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**Using a Pattern-Oriented Approach to Study Leaders:
Implications for Burnout and Perceived Role Demand**

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**Using a Pattern-Oriented Approach to Study Leaders:
Implications for Burnout and Perceived Role Demand**

Keywords: pattern-oriented approach; leadership styles; burnout; perceived role demands

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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Abstract

Using a pattern-oriented approach we identified clusters of leaders who shared theoretically meaningful combinations of transformational, contingent reward, management by exception active, management by exception passive, and laissez faire leadership styles. Drawing upon conservation of resources theory, we examined whether leaders who shared a similar pattern of leadership styles differed from leaders who belonged to other profile groups, with respect to felt burnout and perceived role demands. Hypotheses were tested using a time-lagged field study involving 183 leaders. Using latent profile analyses, we found four theoretically-interpretable patterns. Leaders who belonged to the *comprehensive* cluster (elevated scores on the transformational, contingent reward and the passive styles; 14.2%) experienced the highest levels of burnout and role demands, whereas those who were *disengaged* (low scores on all styles; 33.3%) reported the lowest levels. Leaders who exhibited a *passive* behavioral pattern (elevated scores on management by exception active, management by exception passive, and laissez faire relative to the other styles; 27.3%) experienced more burnout and role demands than did leaders who exhibited an *optimal* pattern (elevated scores on transformational and contingent reward styles relative to the passive styles; 25.1%). The theoretical and practical implications of a pattern-oriented approach to leadership research were discussed.

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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Decades of research on transformational and transactional leadership have demonstrated links between specific leadership styles and various outcomes (e.g., Avolio, 1999; Bass & Riggio, 2006; Wang, Oh, Courtright, & Colbert, 2011). Despite this progress in our understanding, leadership scholars have repeatedly called for an integrative approach that takes into account within-individual leadership processes (e.g., Dinh, Lord, Gardner, Meuser, Liden & Hu, 2014). An emerging research paradigm within the leadership literature has been to consider how patterns of personal attributes within leaders (e.g., behavioral styles) interact to predict leadership outcomes (Doucet, Fredette, Simard, & Tremblay, 2015; Foti, Bray, Thompson, & Allgood, 2012; O’Shea, Foti, Hauenstein, & Bycio, 2009; Zaccaro, 2012). A pattern-oriented approach seeks to identify different subgroups (i.e., clusters) of leaders who share a similar configuration, profile or pattern of individual differences, such as values or behavioral styles, and then studies these different cohorts with respect to various criteria of interest (Foti et al., 2012). Studying the unique interplay among two or more attributes within leaders not only captures *overall* leadership behavior but allows for insights not currently available from research that has largely focused on inter-individual variation on leadership traits or styles (cf. Bergman & Lundh, 2015; Foti, Thompson, & Allgood, 2011).

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A relevant yet unanswered question is whether these unique style patterns are idiosyncratic or whether these styles are consistent with theoretical expectations. Bass and Riggio (2006) have argued that an optimal or ideal leadership profile would be one that combined both transformational and transactional behaviors. Indeed, recent pattern-oriented research has confirmed the presence of an “optimal” pattern (Doucet et al., 2015; Foti et al., 2012; O’Shea et al., 2009). Another distinctive pattern to emerge has been one that encompasses a mix of passive or corrective-avoidant behaviors (Doucet et al., 2015). However, more work is

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 needed to verify and examine the range of leadership style patterns in a broad sample of working
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6 leaders. It is also important to examine the psychological and behavioral outcomes associated
7
8 with these different patterns.
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11 Our research extends important work that has begun to consider the more nuanced
12
13 implications of leadership style patterns. For example, O'Shea et al. (2009) found that leadership
14
15 style patterns are differentially associated with follower satisfaction, follower perceptions of
16
17 leadership effectiveness, follower effort levels, affective commitment, and turnover intentions.
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19 Doucet et al. (2015), using cluster analysis, found that the different style patterns were uniquely
20
21 associated with several employee-organization-relationship outcomes (supervisor trust,
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23 interactional justice, and affective commitment) and supervisor ratings of in-role and contextual
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25 performance.
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29 Research on leadership style patterns has not yet addressed the implications of these
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31 patterns for leaders' own well-being. This oversight is unfortunate because there is a growing
32
33 recognition that leader stress is closely related to negative outcomes such as follower burnout
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35 (ten Brummelhuis, Haar & Roche, 2014). Leader stress has also been identified as one of the
36
37 most significant barriers to leadership advancement (LeanIn.org & McKinsey & Company,
38
39 2015) and leader stress is rarely addressed by organizations (Campbell, Innis Bates, Marin &
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41 Meddings, 2007). Applying a pattern-oriented approach to understand how leadership style
42
43 configurations differentially impact leader well-being will highlight how patterns of behavior can
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45 be identified to achieve personal resource balance for leaders.
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51 In this study, we adopt a pattern-oriented approach and extend this new line of inquiry by
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53 using the full range of leadership behaviors (i.e., Avolio, 1999) as inputs for profile
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55 identification. We use conservation of resources theory (COR: Hobfoll, 1989) to situate our
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 examination of whether the emerging leadership profiles can be distinguished in terms of their
4 costs to the leader as indicated by increased leader burnout and perceived role demands. The
5 following overarching objectives guided our work. First, by drawing on the full range leadership
6 theory (Avolio, 1999), which allows for transformational and transactional behaviors to coexist,
7 we sought to identify clusters of leaders who shared similar patterns of style configurations. We
8 chose the full-range leadership model because it has been one of the most widely studied in
9 recent years (e.g., Barling, Christie & Hopton, 2011). Complementing this research stream with
10 a leader-centered approach will allow for the integration of seemingly disparate leadership styles
11 (Dinh et al., 2014). Second, we draw upon COR theory (Hobfoll, 1989; Halbesleben, Neveu,
12 Paustian-Underdahl, & Westman, 2014) as a framework to focus attention on two leader
13 outcomes, leader burnout and perceived role demands, that may be sensitive to pattern
14 differences.

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16 We draw on the full range model of leadership (Avolio, 1999; 2011) to understand which
17 of these styles tend to coexist, and what the consequences are of these patterns. We begin by
18 describing the pattern-oriented approach to studying leadership and the value that it offers
19 beyond traditional variable-centered research. Next we propose hypotheses related to specific
20 within-leader patterns based on the full range model of leadership and how these patterns should
21 affect leader burnout and perceived role demands. Finally we describe and discuss the findings
22 of a time-lagged field study.

23 **A Pattern-Oriented Approach to Full-Range Leadership**

24
25 The full range model includes a comprehensive range of leader behaviors that can be
26 generally classified as transformational or transactional in nature (Avolio, 2011).

27 Transformational leadership (TFL) is demonstrated when leaders act in ways that “stimulate and
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 inspire followers to both achieve extraordinary outcomes and, in the process, develop their own
4 leadership capacity” (Bass & Riggio, 2006, p. 3). Leader behaviors can also be transactional in
5 nature, such as assigning tasks and strengthening reward contingencies (CR: contingent reward),
6 actively seeking out and dealing with follower mistakes/performance issues (MBE-A:
7 management by exception active), waiting passively for follower mistakes/issues and then
8 responding accordingly (MBE-P: management by exception passive), and adopting a ‘hands off’
9 approach or avoiding followers and decision making (LF/A: laissez-faire/avoidant) (Bass &
10 Riggio, 2006).

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Most research on the full range model has used a variable-centered approach to understand each leadership style as a singular unit of analysis. TFL has been associated with many positive outcomes such as follower job satisfaction and performance, and CR is similarly positive for followers (e.g. Judge & Piccolo, 2004). MBE-A has both positive and negative outcomes (e.g., Judge & Piccolo, 2004; Kelloway, Mullen, & Francis, 2006), whereas MBE-P and LF/A are considered destructive given their associations with outcomes such as workplace bullying and distress (Doucet, Poitras, & Chênevert, 2009).

As alluded to earlier, an extensive literature has been devoted to describing the outcomes associated with measures of different leadership styles (Avolio, 1999; Bass & Riggio, 2006; Judge & Piccolo, 2004; Wang et al., 2011). The vast majority of this work has either explicitly or implicitly adopted a variable-oriented approach, which is well-suited to studying how measures of focal variables, such as TFL, vary in a population of leaders (e.g., variable means; standard deviations), and to identify the antecedents and outcomes associated with these variables (e.g., through correlations; regression analysis). Studying this between-individual variation offers insights into leaders in general or in a specific context (Bergman & Lundh,

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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2015). However, despite the tremendous knowledge generated by variable-oriented research strategies, leadership scholars have repeatedly called for an integrative approach that takes into account within-individual leadership processes (Dinh et al., 2014).

Rather than studying between-individual variation, a pattern-oriented approach seeks to measure, interpret, and study the effects of within-individual variation. Here leaders are seen as ‘integrated systems’ whereby attributes (e.g., values, perceptions, and behaviors) combine uniquely within the leader to shape both phenomenological experience and outcomes. A pattern-oriented approach gives information about how combinations of variables operate within individuals, instead of using the extent of a single variable as the measure of interest. The value of a pattern-oriented approach to leadership is that researchers can compare the properties of the different style combinations, and thus gain insights into leadership that compliment traditional variable-centered approaches.

One important question is whether a style configuration consisting of only high levels of TFL differs from one where transformational behaviors occur in conjunction with transactional behaviors. For example, variable-oriented research has shown that leaders who engage in LF/A leadership are less effective than are leaders who do not interact with subordinates this way (Judge & Piccolo, 2004). However, the LF/A style may only be negative when it occurs in conjunction with low transformational and low CR leadership behaviors. Likewise, we might find that TFL is even more effective when the leader also uses a CR style, and is less effective when leaders only use a transformational style. With a pattern-oriented approach, we can test hypotheses such as these.

The need for pattern-oriented approaches when studying leadership styles has been identified recently by Van Knippenberg and Sitkin (2013), who argue against the

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 compartmentalization of leadership constructs (e.g., styles). These authors note the popular
4
5 distinction between transformational and transactional leadership, whereby TFL is often
6
7 portrayed in the field as virtuous and avant-garde, in diametric contrast to the “dull, mechanical,
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9 carrots-and-sticks leadership that would be more ordinary and customary” (Van Knippenberg &
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11 Sitkin, 2013, p.12). It is noteworthy that the extant leadership literature, which is heavily
12
13 variable-oriented, has tended to overlook the possibility that leaders may combine
14
15 transformational and transactional behaviors as part of their own unique style. This is perhaps
16
17 surprising considering that (Bass, 1999), one of the leading transformational scholars, suggested
18
19 that “every leader displays a frequency of both the transactional and transformational factors, but
20
21 each leader’s profile involves more of one and less of the other” (p.11). Unfortunately,
22
23 traditional variable-oriented strategies are ill-equipped to answer these types of questions, and a
24
25 new approach is necessary.
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32 A pattern-oriented approach begins with the assertion that behavioral tendencies combine
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34 differently for some leaders than they do for others, producing within each leader an overall style
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36 that might be shared with, or different from, other leaders. Thus, the first objective of this
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38 approach is to identify leaders who share a similar profile. With a broad sample of leaders, using
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40 latent profile analysis (LPA), we test for the presence of patterns of the five most-commonly
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42 reported styles in the leadership literature (TFL, CR, MBEA, MBEP, and LF/A; Avolio, 2011).
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44 Much has been written about these individual styles across leaders and situations. For instance,
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46 both transformational and transactional leadership have been associated with positive outcomes
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48 such as job satisfaction, whereas passive leadership (e.g., MBEP; LF/A) is generally harmful
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50 (Judge & Piccolo, 2004). What remains to be seen is how these different behavioral styles are
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52 enacted and expressed *in combination*. We expect that some leaders will exhibit a tendency
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 toward passive behaviors to the exclusion of transformational and transactional activities, but
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5 other leaders may have profiles that include low levels of all leadership behaviors (e.g., if they
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7 are distracted by other responsibilities), and others might exhibit profiles where all of the
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9 behavioral styles are evident.
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Possible Leadership Patterns

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15 We expect to find two fundamental sets of leadership patterns. The first set of patterns
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17 will likely have component scores that are all consistently high, medium or low; where the five
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19 different leadership styles are all expressed at approximately the same level. We expect to see
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21 some leaders who will engage frequently across the full range of leadership styles, such as those
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23 who score high on TFL, CR, and passive management by exception styles (see Pattern #1,
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25 O'Shea et al., 2009, p. 246). Some situations (e.g., a large span of control) may initially call for
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27 more passive forms of leadership, but the leader may still be capable and willing to supplement
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29 this approach with more active behaviors if the situation changes. However, in a broad sample of
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31 leaders, we also expect to find that some individuals will be disengaged as leaders, effectively
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33 abdicating their responsibilities as leader (e.g., low scores on TFL, CR, passive management by
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35 exceptions styles; see Pattern #8, O'Shea et al., 2009, p. 246). Thus, we expect to find patterns
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37 where the five leadership styles are all consistently high, medium or low.
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44 *Hypothesis 1. The nature of the patterns will be characterized by consistent*
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46 *configurations whereby all of the leadership styles are expressed by the leader at*
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48 *approximately the same level (e.g., all low, all moderate, or all high)*
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51 The second set of patterns will reflect profiles where the constituent components are
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53 mixed, in terms of their relative frequency. Some leaders, in other words, will exhibit patterns
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55 composed of varying degrees of the leadership styles within the full range model. As mentioned
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3 above, we expect to see some leaders exhibit the optimal pattern advocated by Bass and Riggio
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5 (2006). From a pattern perspective, an optimal profile would consist of high levels of TFL and
6
7 CR, but lower levels of passive/avoidant leadership behaviors (see Pattern #2, O'Shea et al.,
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9 2009, pp 246). Another distinctive pattern observed in the literature has been one that
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11 encompasses a mix of passive or corrective-avoidant behaviors to the exclusion of TFL and CR
12
13 (Doucet et al., 2015). Thus, we expect to find patterns where the five leadership styles are all
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15 mixed in terms of their relative engagement frequency and represent distinct patterns (as opposed
16
17 to patterns where the different styles are all exhibited at the same level).
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22 *Hypothesis 2. The nature of the patterns will be characterized by mixed configurations*
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24 *whereby all of the leadership styles will be expressed by the leader at different*
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26 *frequencies (at least one high relative to the others)*
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29 **Conservation of Resources Theory: Implications for Leadership Pattern Outcomes**

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32 There is now a growing interest in leader well-being for several reasons, but the
33
34 implications of style patterns for these personal outcomes have yet to be tested. This is an
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36 important question given that leadership positions are inherently stressful, and stress is
37
38 associated with many negative health outcomes such as burnout and impaired psychological
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40 well-being (LeanIn.org & McKinsey & Company, 2015; Sulsky & Smith, 2005). Leader stress
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42 has been shown to predict abusive supervision (Burton, Hoobler, & Scheuer, 2012) and to
43
44 increase followers' own burnout (ten Brummelhuis et al., 2014). Stressed leaders are less likely
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46 to make less effective decisions (Ganster, 2005). Overall, leader stress is a significant problem
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48 and has serious implications given leaders' central roles in their organizations and teams.
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53 Despite the growing recognition that leader stress is a key issue to address in
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55 organizations, few studies have focused on leader stress in relation to leadership styles. Applying
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 elements of COR theory (Hobfoll, 1989) to leadership, some studies have found that enacting
4
5 certain leadership styles can indicate the likelihood of resource gain or drain, and affect various
6
7 facets of leader well-being (e.g., Arnold, Connelly, Walsh, & Martin Ginis, 2015). Given that
8
9 research on this area is limited, we align with emerging studies and draw on the COR framework
10
11 to situate our arguments related to leader well-being. Specifically, we focus on two outcomes
12
13 that may be indicative of resource depletion: burnout and perceived role demands. Burnout is
14
15 defined by three dimensions: emotional exhaustion, diminished personal accomplishment, and
16
17 depersonalization (Maslach, Leiter, & Jackson, 2012). While burnout captures internal feelings
18
19 of depletion, role demands capture the overall demands of the job and is defined as “the degree
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21 to which an employee has to work fast and hard, has a great deal to do, and has too little time”
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23 (Van Yperen & Snijders, 2000, p. 184).
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29 Conservation of resources theory suggests that resources, defined as “objects,
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31 characteristics, conditions, and energies that are valued by an individual,” are central to
32
33 understanding stress (Alarcon, 2011, p. 550). A central principle of this theory is that individuals
34
35 are motivated to build and maintain their resources, and that losing resources is detrimental to
36
37 well-being (Hobfoll, 1989). The theory predicts that depleted personal resources increase the
38
39 likelihood of further resource loss because individuals become less able to invest resources into
40
41 resource-gaining activities, and that individuals may use counterproductive defensive strategies
42
43 to protect the few resources they have left (Hobfoll, 2001). There is considerable empirical
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45 support for the negative effects of resource depletion (e.g., Ng & Feldman, 2012).
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50 Despite the growing interest in resource depletion, and its association with leadership
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52 styles (Arnold et al., 2015; Byrne et al., 2014), there has been little discussion of how within-
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54 leader style configurations might indicate the extent of leader resource depletion. The different
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 outcomes associated with specific leadership styles, however, suggest that the nature of one's
4 preferred pattern (i.e., styles in combination) may impose psychological demands on the leader
5 that influences resource drain or gain. Applying COR theory is particularly useful in this regard,
6 because research in this area is increasingly recognizing the importance of understanding how
7 resources interact and is focusing on subsets of resources that tend to appear together and are
8 relevant to specific settings (i.e., "resource caravans"). In fact, Halbesleben et al. (2014) have
9 recently called for "the examination of unique combinations of resources" (p. 1356) in relation to
10 psychological outcomes, because specific combinations of resources often have different
11 outcomes than do single resources. Applying these central elements of COR theory to a
12 leadership context, we suggest that certain combinations of leadership styles within the full range
13 model may be associated with resource fluctuations for leaders.
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29 The positive outcomes associated with TFL suggest that this style is likely to indicate
30 resource abundance. In terms of the environment that they create, transformational leaders place
31 a high priority on follower interactions, and it is likely that these supportive efforts will be
32 reciprocated (e.g., Kurtessis, Eisenberger, Ford et al., *in press*). These positive interactions
33 should help to create a positive working environment, fortify the leader, and replenish any loss in
34 personal resources. In terms of personal resources, transformational leaders are less likely to
35 experience burnout as they are more likely to express genuine emotion (Arnold et al., 2015).
36 Furthermore, leaders who enact TFL are more likely to experience daily need fulfillment, and
37 subsequently positive emotion (Lanaj, Johnson, & Lee, 2016). Overall, transformational leaders
38 create positive environments and are able to build psychological resources. Interpreting these
39 findings through a COR lens suggests that transformational leaders have strong resource
40 reservoirs that may be resilient to occupational stressors. Thus, leaders who exhibit a pattern
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 characterized by high levels of TFL relative to the other styles should experience relatively low
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5 levels of burnout and role demands.
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8 In contrast, leaders who adopt a high level of transactional leadership will likely find
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10 themselves heavily involved in numerous hands-on activities such as planning, assigning work,
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12 evaluating performance, providing feedback, and allocating rewards; activities that require the
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14 leader collect and process many different sources of information and make decisions based on
15
16 these inputs. As such, leaders who exhibit a pattern characterized by a dominant CR style may
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18 experience greater resource depletion than would leaders who are characterized by the dominant
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20 transformational pattern, because they will receive fewer reciprocated benefits that will be
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22 restorative.
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27 Interestingly, leaders who exhibit patterns characterized by high passive leadership are
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29 likely to experience impaired well-being. This style of leadership has been shown to be largely
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31 ineffective, so the negativity and productivity loss traditionally associated with this style would
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33 make it hard for these leaders to conserve and replenish their resources. Acting passively
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35 inadvertently encourages negative follower behaviors for the majority of employees (e.g.,
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37 workplace bullying, employee distress), which may further drain the leader. With stressed
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39 employees, higher levels of injuries, and many other negative outcomes (e.g., Kelloway et al.,
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41 2006), it is plausible that the leader whose style pattern is focused on passive behaviors spends
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43 their energy avoiding actions that would stop this negative spiral. Passive leadership's potential
44
45 effect on leader stress is further highlighted by previous studies that have directly associated
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47 passive leadership with the emotional exhaustion and depersonalization components of burnout
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49 (e.g., Zopiatis & Constanti, 2010).
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 Reconciling this with our hypotheses related to consistent (H1) versus mixed style (H2)
4 configurations, we expect that an ‘all low’ profile will exhibit the lowest level of burnout and the
5 lowest time demands, because these leaders are effectively psychologically and behaviorally
6 *disengaged* (i.e. they are remaining static and not actively investing energy into leadership,
7 whether it is positive or negative). We also expect that a leader with an ‘all high’ profile (i.e.,
8 high levels of each behavioral style) will exhibit elevated feelings of burnout and role demands
9 due to elevated scores on the transactional and passive styles.

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20 *Hypothesis 3. Patterns characterized by consistent-style configurations will be*
21 *associated with burnout and perceived role demands according to the level of*
22 *engagement; the “all low” pattern will be associated with the lowest level of burnout and*
23 *role demands, and the “all high” pattern will be associated with the highest level of*
24 *burnout and role demands.*

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32 With respect to the mixed clusters (i.e., reflecting unique configurations of high and low
33 styles; H2), we expect that these patterns will be characterized by relatively low levels of burnout
34 and role demands. The lowest level of these outcomes will occur when the leader engages in
35 relatively high levels of TFL. As discussed above, we theorize that TFL will predict overall
36 resource gain and will promote a resource gain for leaders.

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44 Increasing scores on either the transactional (CR; MBEA) or passive (MBEP; LF/A)
45 styles in a context when TFL is dominant will increase the level of resource drain, and, therefore
46 be associated with increased burnout and role demands. Notwithstanding this, the resource-
47 restoring effect of TFL should mitigate feelings of burnout and time demands associated with a
48 moderately high transactional or passive leadership profile. We expect that the negative effects
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 of a highly transactional or passive leadership style will be most pronounced in a context of low
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5 TFL.
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8 *Hypothesis 4. Mixed patterns characterized by high levels of TFL, either alone or in*
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10 *combination with high levels of transactional leadership or high levels of passive*
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12 *leadership will be associated with lower levels of burnout and role demands than*
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14 *patterns characterised by low levels of TFL.*
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16

17 **Method**

18 **Research Design and Data**

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20 The data for this study came from the Study Response Project (www.studyresponse.net).
21
22 Online panels such as Study Response are widely used in organizational behavior research (e.g.,
23
24 Connelly, Zweig, Webster & Trougakos, 2012). The use of this panel overcomes some of the
25
26 limitations of other data collection methods (e.g., the use of undergraduate students or employees
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28 from only one or a few organizations) by sampling adult employees in a wide variety of
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30 organizations and occupations (Landers & Behrend, 2015). Seventeen different industry
31
32 classifications are represented in our sample, with most the popular categories being
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34 manufacturing (21%), retail trade (12%), information and culture (11%), administrative and
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36 support (10%), construction (10%), and professional, scientific and technical services (9%). The
37
38 vast majority of our data was drawn from North America-based organizations.
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46 The data (leadership styles and outcomes) were collected in three waves, time-lagged 3
47
48 months apart. We used a time-lagged design to introduce temporal, proximal, and psychological
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50 separation between our measures given that relations between leader behaviors and outcomes
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52 have been found to be particularly sensitive to same-source method bias (e.g., Podsakoff,
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54 MacKenzie, & Podsakoff, 2012). A total of 695 participants were invited to participate in the
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 study. Of the 268 who responded to the first wave of data collection (38%), 248 responded to the
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5 second set of questions, and 205 responded to the third set of questions (30%). Because there
6
7 were some incomplete responses, we had data for 183 leaders at all three times. Demographics
8
9 were collected at time 1, leadership styles were collected at time 2, and burnout and time
10
11 demands were collected at time 3. Our objective was to sample broadly enough to generate
12
13 variance in our measures and to have sufficient power to test our study hypotheses (cf.
14
15 Highhouse & Gillespie, 2009).
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20 In aggregate, 183 leaders provided data for this study. Roughly 60% of the leaders were
21
22 male (0=Female, 1=Male; $M=.61$, $SD=.48$) with an average age of 36.45 years ($SD=7.22$). In
23
24 terms of experience, the leaders reported, on average, that they had served in a supervisory role
25
26 for approximately seven years ($M=6.86$, $SD=4.74$) and had an average of 31 direct reports
27
28 ($M=31.35$, $SD=77.61$).
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31

32 Measures

33
34 **Leadership styles.** We assessed leaders' perceptions of their leadership styles using the
35
36 Multifactor Leadership QuestionnaireTM (MLQ; Form 5X-Short; Avolio & Bass, 1995). The
37
38 MLQ was used with permission of the copyright holder. The MLQ consists of 36 statements that
39
40 sample the behavioral domains of TFL, CR, MBEA, MBEP, and LF/A. Respondents were asked
41
42 to indicate on a 5-point frequency scale (0=not at all, 4=frequently, if not always) how often they
43
44 exhibited each behavior when interacting with direct reports. Scale scores for each of the five
45
46 leadership styles were computed by averaging the appropriate MLQ items: TFL ($M=2.38$;
47
48 $SD=.64$; $\alpha=.94$); CR ($M=2.54$; $SD=.68$; $\alpha=.81$); MBEA ($M=1.78$; $SD=.88$; $\alpha=.74$); MBEP
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50 ($M=1.32$; $SD=1.07$; $\alpha=.87$); and, LF/A ($M=1.13$; $SD=1.13$; $\alpha=.90$).
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 **Perceived burnout.** We assessed the level of burnout (general and work-related)
4
5 experienced by the leaders in our sample using items drawn from the Copenhagen Burnout
6
7 Inventory (CBI: Kristensen, Borritz, Villadsen, & Christensen, 2005). Respondents were
8
9 provided with a series of self-descriptive statements and asked to indicate, on a 5-point scale,
10
11 how often they felt that way (1=never, 5=always). Six items reflected general burnout (e.g.,
12
13 “How often are you emotionally exhausted?”) and seven items reflected work-related burnout
14
15 (e.g., “Are you exhausted in the morning at the thought of another day at work?”). Composite
16
17 scale scores were computed for each form of burnout by averaging the scale responses on the
18
19 respective scales: general burnout ($M=2.53$; $SD=.81$; $\alpha=.93$), and work-related burnout ($M=2.54$;
20
21 $SD=.71$; $\alpha=.85$).

22
23 **Perceived role demands.** For each of the leaders we assessed the extent to which the
24
25 demands of their role and employee interactions exceeded time allocations (i.e., did the leader
26
27 have too much to do in too little time). We adapted an existing job demands measure (see Van
28
29 Yperen & Snijders, 2000) for the leadership context. Respondents were provided with a series of
30
31 11 questions with respect to their leadership role and employee interactions (e.g., “Do you have
32
33 to work extra hours to finish a task?”), and then asked how frequently this occurred. Responses
34
35 were provided on 4-point scales. A composite scale score was computed by averaging all item
36
37 responses ($M=2.19$; $SD=.47$; $\alpha=.86$).

38
39 **Covariates.** Although they were not associated with any hypotheses, we included several
40
41 demographic factors in our analysis: leader age, leader sex, number of direct reports, and number
42
43 of years of experience as a leader. Based on past leadership research using the variable approach
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45 (e.g., Arnold et al., 2015; Barling & Weatherhead, 2016), these variables may have an influence
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47 on adaptation strategies to deal with followers. They were included so that we could conduct
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3 exploratory analyses to identify the effect of demographics on what pattern group the leaders
4 belonged to.
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8 **Data.** The data used in this study was collected as part of a larger research initiative that
9 examined leader burnout (authors, 2015). However, only one covariate and one variable
10 (burnout) overlaps between the datasets used in these papers. No hypotheses overlap.
11
12

13 14 **Analytic Strategy**

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16
17 We used latent profile analysis (LPA) to identify groups of leaders who exhibited a
18 similar pattern of scores on the five leadership styles, and then we compared these groups with
19 respect to exploratory covariates and hypothesized outcomes (Foti et al., 2012). In our study,
20 LPA models were estimated using a robust maximum-likelihood estimator with *MPlus 7.4*
21 (Muthén & Muthén, 1998-2015). Following recommended procedures (e.g., Nylund,
22 Asparouhov, & Muthén, 2007), we began by testing and evaluating the fit of a two-pattern model
23 to the data against decision criteria that involved both empirical and theoretical considerations.
24 We then repeated this process, each time specifying an additional pattern until it became clear
25 that increasing the number of pattern groups no longer could be justified (Foti et al., 2012;
26 Morin, Morizot, Boudrias, & Madore, 2011). A solution for LPA is typically reached when
27 empirical (e.g., several relative fit indices) and theoretical considerations are reconciled and
28 optimized. Once an “optimal” number of patterns had been determined, the next step was to
29 model relations between these discrete classes and various individual-level auxiliary variables
30 (i.e., auxiliary in the sense that these covariates and/or outcomes variables were not used to
31 determine pattern membership but were theoretically interesting; Asparouhov & Muthén, 2014).
32 For each leader, we determined the most likely class membership (i.e., the pattern to which an
33 individual most likely belongs) based on the distribution of classification probabilities from the
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 LPA (Asparouhov & Muthén, 2014). We then assessed the relations between the auxiliary
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5 variables and the pattern solution, taking into consideration the most likely class membership and
6
7 classification error rate (Gabriel, Daniels, Diefendorff, & Greguras, 2015).
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10 To model covariates, we used the R3STEP command in Mplus (Asparouhov & Muthén,
11
12 2014), which conducts a series of multinomial logistic regressions that are used to assess whether
13
14 an increase in an antecedent variable results in a higher probability that a leader belongs to one
15
16 class over another class. To model distal outcomes as auxiliary variables, we utilized the
17
18 DU3STEP command in Mplus (Asparouhov & Muthén, 2014; Lanza, Tan, & Bray, 2013), which
19
20 provides a test of mean equality across the different profile groups, for each outcome variable.
21
22 Following the recommendations of Lanza et al. (2013), we analyzed the covariates (R3STEP)
23
24 and distal outcomes (DU3STEP) separately.
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29 Results

30 Descriptive Statistics

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32 Means, standard deviations, and correlations of the study variables are in Table 1. As
33
34 expected, the personal qualities of the individual leaders were correlated with one or more of the
35
36 individual style measures, and to a lesser extent with the three outcome measures. Moderate to
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38 strong correlations were observed between all five individual style measures and the outcome
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40 measures.
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45 Testing the Measurement Model: Confirmatory Factor Analyses

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47 A series of confirmatory factor analyses were conducted using maximum likelihood
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49 estimation within *Mplus 7.4* (Muthén & Muthén, 1998-2015). Four nested measurement models
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51 were assessed and compared: a one-factor model where all of the indicator variables were
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53 specified to load on a single latent factor ($\chi^2 = 1,255.36$, $df = 189$; $CFI = .54$; $RMSEA = .18$;
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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SRMR = .20); a model where the indicator variables loaded on one of five uncorrelated latent factors ($\chi^2 = 1,001.58$, $df = 189$; *CFI* = .65; *RMSEA* = .15; *SRMR* = .35); a model where the indicator variables loaded on one of five correlated latent factors ($\chi^2 = 352.93$, $df = 179$; *CFI* = .93; *RMSEA* = .07; *SRMR* = .07); and, finally, a model similar to the previous one except that the indicators for MBEP and LF/A were specified to load on one factor, thus the fit of four rather than five oblique factors were assessed ($\chi^2 = 355.97$, $df = 183$; *CFI* = .93; *RMSEA* = .07; *SRMR* = .07). The results suggested the four and the five oblique-factor measurement models provided reasonably good fits to our data. However, because the results of a χ^2 difference test between these two models (χ^2 difference = 3.09, $df = 4$) failed to yield a statistically significant difference, parsimony notwithstanding, we retained the five-factor measurement model to be consistent with full-range leadership theory (Avolio, 1999; Avolio & Bass, 1991) and with prior research (Judge & Piccolo, 2004).

Latent Profile Analysis and Study Hypotheses

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As outlined earlier, a series of LPA models were estimated. At each step a number of relative fit indices were examined (for a review, see Morin et al., 2011; Gabriel et al., 2015), including the log likelihood (*LL*), Akaike information criterion (*AIC*), Bayesian information criterion (*BIC*), sample-size-adjusted BIC (*SSA-BIC*), Lo-Mendell-Rubin likelihood ratio test (*LMR*; Lo, Mendell, & Rubin, 2001), bootstrap likelihood ratio test (*BLRT*; Nylund et al., 2007), and *entropy*. One of the challenges in mixture modeling is determining, from the various fit indices, how many latent patterns best characterize the data (Morin et al., 2011). It has been recommended that researchers look for lower *LL*, *AIC*, *BIC*, and *SSA-BIC* values in comparison to other pattern solutions, and entropy values should be larger in comparison to other solutions. Significant *LMR* and *BLRT* values ($p < .05$) indicate that a model with k patterns provides a

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 better fit than a model with $k-1$ patterns. Researchers should also ensure that all pattern groups
4 are sufficiently populated (i.e., does not contain less than 5% of the sample), and, perhaps most
5 importantly, the final pattern structure should be interpretable from a theoretical perspective
6 (Foti et al., 2012; Morin et al., 2011). Thus, the optimal solution should (a) show the lowest LL ,
7 AIC , BIC , and $SSA-BIC$ values; (b) have significant LMR and $BLRT$ p-values; (c) not contain
8 patterns with a small number of individuals; (d) show clearly defined patterns as indicated by a
9 high probability that individuals actually belong to the group to which they were assigned and a
10 low probability of belonging to other groups; and (e) be consistent with theory and previous
11 research (e.g., Lubke & Muthén, 2005; Foti et al., 2012).

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25 Table 2 provides the fit statistics associated with different latent pattern models. The 4-
26 pattern model represented the best choice given that it exhibited lower LL , AIC , BIC , and $SSA-$
27 BIC values than did the 2-pattern and the 3-pattern models, and the 4-pattern model exhibited a
28 significant LMR value combined with a relatively high entropy value. Although the 5-pattern and
29 6-pattern models had lower LL , AIC , BIC , and $SSA-BIC$ values than did the 4-pattern model, the
30 presence of non-significant LMR values suggested that these two latter solutions did not provide
31 better fits to the data than did the 4-pattern model. We also observed that all four patterns were
32 sufficiently populated with leaders, representing anywhere from 14% to 33% of the total sample
33 (i.e., no group was less than 5% of the total sample), and that the 4-pattern model demonstrated a
34 high probability that leaders were correctly classified (i.e., classification errors were minimal
35 with the average latent class probabilities for most likely pattern membership ranging from .94 to
36 .99). Finally, as we reveal next, the 4-pattern model best represents theoretically meaningful
37 configurations of the leadership styles. Thus, when we consider the decision criteria needed to
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 determine the number of profiles to extract, the 4-pattern structure seems most interpretable
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5 relative to the other models tested.
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8 A graphic representation of the four latent patterns of leadership styles is presented in
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10 Figure 1. Table 3 displays the estimated means and confidence intervals for the five leadership
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12 styles in each of the four groups. Pattern 1 (33.33%) was labeled as *disengaged* because the
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14 leaders in this group exhibited extremely low levels on all five styles. The leaders characterized
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16 by Pattern 2 (27.32%) were labeled as *passive* given their strong inclination toward MBEA,
17
18 MBEP and LP/A in particular, and their tendency to not use the more constructive styles of TFL
19
20 and CR. We labelled Pattern 3 (25.14%) as *optimal* because the leaders in this group reported an
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22 overall style that combines both TFL and CR behaviors (cf. Bass & Riggio, 2006). Finally,
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24 Pattern 4 (14.21%) was labelled *comprehensive* because leaders in this group appeared
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26 comfortable using all of the different styles, presumably matching their behavioral approach to
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28 the needs of situation.
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34 Taken together, the results confirmed the existence of patterns composed of different
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36 styles at the same level (all low: *disengaged*; all high: *comprehensive*) and patterns composed of
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38 different styles at different levels (elevated passive styles relative to TFL and CR: *passive*;
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40 elevated TFL and CR relative to the passive styles: *optimal*). Hypotheses 1 and 2 are therefore
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42 supported.
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46 In terms of our covariate analyses (Table 4), several demographics were found to have
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48 implications for pattern-group membership. With the exception of sex, the other personal
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50 characteristics assessed in this study contributed to the prediction of at least one leadership
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52 pattern. Inspection of the multinomial logistic regression coefficients (using Pattern 1 –
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54 *disengaged* – as the reference category) reveals that older leaders were more likely than younger
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 leaders to belong to the *optimal* and *comprehensive* pattern groups. To aid interpretation, each
4 multinomial logistic regression coefficient was expressed as an odds ratio (*OR*). An *OR* greater
5 than 1 means that for every unit change in the predictor variable the likelihood of being classified
6 in the target pattern increases relative to the comparison group. Thus, if we look at the *ORs*
7 associated with age, our findings suggest that older leaders are 1.34 and 1.19 times more likely,
8 respectively, to belong to the *optimal* and *comprehensive* patterns than the *disengaged* pattern.
9
10 Leaders who reported a larger number of direct reports rather than a smaller number were
11 slightly more likely to belong to the *passive* pattern in comparison to those classified as
12 *disengaged*. In relation to disengaged leaders, those with more years of experience were most
13 likely to exhibit an *optimal* behavioral pattern ($OR = 1.61$), and to a lesser extent the
14 *comprehensive* ($OR = 1.39$) and *passive* ($OR = 1.35$) behavioral patterns.
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29 In Table 5, we summarize the findings of our outcomes analyses. To determine if the four
30 leadership patterns differed with respect to feelings of burnout and role demands, we referred to
31 the Wald chi-square (χ^2) tests of mean equality. For all three outcomes, the means differed
32 significantly across the four leadership patterns: general burnout ($\chi^2(3) = 191.62, p < .01$), work-
33 related burnout ($\chi^2(3) = 189.70, p < .01$), and perceived role demands ($\chi^2(3) = 102.55, p < .01$).
34 The patterns of outcome (mean) differences suggest that the *comprehensive* style pattern comes
35 at a high personal cost, whereas *disengaged* leaders experience the lowest levels of stress. Hence,
36 hypothesis 3 is supported. The “all low” pattern is associated with the lowest level of burnout
37 and role demands, and the “all high” pattern is associated with the highest level of burnout and
38 role demands. Falling between these two extremes are the *passive* and *optimal* patterns.
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40 Interestingly, *passive* leaders fare worse than leaders who embody an ‘active’ *optimal* style
41 pattern that involves both transformational and transactional behaviors. Hence, hypothesis 4 is
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supported. When TFL is combined with high levels of transactional leadership (i.e. optimal) it is associated with lower levels of burnout and role demands than patterns characterised by low levels of TFL (i.e. passive). Taken together, these results illustrate that different patterns of leadership styles have implications for burnout (e.g., emotional exhaustion) and role demands.

Discussion

This study provides evidence supporting the utility of the pattern-oriented approach as way to study leaders. In our study, four theoretically interpretable leadership patterns emerged, and each has implications for leader burnout and role demands. Leaders who belonged to the *comprehensive* pattern group reported the highest rates of burnout (work and general), and the highest level of role (time) demands, but those with lowest levels of all leadership behaviors (*disengaged*) reported the lowest levels of each. Interestingly, the *passive* pattern was the second-highest in terms of reporting high burnout and time demands (after the *comprehensive* profile), with the *optimal* pattern being the second lowest on burnout and role demands.

Our results suggest that being an ‘optimal’ leader is beneficial for the leader’s health. Interestingly, patterns where passive forms of leadership (e.g., MBE-P; LF/A) are elevated appear to pose the greatest risk; leader burnout increases when TFL co-occurs with contingent and passive forms of leadership behavior (i.e., the *comprehensive* profile). Our results suggest that enacting high levels of conflicting styles is associated with a drain in a leader’s resources. This result suggests that studies that use a variable-based approach that only measures TFL may be missing this nuance.

The negative implications of passive leadership for leader well-being that we have found in our research augment the negative outcomes that have been demonstrated in previous pattern-based research (e.g., Doucet et al., 2015). We note, further, that the *passive* and *disengaged*

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 patterns that we have identified are psychologically and behaviorally distinct. It appears that
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5 passive leaders act in ways that create negative outcomes that deplete personal resources,
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8 whereas disengaged leaders may simply not internalize negative outcomes as a reflection on their
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10 own actions. More research should explore the antecedents of these patterns.
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Contributions to the Leadership and Stress Literatures

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15 The results of the present study have several implications for the study of leadership and
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17 stress. Much of the existing variable-centered leadership research has either identified positive
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19 outcomes of TFL (Judge & Piccolo, 2004), or uses a comparative approach to show that TFL is
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21 more effective than other approaches (e.g., MacKenzie, Podsakoff, & Rich, 2001). In contrast,
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23 we investigate the effects of combinations of leadership styles. The insights that our findings
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25 provide into the role of CR, MBE-A, MBE-P and LF/A leadership when they coexist with TFL
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27 are particularly important. Prior variable-centered research has compared these leadership styles,
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29 with TFL being considered the most positive, and LF/A being considered to be the least helpful
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31 (e.g., Lowe, Kroeck, & Sivasubramaniam, 1996). In fact, our findings suggest that TFL
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33 behaviors *only* co-occur with other full range leadership behaviors. There were no patterns that
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35 represented high levels of only one of the full range model dimensions. Therefore, research that
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37 investigates TFL without also considering other leadership styles may inaccurately portray how
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39 leaders actually enact leadership behaviors.
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46 We make a methodological contribution to the leadership literature by investigating
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48 leader style patterns, and we extend the work of O'Shea et al. (2009) by demonstrating an
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50 alternative methodological approach to pattern analysis that reflects the realities of the sample
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52 and the challenges associated with median splits. We also extend the work of Doucet et al.
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54 (2015), who relied on cluster analysis to identify pattern groups and related these to follower
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 outcomes (i.e., organizational commitment, trust, interactional justice and performance). In time,
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5 and across multiple studies, a consensus should reveal which patterns are most common, and the
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7 outcomes associated with these leadership patterns.
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10 The outcomes of the patterns we found build on COR theory in two ways. First, we build
11 on previous studies by further demonstrating the value of using COR theory as a lens to
12 investigate leadership roles (e.g. Byrne et al., 2014). COR theory has been applied in many
13 contexts, and this emerging area of research brings forward promising insights regarding the
14 potentially resource draining effects of leader behaviour. Second, we show that certain
15 combinations of leadership behavior drain more resources than others. Indeed, our research is
16 part of a growing number of studies that examine leadership styles and well-being for the leader
17 (e.g., Arnold et al., 2015; Byrne et al, 2014). Our findings suggest that leaders who exhibit high
18 levels of all behaviors within the full range model report greater resource drain than those who
19 exhibit high levels of only transformational and transactional behaviors. It is possible that leaders
20 adopt the more stressful (e.g., comprehensive) leadership patterns in response to more complex
21 situations, such as when span of controls grow, when the leader directs the activities within
22 different work units (e.g., complex project teams), or when leading geographically dispersed
23 units. It is also possible that these leaders are uncertain about exactly what behavior they should
24 exhibit, and hence are trying several approaches. These ideas are speculative, but future research
25 should examine the predictors of adopting a comprehensive pattern.
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48 Other insights arise from our findings, and we open up new avenues for leadership
49 research. LF/A leadership has received little research attention, compared to the other leadership
50 styles, perhaps because it has been associated with so few positive outcomes (e.g., Skogstad,
51 Einarsen, Torsheim, Aasland, & Hetland, 2007) and because of an implicit assumption that these
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 behaviors simply represent the absence of leadership. However, the significant differences found
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5 between the *passive* and *disengaged* profiles underscore the fact that LF/A leadership is not
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7 simply the absence of transformational and/or transactional leadership; it appears to encompass a
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9 separate set of behaviors. Importantly, LF/A leadership, like TFL, should be considered in the
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11 context of other leadership behaviors performed by the leader. In addition, there are potential
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13 boundary conditions that could be assessed regarding the association of the passive style patterns
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15 with leader well-being. For example, if followers are all particularly competent or engaged, the
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17 passive profile may be associated with less stress (i.e. resource drain) than we found; hence
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19 follower abilities may be a moderator.
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25 Indeed, the pattern approach to investigating leadership style opens up new avenues for
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27 conceptualizing leader behavior. For instance, we might consider other leadership theories such
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29 as authentic leadership (e.g., May, Chan, Hodges, & Avolio, 2003), which hold promise for
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31 adding to our understanding of leader behaviors, but continue the practice of compartmentalizing
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33 leadership styles. That is, the implicit assumption is that a leader is either an authentic leader, a
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35 servant leader, a transformational leader, or is perhaps not a leader at all. However, this implicit
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37 assumption may be inaccurate. For example, the *disengaged* profile that we found does not
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39 necessarily indicate that this leader is not doing other types of leadership behavior; perhaps they
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41 are using leadership substitutes, job design, or engaging in team-based leadership. Perhaps they
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43 score highly as servant leaders, or authentic leaders. With a pattern approach, researchers can
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45 begin to combine these possibilities. This study illustrates the usefulness of a complementary
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47 approach and could be extended from the full-range model to include other leadership styles.
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Limitations

Despite the contributions of this research, some limitations should be acknowledged. For example, we focused exclusively on the leader's perceptions of his or her own leadership style. Although leadership scores can be inflated through self-report (Ayman, Korabik, & Morris, 2009; Podsakoff et al., 2012), we wanted to capture overall leadership experience from the 'eyes of the leader', because we were interested in how these leaders saw themselves, and whether these perceptions were associated with negative personal consequences. Nonetheless, much of the research literature on leadership uses follower reports of leader behavior (Judge & Piccolo, 2004), and future research should examine if other-report and self-report data both lead to similar leadership patterns.

While it is appropriate to use self-reported measures when assessing felt burnout and role demands (Zopiatis & Constanti, 2010), we took the additional precaution of providing a time lag between the style and outcome measures (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). However, it may be advantageous to study leaders over a longer period of time. It is possible that some patterns are initially associated with an increase in burnout, but that this association decreases as leaders develop additional coping skills, or modify their job demands. Longitudinal research might also assist in determining causality, something that our study was not able to assess.

Because our research was focused on the consequences of leadership patterns for leaders, we did not offer many insights into why a particular leader may be more or less likely to engage in certain leadership patterns. The antecedents of profiles could be a fruitful avenue for future research (Foti et al., 2012). In our study, we observed that the leader's age, the number of direct reports, and their experience in a supervisor role increased the likelihood of belonging to

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3 different pattern groups. However, it is likely that other factors, such as motivation to lead (e.g.,
4 Chan & Drasgow, 2001), leadership self-efficacy (e.g., Anderson, Krajewski, Goffin, & Jackson,
5 2008), and leadership training (e.g., Barling, Weber & Kelloway, 1996) also play important roles
6 in predicting leadership patterns, and these factors should be carefully considered.
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13 Although many studies have determined how leadership affects followers, in this study
14 we examine the consequences of style preferences for the *leader*. As such, future research can
15 extend this work considerably by considering additional leader outcomes, such as creativity,
16 safety, motivation, performance, and potentially many others. It is further likely that leadership
17 patterns affect *followers'* outcomes (e.g., creativity, safety, motivation, performance), and future
18 research can examine this possibility.
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26 27 **Practical Implications**

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29 The existence of stable leadership patterns has important implications for leadership
30 training. Traditionally, leadership training has involved assessing the extent to which leaders
31 engage in TFL (i.e., inspirational motivation, intellectual stimulation, idealized influence,
32 individualized consideration). Leaders who are found to engage in low levels of any of the
33 components of TFL are then encouraged to increase these behaviors (e.g., Barling et al., 1996),
34 without efforts being made to change other behaviors that may be occurring simultaneously (e.g.,
35 LF/A, MBE-A, MBE-P). The underlying assumption is that non-TFL behaviors are irrelevant, or
36 that in increasing the TFL behaviors, the frequency of the negative behaviors will naturally
37 decrease. However, our findings imply that leadership training should assess and address all
38 aspects of a leader's behaviors. If a leader is engaging in high levels of passive leadership
39 behaviors, then simply adding additional transformational behaviors to the leader's repertoire
40 may not be effective and could increase the likelihood of burnout. Future work should consider
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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3 whether increasing TFL behaviors (as training programs focus on) does in fact show a natural
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5 decrease in other aspects of the full range model.
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8 Our findings also have important implications for workplace wellness programs that are
9
10 designed to improve leaders' well-being. Many of these existing initiatives focus on non-work
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12 aspects of being a leader, such as mindfulness (e.g., Roche, Haar, & Luthans, 2014) and work-
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14 life balance (ten Brummelhuis et al., 2014), but our research suggests that training interventions
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16 should also consider the impact of leadership styles on leaders' well-being.
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Conclusion

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22 The present study demonstrates that the pattern-oriented approach has considerable
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24 potential as a strategy for studying leaders and leadership processes. Our findings suggest that
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26 TFL behaviors *only* co-occur with other full range leadership behaviors. The pattern-based
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28 approach provides insight into how CR, MBE, and LF/A leadership predict leader well-being
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30 *when they coexist* with TFL. Future work with this new approach holds promise for uncovering
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32 important within-leader variation in leadership behavior and new insights regarding additional
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34 outcomes.
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

Table 1

Descriptive Statistics and Correlations

Measures	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Leader's Age	36.45	7.22												
2. Leader's Sex (0 = female; 1=male)	0.61	0.48	-0.09											
3. Number of Direct Reports	31.35	77.61	-0.05	0.04										
4. Years in a Leadership Role	6.86	4.74	0.71	-0.08	0.15									
5. Transformational Leadership (TFL)	2.38	0.64	0.33	-0.04	0.11	0.39	0.94							
6. Contingent Reward (CR)	2.54	0.68	0.23	-0.05	0.08	0.31	0.83	0.81						
7. Management by Exception Active (MBEA)	1.78	0.88	0.05	0.07	0.15	0.16	0.59	0.39	0.74					
8. Management by Exception Passive (MBEP)	1.32	1.07	-0.05	0.06	0.13	-0.04	0.39	0.17	0.75	0.87				
9. Laissez-Faire/Avoidant (LF/A)	1.13	1.13	-0.10	0.14	0.16	-0.02	0.35	0.13	0.70	0.90	0.90			
10. General Burnout	2.53	0.81	0.12	0.03	0.02	0.20	0.35	0.19	0.62	0.66	0.62	0.93		
11. Work-Related Burnout	2.54	0.71	0.09	0.02	0.08	0.16	0.33	0.19	0.61	0.63	0.60	0.86	0.85	
12. Role Demands	2.19	0.47	-0.05	0.01	0.16	0.11	0.35	0.20	0.52	0.51	0.55	0.54	0.57	0.86

Note: N=183. $r > .12, p < .05$, 1-tail test. The mean value for "Leader's Sex" refers to the proportion of the sample that was male. Where appropriate, scale reliabilities (coefficient alpha) are presented in the diagonal.

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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Table 2

Model Fit Statistics For Pattern Structures

Models	LL	FP	AIC	BIC	SSA-BIC	LMR (p)	BLRT (p)	Entropy
2-Patterns	-924.76	16	1881.52	1932.87	1882.19	0.00	0.00	0.98
3-Patterns	-855.92	22	1755.85	1826.45	1756.78	0.00	0.00	0.94
4-Patterns	-760.22	28	1576.44	1666.31	1577.62	0.00	0.00	0.96
5-Patterns	-731.83	34	1531.67	1640.79	1533.10	0.25	0.00	0.95
6-Patterns	-711.22	40	1502.44	1630.82	1504.13	0.57	0.00	0.92

Note. LL = log-likelihood; FP = free parameters; AIC = Akaike information criteria; BIC = Bayesian information criteria; SSA-BIC = Sample-size-adjusted BIC;

LMR = Lo, Mendell, and Rubin (2001) test; BLRT = bootstrapped log-likelihood ratio tests

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

Table 3

Four Latent Patterns of Leadership Styles: Descriptive Information

Patterns	% of Sample	TFL		CF		MBEA		MBEP		LF/A	
		M	95% CI	M	95% CI	M	95% CI	M	95% CI	M	95% CI
Pattern 1: Disengaged	33.33	1.78	[1.67, 1.90]	2.13	[1.99, 2.26]	0.93	[0.82, 1.05]	0.36	[0.28, 0.44]	0.13	[0.06, 0.20]
Pattern 2: Passive	27.32	2.24	[2.17, 2.31]	2.20	[2.06, 2.33]	2.14	[2.02, 2.27]	2.14	[2.02, 2.25]	2.11	[1.99, 2.24]
Pattern 3: Optimal	25.14	2.98	[2.82, 3.14]	3.15	[2.96, 3.33]	1.85	[1.59, 2.12]	0.80	[0.59, 1.01]	0.44	[0.32, 0.57]
Pattern 4: Comprehensive	14.21	3.11	[2.97, 3.25]	3.21	[3.02, 3.40]	3.00	[2.80, 3.20]	2.95	[2.74, 3.17]	2.83	[2.61, 3.04]

Note. TFL= Transformational Leadership, CF = Contingent Reward, MBEA = Management By Exception Active, MBEP = Management By Exception Passive, LF/A = Laissez-Faire/Avoidant, C I= Confidence Interval

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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Table 4

Predicting Pattern Membership From Personal Characteristics (R3STEP)

Control Variables	Pattern 2 (Passive)			Pattern 3 (Optimal)			Pattern 4 (Comprehensive)		
	Coefficient	SE	OR	Coefficient	SE	OR	Coefficient	SE	OR
Leader's Age	0.11	0.08	1.11	0.29	0.09	1.34	0.18	0.08	1.19
Leader's Sex (0=Female; 1=Male)	0.76	0.45	2.14	-0.13	0.66	0.88	0.11	0.55	1.11
Number of Direct Reports	0.02	0.01	1.02	0.02	0.01	1.02	0.02	0.01	1.02
Supervisory Experience (Years)	0.30	0.13	1.35	0.48	0.15	1.61	0.33	0.14	1.39

Note. Pattern 1 (Disengaged) is the reference category. Coefficient = multinomial logistic regression coefficient; SE = standard error of the coefficient;

OR = odds ratio. Bolded coefficients are statistically significant, $p < .05$.

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

Table 5

Three-Step Results for Distal Outcomes (DU3STEP): Evaluating the Effects of Latent Pattern Membership on Perceived Burnout and Role Demands

Outcomes	Pattern 1 (Disengaged)	Pattern 2 (Passive)	Pattern 3 (Optimal)	Pattern 4 (Comprehensive)	Overall Chi-Square	Summary of Tests of Pattern Means
General Burnout	1.89	2.92	2.45	3.42	$\chi^2(3) = 191.62, p < .01$	4 > 2 > 3 > 1
Work-Related Burnout	1.98	2.89	2.52	3.28	$\chi^2(3) = 189.70, p < .01$	4 > 2 > 3 > 1
Role Demands	1.90	2.41	2.09	2.60	$\chi^2(3) = 102.55, p < .01$	4 > (3, 1); 2 > (3, 1); 3 > 1

Note. All analyses were run utilizing the DU3STEP procedure within Mplus. The mean values for general burnout, work-related burnout, and perceived role (time) demands for each pattern group are displayed. A test of mean equality across the pattern groups was performed using the 3-step procedure with 3 degrees of freedom for the overall chi-square (χ^2).

USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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7 *Figure 1.* Characteristics of four latent profiles on transformational, contingent reward, management by exception active,
8 management by exception passive, and laissez faire/avoidant leadership styles. To aid interpretation, standardized leadership-style
9 scores have been reported.
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USING A PATTERN-ORIENTED APPROACH TO STUDY LEADERS

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