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Why do powerful leaders feel less lonely?

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ABSTRACT: *Loneliness is an important well-being concern. However, the understanding of why some leaders experience loneliness is very limited. Drawing on social penetration theory (Altman & Taylor, 1973) and the power literature, we hypothesised that leader self-disclosure to superiors and followers would mediate the negative relationship between feelings of power and leader loneliness. Across three waves of surveys with 196 managers, we found support for the mediating role of self-disclosure to superiors, but not to followers. We further showed the positive associations of leader loneliness with emotional exhaustion, ego depletion, and sleep problems. This study implies that top leaders may experience loneliness because self-disclosure to superiors is less available. It also adds leader loneliness to the under-developed literature of leader well-being.*

Keywords: emotions, interpersonal behaviour, organisational structure, stress and stress management

Loneliness, defined as the subjective feeling of social disconnectedness (Cacioppo, Cacioppo, & Boomsma, 2014), is an important well-being issue at work. The growing literature theorised that workplace loneliness has two components, namely emotional deprivation and a lack of social companionship (S. L. Wright, Burt, & Strongman, 2006). Previous work has shown that employees feeling lonely at work perform worse, are less committed to the organisation, and have higher risks of burnout and depression (Lindorff, 2001; Ozcelik & Barsade, in press). This phenomenon among leaders has attracted attention in both academic and business communities (Larcker, 2013; Rokach, 2014). A recent study showed that leader loneliness was quite prevalent, as half of the CEO respondents reported feeling lonely at work (Saporito, 2012).

Despite the growing attention in practice (e.g., Johnson, 2014; Viva, 2011), the unique processes underlying the emergence of leader loneliness are still poorly understood. Previous studies have focussed on structural factors in organisations, such as hierarchy and managerial status. Their results showed that leaders who attained higher positions should experience lower levels of loneliness (Bell, Roloff, Van Camp, & Karol, 1990; Reinking & Bell, 1991; S. L. Wright, 2012). Empirical evidence from experimental and survey studies also found that individuals experiencing power would feel less lonely (Waytz, Chou, Magee, & Galinsky, 2015). It is possible that occupying higher

positions provides more resources to cope with social disconnectedness. However, these studies are less relevant to explain why, given the same positions, some leaders feel lonely while others do not.

A mechanism that is readily available to more powerful individuals and that can counteract feelings of loneliness is self-disclosure. Self-disclosure is the sharing of sensitive information to another person (Schug, Yuki, & Maddux, 2010). It is instrumental to relationship quality, trust, closeness, and satisfaction of the belonging needs (Dumas, Phillips, & Rothbard, 2013; C. N. Wright, Holloway, & Roloff, 2007). Leaders who more often share, for example, their weaknesses, may build more transparent relationships (Diddams & Chang, 2012). Meanwhile, experiencing power is disinhibiting (Guinote, 2017; Lammers, Galinsky, Dubois, & Rucker, 2015). Powerful leaders may disregard situational constraints and hence, are motivated to open up themselves to their colleagues.

In this study, we focussed on mid-level managers in the organisational hierarchy, because they could disclose themselves to either their own superiors or to their followers. We also tried to establish the relationship between leader loneliness and well-being concerns that affect the daily functioning of leaders. Our mediating model was tested with three waves of surveys in a group of middle-managers. Overall, this study presents a new theoretical lens to approach leader loneliness to the under-developed literature of leader well-being (Barling & Cloutier, 2017).

Loneliness and Leadership

Loneliness is the unpleasant, subjective feeling of social disconnectedness (Cacioppo et al., 2014). It is different from actual social isolation (sometimes discussed as social exclusion or ostracism), which means one can still feel lonely without being social excluded, and *vice versa* (de Jong Gierveld, van Tilburg, & Dykstra, 2018). In work settings, loneliness is conceptualised to have two components, namely (a) emotional deprivation, i.e., a sense of emptiness, and (b) a lack of social companionship, i.e., perception of few social ties (S. L. Wright et al., 2006). Workplace loneliness is related to negative work outcomes, such as poor job performance, low organisational commitment, poor exchange relationships with colleagues, and interpersonally deviant behaviour (Lam & Lau, 2012; Ozcelik & Barsade, in press; Thau, Aquino, & Poortvliet, 2007).

In the leadership context, loneliness has received increasing attention in both science and practice. The topic has been described and featured in practitioner-oriented journals such as *Harvard*

Business Review (Gumpert & Boyd, 1984; Saporito, 2012), *Insights by Stanford Business* (Larcker, 2013) and *Ivey Business Journals* (Adamson & Axmith, 2003). Loneliness seems a likely reality among leaders, but the academic understanding of the phenomenon is still limited. There are three major issues in the literature. First, there is a lack of an empirically tested theory. To date, only one psychodynamics theory is available to explain the emergence of leader loneliness (Kets de Vries, 1989). The theory was difficult to test or to guide empirical research. There are a few qualitative studies based in the education settings, offering insights to the triggers of loneliness among school principals, such as time demands and the "gate-keeping" accountability in the role (Howard & Mallory, 2008; Kelchtermans, Piot, & Ballet, 2011). Nevertheless, these studies do not serve the primary goal to build a generalisable theory. Second, little is known about the mechanisms underlying leader loneliness. Instead, existing empirical studies focussed on comparing loneliness across hierarchy and managerial status (Bell et al., 1990; Reinking & Bell, 1991; S. L. Wright, 2012). These studies implied that leaders should not feel lonelier than followers, but could not explain why some leaders experience loneliness while others do not.

Moreover, relevant findings from the general loneliness literature have not been integrated to examine leader loneliness. For example, leader loneliness is still often conceptualised and operationalised as a one-dimensional feeling of social disconnectedness (Waytz et al., 2015; S. L. Wright, 2012), but loneliness is a more nuanced experience. The process involved in leader-follower relationship development has not received any attention either. In particular, self-disclosure is an important behaviour to develop and maintain relationships at work (Boyd & Taylor, 1998). In view of the above research gaps, this study contributes to the existing insufficient literature by exploring leader self-disclosure as the mechanism of how power, as experienced by some leaders (Vince & Mazen, 2014), would affect the two dimensions of leader loneliness (S. L. Wright et al., 2006).

Leader Self-disclosure

Self-disclosure is more than just sharing. It is the sharing of personal, sensitive information to others (Schug et al., 2010). It is an important relationship-building strategy recognised in both the literature of loneliness and leadership. According to social penetration theory (Altman & Taylor, 1973), relationships are developed and maintained through the exchange of intimacy and mutual

disclosure. The personal information shared may vary in breadth (topic areas) and depth (Utz, 2015).

In general, positive outcomes of self-disclosure include lower levels of loneliness, improved

relationship quality, and higher levels of relationship satisfaction and commitment (große Deters &

Mehl, 2012; Phillips, Rothbard, & Dumas, 2009; Utz, 2015; Wei, Russell, & Zakalik, 2005; C. N.

Wright et al., 2007). Similarly, the merits of self-disclosure are also recognised by some leadership

scholars. Leaders who reveal personal information, especially about their limitations that are in line

with the flawed human nature, are more likely to feel and be seen as authentic (Diddams & Chang,

2012; Hamman, 2013). In addition, self-disclosure helps leaders engage, inspire, and relate to their

followers (Boyd & Taylor, 1998; Dumas & Sanchez-Burks, 2015). A study among small business

owners found that loneliness stemmed from the inability to admit difficulties or show any sign of

weakness at work (Gumpert & Boyd, 1984).

If self-disclosure is so beneficial, why do some leaders hesitate about it? There are two

possible reasons. First, some leaders feel uncertain about their positions (Rast, Hogg, & Giessner,

2013). The position demands leaders to demonstrate emotional competence and regulate their

emotional display in face of their colleagues (Cangemi, Burga, Lazarus, Miller, & Fitzgerald, 2008;

Gardner, Fischer, & Hunt, 2009). Uncertain about meeting these demands, some leaders may develop

superficial work relationships and are prone to loneliness. Second, leaders usually value information

as an important job resource. Some leaders who engage in self-disclosure may feel they are losing

power and status, especially when initially they are distant from their colleagues (Earle, Giuliano, &

Archer, 1983; Phillips et al., 2009).

We posit that sense of power, as implied in leadership (Giessner & Schubert, 2007), affects

the self-disclosing tendency among leaders. Sense of power is defined as "perception of one's capacity

to influence others" (Anderson, John, & Keltner, 2012). We focus on subjective power, instead of

objective power (perceived control over valued resources; Lammers, Galinsky, Dubois, & Rucker,

2015), because it is more predictive of actual behaviour and subjective psychological experience,

especially in interpersonal contexts (Hoogervorst, De Cremer, van Dijke, & Mayer, 2012). In the

power literature, there is consistent support that experiencing power disinhibits individuals to pursue

immediate goals (Lammers et al., 2015). Applying to leader-follower interactions, feeling powerful

helps self-expressions while being less attentive to the social constraints (Guinote, 2017). Therefore, leaders who feel more powerful are more likely to engage in self-disclosure.

In order to understand the importance of the disclosure target, we explored both the superiors and followers as the audience of leader self-disclosure. As disinhibited by sense of power, leaders may be more proactive to share with their superiors to seek instrumental and emotional support, especially when they see themselves similar to their superiors (Dumas et al., 2013). Meanwhile, powerful leaders may be less concerned about norms and expectations from followers and open up more easily when they feel the need for relational support (Lammers et al., 2015).

Hypothesis 1a: Self-disclosure to superiors partially mediates the relationship between power and leader loneliness. Specifically, power is positively related to self-disclosure to superiors, which then is negatively related to leader loneliness.

Hypothesis 1b: Self-disclosure to followers partially mediates the relationship between power and leader loneliness. Specifically, power is positively related to self-disclosure to followers, which then is negatively related to leader loneliness.

Based on the literature on power, we do not expect a full mediation of self-disclosure. Previous studies have shown a positive link between subjective power and various well-being outcomes. Elevated power is related to positive affect such as happiness and enthusiasm, while reduced power is related to negative affect, such as depressive mood, anxiety and fear (Lawler & Proell, 2009). It should be noted that this group of negative affect is common affective features of loneliness (Heinrich & Gullone, 2006). Experiencing power is also associated with higher levels of subjective well-being and job satisfaction, since power increases the sense of authenticity and agency (Kifer, Heller, Perunovic, & Galinsky, 2013; Wang, 2015). Finally, a recent article found a general negative association between trait power and loneliness power-unrelated relationships (Waytz et al., 2015). Using a series of surveys and experiments, the study showed that experiencing power can satisfy the need to belong, which is then related to lower levels of loneliness.

Hypothesis 1c: Subjective power is negatively related to leader loneliness.

Leader Loneliness and Leader Well-being

Due to its unpleasant nature, loneliness has been argued to be a well-being burden to leaders in academic essays (Cooper & Quick, 2003; Quick, Gavin, Cooper, Quick, & Gilbert, 2000). There is some anecdotal evidence that leaders who suffer from loneliness are more stressed and even commit suicide (Davies, 2016; Lindorff, 2001). Nevertheless, no empirical study has attempted to establish the link between leader loneliness and specific aspects of leader well-being. Responding to the recent call for research on leader well-being issues (Barling & Cloutier, 2017), we examined three well-being dimensions that affect daily functioning of leaders. First, emotional exhaustion, as a commonly used dimension of burnout, was chosen because loneliness is often seen as an interpersonal stressor (Lindorff, 2001; Maslach, Schaufeli, & Leiter, 2001). Second, ego depletion, the capacity to override and alter behaviour (Christian & Ellis, 2011), was selected for its connection with self-control, abusive supervision and decision making (Yam, Fehr, Keng-Highberger, Klotz, & Reynolds, 2016). Finally, we included the number of sleep problems as an indicator of the physical well-being, which predicts lower productivity (Kühnel, Bledow, & Feuerhahn, 2016). Based on the undermining, draining effects of loneliness, we proposed the following hypothesis:

Hypothesis 2: Leader loneliness is related to lower levels of leader well-being, as indicated by higher levels of ego depletion, emotional exhaustion, and more sleep problems.

Based on the above discussion together, we also test the following sequential mediation hypothesis as a corollary:

Hypothesis 3: Self-disclosure to superiors (H3a), self-disclosure to followers (H3b) and leader loneliness sequentially mediate the relationships between subjective power and leader well-being (i.e., subjective power → self-disclosure → leader loneliness → leader well-being).

Figure 1 is the conceptual framework that guided the study.

Insert Figure 1 about here

METHOD

Participants & Procedures

This study adopted a cross-lagged design with three waves of surveys. The time lag between surveys was two days, as a short time lag is sufficient to unfold the psychological processes over time in panel studies (Dormann & Griffin, 2015). Participants were recruited via Prolific Academic, an

online survey panel based in the United Kingdom. They received £4.75 for completing all surveys as a token of thanks. Participation was anonymous.

To explore the targets of leader self-disclosure, we recruited only middle managers for the current study. Middle managers could be vulnerable and lonely because they often have to tell different stories about their organisations to superiors, followers and themselves (Sims, 2003). Out of the initial pool of 332 middle managers, 231 of them completed all three surveys. Another 30 participants were excluded because they had part-time employments. Four participants were removed from analysis since they completed at least one survey too quickly; another one was removed since some responses were missing. The final sample size was 196, with an average age of 36.64 (SD = 8.74) and 53% of them were female. The average perceived hierarchy of the managers on a ten-point scale was 6.22 (SD = 1.40) and on average, each manager had 11.08 followers (SD = 13.78).

Measures

Power (measured at Time 1). The personal sense of power at work was measured by an eight-item, seven-point scale (Anderson et al., 2012). Participants were asked to rate the extent to which the statements described their interaction with people at work. Examples of these statements are "I can get others at work to listen to what I say" and "If I want to, I get to make the decisions". The scale reliability in this sample was .85.

Self-disclosure (measured at Time 2). The self-disclosure behaviour to superiors and followers was measured by a 13-item self-developed scale. Nine of these items were extracted from previous studies on self-disclosure (e.g., "your most embarrassing experience in your current position") (Dumas et al., 2013; Hackenbracht & Gasper, 2013; Miller, Berg, & Archer, 1983) and four of them were self-generated (e.g., "work-related information that should be kept to yourself for now"). The same set of items was used to assess the tendency to disclose to both superiors and followers. These statements were rated on a seven-point scale (1 = very unlikely; 7 = very likely).

This measure was first piloted with 13 separate employees and 12 academic researchers to confirm the content validity. The reliabilities of these two scales were .92 for self-disclosure to superiors and .89 for self-disclosure to followers.

Leader Loneliness (measured at Time 3). The experience of loneliness was measured by a 16-item, seven-point scale (S. L. Wright et al., 2006). The scale measured two dimensions, emotional deprivation (e.g., "I feel abandoned by people at work when I am under pressure at work"; α = .96) and lack of social companionship (e.g., "I feel part of a group of friendships at work"; α = .92) respectively.

Emotional exhaustion (measured at Time 3). This well-being indicator was assessed by the nine-item sub-subscale of the Maslach Burnout Inventory (Maslach & Jackson, 1981). Participants rated statements such as "I feel used up at the end of the workday" on a five-point scale (α = .92).

Ego depletion (measured at Time 3). Excluding exhaustion-related items, we used eight items of the state self-control capacity scale (Christian & Ellis, 2011) to evaluate the depletion of self-regulatory resources. An example of these items, as rated on a five-point scale, is "I am having a hard time controlling my urges". The scale showed satisfactory reliability (α = .81).

Sleep problems (measured at Time 3). We used a four-item measure to assess sleep problems that corresponded to insomniac symptoms on a six-point scale (Törnroos et al., 2017). A sample item is "difficulty staying asleep". The reliability was α = .84.

Control variable. At Time 2, we assessed the middle managers' need to belong by a ten-item scale on a five-point scale (1 = not at all, 5 = extremely) (Leary, Kelly, Cottrell, & Schreindorfer, 2013). These items include "If other people don't seem to accept me, I don't let it bother me" and "I want other people to accept me" (α = .79).

Demographics. Finally, we asked the participants to provide information about their age, gender, hierarchy and span of control. Hierarchy was assessed by a subjective single-item evaluation on a ten-point scale (Bell et al., 1990).

Strategy of Analysis

We tested our hypotheses with multiple regression analysis, using the SPSS PROCESS Macros and bootstrapping results using 5,000 resamples (Hayes, 2013). For our main hypotheses about explaining leader loneliness (Hypotheses 1a to 1c), we conducted two separate sets of regression analyses, each with one of the two components of leader loneliness as the dependent variable.

Following recent methodological recommendations, we first tested the model without any control variables in the models (Becker et al., 2016; Bernerth, Cole, Taylor, & Walker, 2018). Next, we controlled for need to belong since this individual difference may be an alternative explanation to leader loneliness (Leary et al., 2013). Demographic variables were not controlled since they did not show any significant or strong associations with leader loneliness (Becker et al., 2016) (see Table 1).

<div style="text-align:center">Insert Table 1 about here</div>

RESULTS

Descriptive statistics and correlations of the focal variables in the study are presented in Table 1. We found consistent support for Hypothesis 2: leader loneliness was related to lower levels of well-being. Specifically, the two components of loneliness, emotional deprivation and a lack of social companionship, were all significantly related to higher levels of emotional exhaustion (rs $\geq$ .49), ego depletion (rs $\geq$ .26), and more sleep problems (rs $\geq$ .25).

Table 2 presents the results of the regression analysis. We found full support for the mediating role of self-disclosure to superiors (Hypothesis 1a). Middle managers who felt more powerful at Time 1 were more likely to disclose themselves to their superiors at Time 2 ($b = 0.42$, $p < .01$). At Time 3, they then felt lower levels of emotional deprivation ($b = -0.14$, $p < .05$) and lack of social companionship ($b = -0.20$, $p < .01$). The indirect effects of power on emotional deprivation ($b = -0.06$, 95% bootstrap CI: -.14 to -.00) and lack of social companionship ($b = -0.08$, 95% bootstrap CI: -.16 to -.03) are statistically significant. The conclusions remained after controlling for the need to belong.

<div style="text-align:center">Insert Table 2 about here</div>

We only found partial support for the mediating role of self-disclosure to followers (Hypothesis 1b). A positive relationship between power at Time 1 and self-disclosure to their followers at Time 2 was also shown in this sample ($b = 0.39$, $p < .01$). The negative relationship of self-disclosure to followers at Time 2 was marginally significant with emotional deprivation ($b = -0.13$, $p = .07$) and was significant with lack of social companionship ($b = -0.13$, $p = .04$) at Time 3. The indirect effect of power on emotional deprivation ($b = -0.05$, 95% bootstrap CI: -.14 to .00) was statistically non-significant while that on lack of social companionship ($b = -0.05$, 95% bootstrap CI: -.12 to -.00) was statistically significant. After controlling for the need to belong, all the indirect

effects were non-significant. Finally, all models provided full support to Hypothesis 1c – power was negatively related to emotional deprivation and lack of social companionship.

In addition, we compared the effects of the two self-disclosure mediators to determine the unique effects. As demonstrated in Table 3, self-disclosure to superiors among middle managers could best explain why sense of power at Time 1 would predict felt social companionship at Time 3.

Insert Table 3 about here

Finally, results of the sequential mediation analysis are seen in Table 4. The sequential mediation from power to leader well-being via self-disclosure to superiors and leader loneliness was statistically significant, providing full support to Hypothesis 3a. Meanwhile, Hypothesis 3b, which proposed a similar mediation, only with the replacement of self-disclosure to followers as the first mediator, was mostly supported. The only non-significant indirect effect path was from power to emotional exhaustion via self-disclosure to followers and emotional deprivation.

Insert Table 4 about here

DISCUSSION

Despite its importance, the emergence of leader loneliness is still poorly understood. This study contributes to a better understanding in three ways. First, building on the previous literature on relationship development and power, we identified leader self-disclosure as a mechanism to explain why leaders who experience more power would feel less lonely. Second, we adopted the two-dimensional view to operationalise leader loneliness. We found that sense of power and self-disclosure are particularly relevant to explaining the feeling of lacking social companionship among leaders. Finally, we provided empirical support that leader loneliness is an overlooked well-being concern, as it would affect the daily functioning of leaders through emotional exhaustion, ego depletion and poor sleep quality.

An interesting finding from our study is the consistent support for the mediating role of self-disclosure to superiors, but not to followers. Although the study was designed to sample middle managers, our theoretical framework could explain why top leaders were prone to loneliness (Cooper & Quick, 2003; Saporito, 2012). As leaders climb up the organisational hierarchy, conversations with their superiors are more formalised and instrumental (Mao & Hsieh, 2012). Top leaders like CEOs

even do not have any superiors in the organisational structure. Instead, they have to report to the board of directors and stakeholders, who are not suitable targets for self-disclosure. Consequently, they feel vulnerable and abandoned by other members in the organisation, as reported in a qualitative study of the CEO boardroom dynamics (Brundin & Nordqvist, 2008). In short, this finding implies that top leaders experience loneliness as self-disclosure to superiors is less available.

Another major finding is the direct negative relationship between sense of power and leader loneliness. Leaders may interpret not feeling powerful as a social threat, which then triggers the self-reinforcing loop of loneliness and withdrawal from workplace relationships (Cacioppo et al., 2014). The low sense of power may also be frustrating since power is expected in leadership positions (Vince & Mazen, 2014). Our finding does not support the social distance theory of power, which argues that power could increase loneliness by lowering the motivation to affiliate with others and raising the expectations to be approached (Magee & Smith, 2013). A plausible explanation is that the predictions of the theory depend on how power is construed by the leaders. For example, leaders who see their power as an opportunity to exercise control, instead of as a responsibility, may hold a more instrumental and cynical view towards workplace relationships (De Wit, Scheepers, Ellemers, Sassenberg, & Scholl, 2017; Inesi, Gruenfeld, & Galinsky, 2012). These leaders may feel emotionally deprived, but not necessarily feel that they lack social companionship.

This study has the practical implication that leader self-disclosure is one of the strategies to reduce loneliness. Nevertheless, some scholars also remarked the danger of too much self-disclosure. For instance, over-sharing the fear and insecurity of the leader may trigger expectations of failure among followers, thus hampering the team performance (Hamman, 2013). This warrants future research to explore the boundary of leader self-disclosure.

Limitations and Future Research

Despite our attempt to reduce the common method bias by collecting data from three time points, our study has some limitations that call for further research. First, being a relationship-building strategy, it is possible that leader loneliness motivates more self-disclosure. We designed our study by assessing self-disclosure before measuring loneliness to prevent the issue of reversed causality. Future research can establish the causal relationship by experimentally manipulating the content and medium

of self-disclosure. In addition, considering the systematic differences between face-to-face and virtual interactions identified in the self-disclosure literature (Nguyen, Bin, & Campbell, 2012), it is important to investigate the effects of virtual leader self-disclosure to both superiors and followers. This agenda has high practical relevance to the contemporary work environment, in which leaders often have to manage multiple teams virtually (Schulze & Krumm, 2017).

Second, currently there are multiple ways to conceptualise leader loneliness. This study only focussed on the more stable aspect of loneliness, which should have developed over some time in leadership positions. However as some previous qualitative studies revealed (Alvinius, Johansson, & Larsson, 2017; Tahir, Thakib, Hamzah, Said, & Musah, 2017; B. Wright & Barling, 1998), leader loneliness may also be experienced as a temporary feeling of disconnectedness when leaders have to make difficult, people-related decisions alone. The field is in need for further research on this form of situational leader loneliness to understand its antecedents, consequences, as well as how leaders cope with this unpleasant experience. An inductive research approach that focusses on the narratives and sensemaking among leaders may be useful to tease out the nuances of the phenomenon.

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Table 1

Descriptive Statistics and Correlations of Focal Variables

	Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1	Sense of Power T1	5.40	0.83												
2	Self-disclosure to superiors T2	3.76	1.28	.27**											
3	Self-disclosure to followers T2	3.76	1.18	.27**	.58**										
4	Need to belong T2	2.89	0.63	-.06	0.12	.17*									
5	Emotional deprivation T3	2.66	1.30	-.46**	-.25**	-.24**	-.05								
6	Lack of social companionship T3	2.64	1.13	-.45**	-.33**	-.25**	-.11	.80**							
7	Emotional exhaustion T3	2.61	1.00	-.45**	-.25**	-.22**	.03	.65**	.49**						
8	Ego depletion T3	2.04	0.67	-.30**	.01	.04	.23**	.40**	.26**	.43**					
9	Sleep problems T3	2.89	1.21	-.16*	-.13	-.21**	-.08	.34**	.25**	.54**	.15*				
10	Age	36.64	8.74	-.03	-.05	-.13	-.15*	-.04	-.00	-.01	-.20**	.11			
11	Gender (0 = male; 1 = female)	0.53	0.50	-.12	-.06	-.18*	.08	.01	-.07	.16*	.13	.20**	.06		
12	Hierarchy	6.22	1.40	.17*	.27**	.21**	.13	-.16*	-.15*	-.17*	-.03	-.01	.11	-.02	
13	Span of control	11.08	13.78	.19**	.02	.05	-.14*	-.01	.01	.03	-.01	.13	-.00	.03	.06

Note. $N = 196$

*p < .05, **p < .01, two-tailed.

T1: Measured at Time 1; T2: Measured at Time 2; T3: Measured at Time 3

Table 2

Results of multiple regression analysis

Variable	SDC to superiors T2		SDC to followers T2		Emotional deprivation T3				Lack of social companionship T3			
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Step 1: Control												
Need to belong T1		.29*		.36**			-.14	-.13			-.19+	-.20+
Step 2												
Sense of power T1	.42**	.44**	.39**	.41**	-.67**	-.68**	-.68**	-.69**	-.52**	-.56**	-.54**	-.57**
Step 3												
SDC to superiors T2					-.14*		-.13+		-.20**		-.18**	
SDC to followers T2						-.13+		-.12		-.13*		-.11+
R	.27	.31	.27	.33	.48	.48	.49	.48	.50	.46	.51	.48
R^2	.07	.09	.07	.11	.23	.23	.24	.23	.25	.22	.26	.23

Note. $N = 196$
**$p < .01$, *$p < .05$, +$p < .10$, two-tailed.
SDC: self-disclosure; T1: Measured at Time 1; T2: Measured at Time 2; T3: Measured at Time 3

Table 3

Indirect Effects of Power to Leader Loneliness

	Estimate	*SE*	Bootstrapping[a]	Remarks
DV: emotional deprivation				
Self-disclosure to superiors	-.04	.05	[-.16, .03]	Non-significant
Self-disclosure to followers	-.03	.05	[-.13, .06]	Non-significant
Total	-.07	.04	[-.16, -.01]	Significant
DV: lack of social companionship				
Self-disclosure to superiors	-.08	.04	[-19, -.02]	Significant
Self-disclosure to followers	-.01	.04	[-.08, .06]	Non-significant
Total	-.09	.00	[-.17, -.03]	Significant

Note. $N = 196$
[a] Bias-corrected 95% confidence intervals

Table 4

Indirect Effects of Power to Well-being

	Estimate	*SE*	Bootstrapping[a]	Remarks
DV: emotional exhaustion				
SDC to superiors & ED	-.03	.01	[-.06, -.00]	Significant
SDC to superiors & LSC	-.03	.01	[-.06, -.01]	Significant
SDC to followers & ED	-.02	.02	[-.06, .00]	Non-significant
SDC to followers & LSC	-.02	.01	[-.04, -.00]	Significant
DV: ego depletion				
SDC to superiors & ED	-.01	.01	[-.03, -.00]	Significant
SDC to superiors & LSC	-.01	.01	[-.03, -.00]	Significant
SDC to followers & ED	-.01	.01	[-.03, -.00]	Significant
SDC to followers & LSC	-.01	.00	[-.02, -.00]	Significant
DV: sleep problems				
SDC to superiors & ED	-.02	.01	[-.05, -.00]	Significant
SDC to superiors & LSC	-.02	.01	[-.06, -.00]	Significant
SDC to followers & ED	-.02	.01	[-.05, -.00]	Significant
SDC to followers & LSC	-.01	.01	[-.04, -.00]	Significant

Note. $N = 196$

SDC: self-disclosure; ED: emotional deprivation; LSC: lack of social companionship

[a] Bias-corrected 95% confidence intervals

Figure 1

Conceptual Framework of the Study