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## ENTREPRENEURS AND STRESS: A COGNITIVE AND DYNAMIC APPROACH



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### ABSTRACT

We emphasize the role of appraisal—how individuals think—and develop dynamic theory to test entrepreneurial stress over a 20-day period. In so doing, we reintroduce and demonstrate the notion that stress is an individual level process that can unfold differently for different individuals. We test our model with 286 appraisals made by 29 entrepreneurs. We find support for a synergistic appraisal of stressors and for within individual variation in appraisal, coping, and strain over time. Additionally, we find that daily level active coping increases same day strain. Our results provide strong support for more dynamic theorizing and testing in entrepreneurial stress research.

### INTRODUCTION

Stress, a phenomenon of interest in entrepreneurship for over 30 years (Baron, Franklin, & Hmieleski, 2013; Boyd & Gumpert, 1983; Cardon & Patel, 2015), has been labeled as the “health epidemic of the 21<sup>st</sup> century” by the World Health Organization (Soleil, 2016). Prior research has identified many of the personal and organizational level consequences of entrepreneurial stress (e.g., Baron, 2009; Cardon & Patel, 2015; Kim & Diamond, 2002). As such, we know that entrepreneurial settings are often filled with sources of stress (called stressors), that entrepreneurs balance stress avoidance and stress coping (Ahmad & Xavier, 2010; Patzelt & Shepherd, 2011), and that failure to properly cope can lead to strain (Uy, Foo, & Song, 2013), defined as anxiety, exhaustion, depression, and burnout (Jex, 1998). Yet, prior work has largely theorized and tested static models of entrepreneurial stress while ignoring the role of appraisal (i.e., how entrepreneurs think about stress). Additionally, the broader psychology literature, studying a wide range of work contexts, has mostly classified stressors as challenges or hindrances due to their differential effects on performance (Brief & George, 1995; Lepine, Podsakoff, & Lepine, 2005). Again, although prevalent, this approach ignores entrepreneurs’ appraisal of stress.

To address these deficiencies in the literature and extend theory, we employ an Experience Sampling Methodology (ESM) on an initial sample of 38 entrepreneurs (founders and owners of existing businesses) to track appraisal, coping, and strain for 20 days regarding each entrepreneur’s self-identified largest source of stress. We analyze our data using multi-level growth modeling. In so doing, we contribute to entrepreneurship by exploring and illuminating the dynamic nature of entrepreneurial stress navigation. Studying stress dynamically offers more thorough and granular explanations to current findings in entrepreneurship research (Uy et al., 2010; Uy et al., 2013). Thus, our study more closely aligns entrepreneurial stress theory with the broader stress literature, enhancing our ability to both understand the phenomena of stress for entrepreneurs and to derive meaningful insights for other disciplines. In addition, we contribute to the organizational stress literature by aligning appraisal with its theoretical underpinnings. We compare current stressor taxonomies in the stress literature, and their associated appraisals, with the entrepreneurs’ self-identified largest source of stress and appraisals. Contrary to prior conceptions, we reveal that

appraisal is a complex, evolutionary process that involves a mixture of perceived challenges and hindrance

## HYPOTHESES DEVELOPMENT

### Does Appraisal Matter?

Although the organizational stress literature captures appraisal, it also typically assumes that appraisals of stress are, by definition, challenges or hindrances. This important assumption stems from the idea that research should understand how stress occurs for *most people*, and that most work contexts are similar (Brief & George, 1995). Thus, Cavanaugh et al. (2000) conducted a factor analysis of stressors, concluding that we can categorize some sources of stress as challenges and others as hindrances. There is strong evidence that the field has taken these categorizations to heart. For example, Lepine, Podsakoff, and Lepine (2005) use these conclusions to separate their meta-analytic stressors into the two categories. For their study:

“Challenge stressors included measures of job/role demands, pressure, time urgency, and workload. Hindrance stressors included measures of constraints, hassles, resource inadequacy, role ambiguity, role and interpersonal conflict, role dissensus, role interference, role strain...role clarity...role overload, supervisor-related stress, and organizational politics.” (767)

However, this empirical separation of challenge and hindrance stressors may not be theoretically-appropriate when studying entrepreneurship. Indeed, many researchers have directly suggested that the *a priori* categorization of stressors as challenge or hindrance is troubling (Chang, Rosen, & Levy, 2009; Gilboa et al. 2008; Rosen et al. 2010). The general conclusion is that appraisal likely occurs in a fashion consistent with its original conception from the work of Lazarus and Folkman (Folkman, 1984; Folkman & Lazarus, 1985; Lazarus, 1999; Lazarus & Folkman, 1984); namely, “threat [hindrance] and challenge appraisals synergistically interact to produce stress appraisals” (Gilboa et al.: 230). Rosen et al. (2010) agree with this, suggesting: “there are reasons to be cautious about research that uses an aggregation approach” (57). Empirical evidence supports the call for caution. While Lepine, Podsakoff, and Lepine (2005) find meta-analytic evidence that challenge appraisals positively impact performance while hindrance appraisals have negative impacts, Gilboa et al., (2008) conduct a meta-analysis and find that both challenge and hindrance appraisals lead to negative performance repercussions. Finally, Jex (1998), who called for examination of specific sources of stress to specific outcomes nearly twenty years ago, echoes this challenge to prevalent assumptions. There arguably is no better context to study stress appraisals and outcomes than in the area of entrepreneurship, because entrepreneurial behavior often directly impacts the health and well-being of the firm.

Consequently, in the context of entrepreneurship, we posit that stressors and appraisals may not align with their current theoretical definitions. For example, the organizational literature treats role ambiguity as a hindrance stressor that can effectively be addressed using avoidance coping behaviors (Chou et al. 2014). Yet, role ambiguity is a natural part of entrepreneurial life that cannot be avoided (Buttner, 1992). Thus, the theoretical assumptions applied to non-entrepreneurial roles do not necessarily apply in an entrepreneurial context. When studying entrepreneurs, we would be ignoring prior theory and results if we assumed that such sources of stress were, by definition, hindrances. Further, if an entrepreneur avoided role ambiguity, their organization would likely fail. Thus, we broadly hypothesize that:

*Hypothesis 1: Entrepreneurs appraise stressors as both challenges and as hindrances*

### **Within-Individual Stress Processes**

According to Lazarus' Transactional Model, appraisal is a subjective process that allows individuals to conceptualize a stressor in their mind and determine the correct coping response (Lazarus & Folkman, 1984). Primary appraisal is an assessment of the stressor as either a challenge or a hindrance. A stressor is a challenge if perceived as an opportunity to promote personal growth, mastery, or gains according to an individual's values (Lazarus' & DeLongis, 1983). Conversely, a stressor is a hindrance if perceived as potentially harmful to personal growth, mastery or gains. Importantly, primary appraisal has impacts on affect and coping responses. For example, challenge appraisals elicit positive affect, promoting active coping behaviors. Conversely, hindrance appraisals elicit negative affect, promoting an avoidance approach. Coping behaviors subsequently impact strain, and prior work in entrepreneurship has explicated this process. Specifically, Uy, Foo, and Song (2013) identified that in the short-term (i.e., reflecting on the past two months), entrepreneurs' psychological well-being benefits from both active and avoidance coping; yet, in the long term (3-months later), avoidance coping is only effective if accompanied by active coping. Thus, stress that isn't eventually addressed will weigh entrepreneurs down.

Yet, individuals adapt agentically in response to ongoing environmental stimuli (Bandura, 2006), suggesting that stress processes likely occur at the daily level. Indeed, there is evidence that daily level stress is associated with same day health problems such as flu, sore throat, headaches, and backaches (DeLongis, Folkman, & Lazarus, 1988). Also, other constructs relevant to stress processes have already been shown to fluctuate at the daily level for entrepreneurs (i.e., feelings; see Foo, Uy, & Baron, 2009). Thus, we expect that the way entrepreneurs think about, deal with, and suffer (or not) from stress change in a dynamic fashion. Thus:

*Hypothesis 2: Appraisal, coping, and strain vary within individuals*

While we know some things about stress outcomes for entrepreneurs in the short and long term, we know comparatively little about the impacts of stress at the daily level. Specifically, we do not know how coping behaviors influence immediate levels of strain. Although the findings of the Uy et al., (2013) seem to suggest an immediate benefit from active and avoidance coping, we suggest that at the daily level the relationships may occur differently. Active coping requires significant expending of resources and a level of time commitment. Not only is there is strong theoretical support that the expenditure of resources creates stress (Hobfoll, 1989), but in addition, exposure to large amounts of work hours has been associated with stress in the entrepreneurial context (Boyd & Gumpert, 1984; Min, 1990) and in others (Sparks, Cooper, Fried, & Shirom, 1997). Thus, greater amounts of daily level effort to actively deal with stress likely will increase same day strain. Conversely, avoidance coping allows entrepreneurs to escape actively dealing with the source of stress, and may facilitate less expenditure of resources. Thus:

*Hypothesis 3a: Daily active coping will have a positive relationship to same day strain*

*Hypothesis 3b: Daily avoidance coping will have a negative relationship to same day strain*

To tie daily level predictions to longer term outcomes reported in the entrepreneurship literature (Uy et al., 2013) we also make predictions about average copings impact on average strain across the period of study. Specifically, and consistent with prior research, we suggest:

*Hypothesis 4a: Average active coping will have a negative relationship to strain*

*Hypothesis 4b: Average avoidance coping will have a positive relationship to strain*

## METHOD

### Design and Sample

We employed an ESM on a sample of founders and owners of existing businesses to track appraisal, coping, and strain for 20 days in regards to each entrepreneur's self-identified largest source of stress. ESM is effective for reducing recall bias (Ptacek et al., 1994) while attempting to measure cognitive and behavioral constructs, and is at the forefront of called-for methodologies in entrepreneurship research (Uy et al., 2010). We emailed invitations to members of four different entrepreneurial support organizations and utilized authors' personal networks. Thirty-eight entrepreneurs agreed to participate, but 4 did not participate and 5 others were dropped for incomplete data. Thus, our final sample size is 286 observations, nested within 29 entrepreneurs.

### Variables and Measures

We conducted an initial survey, 20 daily surveys, and a concluding survey. In the initial survey, we asked entrepreneurs to tell us (in 2-3 sentences) their largest source of stress as a result of their current business. In the daily surveys, entrepreneurs appraised this source of stress as a challenge or hindrance using a modified version of the Rodriguez, Kozusznik, and Peiro (2013) Valencia Eustress-Distress Appraisal Scale (VEDAS). After reading an excerpt defining challenge and hindrance appraisal, respondents completed a scale from 1 (very definitely is NOT a source of opportunity/hindrance) to 6 (very definitely IS a source of opportunity/hindrance) for both challenge and hindrance appraisals. To measure active coping, we used the 3-item Active Coping scale from the COPE (Carver et al. 1989). To measure avoidance coping, we used the 3-item Behavioral Disengagement scale. Respondents were asked to report, on a scale of 1 (not at all) to 5 (very much) how much they engage in particular coping behaviors. A measure of acute strain is most appropriate for capturing daily level stress; we used House and Rizzo's (1972) 7-item job tension scale.

### Analyses

We tested our hypotheses using growth modeling. This multilevel modeling approach has advantages when testing data with a nested structure (Hox, 2010). Specifically, multilevel modeling accounts for: (1) different growth curves across subjects; (2) unbalanced data; (3) covariances between repeated measures within individuals; (4) the modeling of second level variables (i.e., gender, rumination, etc.); and (5) comparisons between average group outcomes and the development of different individuals over time (Bryk & Raudenbush, 1992; Hox, 2010). Our data structure is longitudinal and has two levels: within individual measures at the daily level, and across individual measures captured at the beginning and end of the study period.

## RESULTS

Preliminary results show support for support for the multifaceted role of appraisal. Table 1 reveals that 51% of the daily appraisals fall outside the scope of prior theory (i.e., stressors are often as appraised as neither a challenge nor a hindrance, or as both simultaneously). In addition, some entrepreneurs appraised similar sources of stress in different ways. For example, two entrepreneurs

reported financial constraints as their largest source of stress. One entrepreneur generally rated financial stress as very definitely not a challenge (1), and generally not a hindrance (3); this entrepreneur had an average challenge appraisal of 1.77 and average hindrance appraisal of 3.0, both across the 20-day study range, with standard deviations for both below 1. Conversely, the second entrepreneur reported an average challenge appraisal of 3.27 and an average hindrance appraisal of 3.87, yet the challenge and hindrance scores varied with standard deviations of 1.75 and 1.55, respectively. Thus, it appears that the appraisal process functions differently for different individuals. These results provide preliminary support for hypothesis 1.

Results also suggest strong support for hypothesis 2. Table 2 reports the intraclass correlation, revealing that within individual variance for appraisal, coping, and strain ranges from 44-68%. This provides substantial support for a multilevel analysis. Preliminary results suggest support for hypothesis 3a, but not for hypothesis 3b. Specifically, active coping does appear to have a significant ( $p = 0.001$ ) effect ( $b = 0.37$ ) on same day strain. The effect of avoidance coping appears to be positive ( $b = 0.19$ ), although not significant ( $p = 0.127$ ). Finally, we use average active and average avoidance coping to predict strain at the end of the study. Our preliminary analyses show no support for hypotheses 4a or 4b.

## DISCUSSION & IMPLICATIONS

This work makes important contributions to both the entrepreneurial and organizational stress literatures. For entrepreneurship, we highlight the importance of examining appraisal of stressful events, and of measuring stress dynamically. Cognitive perspectives have greatly advanced several topics within the entrepreneurship literature (Baron, 2004; Grégoire, Corbett, & McMullen, 2011), yet cognition has been largely ignored in entrepreneurial stress research. Indeed, we find preliminary evidence that entrepreneurs can appraise the same source of stress quite differently, and that sources of stress are, more often than not, appraised as either not a challenge nor a hindrance, or as both simultaneously.

Studying stress dynamically offers more thorough and granular explanations to current findings in entrepreneurship research (Uy et al., 2010; Uy et al., 2013). Lazarus and DeLongis (1983: 248) long ago argued “what is needed is an approach to coping that assesses how a person manages a variety of specific stressful encounters and contexts of living and that explores how and to what extent this process changes.” They also emphasized that coping is a mediator between cognitive appraisal and strain, and that appraisal, too, will change over time. Thus, our study more closely aligns entrepreneurial stress theory with the broader stress literature, enhancing our ability to both understand the phenomena of stress for entrepreneurs and to derive meaningful insights for other disciplines. Importantly, our results show that appraisal, coping, and strain do indeed change within individuals over time. This lends strong support for more longitudinal examination of entrepreneurial stress.

Our findings that daily level active coping increases same day strain provides a compelling extension to recent work by Uy, Foo, and Song (2013). They found that in the short term (within a two-month window) both active and avoidance coping promote psychological well-being. Yet, in the long term (3 months later) avoidance coping is only beneficial if accompanied by active coping. Our findings, however, reveal that when short term coping is considered at the daily level, active coping increases, rather than decreases, levels of strain. Thus, it is possible that actively engaging with stress does indeed lead to psychic returns, but these returns do not occur within the same day.

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**TABLE 1**

		Hindrance						Category	Percent
		Low			High				
Low		38	2	7	3	2	5	Low-Low	40%
		5	11	4	8	1	0	High Hindrance - Low Challenge	13%
		9	11	50	23	2	1	High Challenge - Low Hindrance	35%
High		7	11	45	19	4	0	High-High	11%
		3	11	20	6	3	0		
		12	3	9	2	2	3		

**TABLE 2**

Variable	ICC	Across	Within
Strain	0.560	56%	44%
Active Coping	0.319	32%	68%
Avoidance Coping	0.472	47%	53%
Future Challenge	0.386	39%	61%
Future Hindrance	0.353	35%	65%