community-based organisations located in the Northern region of a Midwestern state, which serve adults with ID, and provide residential, vocational and personal/respite/foster care services. A purposeful sample of five

community human services organisations serving persons with ID was selected, where each organisation represents a different geographical location and a unique mix of racial/ethnic groups in that location. Participants volunteered to participate, and completed a written informed consent, regarding their rights and option to leave the study at any time. To be eligible, survey participants (1) needed to provide non-medical direct care services to adults with ID who are 18 years or older in residential, day and employment, respite or personal care services in one of the five participating organisations (i.e. serve as a DSP); (2) be fluent in written and spoken English; and (3) be at least 18 years of age. The study has been approved by the university ethics board both initially and at the annual renewal periods, as well as by the participating organisation review boards.

According to participating organisation requests, survey packets were distributed in three different formats: (1) in-person (P), where project staff was present on-site to answer questions while the survey was completed; (2) supervisor distribution (S), where participants mailed packets back to the project office in pre-stamped envelopes when complete; and (3) mailed (M), where participating organisations mailed survey packets to staff at home, and participants then mailed completed surveys back to the project office in pre-stamped envelopes when complete. The in-person mode of survey packet distribution (P) produced the highest survey completion response rate (86%, 130/152), which is likely due to the availability of project staff to answer questions and provide thank-you gift cards immediately after survey completion. Conversely, the supervisor survey distribution mode (S) yielded the lowest response rates (34%, 165/485), due to a myriad of factors, which could include gatekeeper cooperation, and participants' concerns of potential supervisor/management involvement in the study. The overall study response rate was 47%, which was calculated by dividing the number of workers completing the survey, by the number of eligible workers across all sites (323/682). This is consistent with similar studies, which have demonstrated response rates ranging from 22% to 75% (Hatton & Emerson 1995).

We took several steps to achieve a high response rate. Specifically for the three organisations with the lower response rates, a second round of survey packets was generated, which improved the overall study response rate by 5% (American Association for Public Opinion Research 2008).

Measures

Table 1 provides descriptive statistics for all measures, including the number of scale items, scale range and sample items, as well as instrument mean, standard deviation (SD) and Cronbach's alphas from our study sample.

Depression—We measured depression with the 10-item version of the Centers for Epidemiologic Studies (CES-D) scale (Radloff 1977; Cole *et al.* 2004). All items were assessed using a 4-point Likert response scale, with some items being reversed coded so that increasing values represented greater symptomotology.

Work stress—Five dimensions were assessed: (1) work overload, the quantity of work and overload (six items) (Caplan 1971); (2) role ambiguity, lack of clarity in one's work tasks (five items) (Rizzo *et al.* 1970); (3) role conflict, conflicting work-related information (four items) (Rizzo *et al.* 1970); (4) limited work-related decision-making authority, as an indicator of control at work (four items) (Vroom 1960); and (5) client disability, or low levels of client functioning, mobility and intellectual abilities (seven items) (Hester Adrian Research Centre 1999). Each item was assessed on a 5-point Likert scale. We created five sub-scales (sum of items within each sub-dimension) as well as a global measure (sum of the five sub-scales).

Work social support—Work social support consists of supervisory support, encourages best effort and provides ideas for problem-solving (six items on a 5-point Likert scale, West & Savage 1988) and coworker support, practical assistance and emotional support (four items). We created two sub-scales representing supervisory and coworker support, as well as a global measure (sum of the two sub-scales).

Locus of control—We measured locus of control, ranging from external to internal control beliefs, with Ross' locus of control scale (eight items on a 5-point Likert scale) (Ross & Mirowsky 1989). Higher scores represented more internal control.

Analyses

Multiple regression analysis was conducted to test both (1) a main effects model, where both stressors and resources have direct and independent effects on depression; and (2) a moderation coping model in which interaction effects between stressors and resources can increase or decrease the effects of stress on depression for workers experiencing lower, medium and higher stress levels (Ensel & Lin 1991, 2004). We controlled for age, race/ethnicity, gender, education, marital status and living arrangement, caregiving responsibilities at home, supervisory status and tenure with the organisation. Four dummy variables indicating five organisations captured, and controlled for, organisational effects. There were an insufficient number of clusters (i.e. organisations) in this study to perform hierarchical linear modelling (Raudenbush & Bryk 2002) to include specific organisational characteristics in the model.

The global and sub-dimensions of work stress and work support were used as alternative measures in these models. Thus, we examined the work stress concepts of workload, role ambiguity, role conflict, lack of involvement in decision-making and client disability, and the work support concepts of supervisor and coworker support separately and collectively as one concept.

The following general models were used:

Main effects model:

$$\text{depression}=a+b_1(\text{covariates})+b_2(\text{work stress})+b_3(\text{resources})+e$$

Moderating effects model:

$$\text{depression}=a+b_1(\text{covariates})+b_2(\text{work stress})+b_3(\text{resources})+b_4(\text{workstress}\times\text{resources})+e$$

In order to test the models, the partial (unstandardised) regression coefficients, the directionality (negative or positive) and size of the regression coefficients, and significance of the relationship (*P*-value) were assessed. The F statistic, R^2 and the adjusted R^2 were also generated. For the moderation effects, we also examined whether the moderator variable affects the independent–dependent variable relationship as hypothesised (Baron & Kenny 1986). For the moderating hypothesis to hold true, we considered how much R^2 explains the variance in the independent variable in the second regression equations with the interaction term, which must be above and beyond what is explained by the first regression equation, and the F statistic must be significant (Aguinis 2004). Significant yet low correlations between work stress and work support ($r = -0.24$, $P < 0.001$) and between work stress and locus of control ($r = -0.21$, $P < 0.001$) suggested no serious confounding effects of the work stress and resource measures in the examination of the interaction effects (Thoits 1982).

Results

Table 1 shows that participants were largely female (n = 243, 83%); non-Hispanic African American (n = 208, 64%), non-Hispanic White (n = 60, 19%), Hispanic and other (n = 54, 17%); and fairly well educated: 67% (n = 197) had taken some college classes or other specialised training. The majority (n = 169, 53%) was 35 years and older. The mean time for working at an organisation was 58 months. This demonstrates a highly female, ethnically diverse and educated workforce. Apart from the higher educational level, these demographic characteristics are similar to those of DSPs reported by others (Hewitt *et al.* 2000; Hatton *et al.* 2001; Test *et al.* 2003; Larson & Hewitt 2005), as well as nursing home, home care and hospital aides (Crown *et al.* 1995; Yamada 2002).

Main effects

As shown in Table 2, work stress was positively associated with depression, for models using both the global work stress measures (Models 1 and 3) and work stress sub-dimensions (Model 2) (research question 1: main effects). As expected, resources were significantly but inversely associated with depression (research question 1: main effects). When all work stress sub-dimensions were simultaneously entered in the model (Model 2), however, only workload was significant. When both supervisor and coworker support were entered in model, neither emerged as significant (Model 3). Furthermore, an internal locus of control was inversely associated depression across all model specifications: workers with stronger internal control beliefs were less depressed than were workers with external control beliefs.

Moderation effects

While there were no significant interaction effects observed between the global dimension of work stress and resources, certain interaction effects were found between sub-dimensions of work stress and resources. Contrary to our expectations of specific moderation effects in research question 2, work support (global) moderated the effects of client disability stress, supervisor support moderated the effects of role conflict, and locus of control moderated the effects of work overload on depression. The interaction effects models are demonstrated statistically (Table 2, Models 4–6), as well as graphically (Figs 1–3).

Figure 1 presents the pictorial representation of the interaction effect between work support and client disability on outcomes of depression. Work support is represented on the x-axis (actual range of 10–50 in the sample), and the predicted depression level on the y-axis (actual range of 0–27 in the sample). Each line in the figure represents a different level of client disability (low: mean client disability − 1 SD; mean; high: mean client disability + 1 SD). Figure 1 graphically shows that workers perceiving higher levels of client disability stress had a higher level of depression, and those perceiving lower levels of client disability stress had a lower level. The negative slope indicates that those perceiving more work support experienced less depression than those with less work support.

Most importantly, the varying slopes in Figure 1 indicate that the relationships between work support and depression depend on the level of client stressors experienced. Work support had the strong inverse relationship with depression (steepest negative slope) among workers perceiving high levels of client disability stress. This suggests that workers with higher stress levels (i.e. client disability stress) experienced the most relief from work support. Conversely, the inverse relationship between work support and depression was weakest (slope closest to zero) among workers perceiving lower levels of client disability stress.

Using the lincom function of Stata statistical software ®, version 9.1, we examined the significance of the individual slopes in the interaction model (i.e. low, mean and high client disability). Lincom computes point estimates, standard errors and significance levels for linear combinations of coefficients after running models. The results indicated that the effect of work support on depression was statistically significant when client disability stress was at the mean ($P < 0.001$) and the high levels (mean + 1 SD, $P < 0.001$).

Similarly, as shown in Fig. 2, workers experiencing higher levels of role conflict had a higher level of depression, and those with less role conflict, a lower level. Those perceiving higher levels of supervisor support felt less depression. Figure 2 shows that supervisor support had the strongest inverse relationship with depression (steepest negative slope) among workers perceiving higher levels of role conflict: those workers experienced the most relief from supervisor support. Conversely, the inverse relationship between supervisor support and depression was weakest (slope closest to zero) among workers with the lowest stress levels.

Possessing an internal locus of control helped lessen the negative effects of workload, but more so for workers experiencing lower workload levels. Figure 3 graphically illustrates this interaction effect. As expected, similar to the other two figures, the level of depression is lower as the resource level (i.e. locus of control) is higher.

This interaction suggests that the effects of internal locus of control on depression were contingent on the level of workload experienced. Internal locus of control had the strongest inverse relationship with depression (steepest negative slope) among workers perceiving the lowest levels of workload. In other words, internal control beliefs were most helpful to workers experiencing lower, rather than higher levels of workload. As locus of control became more internalised, depression decreased most for workers perceiving lower workloads. Conversely, the inverse relationship between internal locus of control and depression was weakest (slope closest to zero) among workers perceiving a greater workload. Stata® lincom analysis confirmed that the effect of locus of control on depression was significant when workload was at all three levels: low (mean − 1 SD, $P < 0.001$), mean ($P < 0.001$) and high levels (mean + 1 SD, $P < 0.01$).

Discussion

As expected, and in accordance with the published literature, our results confirmed that workers who were stressed were also more likely to be depressed. While the detrimental results of work stress for direct care workers have been studied (Hatton *et al.* 1999; Rose *et al.* 2006), that of specific types of stressors are less well understood. We found heavy workload, lack of involvement in organisational decision-making and client disability/client care to be key stressors.

Specifically, work overload was significantly associated with higher levels of depression. Depending on an organisation’s resources and decision-making related to funding, staffing, and material supplies, work overload can present as a problem. The stressful part of the load is not always client care, but often administrative and staffing-related stress. Our results corroborate past research findings that having more work than is reasonable to complete in a specified time frame is associated with discouragement and depression (Mackie *et al.* 2001).

Workers with access to work support were less depressed, regardless of the type of work stress experienced. This is consistent with the research showing that support from supervisors and coworkers can lessen feelings of hopelessness and depression (Snow *et al.* 2003). Furthermore, as expected, workers with an internal, rather than an external locus of control orientation were less likely to be depressed. We would attribute this finding to how

individuals with internal control beliefs tend to function. They are more apt to rely on a personal resource base (i.e. actively addressing potential sources of personal depression, or accessing social supports), rather than using passive means (Koeske & Kirk 1995; McLean & Andrew 2000).

We found that the relationship between work social support and depression was moderated by the level of stress. For those perceiving higher levels of client disability/client care stressors, higher levels of work social support were associated with lower levels of depression. However, for those perceiving lower work stress levels, work social support was not associated with lower levels of depression. As workers often become personally attached to their clients (Shaddock *et al.* 1998), and expend significant energies in supporting them, higher levels of stress and depression are experienced. To support their work with clients, involving significant client personal care assistance (e.g. feeding and bathing) and assisting with client goals (e.g. personal or vocational goals) (Mascha 2007), workers need adequate supervision on care guidelines, as well as ample coworker teamwork. Executing a client's personal care routine across shifts, assisting her to meet goals and completing proper documentation requires well-orchestrated team efforts (Ducharme *et al.* 2008). Knowing that supervisors and coworkers are available as a sounding board, or to assist with tasks, can help to lessen feelings of depression and hopelessness (Hatton *et al.* 1999).

No moderating effects were detected between client disability stressors and locus of control orientation, which suggests that this personal resource was not differentially related by worker stress level. Considering the unpredictability that can accompany client disability status, needs and progress (Hatton *et al.* 1995), an internal control orientation does not appear to be more helpful for workers experiencing higher stress levels.

We also found that supervisory support moderated the negative effects of role conflict on depression, particularly for workers experiencing the highest stress levels. Supervisors are normally responsible for delineating workers' job titles and responsibilities, and can help prioritise what job responsibilities need to be accomplished. They can provide both emotional support, in response to job frustrations, and instrumental support, through guidelines and constructive feedback (Hatton *et al.* 1999; Ford & Honnor 2000). A supervisor with adequate work-place knowledge can help define job tasks, and help relieve job-related strain and hopelessness.

The significant and beneficial moderating effects of supervisory support may have been related to the salience of role conflict within our sample. With the deinstitutionalisation of care for individuals with ID, direct care jobs have required greater responsibility. Yet, they have not been clearly defined, often leading to role discrepancy (Larson & Hewitt 2005). Thus, consistent with our expectations, role conflict appears to be a problematic stressor that can be lessened with supervisory support.

We found that internal control beliefs did lessen the damaging effects of work overload on depression, but primarily for workers experiencing lower stress levels. Considering that heavy workloads can be a stressor in some organisations, depending on available funding and strategic use of resources (Larson & Hewitt 2005), personal control mechanisms can be especially important. Particularly as workload levels increase, workers may require support assistance from other staff. This finding, however, does not discount the value of an internal locus of control orientation, which was generally helpful. Only when the workload became too heavy did such protection plateau: one may be overwhelmed by the external environment, and personal resources are not sufficient. At that point, other resources, such as work support, may help lessen the noxious effects of workload, as suggested by social support moderating the association between workload and depression.

Study limitations

Several study limitations should be considered in interpreting the results and formulating future research directions. Given our relatively small sample of 323 cases, results must be interpreted with caution. While the sample size was sufficient to achieve this objective, it is possible that a larger sample size would have achieved more significant coefficients. As a representative sampling of direct care workers was not possible, we engaged in purposeful sampling, with organisations in different geographical locations, comprised of workers with varying racial/ethnic backgrounds.

Our overall study response rate of 47% is comparable with similar studies of direct care workers (Hatton & Emerson 1995), and the response rate varied widely, with some modes of distribution (i.e. in-person response rate at 86%) and organisations producing higher response rates than others.

Although data from multiple time points would be useful to test the stress-and-coping model used in this study, this study is constrained by the cross-sectional data. To accommodate for this time sequencing aspect of the model, we assessed survey respondents' work stressors for the past 3 months of work, resources over the past month, and depression within the past week.

Moreover, because our data were cross-sectional, we examined association, rather than causation. Although we identified an association of work stress with depression and the limits of resources, it is not possible to know the direction of causality, which would require a longitudinal study. For example, we are unable to rule out the possibility that having good mental health may contribute to an internal locus of control.

Future research

Results from this study can be expanded in a variety of directions, which can help further research and advocacy efforts for the direct care workforce. Considering the value of supervisory and coworker support to lessen depression, the effectiveness of different types of support systems may be examined. For example, mentorship or teamwork models may also be tested with respect to worker depression.

If we assume that personal control traits can slowly change over time (Schieman & Turner 1998; Jang *et al.* 2002), interventions may help workers develop stronger internal control beliefs and active coping behaviours. Further research is needed to examine what types of interventions may facilitate this process. Such interventions, for example, may involve role playing, or working with coworkers to resolve on-the-job problems, as learning better communication methods has been shown to help workers develop more control within their work environments (Spence 1994; Schmitz *et al.* 2000).

Our analysis can help further our understanding of work stress and the resources that direct care workers use to manage them. This knowledge can aid in developing and implementing effective organisational policies and interventions to promote the health and well-being of DSPs, and possibly the clients whom they serve. Policies may include efforts to develop work-based social support networks, such as providing adequate supervisory support, and fostering teamwork development. Interventions may help staff alter how they perceive stress (Tierney *et al.* 2007) and learn problem-solving skills and time management (Innstrand *et al.* 2004). DSPs who benefit from adequate work support networks and interventions to help them manage work stress can lead to better follow-through and positive contact with clients, improved morale and better mental health (Rose 1995; Hatton 1999; Innstrand *et al.* 2004).

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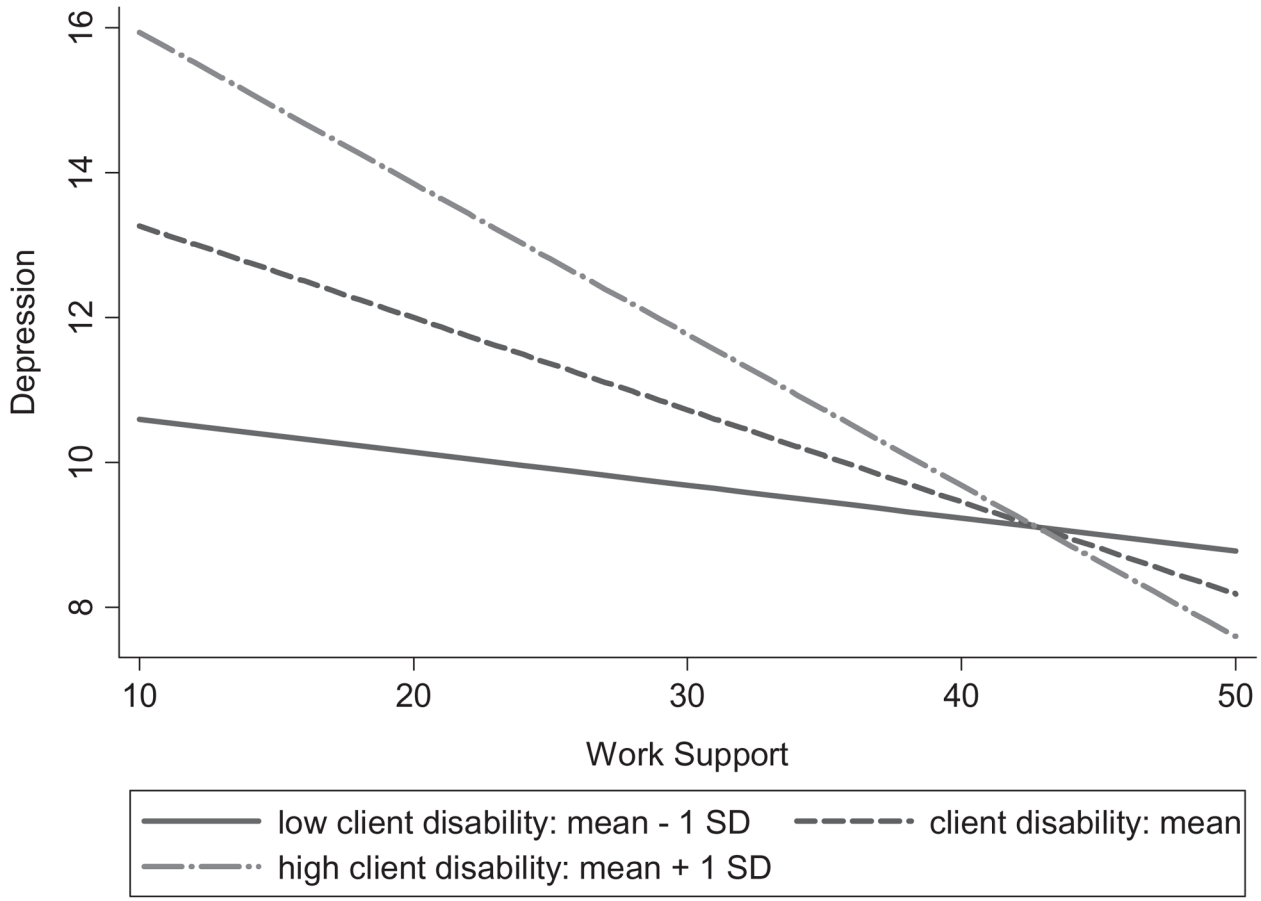

Figure 1.
Moderating effects of work support on client disability stressors for the outcome of depression. The effect of work support on depression was statistically significant when client disability stress was at the mean level ($P < 0.001$) and the high level (mean + 1 SD, $P < 0.001$). Based on Model 4 in Table 2.

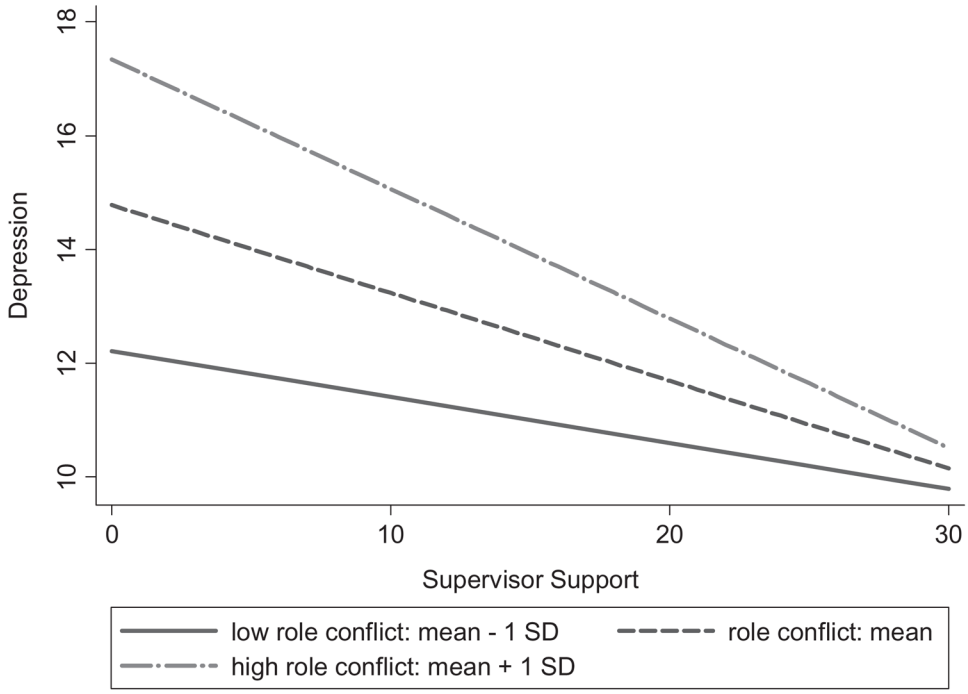

Figure 2.
Moderating effects of supervisor support on role conflict stressors for the outcome of depression. The effect of supervisor support on depression was statistically significant when role conflict was at the mean level ($P < 0.05$), and at the high level (mean + 1 SD, $P < 0.01$). Based on Model 5 in Table 2.

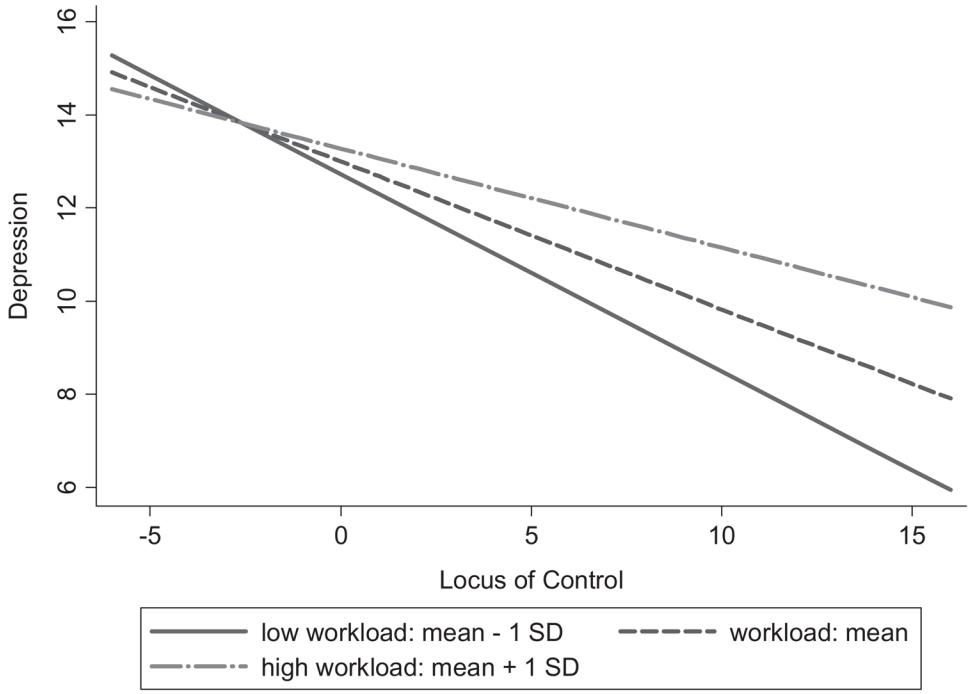

Figure 3.

Moderating effects of locus of control on work overload stressors for the outcome of depression. The effect of locus of control on depression was statistically significant when workload was at all three levels: the low level (mean − 1 SD, $P < 0.001$), the mean level ($P < 0.001$), and the high level (mean + 1 SD, $P < 0.01$). Based on Model 6 in Table 2.

Table 1

Descriptive statistics of the sample

Variable	Mean	SD	Number of items	Instrument range	Cronbach's alpha	Sample items
Work stress (sum)	64.07	15.66	26	26–130	0.87	
Work overload	13.55	5.47	6	6–30	0.83	I do not have enough time to carry out my work.
Role ambiguity	9.70	4.06	5	5–25	0.82	I know what my responsibilities are.
Role conflict	8.70	4.13	4	4–20	0.83	I receive conflicting instructions from two or more people.
Lack involvement decision-making	11.91	4.03	4	4–20	0.77	Are you allowed to participate in decisions which affect you?
Client disability	20.34	7.27	7	7–35	0.89	Low levels of client domestic skills (i.e. cleaning and cooking).
Work support (sum)	33.78	9.47	10	10–50	0.89	
Supervisor support	20.53	6.80	6	6–30	0.92	Encourage you to give your best effort?
Coworker support	13.22	4.87	4	4–20	0.93	To what extent could you count on your coworkers to back you up at work?
Locus of control (mean)	7.03	4.53	8	−16 to 16	0.67	I am responsible for my failure. The really good things that happen to me are mostly luck.
Depression (mean)	8.67	4.99	10	0–30	0.72	I felt my life had been a failure. I felt fearful.

Table 2

Multiple regression analyses

	Main effects models			Moderating effects models		
Independent variable	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Age 35 years or more[c]	−1.06[a] (0.56)[b]	−1.09 (0.56)	−1.08 * (0.56)	−0.89 (0.56)	−1.07 * (0.55)	−1.17 * (0.55)
Non-Hispanic African American[d]	−1.10 (0.72)	−1.18 (0.73)	−1.11 (0.72)	−0.80 (0.73)	−0.76 (0.72)	−1.11 (0.71)
Hispanic and other[e]	1.46 (1.02)	1.44 (1.04)	1.43 (1.03)	1.09 (1.02)	0.96 (1.00)	1.14 (1.00)
Female	−0.13 (0.67)	−0.21 (0.68)	−0.13 (0.67)	−0.16 (0.68)	−0.33 (0.67)	−0.03 (0.67)
Partial college or more[f]	−1.33 * (0.56)	−1.33 * (0.57)	−1.32 * (0.57)	−1.37 * (0.57)	−1.16 * (0.56)	−1.29 * (0.56)
Married, not living alone[g]	0.52 (0.82)	0.46 (0.83)	0.53 (0.82)	0.35 (0.84)	−0.26 (0.83)	0.27 (0.82)
Not married, not living alone[g]	0.30 (0.82)	0.22 (0.84)	0.30 (0.83)	0.20 (0.85)	−0.25 (0.83)	0.11 (0.83)
Home caregiving responsibilities	−0.34 (0.56)	−0.35 (0.56)	−0.34 (0.56)	−0.47 (0.56)	−0.48 (0.55)	−0.39 (0.55)
Organisation B[h]	−1.93 (1.27)	−1.97 (1.28)	−1.93 (1.27)	−1.78 (1.24)	−1.58 (1.19)	−1.38 (1.20)
Organisation C	1.74 * (0.76)	1.69 * (0.77)	1.75 * (0.76)	1.81 * (0.78)	1.71 * (0.77)	1.79 * (0.77)
Organisation D	−0.35 (0.64)	−0.44 (0.65)	−0.35 (0.65)	−0.34 (0.64)	−0.43 (0.64)	−0.72 (0.64)
Organisation E	−0.12 (0.95)	−0.22 (0.97)	−0.12 (0.96)	−0.26 (0.98)	−0.48 (0.97)	−0.44 (0.96)
Supervisory status	2.34 ** (0.76)	2.22 ** (0.78)	2.32 ** (0.77)	2.42 *** (0.75)	2.27 ** (0.77)	2.11 ** (0.77)
Tenure in organisation	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Work stress	0.08 *** (0.02)		0.08 *** (0.02)			
Work overload		0.12 * (0.05)				0.05 (0.09)
Role ambiguity		0.06 (0.07)				
Role conflict		0.11 (0.08)			0.62 *** (0.18)	
Lack involvement decision-making		0.09 (0.07)				
Client disability		0.05 (0.04)		0.48 *** (0.13)		
Work support	−0.08 ** (0.03)	−0.08 ** (0.03)		0.10 (0.08)		−0.11 *** (0.03)
Supervisor support			−0.07 (0.04)		0.07 (0.08)	
Coworker support			−0.09 (0.06)		−0.10 (0.06)	
Locus of control	−0.29 *** (0.06)	−0.28 *** (0.06)	−0.28 *** (0.06)	−0.31 *** (0.06)	−0.31 *** (0.06)	−0.58 *** (0.15)
Work support × client disability				−0.01 ** (0.00)		

	Main effects models			Moderating effects models		
Independent variable	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Supervisor support × role conflict					−0.02 * (0.01)	
Locus of control × work overload						0.02 * (0.01)
R^2	0.33	0.33	0.33	0.30	0.31	0.31

Unstandardised coefficients (standard errors) for main and moderating effects models of work stress and resources on depression.

* $P < 0.05$,

** $P < 0.01$,

*** $P < 0.001$.

[a] Unstandardised regression coefficient,

[b] standard error.

Reference categories:

[c] 34 years or less,

[d,e] non-Hispanic White,

[f] high school degree or less,

[g] living alone,

[h] organisation A.

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