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A fluctuating sense of power is associated with reduced well-being

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Abstract

Social power research has been limited by theoretical and methodological traditions that prioritize static comparisons of high and low-power states. This is a crucial limitation given power's inherently dynamic nature. Accordingly, Anicich and Hirsh (2017a) recently developed a theoretical framework related to the consequences of vertical code-switching – i.e., the act of alternating between behavioral patterns directed toward higher-power and lower-power interaction partners – known as the approach-inhibition-avoidance (AIA) theory of power. Across five main studies and two supplemental studies, we present the first empirical test of this theory using a mix of survey, experimental, and experience-sampling methods. We demonstrate that *power fluctuation* – i.e., the extent to which one subjectively perceives oneself as alternating between psychological states of high and low power (or vice versa) across situations – is associated with two indicators of reduced well-being at work – psychological distress and somatic symptoms. We further show that these effects are mediated by role tensions (role conflict and role overload), and is weaker for individuals in routine task environments compared to individuals in non-routine task environments. Finally, we develop and validate methodological tools that future researchers can use to extend our findings including the Power Fluctuation Scale (PFS, Study 1), laboratory and online experimental paradigms (Studies 2 and 3), and a simple measure to assess power fluctuation in everyday life (i.e., SD of reports of momentary power, Study 4). Overall, we provide the first set of studies highlighting the negative emotional and physiological consequences of experiencing a fluctuating sense of power.

Keywords: social power; power fluctuation; vertical code-switching; well-being

Introduction

Power is a fundamental force in social and organizational life (Russell, 1938). As a consequence, scholars have extensively studied the numerous ways in which people with power experience the world differently than people who lack power (Anderson & Brion, 2014; Fleming & Spicer, 2014). An unstated premise in many of the prevailing theoretical and methodological traditions in the social power literature is that an individual either has *or* lacks power (Keltner, Gruenfeld, & Anderson, 2003; Magee & Smith, 2013), resulting in a large body of research that has almost exclusively focused on *static* comparisons of high- and low-power individuals and states (Flynn, Gruenfeld, Molm, & Polzer, 2011; Schaerer, du Plessis, Yap, & Thau, 2018). Indeed, an analysis of over 550 studies in the social hierarchy literature documented that 94.6 percent of study designs focused exclusively on the effects of the extreme ends of the power distribution (i.e., the effects of high vs. low power on various outcomes; Anicich, 2016).

In reality, individuals rarely feel *only* powerful *or* powerless, but often fluctuate between these two experiences in everyday life (Smith & Hoffman, 2016). Therefore, it is important to move beyond a static conceptualization of power relations because although researchers have acknowledged the inherently interpersonal nature of power, they have yet "to design studies that operationalize power […] as truly relational and dynamic" (Smith & Magee, 2015, pg. 154). For example, Anderson and Brion (2014, pg. 85) have highlighted that there is a lack of research on the "multiple coexisting roles that individuals play in organizations," such as when "a given manager is high in power in that he has asymmetrical control over his subordinates but is also low in power in that the manager's boss has asymmetrical control over him."

Anicich and Hirsh (2017a) recently laid the theoretical foundation to address this limitation by introducing the approach-inhibition-avoidance (AIA) theory of power. According

to the AIA theory of power, individuals who occupy middle-power positions (vs. strictly lower or higher-power positions), on average, engage in more vertical code-switching — "the act of alternating between behavioral patterns directed toward higher-power and lower-power interaction partners" (Anicich & Hirsh, 2017a. pg. 663). The authors propose that vertical code-switching, in turn, generate role tensions which contribute to activation of the behavioral inhibition system (BIS; Gray & McNaughton, 2000) and various anxiety-based responses until the role tensions are resolved (Anicich & Hirsh, 2017a).

In the present work, we provide the first empirical test of the AIA theory of power by examining the effects of vertical code-switching on individual well-being (based on indicators of psychological distress and self-reported somatic symptoms) using a mix of survey, experimental, and experience-sampling data collected in various work contexts. Specifically, we propose that vertical code-switching, and the fluctuating sense of power it generates, causes individuals to experience increased psychological distress and somatic symptoms at work. We further consider the mediating effects of two forms of role tension that align with Anicich and Hirsh's (2017a) framework – role conflict and role overload. Finally, we consider the moderating effect of task routineness because "repetition of events and experiences serves to strengthen behavioral scripts" (Anicich & Hirsh, 2017a, pg. 667), which could attenuate the negative effects of vertical code-switching on well-being.

Overall, our research makes several important contributions to the social power, role transition, and psychological distress literatures. First, we provide the first empirical test of the AIA theory of power (Anicich & Hirsh, 2017a), offering novel insights into the negative intrapsychic and physiological effects of vertical code-switching and power fluctuation in work contexts. Second, we extend existing theories of social power that suggest that psychological

distress is primarily associated with low-power individuals and states (e.g., Carney et al., 2013; Keltner, Gruenfeld, & Anderson, 2003; Schmid & Schmid-Mast, 2013). Building on this work, we show that experiencing a fluctuating sense of power can also be aversive. Third, we establish power fluctuation as a novel antecedent of role conflict, role overload, psychological distress, and somatic symptoms which have important practical implications for individuals' emotional well-being and overall health. Additionally, we contribute to work on micro role transitions (Ashforth, 2001; Nippert-Eng, 2008) by identifying the experience of alternating between discrepant states of subjective power as a novel context involving mental transitions between two roles (Shumate & Fulk, 2004). Finally, we develop methodological tools that researchers may use to test other components of the AIA theory of power. This is an important contribution because "there is a strong need to develop valid and reliable manipulations of middle power" (Anicich & Hirsh, 2017a, pg. 674).

Vertical Code-Switching Produces a Fluctuating Sense of Power

Following Anicich and Hirsh (2017a), we propose that one's objective power level is determined by one's structural position in a hierarchy but that the psychological effects of this position are mediated through the subjective sense of power, defined as "an individual's internal mental representations of their power in relation to others in their social environments" (Tost, 2015, pg. 30). Taken together, we propose that vertical code-switching (a behavioral act) will, on average, generate the experience of *power fluctuation* (a cognitive perception), which we define as the extent to which one subjectively perceives oneself as alternating psychological states of high and low power (or vice versa) across situations.

In arguing that the structural act of vertical code-switching precedes the cognitive perception of power fluctuation, we build on perspectives that propose one's subjective sense of

power can be influenced by a variety of factors including one's structural position in a hierarchy (e.g., Galinsky, Rucker, & Magee, 2015). We acknowledge, however, that the act of vertical code-switching will be imperfectly correlated with the cognitive perception of power fluctuation. We also note that the perception of power fluctuation may be driven entirely by intrapsychic processes – e.g., merely recalling or imagining a fluctuating sense of power. Thus, in the current work we develop and test manipulations of vertical code-switching *and* a measure of power fluctuation because "the subjective sense of power is the proximal variable of theoretical interest" when studying vertical code-switching (Anicich & Hirsh, 2017a, pg. 662).

Power Fluctuation as a Type of Micro Role Transition

It is common for individuals to take on multiple roles in the context of their personal and professional lives. Each *role* an individual occupies specifies a "pattern of behaviours expected and demanded of a person in a given social position by others within the social system" (Duxbury, Lyons, & Higgins, 2008, pg. 128; Linton, 1936; McCall & Simmons, 1966; Stryker, 1968). We propose that one's sense of power in a particular situation is a type of role-based identity with its own behavioral norms. Indeed, the difference between experiencing a high- and low-power state in a social situation is profound and strongly affects expectations and behaviors (Rucker, Hu, & Galinsky, 2014). Powerful individuals are expected to be more assertive and dominant, whereas powerless individuals are expected to be more deferential and submissive (Magee & Galinsky, 2008). However, few individuals consistently operate in a high- or low-power state. Instead, many individuals must frequently alternate between enacting the behavioral norms associated with having power and the behavioral norms associated with lacking power, a process that Anicich and Hirsh (2017a) argue can be characterized as a type of micro role transition (Ashforth, Kreiner, & Fugate, 2000).

Role Transitioning Leads to Psychological Distress

According to role transition theory (Ashforth, Kreiner, & Fugate, 2000), role boundaries delineate individuals' roles and their corresponding normative expectations (Ashforth et al., 2000). Crossing these role boundaries is difficult and can expose individuals to increased uncertainty, anxiety, and stress. Compared to individuals who perceive their power to be consistently high or low, individuals who perceive their power to be fluctuating must vigilantly monitor the social context to assess expectations and behave in line with those expectations, a process which necessitates more frequent boundary-spanning (Adams, 1976; Friedman & Podolny, 1992; Nippert-Eng, 2008). Thus, power fluctuation is associated with more variable behavioral affordances (Gibson 1966, 1975) from one situation to the next, leading to less predictable social encounters in general. This reasoning is consistent with the distinction that Anicich and Hirsh (2017a) draw between employees who possess a primarily unidirectional vertical orientation (i.e., very low- and very high-power individuals) and those who possess a primarily bidirectional vertical orientation (i.e., middle-power individuals) in a hierarchy.

Individuals tend to experience increased psychological distress when they are confronted with these types of competing response options (Gray & McNaughton, 2000) – e.g., whether or not to approach or avoid a particular situation or to deploy or suppress a particular behavioral strategy. Psychological distress is "the unique discomforting, emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent, to the person" (Ridner, 2004, pg. 539). We follow past work in measuring psychological distress using a combination of anxiety, uncertainty, and stress (e.g., see Hakanen, Peeters, & Schaufeli, 2018; Hamill et al., 2015; Tepper, 2000; Tepper et al., 2007) and somatic

symptoms as discomfort arising from perceptions of bodily dysfunctions (e.g., headache, lower back pain; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974).

From a resource perspective, vigilantly navigating the situational demands associated with vertical code-switching and a fluctuating sense of power is costly and inefficient (Hobfoll, 1989; Hobfoll & Freedy, 1993). In support of this reasoning, an abundance of work has linked the experience of conflicting job demands to self-reported indicators of psychological distress (for reviews see Halbesleben & Buckley, 2004; Lee & Ashforth, 1996; Maslach, Schaufeli, & Leiter, 2001). Based on these arguments, we propose that the cognitive perception of power fluctuation drives certain negative emotional reactions. Formally, we hypothesize:

> *Hypothesis 1a: Individuals who experience more (versus less) power fluctuation will experience more psychological distress.*
>
> *Hypothesis 1b: Individuals who experience more (versus less) power fluctuation will experience more somatic symptoms.*

Role Tensions Mediate the Effects of Power Fluctuation on Indicators of Well-Being

Role transition theory specifies that when the boundaries that separate an employee's various role-based identities are difficult to cross – i.e., when the behavioral norms associated with the role-based identities are highly discrepant – various role tensions are likely to emerge (Ashforth, Kreiner, & Fugate, 2000; Kahn et al., 1964; Rizzo, House, & Lirtzman, 1970). We consider the effects of power fluctuation on two conceptually related, yet distinct, role tensions identified by Kahn and colleagues (1964) – role conflict and role overload. Role conflict refers to "a situation in which differing role expectations result in incompatible role pressures, resulting in psychological conflict for an individual as the pressures and role forces compete and conflict" (Duxbury, Lyons, & Higgins, 2008, pg. 128). Role overload "is a specific type of time-based role conflict in which the individual perceives the amount of time available to be insufficient to fulfill

all of the demands imposed by the various roles he or she occupies" (Duxbury, Lyons, & Higgins, 2008, pg. 130). Whereas role conflict is primarily concerned with whether or not an actor perceives two roles (or role-based expectations) as being fundamentally incompatible (e.g., being expected to behave assertively *and* submissively), role overload is primarily concerned with whether or not an actor perceives role expectations, that may be mutually compatible in the abstract, as being in conflict given the limits of time to satisfy these various expectations (e.g., being expected to satisfy demands of subordinates *and* supervisors in a short time period).

We propose that repeatedly transitioning from a high-power state and corresponding behavioral norms to a low-power state and corresponding behavioral norms, or vice versa, is likely to produce role conflict because the behavioral norms that are associated with a high-power state (e.g., assertiveness) are incompatible with the behavioral norms that are associated with a low-power state (e.g., deference). Similarly, we propose that the dynamic behavioral norms and environmental affordances produced by a fluctuating sense of power is likely to result in perceived role overload because role overload occurs "when one is not able to meet one's own expectations or one's perceptions of the expectations of others" (Duxbury, Lyons, & Higgins, 2008, pg. 129; see also Seiber, 1974). Power fluctuation is associated with experiencing not only more highly discrepant behavioral norms (as indexed by role conflict), but also more behavioral norms in a quantitative sense, which we propose is likely to lead to increased perceived role overload (i.e., fluctuating between *multiple* normative pressures vs. consistently enacting *one* set of norms). Thus, we further propose:

> *Hypothesis 2a: Individuals who experience more (versus less) power fluctuation will perceive more role conflict.*
>
> *Hypothesis 2b: Individuals who experience more (versus less) power fluctuation will perceive more role overload.*

Additionally, role conflict has been shown to have a wide range of negative downstream consequences, including increased stress, reduced job satisfaction, and higher turnover intentions (Bacharach, Bamberger, & Conley, 1991; Bedeian & Armenakis, 1981; Hamner & Tosi, 1974; Judge & Colquitt, 2004; Kemery et al., 1985). Similarly, the perception of role overload "forces people to stretch their attention, effort, and resources thinly" (Brown, Jones, & Leigh, 2005, pg. 973), resulting in depletion (Barling & Frone, 2017). Indeed, both organizational and medical research has uncovered a variety of negative affective and physiological consequences of perceiving role overload (Coverman, 1989; Pearson, 2008; Sales, 1970). Taken together, we propose the following mediation hypotheses:

Hypothesis 3a: The relationship between power fluctuation and psychological distress will be mediated by perceived role conflict.

Hypothesis 3b: The relationship between power fluctuation and somatic symptoms will be mediated by perceived role conflict.

Hypothesis 3c: The relationship between power fluctuation and psychological distress will be mediated by perceived role overload.

Hypothesis 3d: The relationship between power fluctuation and somatic symptoms will be mediated by perceived role overload.

Routine Task Environments Attenuate the Effect of Power Fluctuation on Role Overload

Using a structural contingency approach (Hollenbeck et al., 2002), we further expect that the extent to which individuals are affected by power fluctuation may also depend on the degree of routineness in their task environments. Task routineness refers to the extent to which individuals complete tasks in a consistent and repetitive manner (Diefendorff, Richard, & Gosserand, 2006). According to our logic, experiencing power fluctuation is taxing because switching between different power states and corresponding behavioral norms makes it difficult for individuals to meet the dynamic expectations placed upon them (by themselves and/or

others). However, in routine task environments where individuals experience fewer exceptions to their daily schedules, they are more likely to develop stable behavioral scripts which specify behavior or event sequences that are appropriate for specific situations (Anicich & Hirsh, 2017a; Berger & Luckmann, 1966; Gioia & Poole, 1984; Poole, Gray, & Gioia, 1990). Following such scripts simplifies interactions and requires fewer mental resources (Berger & Luckmann, 1966). Thus, individuals working on routine tasks should be better able to cope with power fluctuation and perceive less role conflict and overload as a result. Additionally, routine (vs. non-routine) task environments are characterized by more predictable behavioral norms. In contrast, non-routine task environments are more likely to generate disruptive events that impair individuals' capacity to deal with emergent challenges (Rousseau & Aubé, 2010), such as unexpected changes in one's sense of power. This reasoning leads to our final two hypotheses:

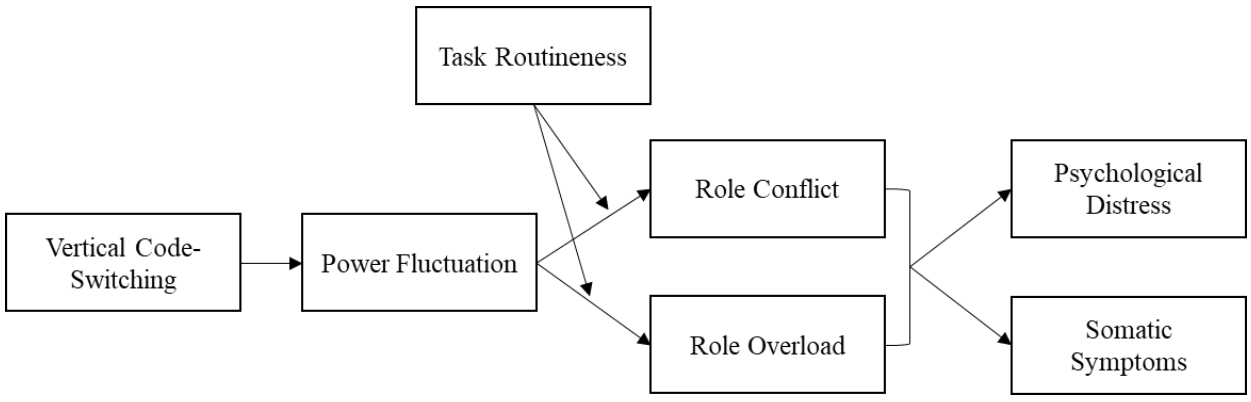
> *Hypothesis 4a: The effect of power fluctuation on perceived role conflict will be stronger (weaker) when employees' work is characterized by a low (vs. high) degree of task routineness.*
>
> *Hypothesis 4b: The effect of power fluctuation on perceived role overload will be stronger (weaker) when employees' work is characterized by a low (vs. high) degree of task routineness.*

Overview of Studies

We conducted a pilot study and four main studies to demonstrate the robustness and generalizeability of the present phenomenon, using a mix of survey, experimental, and experience sampling methods as well as two different indicators of well-being (i.e., psychological distress and somatic symptoms). In a pilot study, a sample of middle managers self-reported their level of power fluctuation and wrote about their job experiences. A separate sample of raters assessed the amount of psychological distress that the middle managers described experiencing at work. In Study 1, we developed and validated the Power Fluctuation

Scale (PFS) and used it to test our core hypotheses. Study 2 was a randomized lab experiment that replicated the main effect finding from Study 1 in the context of an organizational simulation in which we varied the hierarchical position of participants' interaction partner. Study 3 was a pre-registered experiment involving random assignment to a vertical code-switching condition. We then tested whether participants assigned to the high vertical code-switching condition compared to the two low vertical code-switching conditions (i.e., all low-power or all high-power interactions condition) reported experiencing increased psychological distress due to increased perceived role conflict and role overload. Finally, in Study 4, we conducted a two-week experience sampling method (ESM) study to test whether perceived role conflict and role overload mediated the effects of intraday power fluctuation on psychological distress and somatic symptoms. Study 4 further tested whether the relationships between intraday power fluctuation and perceived role conflict and role overload were moderated by task routineness. Figure 1 provides an overview of our conceptual model. In all of our studies, we report all relevant measures, manipulations, and exclusions. Furthermore, in the SOM document we report additional analyses and robustness checks including the results of two supplemental studies – i.e., an archival study and a novel re-analyses of previously published ESM data.

Figure 1. Conceptual model



Pilot Study: Consequences of Power Fluctuation among Middle Managers

We conducted a pilot study to learn more about the types of experiences that individuals who are likely to engage in vertical code-switching and thus experience a fluctuating sense of power have in the context of their work.[1] Specifically, we recruited middle managers and asked them to report how much their sense of power fluctuates and provide a written description of their work. In this way, we were able to assess the extent to which managers' self-reported power fluctuation tracked with the qualitative descriptions they produced, thereby offering preliminary insights into the actual lived experiences of individuals who subjectively perceive their sense of power as fluctuating. Then, a second sample of workers rated those statements in terms of how much psychological distress the author's work description conveyed. In the context of studying the effects of vertical code-switching, middle managers "are useful organizational actors to consider because they are the most likely to possess a bidirectional vertical orientation owing to their structural position, all else being equal." (Anicich & Hirsh, 2017a, pg. 664). We used the insights gleaned from this pilot study to inform our development of the power fluctuation construct in subsequent studies including the wording of the items we included in the Power Fluctuation Scale (PFS) in Study 1.

Methods

Participants

Two hundred and six middle managers (78% female; age: M = 37.02, SD = 10.24) from across the U.S. participated via a Qualtrics Panel sample that we acquired at a cost of $9.00 per response. To qualify for the study, individuals had to work in a managerial role (e.g., manager, director, coordinator) and have at least one direct subordinate and one direct supervisor. Sample

[1] All data and code used in this manuscript are available on the OSF project page that we created for this project: https://osf.io/ahj89/?view_only=faefd8ce2b5d40a9a4913f5d27632a90

size was determined in advance based on a heuristic of 200 participants. A post-hoc power calculation using Power in Two Levels (Snijders & Bosker, 1993; Snijders, 2005) based on a multi-level regression model and an achieved effect size of $f^2 = 0.13$ (95% significance level) suggests the achieved statistical power was 98.6%.

Participants responded to several demographic questions and completed a measure of power fluctuation. Then, we asked participants to provide a written description of their work. Specifically, participants responded to the following prompt:

> *How would you describe what you do on a daily basis? How does your role in your organization and the work that you do make you feel? Are any aspects of your work particularly challenging or rewarding? If so, which aspects?*

Power Fluctuation (Independent Variable)

Participants responded to three statements, which we created to capture their sense of power fluctuation ($\alpha = 0.64$, from 1 = *strongly disagree* to 7 = *strongly agree*): "In my role, sometimes I feel like I have very little power and other times I feel like I have a great deal of power," "I frequently have to switch between adopting a leader mindset and a subordinate mindset at work," and "My sense of power at work rarely changes" (reverse-coded).[2]

Psychological Distress (Dependent Variable)

We recruited 373 raters (48% female; age: $M = 35.54$, $SD = 11.12$) from Amazon's Mechanical Turk, who each evaluated five randomly selected middle-manager responses. Each open-ended job description was rated by an average of 9.05 M-Turk workers ($SD = 1.27$; min = 5, max = 12). Coders received $0.50 for participating. Specifically, coders were asked to read each job description and indicate the extent to which they believed the author's job caused

[2] The Cronbach's alpha coefficient of .64 was below the .70 threshold, which is a common occurrence with scales that do not use a large number of overlapping items to measure a broad domain (Gosling, Rentfrow, & Swann, 2003). To address this issue, we developed and validated a new Power Fluctuation Scale (PFS) in the next study.

him/her to feel stressed (ICC = 0.90), and frustrated (ICC = 0.88), anxious (ICC = 0.86), and uncertain (ICC = 0.79; from 1 = *not at all* to 5 = *extremely*; for work that uses similar indicators of psychological distress see Hamill et al., 2015; Tepper, 2000; Tepper et al., 2007). We averaged these four ratings into a single psychological distress measure ($\alpha = 0.95$), with higher scores indicating greater psychological distress. Sample job descriptions provided by the middle managers are provided in Table S1 of the SOM document.

Control Variables

We controlled for managers' age, gender, tenure with the organization, tenure in the role, number of supervisors, number of subordinates, and the word count of the job description.

Results

Descriptive statistics for and correlations among variables used in this study are displayed in Table 1. We predicted that middle managers' power fluctuation would be positively associated with the amount of psychological distress that an independent sample of raters would detect in the middle managers' written job descriptions. We performed multilevel analysis because ratings were nested within job descriptions. Model 1 included only the main effect of power fluctuation on other-rated psychological distress. In Model 2, we added the control variables. As predicted, power fluctuation was positively associated with the amount of psychological distress expressed in middle managers' written job descriptions without controls, $b = 0.20$, $SE = 0.03$, $p < .001$, and with controls, $b = 0.18$, $SE = 0.03$, $p < .001$ (see Table 2 for all regression results).

Table 1. Descriptive statistics for and correlations among variables used in the pilot study.

Variables	Mean	SD	1	2	3	4	5	6	7	8
1 Power Fluctuation	4.08	1.33								
2 Psychological Distress	2.73	0.69	0.376**							
3 Age	37.02	10.24	-0.077	-0.036						
4 Gender (1 = Male, 2 = Female)	1.78	0.42	0.171*	0.194**	-0.085					
5 Tenure with Organization	7.93	6.91	-0.114	-0.114	0.501**	-0.183**				
6 Tenure in Role	5.49	5.40	-0.125	-0.139*	0.482**	-0.137*	0.606**			
7 No. Supervisors	1.79	1.47	0.085	0.031	0.048	0.025	0.044	0.041		
8 No. Subordinates	13.26	21.70	-0.104	-0.075	0.015	-0.07	0.168*	0.108	0.209**	
9 Word Count	146.00	70.10	0.095	0.103	-0.022	0.084	0.002	-0.017	0.055	0.03

N = 206
* p < 0.05 ** p < 0.01

Table 2. Regression results for the pilot study (ratings nested within job descriptions).

	DV = Psychological Distress			
	Model 1		*Model 2*	
	Coef.	SE	Coef.	SE
Power Fluctuation	0.20***	(0.03)	0.18***	(0.03)
Age			0.00	(0.01)
Gender (1 = Male, 2 = Female)			0.20	(0.11)
Tenure with Organization			-0.00	(0.01)
Tenure in Role			-0.01	(0.01)
No. Supervisors			0.00	(0.03)
No. Subordinates			-0.00	(0.00)
Word Count			0.00	(0.00)
Intercept	1.93***	(0.14)	1.53***	(0.29)
No. Raters	1,865		1,865	
No. Job Descriptions Rated	206		206	

* p < 0.05 ** p < 0.01 *** p < 0.001

Discussion

The results of a pilot study found that middle managers who reported relatively high (versus low) levels of power fluctuation at work described their jobs in terms that reveal elevated levels of psychological distress, providing initial support for Hypothesis 1a. Additionally, the qualitative job descriptions that participants provided offered insights into the nature of power fluctuation, which we draw on in the next study when validating a new measure of power fluctuation. However, our pilot study had notable limitations including the use of a power

fluctuation measure that demonstrated low reliability and a survey design which may have primed managers to discuss their work experiences through the lens of power fluctuation.

Study 1: Development and Initial Test of the Power Fluctuation Scale (PFS)

In Study 1, we sought to build on the Pilot Study results by developing a more reliable measure of power fluctuation – the Power Fluctuation Scale (PFS) – and establishing the convergent and discriminant validity of this measure using three independent samples. In this way, we answer Anicich and Hirsh's (2017a, pg. 673) call to develop a valid and reliable measure of power fluctuation.

In the supplemental material document, we describe how we developed this scale on the basis of a highly powered exploratory factor analysis (EFA, N = 1,150) and confirmatory factor analysis (CFA, N = 1,216) using separate samples of respondents. On the basis of the CFA results, we retained 6 items in the final power fluctuation scale (see Table 3).

Table 3. Final items retained in the Power Fluctuation Scale (PFS)

1. It is common for me to alternate between feeling powerful and powerless.
2. I fluctuate between feeling like I have control over others and feeling like others have control over me.
3. My perception of how much power I have in relation to others changes throughout the day.
4. I feel powerful in some situations and powerless in other situations.
5. The amount of power I feel like I have tends to vary.
6. I often go back and forth between experiencing a high sense of power and a low sense of power.

Methods

After conducting the EFA and CFA described above, we collected data from a third sample described here in order to perform an initial test of our hypotheses. Using G*Power, we estimated the required sample size based on the assumpton of a small effect size of $f^2 = 0.10$, a 95% significance level, and 90% statistical power, resulting in 261 participants. Thus, we collected two-hundred and sixty-one employed workers participated via Amazon's Mechanical Turk in exchange for $0.50. Twenty-eight workers failed an attention check question and were

therefore excluded from all analyses, resulting in a final sample of two-hundred and thirty-three (35% female; age: M = 36.41, SD = 10.81).

We sought to establish the convergent and discriminant validity of the PFS and conduct an initial test of our hypotheses. Participants responded to the 6-item PFS, as well as measures of (1) psychological distress, (2) somatic symptoms, (3) role conflict, (4) role overload, (5) subjective sense of power, (6) perceived formal power, (7) perceived status, (8) job demands, (9) perceived power stability, and (10) perceived power legitimacy. This design allowed us to test the basic components of our theoretical model using the new PFS. All scale items for the current and subsequent studies are presented in the SOM document. Items were measured from 1 = *strongly disagree* to 7 = *strongly agree* unless otherwise noted.

Psychological Distress (Dependent Variable #1)

Participants responded to three different measures of psychological distress. First, participants responded to 7 items about how they generally feel at work. The items were similar to the items used in the Pilot Study (α = 0.94, e.g., stressed, frustrated, etc.). Second, participants responded to the 5-item workaholism dimension of employee well-being described in Hakanen, Peeters, and Schaufeli (2018, α = 0.95, e.g., agitated, tense). Third, participants responded to the 5-item burnout dimension of employee well-being described in Hakanen, Peeters, and Schaufeli (2018, α = 0.94, e.g., lethargic, fatigued).

Given the conceptual similarity of these three measures, we conducted a principal components analysis with Promax rotation to determine if the items loaded on a single factor. The results of this analysis revealed that the 17 items all loaded on a single factor, explaining 70% of the variance. No other factors emerged with an eigenvalue greater than 1. Thus, we

created a composite measure of psychological distress that included all 17 items (α = 0.97). We note that all reported results hold when treating these items as three separate measures.

Somatic Symptoms (Dependent Variable #2)

Participants responded to a measure of somatic symptoms (adapted from Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Specifically, participants read "After a typical work day, I experience…" and then responded to 5 items (α = 0.91, a headache, eyestrain). Items were measured from 1 = *not at all* to 5 = *a lot*.

Role Conflict (Mediator #1)

Participants responded to a measure of perceived role conflict (adapted from Benet-Martínez and Haritatos, 2005). Specifically, participants responded to 4 items about how they generally feel at work (α = 0.74, e.g., "I feel like someone moving between two roles").

Role Overload (Mediator #2)

Participants responded to a measure of perceived role overload (adapted from Brown, Jones, & Leigh, 2005). Specifically, participants responded to 4 items about how they generally feel at work (α = 0.88, e.g., "I do not have enough help and resources to get the job done well").

Subjective Sense of Power (Control Variable)

Participants responded to the 8-item sense of power scale developed by Anderson, John, and Keltner (2012, α = 0.76, e.g., "I can get others to listen to what I say").

Perceived Formal Power (Control Variable)

Participants responded to the 6-item perceived formal power scale developed by Yu, Hays, and Zhao (2019, α = 0.95, e.g., "I supervise a large number of subordinates").

Perceived Status (Control Variable)

Participants responded to the 6-item perceived status scale developed by Yu, Hays, and Zhao (2019, α = 0.89, e.g., "Others often seek my opinion because they respect me").

Job Demands (Control Variable)

Participants responded to a job demands measure (Karasek, 1979). Specifically, participants responded to 5 items about how they generally feel at work (α = 0.76, e.g., "My job requires me to work fast").

Perceived Power Stability (Control Variable)

Participants responded to the following perceived power stability measure that we created: "In your opinion, to what extent is your formal standing in the organizational hierarchy stable? By stable, we mean the constancy of the formal authority and influence you have based on your structural position in the organizational hierarchy." This item was measured from 1 = *not stable at all* to 7 = *very stable*.

Perceived Power Legitimacy (Control Variable)

Participants responded to the following perceived power legitimacy measure that we created based on the power-legitimacy manipulation developed by Lammers and colleagues (2008): "In your opinion, to what extent is the amount of power you have at work fair and/or legitimate? By fair/legitimate we do not necessarily mean fair/legitimate in the legal sense, just that it feels fair or legitimate to you." This item was measured from 1 = *not fair/legitimate at all* to 7 = *very fair/legitimate*. Correlations among and descriptive statistics for all the variables used in this study are displayed in Table 4.

Table 4. Descriptive statistics for and correlations among all variables used in Study 1

	Variables	Mean	SD	N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Power Fluctuation Scale (PFS)	4.09	1.60	233																	
2	Psychological Distress (17-item composite)	3.67	1.62	233	0.434**																
3	Pyschological Distress (7-item measure)	3.98	1.63	233	0.358**	0.961**															
4	Workaholism Dimension of Well-Being	3.45	1.79	233	0.500**	0.944**	0.859**														
5	Burnout Dimension of Well-Being	3.47	1.74	233	0.392**	0.940**	0.853**	0.837**													
6	Somatic Symptoms	2.61	1.16	233	0.497**	0.761**	0.719**	0.752**	0.697**												
7	Role Conflict	3.72	1.34	233	0.633**	0.495**	0.454**	0.511**	0.448**	0.491**											
8	Role Overload	4.06	1.57	233	0.577**	0.727**	0.678**	0.728**	0.669**	0.651**	0.632**										
9	Subjective Sense of Power	4.43	1.03	233	-0.063	-0.486**	-0.460**	-0.453**	-0.472**	-0.401**	-0.176**	-0.365**									
10	Formal Work Power	4.36	1.69	233	0.572**	0.174**	0.121	0.238**	0.150*	0.311**	0.437**	0.384**	0.343**								
11	Work Status	5.42	1.01	233	0.327**	-0.129*	-0.112	-0.098	-0.161*	-0.06	0.136*	0.066	0.545**	0.517**							
12	Job Demands	5.12	1.01	233	0.429**	0.393**	0.403**	0.369**	0.339**	0.384**	0.356**	0.541**	-0.026	0.413**	0.441**						
13	Tenure in Role	5.61	6.55	233	0.065	-0.019	-0.029	-0.028	0.007	-0.043	0.018	0.059	0.095	0.125	0.091	-0.022					
14	Tenure in Org.	6.38	6.39	233	-0.007	-0.033	-0.02	-0.037	-0.042	-0.03	0.043	0.056	0.098	0.134*	0.100	0.016	0.752**				
15	Perceived Power Stability	5.20	1.31	233	0.073	0.063	0.065	0.059	0.053	0.094	0.101	0.165*	0.158*	0.303**	0.397**	0.219**	0.153*	0.167*			
16	Perceived Power Legitimacy	5.21	1.30	233	0.119	-0.039	-0.044	-0.022	-0.044	-0.019	0.108	0.035	0.283**	0.341**	0.453**	0.196**	0.119	0.071	0.567**		
17	Age	36.41	10.81	233	0.005	-0.014	-0.017	0.019	-0.043	-0.024	-0.058	0.014	0.105	0.083	0.163*	0.038	0.283**	0.407**	0.241**	0.124	
18	Gender (ref. male)	1.35	0.48	233	-0.01	-0.035	-0.005	-0.053	-0.049	0.039	-0.062	-0.04	0.005	-0.043	-0.039	-0.026	-0.013	0.063	0.060	0.046	0.102

** p<0.01, * p<0.05

Note: The items from the Pyschological Distress (7-item measure), Workaholism Dimension of Well-Being, and Burnout Dimension of Well-Being scales were combined to create the Psychological Distress (17-item composite) variable.

Results

First, we tested the main effect of power fluctuation on psychological distress and somatic symptoms separately. We tested the main effect of power fluctuation on the outcome variable without control variables and after adding all of the control variables.

As predicted, power fluctuation was positively and significantly associated with the amount of psychological distress that participants reported experiencing at work without controls, $b = 0.44$, $SE = 0.06$, $p < .001$ (see Table 5, Model 1), and with controls, $b = 0.30$, $SE = 0.07$, $p < .001$ (see Table 5, Model 2). Furthermore, power fluctuation was positively and significantly associated with the amount of somatic symptoms that participants reported experiencing after a typical work day without controls, $b = 0.36$, $SE = 0.04$, $p < .001$ (see Table 5, Model 3), and with controls, $b = 0.22$, $SE = 0.05$, $p < .001$ (see Table 5, Model 4). These results provide support for Hypotheses 1a and 1b.[3]

[3] In an exploratory vein, we also tested the interaction between power fluctuation and subjective sense of power on each of our dependent variables with and without control variables. Sense of power significantly moderated the relationship between power fluctuation and psychological distress without control variables (interaction term: $b = -0.15$, $SE = 0.05$, $p = .003$), and with control variables (interaction term: $b = -0.16$, $SE = 0.05$, $p = .001$). Specifically, when sense of power was higher (+1 *SD*), the effect of power fluctuation on psychological distress was smaller (without controls: $b = .14$, $SE = .08$, $p = .087$, and with controls: $b = .04$, $SE = .09$, $p = .62$) than when sense of power was lower (-1 *SD*; without controls: $b = .44$, $SE = .06$, $p < .001$, and with controls: $b = .37$, $SE = .08$, $p < .001$). Sense of power also significantly moderated the relationship between power fluctuation and somatic symptoms without control variables (interaction term: $b = -0.06$, $SE = 0.03$, $p = .05$), but not after adding the control variables (interaction term: $b = -0.05$, $SE = 0.03$, $p = .16$). Without controls, when sense of power was higher (+1

Table 5. Regression results for Study 1

	DV = Psychological Distress (17-item composite)				**DV = Somatic Symptoms**			
	Model 1		Model 2		Model 3		Model 4	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Power Fluctuation Scale (PFS)	0.442***	(0.060)	0.298***	(0.068)	0.361***	(0.041)	0.218***	(0.049)
Subjective Sense of Power			-0.591***	(0.106)			-0.393***	(0.076)
Formal Work Power			0.108	(0.069)			0.189***	(0.049)
Work Status			-0.402**	(0.123)			-0.252**	(0.088)
Job Demands			0.481***	(0.097)			0.244***	(0.070)
Perceived Power Stability			0.129	(0.077)			0.106	(0.055)
Perceived Power Legitimacy			-0.014	(0.078)			-0.049	(0.056)
Tenure in Role			0.001	(0.019)			-0.011	(0.013)
Tenure in Org.			-0.005	(0.020)			0.003	(0.014)
Age			0.005	(0.008)			0.000	(0.006)
Gender (ref. male)			-0.119	(0.167)			0.112	(0.119)
Constant	1.866***	(0.265)	3.624***	(0.629)	1.135***	(0.182)	2.459***	(0.449)
Observations	233		233		233		233	

* p<0.05, ** p<0.01, *** p<0.001

Power fluctuation was also positively and significantly associated with the amount of role conflict that participants reported experiencing without controls, $b = 0.53$, $SE = 0.04$, $p < .001$, and with controls, $b = 0.44$, $SE = 0.06$, $p < .001$, as well as the amount of perceived role overload that participants reported experiencing without controls, $b = 0.57$, $SE = 0.05$, $p < .001$, and with controls, $b = 0.33$, $SE = 0.06$, $p < .001$. These results provide support for Hypotheses 2a and 2b.

Next, we tested whether perceived role conflict and role overload independently mediated the effect of power fluctuation on psychological distress and somatic symptoms using the PROCESS macro in SPSS with 5,000 bootstrapping iterations. When psychological distress was the dependent variable, role conflict significantly and partially mediated the effect of power fluctuation on psychological distress without control variables, 95% CI [0.14; 0.33], and with control variables, 95% CI [0.04; 0.19]. Role overload significantly and fully mediated the effect of power fluctuation on psychological distress without control variables, 95% CI [0.32; 0.53], and with control variables, 95% CI [0.10; 0.27].

SD), the effect of power fluctuation on somatic symptoms was smaller ($b = .26$, $SE = .06$, $p < .001$) than when sense of power was lower (-1 *SD*; $b = .39$, $SE = .04$, $p < .001$).

When somatic symptoms was the dependent variable, role conflict significantly and partially mediated the effect of power fluctuation on somatic symptoms without control variables, 95% CI [0.07; 0.21], but not after adding control variables, 95% CI [-0.01; 0.11]. Role overload significantly and partially mediated the effect of power fluctuation on psychological distress without control variables, 95% CI [0.17; 0.30], and with control variables, 95% CI [0.03; 0.13]. In Table 6, we summarize these results and the results of mediation analysis using the 90% CI threshold and simultaneous mediation analysis. Overall, both perceived role conflict and role overload consistently emerged as significant independent mediators, but when considered in simultaneous mediation models, only role overload consistently and significantly mediated the effects of power fluctuation on psychological distress and somatic symptoms. Taken together, these results provide partial support for Hypotheses 3a and 3b and strong support for Hypotheses 3c and 3d.

Table 6. Mediation results for Study 1

		DV = Psychological Distress Without Control Variables		DV = Somatic Symptoms Without Control Variables	
		95% C.I.	90% C.I.	95% C.I.	90% C.I.
Independent Mediators	Role Conflict	[0.14, 0.33]	[0.16, 0.31]	[0.07, 0.21]	[0.08, 0.20]
	Role Overload	[0.32, 0.53]	[0.34, 0.50]	[0.17, 0.30]	[0.18, 0.28]
Simultaneous Mediators	Role Conflict	[-0.06, 0.13]	[-0.04, 0.12]	[-0.05, 0.10]	[-0.04, 0.09]
	Role Overload	[0.31, 0.51]	[0.32, 0.50]	[0.15, 0.29]	[0.16, 0.28]
		With Control Variables		With Control Variables	
		95% C.I.	90% C.I.	95% C.I.	90% C.I.
Independent Mediators	Role Conflict	[0.04, 0.19]	[0.05, 0.18]	[-0.01, 0.11]	[0.002, 0.100]
	Role Overload	[0.10, 0.27]	[0.12, 0.25]	[0.03, 0.13]	[0.04, 0.12]
Simultaneous Mediators	Role Conflict	[-0.04, 0.11]	[-0.03, 0.09]	[-0.04, 0.08]	[-0.03, 0.07]
	Role Overload	[0.10, 0.26]	[0.11, 0.24]	[0.03, 0.13]	[0.04, 0.12]

Discussion

The results of Study 1 established the convergent and discriminant validity of the Power Fluctuation Scale (PFS) and provided additional support for the main effects of power fluctuation on work distress and somatic symptoms, and preliminary support for our mediation

hypotheses. Additionally, we demonstrated that workers' perceptions of their power fluctuation were not significantly correlated with conceptually relevant variables such as workers' perceived stability of their formal power and standing in the organization. Due to the correlational nature of Study 1, however, we are unable to rule out the influence of omitted variables such as employees' general job/life satisfaction. Additionally, our single source sample was susceptible to common method bias (e.g., see Podsakoff et al., 2003). Therefore, to provide a more controlled and rigorous test of our hypotheses, we designed and ran an experiment in Study 2.

Study 2: Initial Experimental Test of the Effect of Vertical Code-Switching on Well-Being

In Study 2, we sought to conceptually replicate and extend the main effect result from Study 1. Specifically, we manipulated vertical code-switching through the relative hierarchical position of an interaction partner and assessed its impact on psychological distress in an experimental context. In this way, we follow Anicich and Hirsh (2017a) in proposing that the act of vertical code-switching precedes the psychological experience of power fluctuation.

We designed a paradigm that required participants to make split second decisions regarding the appropriateness of enacting different behaviors in relation to higher and lower-power interaction partners in a fictional organizational setting. By holding constant all aspects of the fictional organization aside from the vertical orientation of the participant in relation to their interaction partners in the organization, we were able to isolate the effect of vertical code-switching on psychological distress. In this way, we respond to Anicich & Hirsh's (2017a, pg. 673-674) suggestion that "researchers draw on the relational approach to power by assessing the frequency and intensity of an individual's upward and downward social interactions" by developing "manipulations that alter participants' vertical orientation or actual or anticipated

frequency of vertical code-switching." Methodologically, our paradigm can be adapted by scholars wishing to study other aspects of vertical code-switching.

Method

Six hundred and sixteen students from a large, West Coast university in the U.S. (52% female; age: $M = 20.34$, $SD = 2.27$) participated in exchange for course credit. Three participants were excluded from the final sample after the computer program crashed mid-study. The sample size was determined based on the availability of subject pool members during the semester and we aimed to collect at least 100 observations per experimental condition. Post-hoc power calculations in G*Power using the achieved effect size of $f^2 = 0.18$ and a 95% significance level revealed that the study achieved 100% power for a linear multiple regression.

Subjects engaged in a computer-based organizational simulation that we designed using the software program PsychoPy.[4] As part of the simulation, participants were put in the role of an employee at a mid-sized consulting firm that was based in Los Angeles. Participants read that their company had a reputation for being hierarchical and that supervisors tend to have a lot of power (i.e., control over valued resources based on one's structural position) and subordinates tend to have very little power. Specifically, participants read:

> *During a typical week, you work directly with your supervisor, who has more power than you, and your subordinate, who has less power than you. Specifically, your supervisor decides how to structure and evaluate your work. As your supervisor, this person has complete control over the instructions s/he gives you. Therefore, you have LESS POWER than your supervisor. Additionally, you are in charge of supervising your subordinate. You decide how to structure and evaluate your subordinate's work. As your subordinate's supervisor, you have complete control over the instructions you give to your subordinate. Therefore, you have MORE POWER than your subordinate.*

[4] The PsychoPy files that we created are available on the OSF project page for this project: https://osf.io/ahj89/?view_only=faefd8ce2b5d40a9a4913f5d27632a90

Participants were also shown a visual depiction of the hierarchy indicating where they stood in relation to their supervisor and subordinate. As an attention check, participants were required to complete a twelve-question quiz and achieve a score of one hundred percent correct before they were allowed to advance to the main task. Each quiz question presented either "Your Supervisor" or "Your Subordinate" followed by a question asking the participant to indicate whether the person listed has more or less power than the participant. Performance feedback (i.e., "correct" or "incorrect") was displayed on the screen immediately after the participant responded. Participants were given feedback on their responses and moved on to the main task upon successful completion of the quiz.

Behavioral Simulation Task

After the quiz, participants read about the main task which involved responding to a sequence of trials as quickly and accurately as possible. For each trial, either "Your Supervisor" or "Your Subordinate" was randomly presented alongside a pair of adjectives. Each pair of adjectives included one randomly selected adjective related to having power (i.e., assertive, authoritative, commanding, or dominant) and one randomly selected adjective related to lacking power (i.e., deferential, obedient, submissive, or subservient). Participants were asked to indicate which of the two adjectives was more appropriate for them to adopt in relation to the person listed by using either the "S" key (to indicate the adjective on the left was more appropriate) or the "K" key (to indicate the adjective on the right was more appropriate). Performance feedback was displayed on the screen immediately following each trial. Reponses were considered correct if participants indicated it was more appropriate for them to behave in a manner characterized by the low-power [high-power] adjective when the target was the supervisor [subordinate]. Participants completed seventy-two trials in total.

Vertical Code-Switching Manipulation

Our vertical code-switching manipulation was embedded in the aforementioned behavioral simulation task. Participants were randomly assigned to one of the following five conditions in a between-subjects design: low vertical code-switching condition (all low-power trials), moderate vertical code-switching condition (62 low-power trials, 10 high-power trials), high vertical code-switching condition (36 low-power trials and 36 high-power trials), moderate vertical code-switching condition (10 low-power trials and 62 high-power trials), and low vertical code-switching (all high-power trials). Importantly, the vertical code-switching manipulation combined with the nature of the behavioral simulation task resulted in differing frequencies of vertical code-switching across conditions by design. The high vertical code-switching condition included the most trials that required a switch from one power state (e.g., low power) to the other (e.g., high power) (trials requiring a switch in power state, $M = 35.78$, $SD = 4.89$), followed by the two moderate vertical code-switching conditions ($M = 17.56$, $SD = 4.70$ in the mostly low-power trials condition and $M = 17.18$, $SD = 4.54$ in the mostly high-power trials condition), and the two low vertical code-switching conditions, which did not include any trials that required a switch in power state ($M = 0.00$, $SD = 0.00$ for the all low-power and all high-power trials conditions).

We chose to include five conditions (instead of two, for example) specifying varying amounts of vertical code-switching in order to more closely mimic the continuous nature of power and power fluctuation. In this way, we follow Anicich and Hirsh (2017, pg. 676) in "conceptualizing power as a continuous construct based on the ratio of upward to downward vertical interactions." Additionally, we designed this paradigm to align as closely as possible with Anicich and Hirsh's (2017a) conceptualization of vertical code-switching. Those authors

argue, on the basis of revised reinforcement sensitivity theory (R-RST; Gray & McNaughton, 2000), that "having a bidirectional vertical orientation...is associated with the presence of competing response options" (Anicich & Hirsh, 2017a, pg. 668). In our experiment, participants selected the most appropriate behavior to adopt in relation to a series of interaction partners, thereby simulating the experience of encountering various people in one's environment and having to make split second decisions regarding how to present oneself. Thus, by manipulating the *uncertainty* of participants' vertical orientation in relation to their subsequent interaction partners, we were able to parsimoniously test a core proposition of the approach-inhibition-avoidance (AIA) theory of power (Anicich and Hirsh, 2017a) in a way that achieves a high degree of construct validity.

Given our more continuous conceptualization of vertical code-switching in the current study, we predict that an inverted U-shaped relationship will emerge in the responses across our five experimental conditions (coded 1-5) such that condition number will be positively correlated with reported psychological distress when considering conditions 1-3 (i.e., from low to moderate to high vertical code-switching), but negatively correlated with reported psychological distress when considering conditions 3-5 (i.e., from high to moderate to low vertical code-switching). In other words, as one moves from low to high along the power continuum, one is likely to experience an increase followed by a decrease in the probability of experiencing power fluctuation and thus psychological distress. Statistically, a significant quadratic effect should emerge with a positive and significant slope before the inflection point and a negative and significant slope after the inflection point.

Psychological Distress Dependent Variable

After the task, participants indicated how much they agreed that they felt each of the following ways after completing the task: emotionally drained, burned out, mentally exhausted, stressed, and frustrated ($\alpha = 0.90$; from 1 = *strongly disagree* to 7 = *strongly agree*).[5]

Control Variables

After reporting results without control variables, we report the same results while controlling for the average response time per trial and following standard procedures for analyzing response time data by excluding from the construction of the variable trials on which participants made incorrect responses and trials on which response times were greater than two standard deviations above the participant's overall mean response time (Ratcliff, 1993; Savani & Job, 2017).[6] The response time control variable is important because it helps us rule out the possibility that participants report feeling more psychologically distressed because selecting the most appropriate behavior simply takes more time when vertical code-switching is high (vs. low). We also controlled for the percent of trials that the participant correctly answered, which is important because it helps us rule out the possibility that participants report feeling more psychologically distressed because they are more frustrated by their objective performance on the task when vertical code-switching is high (vs. low).

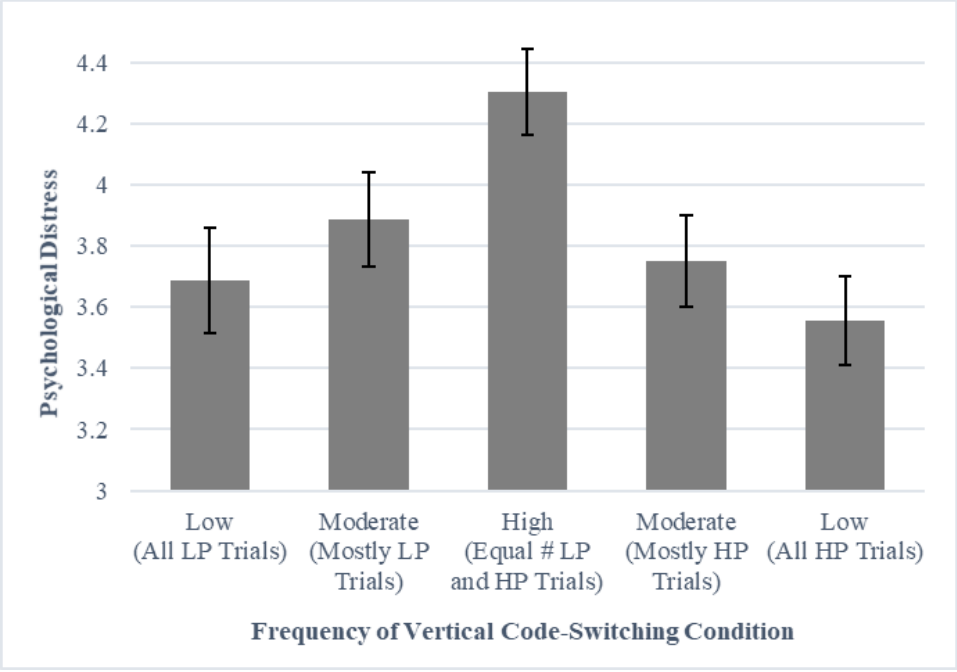
Results

After coding the vertical code-switching condition variable from 1 = *low vertical code-switching condition (all low-power trials)* to 5 = *low vertical code-switching condition (all high-power trials)*, we regressed psychological distress on vertical code-switching condition and the vertical code-switching squared term. As predicted, we found a clear inverted U-shaped pattern

[5] Participants also completed the same measure of role conflict that we used in Study 1 which we included as a potential mediator. The results of mediation analyses support our hypothesis which we report in the SOM document. We chose to present those results in the SOM document only because we report similar results in Studies 1 and 3.
[6] The reported results do not meaningfully change when using participants' raw response times instead.

of results, as the quadratic term was significant, b = -0.13, SE = 0.04, p = .002. A similar, but not quite statistically significant at the 95% level, pattern of results emerged after adding average response time per trial and the percent of trials correct as control variables, b = -0.09, SE = 0.05, p = .065). Furthermore, the effect of condition on reported psychological distress was positive and significant before the inflection point (i.e., when only assessing conditions 1-3), b = 0.31, SE = 0.11, p = .005, and was negative and significant after the inflection point (i.e., when only assessing conditions 3-5), b = -0.37, SE = 0.10, p < .001. After adding the control variables, these two relationships were no longer significant at the 95% level, but were significant at the 90% level, b = 0.24, SE = 0.13, p = .078, and b = -0.22, SE = 0.12, p = .080. This pattern of results largely supports our predictions. See Figure 2.[7]

Figure 2. Mean reported psychological distress by condition in Study 2. Errors bars represent +/- 1 standard error.



[7] In the Supplemental Online Materials we provide additional robustness analyses using polynomial contrast coding and also report all between-condition contrasts with and without control variables.

Discussion

In Study 2, we presented initial causal evidence of the negative effects of vertical code-switching on psychological distress. In addition to testing a core component of the AIA theory of power (Anicich & Hirsh, 2017a), we also developed a novel experimental paradigm that may be adapted by future researchers to study other aspects of vertical code-switching. Despite these strengths, Study 2 relied on an organizational simulation that lacked realism. For example, the task of selecting the most appropriate adjectives to enact in response to a dynamic stream of interaction partners is not the same as making a series of conscious behavioral choices. Interestingly, we do not find a significant difference in distress between the two low vertical code-switching conditions which appears to contradict past findings that stable low power states lead to more negative affective experiences than high power states (e.g., Anderson & Berdahl, 2002). However, note that the scenario kept participants' structural power position constant (i.e., a mid-level employee) and focused on manipulating different levels of code-switching. Because we did not include a manipulation check of perceived power in Study 2, we are unable to draw further conclusions and therefore encourage future research to test this more systematically.

Study 3 (Pre-Registered): Experimental Evidence of Effects of Vertical Code-Switching on Well-Being with Mediation through Role Conflict and Role Overload

In Study 3, we tested our hypotheses that vertical code-switching is associated with increased psychological distress and that this effect is mediated by perceived role conflict and role overload in an experimental context. Importantly, we also assessed perceived power fluctuation using the PFS we developed in Study 1 as a manipulation check to confirm that vertical code-switching had the intended effect on participants' perceptions of power fluctuation. Thus, in the current study, we integrate the structural (i.e., vertical code-switching) and

psychological (i.e., power fluctuation) elements of our model and show that the former drives the latter. An additional goal of Study 3 was to design an online experimental paradigm to test the effects of vertical code-switching to complement the laboratory paradigm we designed in the previous study. Sample size, study design, and analyses were preregistered at https://aspredicted.org/blind.php?x=54sk5i.

Methods

Participants

We recruited 365 employees via Amazon's Mechanical Turk who completed our study in exchange for $0.50. As in the previous study, we aimed to collect at least 100 participants per condition. Because we included an attention check, we added an additional 20% in case of dropouts. As specified in our pre-registration document, we excluded 33 participants who failed an attention check question before conducting any analyses, resulting in a final sample of 332 (40% female; age: M = 36.06, SD = 10.52). Post-hoc power calculations in G*Power using the achieved effect size of f^2 = 0.38 for our main dependent variable (psychological distress) and a 95% significance level revealed that the study achieved 99.99% statistical power for a one-way ANOVA. Participants were randomly assigned to a *low vertical code-switching* (*low-power) condition*, a *high vertical code-switching (middle-power) condition*, or a *low vertical code-switching* (*high-power) condition*.

Vertical Code-Switching (Manipulation)

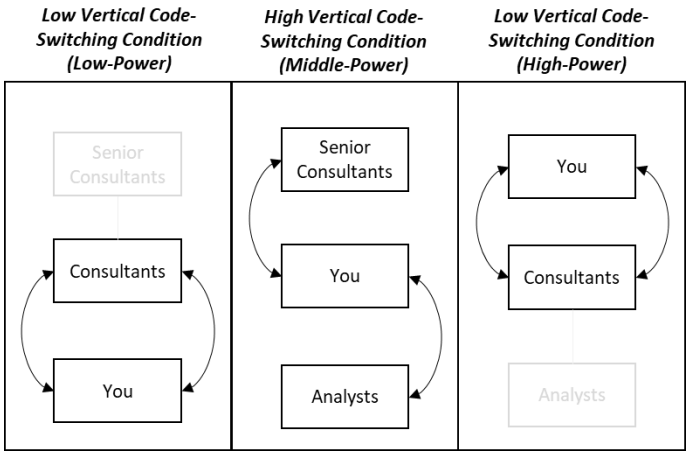
To manipulate vertical code-switching, we randomly assigned participants to an organizational scenario in which they primarily interacted with higher-power coworkers (in the low-power condition), lower-power coworkers (in the high-power condition), or both higher and

lower-power coworkers (in the middle-power condition). Participants in the low-power [middle-power] [high-power] condition read the following:

> *<u>Context</u>. After a rigorous and fair recruitment process, you were recently hired as a(n) analyst [consultant] [senior consultant] in a prestigious consulting firm. Your contract length provides you with a reasonable degree of job stability and people in the organization tend to respect you.*
>
> *<u>Responsibilities</u>. As a(n) analyst [consultant] [senior consultant], your job responsibilities are to work individually and in teams on short-term and long-term projects to address a variety of client issues and needs aimed at improving clients' business performance.*

In the low-power condition, participants then read: "Recently you have been primarily interacting with the consultants who you report to in the hierarchy. Consultants, in turn, report to the senior consultants." In the middle-power condition, participants then read: "Recently you have been fluctuating between interacting with the senior consultants who you report to in the hierarchy AND the analysts who report to you in the hierarchy." In the high-power condition, participants then read: "Recently you have been primarily interacting with the consultants who report to you in the hierarchy. Analysts, in turn, report to the consultants." Participants were also provided with a visual depiction of the hierarchy indicating their position in relation to the other roles and recent communication patterns (see Figure 3).

Figure 3. Manipulation images shown to participants in Study 3



Psychological Distress (Dependent Variable)

To measure psychological distress, participants indicated how they would feel as someone in the role they read about. Specifically, participants completed the same five items that we used in Study 2 (α = 0.96) – i.e., emotionally drained, burned out, mentally exhausted, stressed, and frustrated. The scale ranged from 1 = *strongly disagree* to 7 = *strongly agree*.

Role Conflict (Mediator #1)

We measured perceived role conflict using the same four items used in Study 1, which we adapted to fit the current context (α = .84; 1 = *strongly disagree* to 7 = *strongly agree;* e.g., "I would feel like someone moving between two roles," "I would feel conflicted between two ways of doing things").

Role Overload (Mediator #2)

We measured perceived role overload using four items from past research (Brown, Jones, & Leigh, 2005), which we adapted to fit the current context (α = .91; 1 = *strongly disagree* to 7 = *strongly agree;* e.g., "I would not have enough help and resources to get the job done well," "I would not have enough time to get the job done well").

Control Variable

We further pre-registered one control variable. To make sure that the effects were not driven by participants perceiving a low sense of power in the middle-power condition, we controlled for subjective sense of power using the 8-item scale developed by Anderson, John, and Keltner (2012, α = 0.77, 1 = *strongly disagree* to 7 = *strongly agree,* e.g., "In my role…I can get others to listen to what I say"). Controlling for sense of power does not change the direction or significance level of any of the reported effects. Therefore, for the sake of parsimony, we

report the results without this control variable below and we report the results with this control variable in the SOM document.

Manipulation check

To determine if our vertical code-switching manipulation had the intended effect on participants' perceived sense of power fluctuation, participants completed the 6-item PFS that we developed in Study 1 ($\alpha = .96$). We predicted that participants in the middle-power condition would report higher levels of power fluctuation than participants in the two low vertical code-switching conditions (i.e., the low-power and high-power conditions).

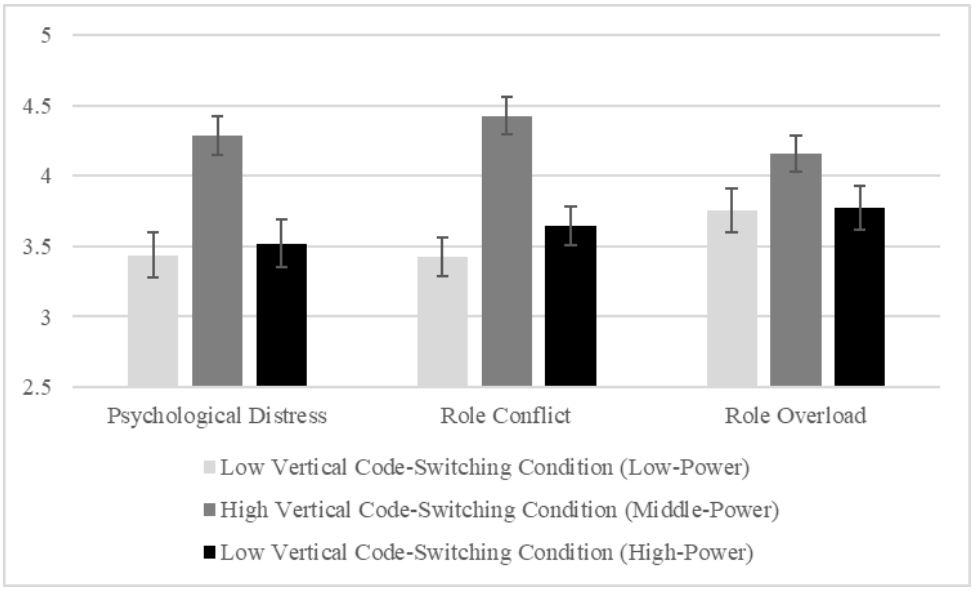
Results

The manipulation had the intended effect. Participants in the high vertical code-switching (middle-power) condition ($M = 4.61$, $SD = 1.47$) reported anticipating significantly more power fluctuation than those in the low vertical code-switching (low-power) condition ($M = 3.87$, $SD = 1.75$), $t(222) = 3.41$, $p = 0.001$, $d = 0.46$, and those in the low vertical code-switching (high-power) condition ($M = 3.90$, $SD = 1.70$), $t(215) = 3.31$, $p = 0.001$, $d = 0.45$.

We next tested whether participants in the high vertical code-switching (middle-power) condition compared to participants in each of the other two conditions reported higher levels of psychological distress. As predicted, participants in the high vertical code-switching (middle-power) condition ($M = 4.29$, $SD = 1.43$) reported anticipating significantly more psychological distress than those in the low vertical code-switching (low-power) condition ($M = 3.44$, $SD = 1.69$), $t(222) = 4.05$, $p < 0.001$, $d = 0.54$, and those in the low vertical code-switching (high-power) condition ($M = 3.52$, $SD = 1.74$), $t(215) = 3.56$, $p < 0.001$, $d = 0.48$. The difference between the two low vertical code-switching conditions was not significant, $t(221) = 0.36$, $p = 0.72$, $d = 0.05$ (See Figure 4).

We found similar patterns when examining perceived role conflict and role overload as outcome variables. Specifically, participants in the high vertical code-switching (middle-power) condition ($M = 4.42$, $SD = 1.37$) reported anticipating significantly more role conflict than those in the low vertical code-switching (low-power) condition ($M = 3.42$, $SD = 1.46$), $t(222) = 5.29$, $p < 0.001$, $d = 0.71$, and those in the low vertical code-switching (high-power) condition ($M = 3.64$, $SD = 1.41$), $t(215) = 4.13$, $p < 0.001$, $d = 0.56$. The difference between the two low vertical code-switching conditions was not significant, $t(221) = 1.15$, $p = 0.25$, $d = 0.15$. Similarly, participants in the high vertical code-switching (middle-power) condition ($M = 4.16$, $SD = 1.36$) reported anticipating significantly more role overload than those in the low vertical code-switching (low-power) condition ($M = 3.75$, $SD = 1.63$), $t(222) = 2.01$, $p = 0.045$, $d = 0.27$, but when compared to those in the low vertical code-switching (high-power) condition ($M = 3.77$, $SD = 1.64$), the effect did not quite reach statistical significance at the 95% level, $t(215) = 1.88$, $p = 0.061$, $d = 0.26$. The difference between the two low vertical code-switching conditions was not significant, $t(221) = 0.09$, $p = 0.93$, $d = 0.01$.

Figure 4. Mean psychological distress, role conflict, and role overload by condition in Study 3. Errors bars: +/- 1 SE



Finally, we tested whether perceived role conflict and role overload independently mediated the effect of vertical code-switching on psychological distress using the PROCESS macro in SPSS with 5,000 bootstrapping iterations. Given our theoretical interest in the effect of high (vs. low) vertical code-switching on psychological distress, we first used a predictor variable coded 1 for the high vertical code-switching (middle-power) condition and 0 for the two low vertical code-switching conditions.[8] As expected, the effect of high (vs. low) vertical code-switching on psychological distress was significantly and fully mediated by role conflict, 95% CI [0.44; 0.98], and was significantly and partially mediated by role overload, 95% CI [0.05; 0.55].

We performed a second mediation analysis following the recommendations of Hayes and Preacher (2014) for conducting mediation analysis with a multicategorical independent variable. To test the mediating effect of role conflict, we included two dummy variables in the mediation model. The first dummy variable (coded middle-power condition = 1, other conditions = 0) served as our predictor variable and the second dummy variable (coded high-power condition = 1, other conditions = 0) served as a covariate. This analysis allowed us to assess the mediating effect of role conflict in the middle-power condition (vs. the low-power condition) while controlling for the effect of the high-power condition. As predicted, a bootstrapping procedure with 5,000 iterations revealed that role conflict significantly and fully mediated the effect of the high vertical code-switching condition (vs. the low-power condition) on psychological distress while controlling for the effect of the high-power condition, 95% CI [0.49; 1.12]. Next, we ran the same analysis, but this time comparing the high vertical code-switching condition to the high-power condition while controlling for the effect of the low-power condition. As predicted, a bootstrapping procedure with 5,000 iterations revealed that role conflict significantly and fully

[8] The reported results are unchanged for both role conflict and role overload when using Helmert coding instead (i.e., MP condition = 1, LP condition = -0.5, and HP condition = -0.5).

mediated the effect of the high vertical code-switching condition (vs. the high-power condition) on psychological distress, 95% CI [0.32; 0.93]. Similarly, role overload significantly and partially mediated the effect of the high vertical code-switching condition (vs. the low-power condition) on psychological distress while controlling for the effect of the high-power condition, 95% CI [0.01; 0.60]. However, role overload did not significantly mediate the effect of the high vertical code-switching condition (vs. the high-power condition) on psychological distress while controlling for the effect of the low-power condition, 95% CI [-0.01; 0.61].

Finally, we ran a simultaneous mediation model in an exploratory vein as described in our pre-registration document. The results of this analysis revealed that both role conflict (95% CI [0.19; 0.55]) and role overload (95% CI [0.03; 0.38]) simultaneously partially mediated the effect of the high vertical code-switching (middle-power) condition (vs. the two low vertical code-switching conditions) on psychological distress.[9] We also followed the recommendations of Hayes and Preacher (2014) for conducting mediation analysis with a multicategorical independent variable. We found that role conflict (95% CI [0.20; 0.62]) and role overload (95% CI [0.01; 0.42]) simultaneously and fully mediated the effect of the high vertical code-switching condition (vs. the low-power condition) on psychological distress while controlling for the effect of the high-power condition. However, only role conflict (95% CI [0.14; 0.51]), but not role overload (95% CI [-0.01; 0.41]) fully mediated the effect of the high vertical code-switching condition (vs. the high-power condition) on psychological distress while controlling for the effect of the low-power condition.

Discussion

[9] The reported results are unchanged when using Helmert coding instead (i.e., MP condition = 1, LP condition = -0.5, and HP condition = -0.5).

In Study 3, we built on the findings from the previous study by providing additional causal evidence of the negative effects of vertical code-switching on psychological distress. Further, we demonstrated that role conflict and role overload independently mediated the effect of vertical code-switching condition on psychological distress. Finally, we developed a novel experimental paradigm that may be adapted by future researchers to study other aspects of vertical code-switching in an online context. We note, however, that the hypothetical organizational scenario paradigm we used limits the generalizability of our findings. Therefore, in our final study, we tested our model in a more ecologically valid context.

Study 4: Field Study of Daily Experiences with Power Fluctuation

In Study 4, we built upon the results of the previous studies to test most of the components of our theoretical model using an experience sampling method (ESM). Doing so allowed us to assess subjective power multiple times each day, providing an opportunity to investigate power fluctuation in people's natural work environment. Study 4 also assessed whether the effect of power fluctuation on psychological distress is mediated by role conflict and role overload and whether task routineness moderates the relationships between power fluctuation and role conflict and overload. Additionally, the temporal separation of variables assessed in this study provides greater confidence in the causal inferences drawn from our model than is possible with data collected at a single time-point (Gabriel et al., 2019).

Methods

Participants were 100 full-time working adults who were enrolled in a part-time MBA program at a large Mid Atlantic university (41.6% female; age: $M = 31.57$, $SD = 6.61$). Participants were offered course credit as compensation for participation. The sample size was based on the student cohort size and voluntary enrollment rate (for a similar approach, see

Anicich et al., 2020; Foulk et al., 2018; Lanaj & Jennings, 2020). A post-hoc power calculation using the Multilevel Power Tool in R (Mathieu, Aguinis, Culpepper, & Chen, 2012) using a 95% significance level revealed that the study achieved 98.1% statistical power for a multilevel model with a cross-level interaction effect. Participants worked an average of 42.73 hours each week (*SD* = 7.46) in a variety of industries (e.g., Finance, Manufacturing, and Education), and had been working for their respective companies for an average of 38.15 months (*SD* = 50.66). Data were collected over three consecutive work weeks. In the first week, participants completed a background survey which included the informed consent release, demographic information, and a measure of task routineness. In the second and third weeks of the study, participants received four emails each workday (Monday-Friday) that contained links to a survey: one in the mid-morning (10:30 a.m.), one in the early-afternoon (1:30 p.m.), one in the late-afternoon (4:00 p.m.), and one in the evening (8:00 p.m.). The mid-morning and early-afternoon surveys contained a momentary measure of subjective power. The late-afternoon survey contained a third momentary measure of subjective power, as well as measures of perceived role overload and job demands. Finally, the evening survey included measures of psychological distress and somatic symptoms.

From the 100 participants in the study, we received a total of 796 usable day-level observations (79.60% response rate). Unless otherwise indicated, all measures discussed below used a 5-point Likert scale ranging from 1 = *strongly disagree* to 5 = *strongly agree.* The measures reported below were part of a multi-project data collection effort. We report the additional variables collected in the Supplemental Online Materials.

Power Fluctuation (Independent Variable)

We used repeated daily measures to capture subjective sense of power throughout the workday. In the mid-morning, early-afternoon, and late-afternoon surveys, participants indicated their subjective sense of power by responding to the question, "Right now, I feel powerful." Following research on fluctuation constructs (e.g., Eid & Diener, 1999, Fleeson, 2001; Matta, Scott, Colquitt, Koopman, & Passantino, 2017), we operationalize daily power fluctuation as the standard deviation of average daily power.

Role Conflict (Mediator Variable)

We used an adapted version of the perceived role conflict measure used in Studies 1 and 3 ($\alpha = .88$, e.g., "Today at work, I felt conflicted between two ways of doing things"), but excluded the single reverse-coded item to keep the length of the survey short.

Role Overload (Mediator Variable)

We measured perceived role overload using the same four items that we used in the previous study (Brown, Jones, & Leigh, 2005), which we adapted to fit the daily context ($\alpha = .86$; e.g., "Today at work, I had to try to satisfy too many different people").

Psychological Distress (Dependent Variable)

Following the recommendation to keep momentary ESM scales brief (Gabriel et al., 2019), we collected the two indicators of psychological distress used in Studies 1 and 2 that most directly capture the construct of psychological distress (e.g., see Hamill et al., 2015; Tepper, 2000; Tepper et al., 2007). Specifically, participants indicated the extent to which they felt "stressed" and "frustrated," ($r = .73$, $p < .001$) at that moment.

Somatic Symptoms (Dependent Variable)

Participants indicated the extent to which they experienced five different somatic symptoms since leaving work that day, which were the same symptoms we assessed in Study 1 (α = .81; e.g., "headache," "eyestrain;" from 1 = *not at all* to 5 = *a lot*; Derogatis et al., 1974).

Task Routineness (Moderator Variable)

We measured task routineness using the four-item scale (α = .77) developed by Chung and Jackson (2013; e.g., "My job is very routine").

Control Variables

To correct for the potential confounding effects of average subjective power, we controlled for the average level of subjective power across the three daily measurements (Cole, Bedeian, Hirschfeld, & Vogel, 2011). We also controlled for daily job demands given their influence on distress (e.g., Marshall, Barnett, & Sayer, 1997) and somatic symptoms (Landsbergis, 1988). We measured job demands using the same five-item scale as in Study 1 (α = .88; e.g., "Today, my job required me to work hard"; Karasek, 1979). Finally, due to the potential impact of day of data collection on our variables, we followed recommendations by Gabriel et al. (2019) and controlled for the study day using a continuous variable from 1 to 10. Table 7 provides descriptive statistics and within- and between-person correlations for all study variables.

Table 7. Within and between person descriptive statistics and correlations in Study 4

Variable	*Mean*	*Within SD*	*Between SD*	1	2	3	4	5	6	7	8	9
1. Power Fluctuation	0.40	0.46	0.27		0.03	0.11	0.20*	0.17	-0.32**	0.02	-0.35**	-0.00
2. Role Overload	2.49	1.04	0.88	0.01		0.70**	0.42**	0.38**	-0.07	0.69**	-0.26**	-0.22*
3. Role Conflict	2.63	1.15	1.00	0.14**	0.58**		0.47**	0.46**	-0.03	0.53**	-0.15	-0.08
4. Psychological Distress	2.74	1.29	0.97	0.20**	0.30**	0.34**		0.45**	0.06	0.19	-0.31**	-0.06
5. Somatic Symptoms	1.61	0.70	0.58	0.10**	0.39**	0.32**	0.36**		-0.24*	0.26**	-0.15	0.18
6. Study Day	5.05	2.75	1.06	-0.12**	0.03	-0.01	0.00	-0.11**		-0.20	0.18	-0.22*
7. Job Demands	3.30	1.01	0.86	-0.06	0.63**	0.46**	0.15**	0.17**	-0.05		0.02	-0.23*
8. Power (Mean)	3.67	0.84	0.69	-0.27**	-0.18**	-0.14**	-0.28**	-0.13**	0.06	0.09*		-0.06
9. Task Routineness	2.55		0.93									(0.77)

Note: Variables 1 through 6 are within-individual (level 1) variables. Variable 7 is a between-individual (level 2) variable. Within-individual correlations are shown below the diagonal and are based on within-individual scores (N = 796). Between-individual correlations are shown above the diagonal and are based on between-individual scores (N = 100). Alpha reliabilities are presented along the diagonal in parentheses.
* $p < .05$. ** $p < .01$.

Results

Before conducting multilevel analysis, we examined the variance decomposition of our endogenous variables. In MPlus 8.1, we estimated a null model for each variable to partition variance in within- and between-person components. Results show that all focal variables had considerable within-person variance (role conflict = 32%; role overload = 37%; somatic symptoms = 42%; psychological distress = 55%), suggesting that multilevel analysis is appropriate. Thus, we tested our model by estimating a multilevel path model in MPlus 8.1 (Múthen & Múthen, 2019), and results of this model are presented in Table 8. We modeled hypothesized paths with free slopes and control paths with fixed slopes (Wang, Liao, Zhan, & Shi, 2011). Following the recommendation of Hoffman, Griffin and Gavin (2000) we group mean centered all level-1 variables and grand-mean centered our level-2 moderator (task routineness). Indirect effects were tested using a Monte Carlo simulation with 20,000 replications to construct bias-corrected 95% confidence intervals (CIs) for each indirect effect (Preacher, Zyphur, & Zhang, 2010).

Power fluctuation was positively and significantly related to perceived role conflict later in the same day, providing support for Hypothesis 2a, $B = .14$, $SE = .07$, $p = .049$. Additionally, the interaction between power fluctuation and task routineness on role conflict was not significant at the 95% level, but was significant at the 90% level, providing partial support for Hypothesis 4a, $B = -.10$, $SE = .06$, $p = .099$ (see left side of Figure 5). The relationship between power fluctuation and role overload (H2b) did not reach significance, $B = .07$, $SE = .06$, $p = .238$. However, the interaction between power fluctuation and task routineness on role overload was

significant, B = -.13, SE = .05, p = .016, providing support for Hypothesis 4b (see right side of Figure 5).[10]

Figure 5. Plot of power fluctuation × task routineness interaction on role conflict and role overload in Study 4

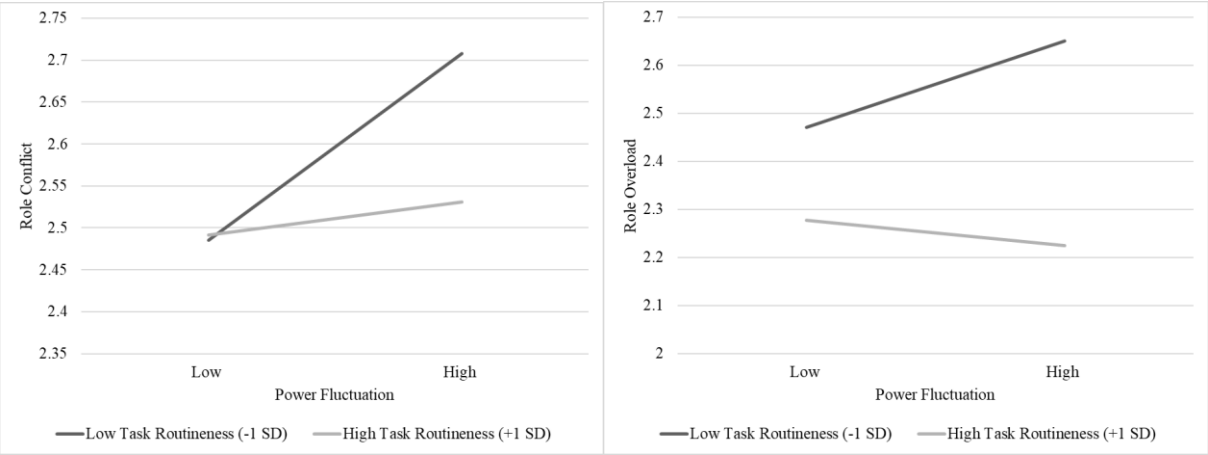


Table 8. Multilevel path model results for Study 4

	DV = Role Conflict		Role Overload		Psychological Distress		Somatic Symptoms	
	B	***SE***	***B***	***SE***	***B***	***SE***	***B***	***SE***
Intercept	2.55**	(0.10)	2.41**	(0.10)	1.81**	(0.21)	1.39**	(0.10)
Level 1 Predictors								
Power Fluctuation	0.14*	(0.07)	0.07	(0.06)	0.21†	(0.11)	-0.01	(0.05)
Role Overload					0.19**	(0.07)	0.07*	(0.03)
Role Conflict					0.17**	(0.06)	0.06*	(0.03)
Study Day	0.01	(0.01)	0.02†	(0.01)	-0.01	(0.02)	-0.02**	(0.01)
Job Demands	0.28**	(0.05)	0.46**	(0.05)	0.05	(0.07)	-0.06†	(0.03)
Power (Mean)	-0.14**	(0.05)	-0.17**	(0.05)	-0.36**	(0.09)	-0.15**	(0.04)
Level 2 Predictor								
Task Routineness	-0.05	(0.12)	-0.17†	(0.09)				
Cross-Level Moderator								
Power Fluctuations × Task Routineness	-0.10†	(0.06)	-0.13*	(0.05)				

Note: Within-individual (Level 1) N = 796. Between-individual (Level 2) N = 100. Task Routineness was grand mean centered. † p < .10; * p < .05; ** p < .01.

Next we tested our mediation hypotheses. As expected, role conflict was positively and significantly related to psychological distress, B = .17, SE = .06, p = .003, and somatic

[10] In an exploratory vein, we also tested the interaction between power fluctuation and subjective sense of power on role conflict, role overload, psychological distress, and somatic symptoms while leaving the rest of the model the same. The interaction term was not significant when role conflict was the DV (B = -.013, SE = .038, p = .735), when role overload was the DV (B = -.038, SE = .034, p = .274), when psychological distress was the DV (B = .08, SE = .06, p = .16), and when somatic symptoms was the DV (B = .01, SE = .03, p = .84).

symptoms, B = .06, SE = .03, p = .036. We tested whether role conflict mediated the effects of power fluctuation on psychological distress (H3a) and somatic symptoms (H3b). When psychological distress was the dependent variable, the 95% CI [.001, .066] did not contain zero, providing support for Hypothesis 3a.[11] When somatic symptoms was the dependent variable, the 95% CI [.0002, .017]) did not contain zero, providing support for Hypothesis 3b.[12]

Additionally, role overload was positively and significantly related to psychological distress, B = .19, SE = .07, p = .006, and somatic symptoms, B = .07, SE = .03, p = .012. Next, we tested whether role overload mediated the effects of power fluctuation on psychological distress (H3c) and somatic symptoms (H3d). When psychological distress was the dependent variable, the 95% CI [-.003, .05]) contained zero. Thus, Hypothesis 3c was not supported. However, the difference between the indirect effect at high (+1SD) and low (-1SD) levels of task routineness did not contain zero (95% CI [-.118, -.005]), providing evidence for moderated mediation. When somatic symptoms was the dependent variable, the 95% CI [-.001, .018] contained zero. Thus, Hypothesis 3d was not supported. However, the difference between the indirect effect at high (+1SD) and low (-1SD) levels of task routineness did not contain zero (95% CI [-0.043, -.001]), providing evidence for moderated mediation.

To increase our confidence in the validity of our model, we also re-analyzed previously published ESM data (e.g., see Smith & Hofmann, 2016, *PNAS*). This analysis – which we report in detail in the SOM – provided additional support for the main effect of power fluctuation on psychological distress, which was the only relationship in our conceptual model we were able to test given the variables collected by the other author group.

[11] The difference between the indirect effect at high (+1SD) and low (-1SD) levels of task routineness contained zero (95% CI [-.086, .01]), suggesting a moderated mediation model was not significant.
[12] The difference between the indirect effect at high (+1SD) and low (-1SD) levels of task routineness contained zero (95% CI [-.036, .004]), suggesting a moderated mediation model was not significant.

Discussion

Working professionals who reported more (vs. less) power fluctuation throughout the day reported elevated levels of role conflict and role overload later in the same day. Role conflict and role overload, in turn, were associated with elevated levels of psychological distress and somatic symptoms at the end of the day. Furthermore, the effects of power fluctuation on role conflict and role overload were either significantly or nearly significantly stronger (weaker) when employees had more variable (vs. routine) work experiences. Additionally, role conflict significantly mediated the effects of power fluctuation on psychological distress and somatic symptoms. With respect to role overload, we found evidence of moderated mediation such that role overload mediated the effect of power fluctuation on psychological distress and somatic symptoms when task routineness was low, but not when task routineness was high.[13]

Importantly, we also established the robustness of the main effect of power fluctuation on psychological distress by re-analyzing previously published ESM data collected by a different author group. Finally, we identified and used a novel method for assessing power fluctuation in a field setting – i.e., the standard deviation of momentary reports of power. However, we were unable to account for common method bias (e.g., see Podsakoff et al., 2003) which may have influenced the correlations we observed among our variables.

General Discussion

For decades, power researchers have made great strides in understanding the effects of power on cognition, emotion, and behavior. However, far less work has examined the potentially unique effects of power *fluctuation*. In the current work, we presented the first comprehensive set

[13] We acknowledge that we are unable to rule out the possibility that the more one perceives role conflict and overload at work, the more likely they may be to self-select into more (vs. less) routine task environments. However, this possibility is not incompatible with our theorizing or findings in the current study.

of empirical studies aimed at testing the core components of the AIA theory of power (Anicich & Hirsh, 2017a, 2017b) to better understand the negative intrapersonal consequences of engaging in vertical code-switching and experiencing a fluctuating sense of power at work.

Across a pilot study and four main studies (as well as two additional supplemental studies reported in the SOM), we presented consistent and converging evidence that vertical code-switching and the fluctuating sense of power it generates are associated with increased psychological distress and somatic symptoms using a mix of survey, experimental, and experience-sampling methods. A pilot study revealed a positive relationship between the amount of power fluctuation that middle managers reported experiencing and the amount of psychological distress that was reflected in their written job experiences as assessed by a separate sample of raters. In Study 1, we developed and validated the Power Fluctuation Scale (PFS) and used it to test our core hypotheses. Study 2 was a laboratory experiment where we manipulated the extent to which participants had to engage in vertical code-switching in the context of an organizational simulation. The results provided causal support for our main effect hypothesis. Study 3 was a pre-registered online experiment involving random assignment to a vertical code-switching condition. Participants assigned to a scenario involving more (vs. less) vertical code-switching reported anticipating experiencing increased psychological distress due to increased perceived role conflict and role overload. Finally, Study 4 was a two-week ESM study in which we established role conflict and role overload as mediators and task routineness as a moderator of the effects of power fluctuation on psychological distress and somatic symptoms.

Theoretical Contributions

Our finding make a number contributions to the social power, role transition, and psychological distress literatures. First, we provide the first empirical test of the AIA theory of

power (Anicich & Hirsh, 2017a), offering novel insights into the negative intrapsychic and physiological effects of vertical code-switching and power fluctuation. This is a valuable contribution because although the field has called for more work on the contingent and dynamic nature of power (Anderson & Brion, 2014; Schaerer, Lee, Galinsky, & Thau, 2018; Smith & Magee, 2015) and scholars have developed the necessary theoretical infrastructure for answering such calls (Anicich & Hirsh, 2017a), to date there have been no empirical tests of the effects of vertical code-switching and power fluctuation.

Second, we extend existing theories of social power that suggest that psychological distress is primarily associated with low-power individuals and states (e.g., Carney et al., 2013; Keltner, Gruenfeld, & Anderson, 2003; Schmid & Schmid-Mast, 2013). Specifically, our findings demonstrate that experiencing power fluctuation may also be highly aversive. Thus, our findings contribute to a more precise mapping of the relationships among different power states and emotional reactions. However, more work is needed to better understand when stable low-power states, for example, lead to more psychological distress and other negative emotions than fluctuating power.

Third, we establish power fluctuation as a novel antecedent of role conflict, role overload, psychological distress, and somatic symptoms, all of which have important practical implications for well-being and overall health (for a review see Ganster & Rosen, 2013). We also extend work on mental transitions between roles (Shumate & Fulk, 2004) by demonstrating that alternating between discrepant states of subjective power is a novel type of micro role transition. These are important discoveries for leaders seeking to understand the source(s) of their employees' chronic (and perhaps seemingly mysterious) psychological distress and somatic symptoms. Organizational leaders may be unaware of the extent to which their employees' power fluctuates

and, as a result, may neither fully understand nor take steps to rectify the challenges these individuals face.

Finally, we developed four methodological tools that future researchers may use to test other components of the AIA theory of power. First, we developed, validated, and tested the Power Fluctuation Scale (PFS). Second, we designed a laboratory experimental paradigm using the software program PsychoPy that future researchers may adapt to study additional aspects of vertical code-switching and power fluctuation (all PsychoPy files used in Study 2 are provided on our OSF project page). Third, we developed an online experimental paradigm involving a scenario-based manipulation of vertical code-switching. Fourth, we identified a novel method for assessing power fluctuation in a field setting that involves taking the standard deviation of momentary power reports over the course of a day. These are important contributions because Anicich and Hirsh (2017a, pg. 673) note that "the potential value of our framework hinges on the ability of researchers to empirically test our propositions."

Limitations & Future Directions

There are numerous questions that our work is not able to address and therefore represent potentially fruitful areas for scholars to explore in the future. First, researchers should seek to identify moderators of the effect of power fluctuation on role conflict, role overload, and/or psychological distress. For example, it is possible that high self-monitors (vs. low self-monitors) experience role conflict more intensely in response to fluctuating power because successfully regulating behavior – which high self-monitors are strongly motivated to do (Snyder, 1974) - requires careful attention to shifting normative expectations. With respect to the task routineness moderator that we identified in Study 4, future researchers may consider building on our findings

by manipulating the type of task and level of task routineness to provide a more comprehensive test of our hypotheses.

Second, researchers should strive to more thoroughly map the nomological network of the power fluctuation construct. The results of Study 1 provide some initial insights in this regard. For example, we found that power fluctuation was not significantly correlated with the perceived stability (for related work see, Jordan, Sivanathan, & Galinsky, 2011; Maner et al., 2007; Scheepers, Röell, & Ellemers, 2015; Sligte, De Dreu, & Nijstad, 2011) or legitimacy (for related work see, Hornsey et al., 2003; Lammers & Galinsky, 2009; Lammers et al., 2008, 2012) of one's perceived power. This makes sense because power stability, which reflects "the extent to which current power differences in a relationship are expected to endure" (Galinsky, Rucker, & Magee, 2015, pg. 440), is typically operationalized as the awareness that one's power *may* change, whereas power fluctuation, by definition, involves an *actual* change in one's subjective sense of power. Additionally, one's power may be highly unstable (e.g., due to looming layoffs), while their pattern of interactions may produce very little power fluctuation day-to-day. Power fluctuation is also distinct from the legitimacy of power because the amount of power fluctuation one experiences in the context of one's day-to-day work is likely to be independent of how fairly and appropriately one's power was acquired and/or is wielded. For example, a highly illegitimate and tyrannical supervisor may nonetheless feel and display the behaviors associated with a predominantly high sense of power. Overall, we would encourage scholars to continue to refine the concept of power fluctuation by comparing it with more established dimensions of power.

Third, research that considers the conditions under which power fluctuation may lead to positive intra- or interpersonal outcomes is an intriguing area of study. It is possible that employees whose power frequently fluctuates may be more empathic than employees whose

power rarely changes relative to others because alternating between enacting behaviors associated with having power and behaviors associated with lacking power gives one a unique perspective on the challenges and opportunities that each relative state affords. In addition, it is possible that employees who have to frequently switch between different interaction styles (e.g., with a supervisor and subordinate) may show enhanced creative performance. Indeed, a study of bilingual individuals found that habitual code-switchers, or those who switch between different interactional styles relatively frequently, showed greater innovative capacity than non-habitual code-switchers (Kharkhurin & Wei, 2015). Such a finding would qualify the current assumption that powerful individuals tend to be more creative which has been primarily based on a static conceptualization of power (Duguid & Goncalo, 2015; Galinsky et al., 2008).

Fourth, given the theoretical and empirical novelty of power fluctuation, future research should strive to determine the extent to which our findings generalize beyond the work domain to other life domains that may elicit a fluctuating sense of power. For example, are transitions across the work-family interface that elicit a greater (vs. lesser) perception of power fluctuation more likely to produce psychological distress? Do middle children in sibling groups experience heightened distress when they perceive a larger (vs. smaller) discrepancy in their sense of power relative to their siblings' power? More generally, considering both within-domain (e.g., work-work transitions) and between-domain (e.g., work-home) effects of power fluctuation on important intra- and interpersonal outcomes will be a useful avenue for scholars to explore. Importantly, the items in the Power Fluctuation Scale (PFS) are not specific to the work context and can thus be easily adapted to test the effects of power fluctuation in other domains.

Fifth, future work should determine if fluctuation in other stratifying variables such as status (i.e., the amount of respect and admiration that one has in the eyes of others, Anderson et

al., 2001) has similar effects on role tensions and psychological distress. Power and status are conceptually distinct constructs even though they tend to be positively correlated (e.g., see Anicich et al., 2016; Blader & Chen, 2012; Fast, Halevy, & Galinsky, 2012; Hays, 2013; Hays & Bendersky, 2015). Given that the conferral and maintenance of status compared to power is a relatively more social and evaluative process with important implications for one's identity, it is possible that status fluctuation could have even stronger negative effects on these outcomes.

Finally, future research should focus on how organizations and other social groups can ease the burdens associated with power fluctuation. For example, leaders may consider implementing onboarding and training procedures with the aim of helping mid-level employees perceive their roles as more integrated, coherent, and connected to the organization's mission. Furthermore, employee work flows can be structurally rearranged so as to minimize unnecessary vertical code-switching. Leaders who promote more job autonomy and less micromanagement may also be effective in reducing the amount of perceived role conflict and overload and ultimately psychological distress that their employees feel.

Conclusion

A long and rich tradition of research has revealed numerous insights related to the effects of power on various individual, group, and organizational outcomes. However, to date, existing work has tended to focus on the distinction between having and lacking power in isolation with little consideration of the experience of fluctuating *between* these two states. Our findings revealed that engaging in vertical code-switching and thus experiencing a fluctuating sense of power compared to a static sense of (high or low) power is associated with reduced well-being. We hope that our findings motivate scholars to continue to pursue interesting and important research questions related to the dynamic and interpersonal nature of power in everyday life.

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Open Practices

Materials and data for the studies presented in this paper are available at https://osf.io/ahj89/. The public pre-registration document for Study 3 can be accessed here: https://aspredicted.org/sf7v4.pdf.

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