

*The Effects of Inter-Domain Transitions on Perceived Stress in Knowledge Workers:
The Moderating Effects of Flexibility-willingness and Mindfulness*

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Wave 1 Background

Data were collected in June and July of 2009 from a professional association in the information industry. An association leader emailed the survey information and link to a distribution list of 3067 people (3007 US, 60 Canada), of which approximately 44% were association members and 56% were non-members. Fifty-two people responded to the survey, a response rate of 1.7%. Of those, four cases did not meet the inclusion criteria – three were not employed or self-employed in the information industry (in publishing, telecommunications, data management, software, or as an internet service provider) and one was living and working outside of the US. In addition to these four cases, eight additional responses were deleted from the final database due to missing data. Thus, the analyses were run on the 40 remaining respondents.

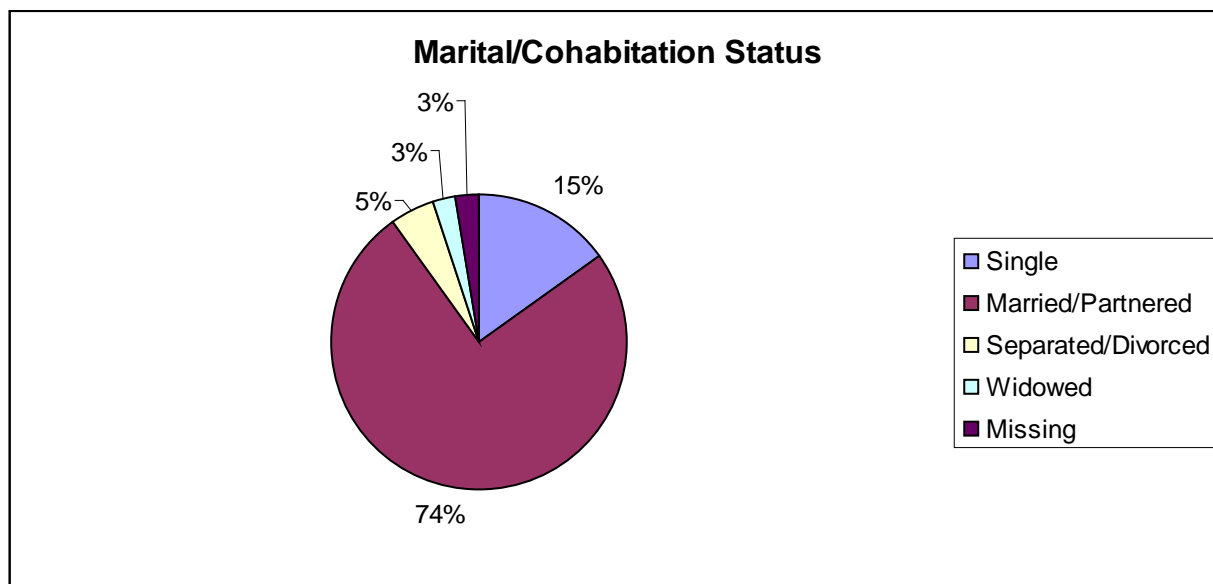
Wave 1 Results

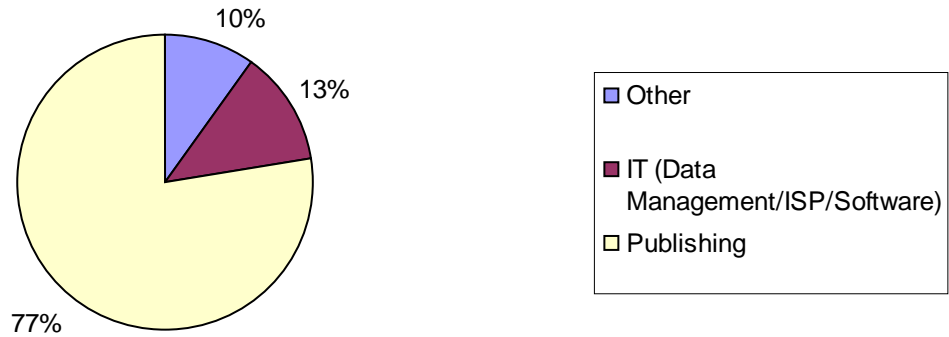
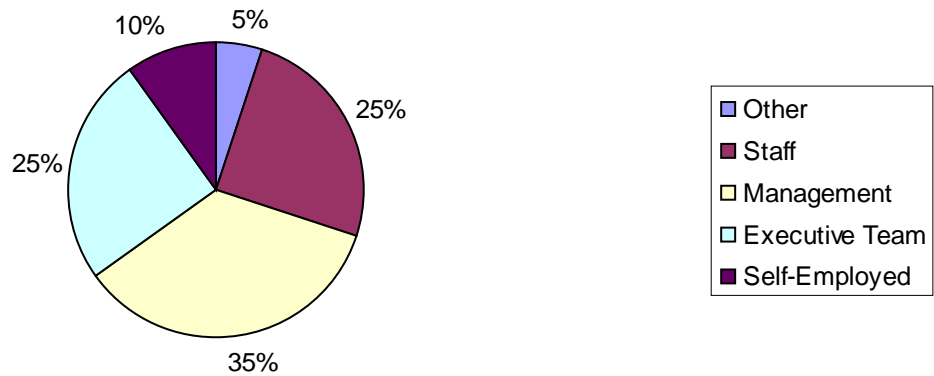
N = 40; 62.5% Female, 37.5% Male

Ages ranged from 30 to 60, with a mean of 47 and a standard deviation of 7.83.

Respondents were all living and working in the US, predominantly from the Northeast (47.5%) and Midwest (30.0%), with 12.5% from the West and 10.0% from the South.

57.5% had children under 18 years of age living in the household, whereas 42.5% did not.



Field of Employment or Self-Employment**Status**

Average weekly work hours ranged from 25 to 70, with a mean of 49.45 and a standard deviation of 9.11.

Average weekly hours spent working from home ranged from 0 to 60, with a mean of 16.70 and a standard deviation of 17.44.

Work-to-Family and Family-to-Work Transition

Matthews and Barnes-Farrell's (2008) Inter-Domain Transitions (IDT) measure was designed to measure behavioral transitions that take place between the family and work domains. A sample item for the Work-to-Family Transition subscale is: "How often have you stopped what you were doing at work to meet a family responsibility (like making a dentist or doctor appointment)?" A sample item for the Family-to-Work Transition subscale is: "How often have you answered work related emails while at home?" Participants respond to the 11 items using the following 6-point frequency scale:

0	1	2	3	4	5
Never	Less than once a month	1-3 days a month	1-2 days a week	3-4 days per week	5 or more days per week

Within each subscale, a mean score is calculated based on the sum of item scores. Higher mean scores indicate greater frequency of inter-domain transitions.

In this sample, the average Work-to-Family Transitions mean score was 1.74 (with a standard deviation of 0.88 and a range of 0.17 to 3.33). The average Family-to-Work Transitions mean score was 2.07 (with a standard deviation of 1.03 and a range of 0.00 to 4.20). There was not a significant difference between the means for Work-to-Family Transitions and Family-to-Work Transitions [$t(38) = -2.01, p = .05$]. However, a one-way analysis of variance revealed that there were significant differences between respondents who had children under 18 years old living in the home and those who did not have children living in the home on the Work-to-Family Transitions measure [$F(1, 37) = 4.80, p < .05$]. Specifically, Work-to-Family Transitions were higher when children were present in the household. By contrast, Family-to-Work Transitions did not differ significantly depending on whether children were present in the home.

Boundary Flexibility

Matthews and Barnes-Farrell's (2008) Boundary Flexibility (BF) measure includes subscales for Work Flexibility-willingness and Family Flexibility-willingness. Flexibility-willingness refers to one's willingness to transition out of one domain in order to satisfy demands in another domain (Matthews & Barnes-Farrell). A sample Work Flexibility-willingness item is: "Assuming it was all right with my supervisor, I would not mind arriving to work late so that I could meet my family and personal life responsibilities." A sample Family Flexibility-willingness item is: "I am willing to cancel plans with my friends and family to deal with work related responsibilities." For each item, participants respond using the following 7-point Likert-type scale:

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree

Within each subscale, a mean score is calculated based on the sum of item scores. Higher mean scores indicate greater willingness to flex the domain boundary.

In this sample, the average Work Flexibility-willingness mean score was 5.86 (with a standard deviation of 1.17 and a range of 2.75 to 7.00). The average Family Flexibility-willingness mean score was 4.39 (with a standard deviation of 1.01 and a range of 2.17 to 5.83). The Work Flexibility-willingness mean scores were significantly higher than the Family Flexibility-willingness mean scores [$t(38) = 5.73, p < .01$]. This means that the respondents were much more likely to interrupt work to address family needs than they were to interrupt family activities to handle work-related matters.

Mindful Attention Awareness Scale (MAAS)

The MAAS (Brown & Ryan, 2003) is a 15-item scale designed to measure receptive, non-judging attention to the present moment. For each item, participants respond using the following scale:

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

A mean score is calculated based on the 15 item responses. Higher scores indicate higher levels of mindfulness. Brown and Ryan (2003) found that Zen meditation center members scored significantly higher (mean = 4.29, standard deviation = 0.66) on mindfulness than did a community sample of adults in Rochester, NY (mean = 3.97, standard deviation = 0.64).

In this sample, the average MAAS mean score was 3.92 (with a standard deviation of 0.82 and a range of 2.14 to 5.33). In addition, a one-way analysis of variance revealed that there were significant differences between respondents who had children under 18 years old living in the home and those who did not have children living in the home on the MAAS measure [$F(1, 37) = 4.69, p < .05$]. Specifically, mindfulness was lower when children were present in the household.

Perceived Stress Scale (PSS)

The PSS is a 10-item global measure of perceived stress across one's life situations, particularly in terms of uncontrollability and unpredictability (Cohen & Williamson, 1988). For each item, participants respond using the following scale:

0	1	2	3	4
Never	Almost Never	Sometimes	Fairly Often	Very Often

Total scores may range from 0 to 40. High scores suggest high levels of perceived stress. In a large national probability sample, Cohen and Williamson (1988) found that scores ranged from 0 to 34, with a mean of 13.02 (standard deviation = 6.35).

In this sample, PSS total scores ranged from 7 to 31, with a mean of 17.48 (standard deviation = 5.51).

Research Questions, Hypotheses, and Related Results

R1a. What is the relationship between work-to-family transitions and perceived stress?

H1a. Work-to-family transitions will be positively correlated with perceived stress.

In this sample, this hypothesis was not supported. A small, negative, insignificant correlation was found between work-to-family transitions and perceived stress ($r = -0.17, p = .29$). This means that as work-to-family transitions increased, perceived stress actually decreased. The size of this negative correlation was small and not statistically significant.

R1b. What is the relationship between family-to-work transitions and perceived stress?

H1b. Family-to-work transitions will be positively correlated with perceived stress.

In this sample, this hypothesis was partially supported. The correlation was very small and insignificant ($r = 0.10, p = .54$). This means that as family-to-work transitions increased, perceived stress increased. The size of this positive correlation was very small and not statistically significant.

R2a. Does mindfulness moderate the relationship between work-to-family transitions and perceived stress?

H2a. Mindfulness will moderate the relationship between work-to-family transitions and perceived stress such that higher mindfulness will weaken the relationship between work-to-family transitions and perceived stress.

In this sample, mindfulness, work-to-family transitions, and the moderator variable (a product of mindfulness and work-to-family transitions) explained 20% of the variability in perceived stress. Although the overall regression model was statistically significant ($F = 4.30$, $p < .05$), none of the variables within the model were statistically significant. Thus, the hypothesis was not supported. It is possible that this was due to small sample size.

R2b. Does mindfulness moderate the relationship between family-to-work transitions and perceived stress?

H2b. Mindfulness will moderate the relationship between family-to-work transitions and perceived stress such that higher mindfulness will weaken the relationship between family-to-work transitions and perceived stress.

In this sample, mindfulness, family-to-work transitions, and the moderator variable (a product of mindfulness and family-to-work transitions) explained 17% of the variability in perceived stress. Although the overall regression model was statistically significant ($F = 3.58$, $p < .05$), none of the variables within the model were statistically significant. Thus, the hypothesis was not supported. It is possible that this was due to small sample size.

R3a. Does work flexibility-willingness moderate the relationship between work-to-family transitions and perceived stress?

H3a. Work flexibility-willingness will moderate the relationship between work-to-family transitions and perceived stress. Higher work flexibility-willingness will weaken the relationship between work-to-family transitions and perceived stress. Lower work flexibility-willingness will strengthen the relationship between work-to-family transitions and perceived stress.

In this sample, work flexibility-willingness, work-to-family transitions, and the moderator variable (a product of work flexibility-willingness and work-to-family transitions) explained 11% of the variability in perceived stress. Neither the overall regression model ($F = 2.61$, $p = .07$), nor the variables within the model were statistically significant. Thus, the hypothesis was not supported. It is possible that this was due to small sample size.

R3b. Does family flexibility-willingness moderate the relationship between family-to-work transitions and perceived stress?

H3b. Family flexibility-willingness will moderate the relationship between family-to-work transitions and perceived stress. Higher family flexibility-willingness will weaken the relationship between family-to-work transitions and perceived stress. Lower family flexibility-willingness will strengthen the relationship between family-to-work transitions and perceived stress.

In this sample, family flexibility-willingness, family-to-work transitions, and the moderator variable (a product of family flexibility-willingness and family-to-work transitions) explained 0% of the variability in perceived stress. Neither the overall regression model ($F = 0.23$, $p = .88$), nor the variables within the model were statistically significant. Thus, the hypothesis was not supported. It is possible that this was due to small sample size.

R4. After controlling for the effects of demographics such as gender, marital/cohabitation status, presence of children in the household under 18 years of age, hours spent telecommuting, and average weekly work hours on perceived stress, how do work-to-family transitions, family-to-work transitions, mindfulness, work flexibility-willingness, and family flexibility-willingness further predict perceived stress?

H4. Work-to-family transitions, family-to-work transitions, mindfulness, work-flexibility-willingness, and family flexibility-willingness will account for additional variance in perceived stress beyond what is accounted for by the demographic factors listed above.

In this sample, there were not enough respondents to run the required stepwise regression analysis. Instead a simple correlation was run between each variable in the list above and perceived stress. The statistically significant correlations are described below.

There was a significant negative correlation between work flexibility-willingness and perceived stress ($r = -0.42$, $p < .01$). As work flexibility-willingness increased, perceived stress decreased. As work flexibility-willingness decreased, perceived stress increased.

There was a significant negative correlation between mindfulness and perceived stress ($r = -0.47$, $p < .01$). As mindfulness increased, perceived stress decreased. As mindfulness decreased, perceived stress increased.

There was a significant positive correlation between average weekly work hours and perceived stress ($r = 0.33$, $p < .05$). As average weekly work hours increased, perceived stress increased. As average weekly work hours decreased, perceived stress decreased.

There was a significant negative correlation between average weekly hours worked from home and perceived stress ($r = -0.34$, $p < .05$). As average weekly hours worked from home increased, perceived stress decreased. As average weekly hours worked from home decreased, perceived stress increased.

Limitations

The sample is fairly small and generalizations should be made with caution. Statistically speaking, the small sample size may have resulted in a lack of statistical power to identify significant relationships among the variables. Running the same analyses on a larger data set is recommended, particularly to determine whether the variables might predict perceived stress as hypothesized.

The sample is predominantly female, married/partnered, and working in the publishing field. Generalizability may be limited to these groups. (Note that no gender differences were found for work-to-family transitions, family-to-work transitions, work flexibility-willingness, family flexibility-willingness, mindfulness, and perceived stress.) In addition, the respondents may have been a self-selecting group of individuals with a pre-existing interest in boundary management, stress management, and/or mindfulness, and thus not representative of the overall population.

Additional limitations relate to the characteristics of the measures and the nature of the study. The complete emphasis on self-report measures means that all of the data were based on participants' subjective perceptions which could be influenced by extraneous circumstances on the administration day, such as a family conflict or work-related deadline, or even the time of day and location in which the survey was completed. Finally, due the cross-sectional nature of the study, relationships can be identified but causal inferences cannot be made.

Discussion and Conclusions

Due to the small sample size, it is difficult to draw firm conclusions from these data. However, the results suggest that mindfulness, work flexibility-willingness, average weekly work hours, and average weekly hours worked from home may be significantly related to workers' perceived stress.

The benefits of mindfulness in stress reduction are well established (Kabat-Zinn, 1990). Further, the presence of children under age 18 in the household had an important indirect effect on perceived stress: it decreased mindfulness. Parents of young children may be particularly vulnerable to perceived stress for this reason, and might find mindfulness resources especially helpful.

It is important to underscore the point that work flexibility-willingness is distinct from flexible workplace policies and refers to the individual worker's willingness to transition out of the work domain in order to address family needs. Even when flexible workplace policies are in place, workers may be reluctant to take advantage of them for various reasons such as competitive concerns or a desire to escape family responsibilities in the relative freedom of the work environment (Hochschild, 1997). Still, the workers in this sample reported significantly more work flexibility-willingness than family flexibility-willingness.

It is interesting to note that work hours completed at home were negatively correlated with perceived stress, whereas work hours completed at work were positively correlated with perceived stress. Despite the increasing prevalence of integrated work styles, in which work tasks are completed at home and vice versa, it may be that the work and family domains are still distinct enough to attribute stress only to work done in the "work" domain. It could also be that those who do some of their work from home have greater autonomy than other workers, and thus less perceived stress.

Survey Feedback

The average survey completion time was 10.29 minutes (standard deviation = 5.79), as reported by respondents. Respondents noted the inadequacy of the survey in addressing work-from-home arrangements, workplace/manager policies, and executive team members' styles of delegation. More detailed questions about household size and childcare arrangements were recommended. Some respondents suggested that focusing on one level of worker would bring greater clarity, rather than including all levels (staff, management, executive team members, and self-employed individuals) in the same survey.

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