



Multi-level effects of authentic leadership on self-actualization at work – the mediating roles of authentic followership and basic psychological need satisfaction

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Accepted: 20 November 2023
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Abstract

Authentic leaders are self-aware of their values and beliefs and continuously strive to create meaningful organizational contexts that promote the growth and selfactualization of subordinates. Following self-determination theory (SDT), this study examines whether follower authenticity and basic psychological need satisfaction (BPNS) serve as mediators between the association of authentic leadership and indicators of self-actualization at work. We used the data of 53 team leaders and 171 team members from one global company. Results of three multi-level mediation models indicated that followers' authenticity and BPNS mediate the link between group leaders' authentic leadership and followers' self-actualization at work. In line with fundamental assumptions of SDT, our findings suggest that follower self-actualization is influenced by authentic leadership but also emerges from a synergistic effect between leader and follower authenticity and follower BPNS. We discuss how future research and practice may promote employee authenticity and personal development in work environments.

Keywords Authentic leadership · Authentic followership · Basic psychological need satisfaction (BPNS) · Self-determination theory · Self-actualization at work · Multi-level study

The construct of authenticity has gained immense attention in the vein of meaningful work and personal development (Avolio & Gardner, 2005; Cha et al., 2019). Prior research has demonstrated substantial implications of authenticity on behalf of a leader for the meaningfulness of employees' lives. Leaders' authenticity is assumed to significantly impact both their own and their followers' eudaimonic well-being (Ilies et al., 2005). Authentic leaders are aware of their states, evaluate available information before making decisions, and behave in line with own values and beliefs (Avolio & Gardner, 2005). Hence, they continuously strive

to create meaningful organizational contexts that promote growth and self-actualization of subordinates (Avolio & Gardner, 2005).

According to self-determination theory (SDT), individuals possess an innate inclination toward personal growth and optimal functioning (Deci et al., 2013). SDT assumes that specific nutrients from the social environment are universally required for the development, growth, and actualization of own potentials (Deci et al., 2013). Thus, basic tenets of SDT align with tenets of self-actualization (Deci et al., 2013). Accordingly, the fulfillment of the three basic needs should promote full functioning and eudaimonic well-being. When people experience need support, they are most likely to develop and actualize their capacities (Deci et al., 2013). Numerous studies have offered supporting evidence for this assertion, indicating that basic psychological need satisfaction (BPNS) is crucial for both optimal functioning and experiencing eudaimonic well-being (Ryan & Deci, 2017). Hence, need satisfaction might be one linking mechanism between authentic leadership and self-actualization at work (Ryan & Deci, 2017). This is in line with earlier research

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(Deci & Ryan, 2014; Leroy et al., 2015) indicating authentic behavior to be self-determined by nature, thus satisfying the basic needs and consequently leading to self-actualization (Cha et al., 2019).

Furthermore, recent studies suggested a favourable association regarding authentic leadership and authentic followership (Burak et al., 2020; Zilwa, 2016; Du Plessis & Boshoff, 2018). These results underscore the significance of both authentic leadership and followership in influencing organizational outcomes (Leroy et al., 2015; Nair et al., 2022; Song et al., 2020). For example, Zilwa (2016) found authentic followership to promote confidence of team members. Additionally, authentic leadership may assist in building strong leader follower relationships by fostering trust and mutual respect. In this vein, relationships between authentic leaders and followers were associated with followers' BPNS as well as followers' performance (Leroy et al., 2015; Nair et al., 2022).

Nevertheless, previous authentic leadership literature has paid little attention to outcomes related to self-actualization. Moreover, previous studies have provided limited support for assumptions of SDT regarding a relation between authentic leadership and self-actualization. This is surprising because authentic leadership may be especially promising for fostering employees' BPNS (Avolio & Gardner, 2005), and self-actualization can be seen as an important outcome in the SDT (Deci et al., 2013). However, none of the authentic leadership studies have examined self-actualization at work in combination with BPNS and follower authenticity as the mediating processes. Furthermore, prior research that studied positive outcomes of authentic leadership has frequently neglected the multilevel nature of leadership (Kim et al., 2020). Specifically, no studies have examined group processes of self-actualization at work. Given that leaders may have a substantial impact on team members in terms of empowering them to satisfy their psychological needs, research considering team-based processes is missing.

To expand the existing body of literature, this study investigated the impact of authentic leadership on team members' self-actualization via authentic followership and followers' BPNS. Specifically, we gathered data from team leaders and

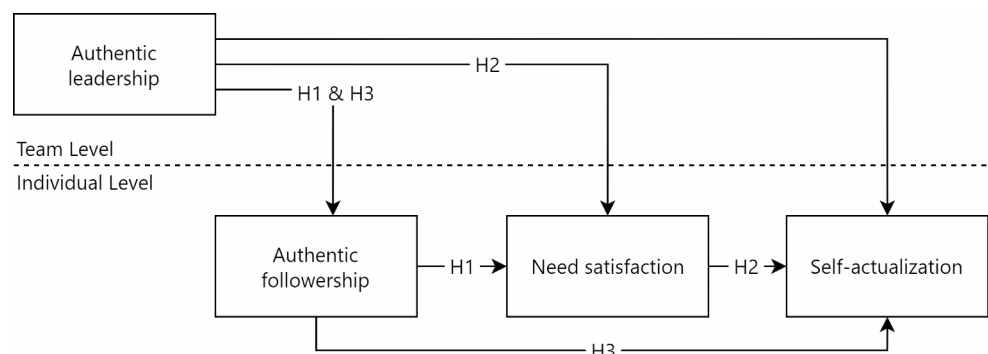
their team members to study multilevel indirect associations between authentic leadership and self-actualization at work with authentic followership and BPNS serving as mediating processes. Figure 1 shows the conceptual model that visualizes our assumptions.

Our research constitutes a contribution to the literature on authenticity (Zilwa, 2016; Du Plessis & Boshoff, 2018). First, by drawing on SDT (Deci et al., 2013), we provide a first test in terms of an association regarding leaders' authentic leadership and followers' occupational self-actualization with BPNS and authentic followership as explanatory, mediating mechanisms. Second, our study provides a distinct perspective on how authentic leadership and authentic followership may foster followers' BPNS and self-actualization. Hence, we view BPNS and self-actualization as outcomes of not only the leader but also the follower (Avolio & Gardner, 2005; Leroy et al., 2015). Third, we offer first insights into the effect of team leaders on members within small work teams by testing multilevel processes. The chosen design of self-evaluated authenticity on behalf of the leader constitutes another added value. Previous studies largely relied on third-party evaluations when investigating the degree of authenticity of the leader (Hwang et al., 2022). However, such external assessment of leaders' authenticity is less accurate than conducting self-evaluations of each leader.

Authentic Leadership

The fundamental changes and challenges in today's work environment require a new approach to leadership. In this vein, research indicates the importance of authentic leaders—those conducting life according to deeply held values (Avolio & Gardner, 2005). Authentic leadership occurs when a leader is willing to admit personal mistakes and to tell others nothing but the plain truth. Authentic leaders lead by example. They are self-aware of own states and values, transparent in social relationships, and focus on extending their perspective and thinking. Thus, authentic leadership should result in improved self-awareness and individual

Fig. 1 Conceptual multi-level (2-1-1) mediation model. *Note.* Paths of direct effects not labeled for clarity.



development on behalf of the leader as well the follower (Luthans & Avolio, 2003). Broadly speaking, authentic leadership arises from authentic functioning, but it also operates as an influencing process with the goal of promoting followers' authenticity.

Authentic leadership has been conceptualized with four facets. *Self-awareness* indicates the apprehension regarding own cognitions, feelings, motives, or values. Leaders characterized by high authenticity understand how others view their leadership style and they recognize their strengths and weaknesses. *Internalized moral perspective* refers to acts that are aligned with someones' values as well as preferences. *Balanced information processing* involves acknowledging both positive and negative attributes and selecting self-relevant information, which is essential for effective decision-making by leaders. *Relational transparency* involves pursuing sincere relationships with others (Gardner et al., 2005; Walumbwa et al., 2008).

Authentic followership

Recent empirical studies reinforce the close connection between authentic leadership as well as authentic followership (Burak et al., 2020; Zilwa, 2016), highlighting the importance of both authentic leadership and followership for organizational outcomes (Leroy et al., 2015; Nair et al., 2022).

The extent to which someone acts/behaves authentically at work is similar for leaders and followers. Hence, authentic followership is similarly characterized by the decisive components of self-awareness, internalized moral perspective, balanced information processing, and forming transparent relationships.

Recent research has shown that the interaction processes among leaders, followers, and organizations play a crucial role in attaining favorable organizational outcomes (Nair et al., 2022). For example, Zilwa (2016) found authentic followership to be associated with team members' confidence and maturity. Moreover, by enhancing trust, authentic followership helps to build strong bonds between a leaders and his/her team members (Zilwa, 2016). Furthermore, the association regarding authentic leaders and followers has been found to favourably impact the followers' BPNS (Guenther et al., 2017).

Self-determination theory and self-actualization

SDT has been one of the most influential theoretical frameworks for investigating social psychological processes. It has been widely applied in the area of research on personal development and psychological well-being (Ryan & Deci, 2017). According to SDT, people have an inherent tendency for individual development and for increasing optimal functioning (Deci et al., 2013). SDT further assumes that specific nutrients from the social environment are universally required for the development, growth, and actualization of own potentials (Deci et al., 2013).

Within the framework of SDT, peoples' satisfaction of their needs for autonomy, competence, and relatedness are critical to achieve growth and well-being (Ryan & Deci, 2017). Deci and colleagues (2013) suggested that SDT is closely linked to the idea of self-actualization. The authors pointed out that BPNS promotes full functioning and eudaimonic well-being. When people experience need support, they are most likely to develop and actualize their capacities and potentials (Deci et al., 2013). Multiple studies have provided evidence for this claim, suggesting that BPNS is crucial for optimal functioning, development, and eudaimonic well-being (Deci et al., 2013).

Autonomy pertains to the feeling of freedom and choice when it comes to own behaviour, which is necessary to experience ownership. *Competence* pertains to the perception of being able to effectively manage own actions and the surrounding. *Relatedness* pertains to the perception of close emotional ties with others, combined with feelings of being cared for and loved by others (Deci & Ryan, 2014). Previous empirical research has provided substantial support that BPNS is positively associated with psychological well-being (Gagné & Deci, 2005).

Optimal functioning by realizing ones' highest potential will be achieved by means of situations facilitating BPNS (Gagné & Deci, 2005; Ryan & Deci, 2017). Thus, environments that increase BPNS may predict positive individual outcomes, such as personal development and self-actualization. In contrast, environments that impede BPNS may lead to negative individual results (Deci & Ryan, 2014; Reyes et al., 2023).

By applying well-being theories and SDT, Glaser and colleagues (2019) argued that self-actualization at work consists of a motivational, cognitive, and behavioral dimension. Accordingly, we follow Glaser et al. (2019) and operationalize self-actualization with three work-related dimensions: intrinsic work motivation, meaning in work, and occupational self-efficacy, respectively.

Authentic leadership and followership, BPNS, and self-actualization

Authentic followers tend to internalize existing roles into their self-concept. This integration of self-concepts is similarly related to BPNS (Guenter et al., 2017). In addition, authentic followers are focused on personal growth, which may lead to fewer experiences of need frustration. Accordingly, authentic followership is assumed to be favourably associated with BPNS (Ilies et al., 2005). Furthermore, Ilies et al. (2005) proposed a positive connection between authentic leadership and eudaimonic well-being. Particularly, they discussed antecedents (leader characteristics) as well as beneficial outcomes of authentic leadership. Thus, Ilies et al. (2005) introduced a testable framework that links authentic leadership to leader and follower well-being. However, many of these theoretical assumptions have not yet been tested empirically.

Earlier findings (Guenter et al., 2017) and propositions (Ilies et al., 2005) combined with existing evidence regarding beneficial associations between authentic leadership, authentic followership, and followers' BPNS (Leroy et al., 2015) lead to our first assumption. Accordingly, we hypothesized that within a multilevel analysis:

Hypothesis 1 *Team leaders' authentic leadership is positively related to followers' BPNS via followers' authenticity.*

Certainly, a leader can not only increase employees' intrinsic, autonomous motivation or their expressiveness by supporting self-determination (Deci et al., 2013), but they in addition play an essential role in fostering well-being outcomes, such as a followers' sense of self-actualization (Ryan & Deci, 2017). SDT posits BPNS to be inevitable in terms of full functioning and actualizing human potential (Ryan & Deci, 2017). Thus, followers' self-actualization might be determined by the quality of the leader-follower relationship (Ilies et al., 2005). Earlier research found authenticity on behalf of the leader to foster leaders' as well as followers' self-awareness, which consequently enhanced personal growth and development (Luthans & Avolio, 2003). However, recent cross-sectional results found no association between authentic leadership and self-actualization at work (Maunz & Glaser, 2023). Moreover, prior results did not support time-lagged relations of authentic leadership on organizational self-actualization whereas individually experienced authenticity was related to self-actualization across time (Maunz & Glaser, 2023). Yet, the exact relation has not been explained and thus remains unclear.

Ilies et al. (2005) theoretically proposed BPNS to be one of the mediating links between authentic leadership, authentic followership, and eudaimonic well-being. However, Ilies

et al. (2005) did not examine the proposed relationships empirically. In a related vein, authentic leadership as well as followership were associated with BPNS, which was related to followers' performance at work (Leroy et al., 2015). Leroy and colleagues (2015) surveyed employees from 25 Belgian service companies incorporating 30 leaders and 252 followers of established teams. Hence, a linking process of BPNS within the association between authentic leadership, authentic followership, and other beneficial outcomes has been examined before, even in a multilevel study design (Leroy et al., 2015). In a related manner, Kiersch and Byrne (2015) tested a multilevel mediation model concerning the impact of authenticity on behalf of the leader on commitment and turnover intentions via fairness perceptions. However, the focus in none of those authentic leadership studies has been placed on work-related self-actualization in combination with BPNS serving as the mediation process.

Recent longitudinal research similarly supported a close relation of support on behalf of the supervisor with self-actualization. Specifically, supervisor social support was associated with increased levels of BPNS, which in turn fostered higher levels of employees' work-related self-actualization (Schoofs et al., 2022). While this study indicated a favourable association of BPNS with self-actualization, the potential impact of authentic leadership was neglected.

Based on previous findings that suggested a mediating role of BPNS in the association of authentic leadership and employees' performance (Leroy et al., 2015), and following research confirming the mediation of authenticity between other work-related resources and self-actualization (Maunz & Glaser, 2023), we assume a mediation process of BPNS between authentic leadership and self-actualization at work. Several studies have partly demonstrated the expected association of authenticity, BPNS, and self-actualization (Deci & Ryan, 2014; Leroy et al., 2015; Maunz & Glaser, 2023; Schoofs et al., 2022). For example, work contexts or resources that increase BPNS may foster positive outcomes related to personal growth and self-actualization (Schoofs et al., 2022). In addition, recent studies suggested that authentic leadership may foster authentic followership (Burak et al., 2020; Zilwa, 2016; Du Plessis & Boshoff, 2018).

Leaders might have a unique opportunity to foster employees' feeling of being authentic, which might increase levels of BPNS and subsequently enhance followers' self-actualization (Leroy et al., 2015; Maunz & Glaser, 2023; Schoofs et al., 2022). Thus, we assume:

Hypothesis 2 *Team leaders' authentic leadership is positively related to followers' indicators of self-actualization at work via followers' BPNS.*

Hypothesis 3 *Team leaders' authentic leadership is positively related to followers' indicators of self-actualization at work via followers' authenticity.*

Method

Procedure and participants

Data was collected via an online survey in an international organization within the food industry including various departments in different European countries such as Germany, Austria, the Netherlands, Spain, Poland, Hungary, and Sweden. We chose this industry as a convenient sample based on the expressed interest of the organization in participating in our study and access that was granted via an established relationship. Our sampling approach centered around inviting both followers and leaders from existing work teams within a global company. We only considered teams that consisted of a leader and at least three team members. Team members had to report directly to the respective team leader. In addition, participants had to at least work 30 h per week. We included all European teams that were willing to participate voluntarily. We obtained e-mail addresses of interested team leaders through HR representatives in the organization. We informed all participants about the study procedure (explanatory material was provided by the researchers). Next, team leaders received and distributed links to the anonymous web-based survey (lime survey) to their respective team members. Reminder e-mails to participate in the survey were sent after two and four weeks to the team leaders. Matching of data (leaders and the respective team members) was performed via an anonymous identifier

for team leaders and their members. Only the researchers had access to the identifier and were able to reconcile the results. To guarantee data protection, survey data have been stored independently on the server of the University in Innsbruck, Austria. Hence, to ensure the confidentiality of the responses team leaders did not have insights into the results of their respective team members. Respondents were informed of this process and were assured that it would not be possible to identify individual respondents.

Complete data sets of 53 team leaders and 171 team members was obtained. 38.8% of the study participants were female, and 59.8% male. On average, followers were 36.9 years old and leaders were 38.8 years old. We obtained data from teams with three to six team members per team, without the leader. The average team size was 3.2 per team.

Measures

Authentic leadership and *authentic followership* were measured with adapted versions of the Deutsches Inventar Authentischer Führung (DIAF) (Franke-Bartholdt et al., 2018). The measure is a German version of the established Authentic Leadership Inventory (ALI) (Neider & Schriesheim, 2011). Specifically, we used 16 items to capture the four components of authentic leadership and rephrased the items to capture the self-rating of authentic leadership or authentic followership, respectively. The Likert response scale ranged from 1 (disagree strongly) to 5 (agree strongly). Sample items include “I solicit feedback for improving my dealings with others” (self-awareness), or “I show consistency between my beliefs and actions” (internalized moral perspective). The measure showed good psychometric properties regarding reliability ($\alpha=0.90$ for follower and leader ratings) and validity (see Table 1) in this study.

Basic psychological need satisfaction was measured with an adapted version of the Work-related Basic Need Satisfaction questionnaire (W-BNS; Deci & Ryan, 2014). We used

Table 1 Means, standard deviations, intra-class correlations, alpha coefficients and intercorrelations among study variables of followers and leaders

Variable	<i>M</i>	<i>SD</i>	<i>ICC.1</i>	<i>ICC.2</i>	α	1	2
<i>Follower ratings (N = 171)</i>							
1. Authentic followership	4.17	0.49	0.29	0.57	0.90		
2. Need satisfaction	5.89	0.90	0.49	0.76	0.90	0.59**	
3. Self-actualization	4.27	0.56	0.33	0.61	0.85	0.68**	0.69**
<i>Leader ratings (N = 53)</i>							
1. Authentic leadership	4.15	0.48			0.90		
2. Need satisfaction	5.77	0.83			0.90	0.64**	
3. Self-actualization	4.35	0.50			0.87	0.72**	0.77**

Note. *M*=mean, *SD*=standard deviation, *ICC1*=intra-class correlation coefficient one-way random-effects model, *ICC2*=intra-class correlation coefficient two-way random-effects model, α =Cronbach's alpha coefficient

* $p < .05$; ** $p < .01$

three items each to measure autonomy, competence, and relatedness. Items were measured on a Likert scale ranging from 1 (totally disagree) to 7 (totally agree). The measure showed good psychometric properties regarding reliability ($\alpha=0.90$ for follower and leader ratings) and validity (see Table 1) in this study.

Self-actualization at work, was measured with the indicators of self-actualization (ISA), proposed by Glaser et al. (2019) and validated by Maunz and Glaser (2023). The measure consists of three dimensions, intrinsic work motivation, meaning in work, and occupational self-efficacy. Each dimension was measured by 3 items. All items were rated on a Likert scale ranging from 1 (completely disagree) to 5 (completely agree). The measure showed good psychometric properties in terms of reliability ($\alpha=0.85$ for follower and $\alpha=0.87$ for leader ratings) and validity (see Table 1) in this study.

Statistical analyses

We analyzed the data using the R (R Core Team, 2022) with RStudio IDE (RStudio Team, 2020) and the lavaan (Rosseel, 2012) package. The full R script that presents our analyses and results in greater detail (e.g., assumption tests, descriptive statistics, visualizations, and alternative analysis approaches) and the dataset are available as online supplementary material. First, we evaluated the construct validity of study variables with confirmatory factor analysis (CFA) and assessed construct reliability with Cronbach's alpha. We measured authentic leadership at the team level in terms of self-ratings by the leaders and all other study variables at the individual level in terms of self-ratings by team members. As our models were too parameter intensive for our data, we specified them as multilevel path models and evaluated separate mediation models instead of a single serial mediation model. Therefore, we investigated our hypotheses via multilevel structural equation modeling (MSEM) in 2-1-1 mediation models (Preacher et al., 2010). For the assessment of CFAs, we followed established cutoff criteria (Preacher et al., 2010).

Results

Table 2 presents means, standard deviations, intra-class correlation coefficients (ICC1 and ICC2), alpha coefficients, and intercorrelations among study variables. The ICC1 coefficients of study variables ranged from 0.29 to 0.49; therefore, they suggest high variability between the clusters and justify evaluating our hypotheses in multilevel models with random intercepts.

We evaluated our assumed factor structures of study variables with CFAs and compared one-factor solutions with the previously proposed second-order solutions. We relied on maximum likelihood estimation with robust corrections (MLM) and scaled test statistics (Satorra & Bentler, 2010) to correct for the multivariate non-normal distributions in the data. Table 1 represents fit indices of the tested models. The one-factor (16 items) self-rated *authentic leadership* measurement model did not fit the data well. In contrast, the proposed second-order model (i.e., 4 factors, 16 items) yielded a good fit. The one-factor (9 items) *need satisfaction* measurement model did not fit the data well. The proposed second-order model of need satisfaction (i.e., 3 factors, 9 items) yielded a good fit. Finally, the one-factor (9 items) *self-actualization at work* model did not fit the data well, whereas the proposed second-order model of self-actualization (i.e., 3 factors, 9 items) yielded a good fit. The results of CFA demonstrate construct validity and the Cronbach's alpha coefficients demonstrated overall good reliability of studied constructs (see Table 2).

Multilevel considerations

To test our hypotheses, we relied on 2-1-1 mediation models in the MSEM framework. We tested these models with random intercepts and fixed slopes. This approach was appropriate as the predictor (i.e., authentic leadership) was gathered as a Level 2 (i.e., Between level) variable whereas the mediator and outcome variables were gathered at Level 1 (i.e., Within level). In MSEM models Level 1 variables typically have latent components at Level 1 and 2, while Level 2 variables have only latent components at Level 2

Table 2 Fit indices for CFAs

	χ^2	df	χ^2/df	CFI	RMSEA	SRMR
AL: 1 factor — 16 items	287.76	104	2.77	0.82	0.09	0.07
AL: 4 factors — 16 items	151.28	100	1.51	0.95	0.05	0.05
Need satisfaction: 1 factor — 9 items	104.75	27	3.88	0.87	0.11	0.07
Need satisfaction: 3 factors — 9 items	54.87	24	2.29	0.95	0.08	0.05
Self-actualization: 1 factor — 9 items	167.71	27	6.21	0.61	0.15	0.11
Self-actualization: 3 factors — 9 items	33.88	24	1.41	0.97	0.04	0.05

Note. Scaled Satorra-Bentler test statistics are reported

AL = self-rated authentic leadership, CFI = comparative fit index, RMSEA = root mean square error of approximation, SRMR = standardized root mean squared residual

(Preacher et al., 2010). The indirect effect in 2-1-1 mediation models exists only at the Between level. Therefore, our employed models test the cluster-level component of the studied variables.

Testing mediation via MSEM has benefits compared to more traditional MLM-based procedures (Preacher et al., 2010). For example, they do not require outcomes to be measured at Level 1 and they do not require the traditional two-stage approach of mediation testing. Additionally, our MSEM approach separates within group and between group variances of constructs.

Hypothesis testing

Table 3 displays standardized coefficients of hypotheses tests. Hypothesis 1 was supported. The relation between team-level authentic leadership and the team members' BPNS was mediated by team members' authentic followership ($\beta = 0.69$, $SE = 0.34$, $p = .007$). This finding suggests that teams with leaders who highly rate their authentic leadership have team members who have higher levels of authentic followership, compared to teams with less authentic leadership. In turn, higher scores on authentic followership were associated with higher BPNS levels, as perceived by team members.

Hypothesis 2 was supported. The association between team-level authentic leadership and the self-actualization of team members was mediated by team members' BPNS ($\beta = 0.47$, $SE = 0.11$, $p = .003$). This finding suggests that teams with leaders who highly rate their authentic leadership have team members who have higher levels of BPNS, compared to teams with less authentic leadership. In turn, higher BPNS

scores were related with higher self-actualization levels, as perceived by team members.

Hypothesis 3 was supported. The association between team-level authentic leadership and the self-actualization of team members was mediated by team members' authentic followership ($\beta = 0.75$, $SE = 0.18$, $p = .005$). This finding suggests that teams with leaders who highly rate their authentic leadership have team members who have higher levels of authentic followership, compared to teams with less authentic leadership. In turn, higher scores on authentic followership were related to higher self-actualization levels, as perceived by team members.

Discussion

This study aimed to enhance the understanding of the relationship between authentic leadership and work-related self-actualization by investigating authentic followership and BPNS as mediating processes. Relying on SDT as the conceptual framework, previously underexplored mechanisms have been examined to unravel the link between authenticity and the well-being outcome of self-actualization at work.

The current research contributes in several ways to the emerging body of authenticity literature (Cha et al., 2019; Du Plessis & Boshoff, 2018; Maunz & Glaser, 2023). First, by drawing on SDT (Deci et al., 2013; Schoofs et al., 2022), it empirically examines the relationship between authentic leadership and the well-being outcome of self-actualization, with BPNS and authentic followership as explanatory, mediating processes (Ilies et al., 2005). Additionally, our

Table 3 2-1-1 mediation models at the individual and team level

Hypothesis	Path	Mediation Path	β	SE	P
<i>Within effects</i>					
1	authentic followership \rightarrow need satisfaction	b-within	0.32	0.12	0.000
2	need satisfaction \rightarrow self-actualization	b-within	0.54	0.05	0.000
3	authentic followership \rightarrow self-actualization	b-within	0.53	0.08	0.000
<i>Between effects</i>					
1	authentic leadership \rightarrow authentic followership	a-between	0.57	0.09	0.001
1	authentic followership \rightarrow need satisfaction	b-between	1.20	0.69	0.000
1	authentic leadership \rightarrow need satisfaction	c-between	-0.23	0.27	0.257
1	authentic leadership \rightarrow authentic followership \rightarrow need satisfaction	indirect effect	0.69	0.34	0.007
2	authentic leadership \rightarrow need satisfaction	a-between	0.47	0.19	0.001
2	need satisfaction \rightarrow self-actualization	b-between	1.01	0.07	0.000
2	authentic leadership \rightarrow self-actualization	c-between	-0.14	0.82	0.235
2	authentic leadership \rightarrow need satisfaction \rightarrow self-actualization	indirect effect	0.47	0.11	0.003
3	authentic leadership \rightarrow authentic followership	a-between	0.59	0.09	0.000
3	authentic followership \rightarrow self-actualization	b-between	1.27	0.34	0.000
3	authentic leadership \rightarrow self-actualization	c-between	-0.42	0.14	0.034
3	authentic leadership \rightarrow authentic followership \rightarrow self-actualization	indirect effect	0.75	0.18	0.005

Note. β = standardized regression coefficient, SE = standard error

study provides insights into the underlying mechanisms to better understand how authenticity on behalf of the leader as well as the follower foster followers' BPNS and self-actualization (Cha et al., 2019; Leroy et al., 2015).

Consistent with our hypotheses, multilevel results of the tested mediation models indicate that BPNS as well as authentic followership indirectly impact the association between authentic leadership and self-actualization. Thus, BPNS and authentic followership help to understand the link between authentic leadership and eudaimonic well-being outcomes (Leroy et al., 2015). Our results are in accordance with fundamental principles of SDT as they reveal substantive positive associations between authenticity and followers' BPNS at work. Moreover, our results show a positive association between BPNS and self-actualization at work. Hence, the current findings support the view of BPNS being an important work-related state, which stimulates not only psychological health but also personal development (Knight et al., 2017; Rouse et al., 2020).

Investigating self-actualization at work as an outcome was in alignment with core principles of SDT, suggesting that BPNS constitutes a requirement for well-being outcomes (Schoofs et al., 2022). To date, authentic leadership research has primarily focused on other work-associated results such as performance behaviors on behalf of the follower (Zhang et al., 2022). In a related vein, organizational performance outcomes such as followers' organizational commitment and work engagement were associated with authentic leadership (Hwang et al., 2022; Nair et al., 2022). Previous research has furthermore mainly focused on authentic leadership and its impact on general health outcomes such as subjective well-being (Pulido-Martos et al., 2023) but not with regard to eudaimonic well-being in the sense of self-actualization.

This study sheds light on how self-actualization can be promoted at work. Although previous studies have already found promising results in how self-actualization can generally be promoted, these studies have largely neglected transmission processes between leaders and followers. For example, Schoofs et al. (2022) found social support of colleagues and supervisors to be associated with self-actualization, but leadership behavior beyond social support was neglected. We expand on this previous work by showing that specific leadership behavior, which includes being self-aware, being transparent in social interactions, living by moral values, and acting after a balanced evaluation of information, is related to higher levels of followers' BPNS and self-actualization. Similarly, Maunz and Glaser (2023) indicated authentic leadership to be a predictor of authenticity at work and self-actualization. But focus was on the follower perspective and the transmission processes in small work teams have been neglected. We extend this previous

work by considering the influence of leaders of small work teams in increasing followers' BPNS, authentic followership, and self-actualization.

The current research adds to the authentic leadership literature. Examining the association between authentic leader- and followership (Burak et al., 2020) helps understanding how authentic leadership fosters followers' BPNS and self-actualization (Ilies et al., 2005; Maunz & Glaser, 2023). Moreover, by building on SDT this study provides a distinct perspective on authentic leadership by indicating the mediating mechanisms through which authentic leadership and authentic followership coproduce followers' BPNS as well as self-actualization. Thus, results suggest that self-actualization is not only a function of the leader, but also of the follower (Avolio & Gardner, 2005; Ilies et al., 2005). Focusing on authentic leadership and its effect on self-actualization and considering BPNS as the mediating link provides novel insights into the processes through which authentic leadership impacts follower eudaimonic well-being outcomes.

Additionally, our multilevel approach and corresponding results add to a more differentiated understanding of the authenticity in small teams. Although scholars have called for modeling leadership processes with multilevel designs (Kim et al., 2020), only few empirical studies have tested multilevel leadership assumptions. Recently, Nair and colleagues (2022) have used a multilevel research design to study the link between authentic leadership and outcomes on behalf of followers. However, they focused on work engagement as an outcome of authentic leadership and neglected mediating mechanisms (Nair et al., 2022).

The chosen design in terms of self-evaluated authenticity of a leader constitutes another added value to the body of authentic leadership literature. Previous studies largely relied on third-party evaluations when investigating the degree of authenticity of the leader (Hwang et al., 2022; Pulido-Martos et al., 2023). However, such external assessments of leaders' authenticity can never be as accurate as conducting self-evaluations of each leader. In this vein, earlier research showed that third-party evaluations about a leaders' degree of acting according to the true self – thus being an authentic leader – significantly correlated with the personal values held by the rating person (Newman et al., 2015).

Practical implications

Our findings suggest advantages for not only leaders and employees but for organizations in general as they will ultimately benefit from an authentic and self-actualized workforce. Not only will authentic employees be more proactive (Matsuo, 2020), but they will in addition be characterized

by an increased psychological capital, higher commitment, and profound work engagement (Nair et al., 2022; Song et al., 2020).

Authenticity on behalf of both the leader and the follower were indirectly related to self-actualization at work via BPNS. Therefore, working together in a small team under conditions of authenticity may increase ones' sense of authenticity (on behalf of the leader and the follower self) and may enhance ones' BPNS and indirectly self-actualization at work. Thus, corporate policies that allow and even encourage work-related authenticity can significantly influence self-actualization (Maunz & Glaser, 2023).

As authentic leadership positively influences a variety of follower outcomes, such effects may ultimately positively impact organizational outcomes as well. Research indicated that employees not only behave more proactively but they also demonstrate higher job satisfaction (Matsuo, 2020). Therefore, it might be beneficial to promote authentic leadership behaviors at all levels of the organization. For example, organizations may improve authentic leadership by incorporating appropriate selection criteria when choosing leaders. Previous research suggests that individual differences underlie authentic leadership. These individual differences may include emotional intelligence, integrity, and positive self-concept (Ilies et al., 2005). Choosing or promoting people who exhibit these qualities might result in increased levels of authentic leadership.

BPNS may act as a mediating process that is independent from the source of authenticity. Further, in line with assumptions of SDT, our results suggest that BPNS is essential for followers' self-actualization at work. In this regard, all levels of an organization may benefit from receiving proper instructions on the positive impact of authenticity. Additionally, interventions aimed at enhancing personal perceptions of authenticity could be extended to both supervisors and employees.

Our findings suggest strategies for organizations and leaders intending to increase their employees' BPNS and self-actualization levels. An effective leadership development program should focus on the promotion of authentic leadership principles. These programs may let followers feel authentic, fulfill their needs for autonomy, competence, and relatedness, and enhance their feeling of self-actualization. We recommend organizations to implement different trainings that potentially enhance the diverse components of authentic leadership. For example, implementing multisource feedback in organizations may be a fruitful strategy to increase self-awareness (Lockyer & Sargeant, 2022). This approach would allow leaders to gain insights into how they are perceived by others, bringing attention to possible differences between how someone sees themselves and how others see them. Additionally, multisource feedback could

provide unique insights into the leaders' own values and beliefs and provide more accurate details about the leaders' strengths as well as opportunities for development (Lockyer & Sargeant, 2022). Overall, developmental interventions relating to an improvement of authenticity will not only increase the authenticity of leaders but it will manifest in an advantageous ripple effect on the team members and ultimately on the organization as a whole.

Limitations and future research

Relying on self-report surveys can be considered a limitation of this study, as it might introduce common method variance (Jordan & Troth, 2020). Nonetheless, an experience of BPNS or self-actualization poses a challenge in terms of objective assessment, resulting in self-report data being the sole means to evaluate these concepts. In addition, our analysis procedure included evaluation and confirmation of the validity and reliability of our measures, which increases our confidence against measurement error.

Second, the sample demonstrates several limitations. We relied on a convenience sample, which may limit the generalizability of our findings to the population. The current sample was a subset of voluntary European participants from only one international company, which decreases external validity (Findley et al., 2021). Additionally, a larger sample is required to investigate our assumptions in a full serial mediation model instead of splitting it into several partial mediations. Moreover, sampling that is not random limits the use of inferential statistics (Rahman et al., 2022). We approached followers indirectly through contact with their respective leaders, which may have biased the overall employee sampling. Leaders might have selected those followers that they consider as highly authentic. Hence, ratings might be biased upwards with regard to the constructs of interest. Therefore, we recommend that future research aims to replicate our findings with larger and more representative samples.

Third, future research may investigate effects of authenticity across different cultures. According to Zhang et al. (2022) cultural dimensions as well as power distance may impact leader-follower relationships. Therefore, considering cultural influences may yield additional knowledge when it comes to the interplay between authenticity on behalf of the leader and the follower. We expect authentic leadership and followership to be essential for creating and maintaining a profound authentic culture, but such a climate or culture might as well strengthen the impact of authenticity on work-related outcomes. Thus, future studies will be needed to empirically test such interplay.

Fourth, a study by Emmerich et al. (2020) indicates that the effects of authenticity are not limited to a dyadic

relationship between the leader and the follower, but followers within teams may influence each other as well. Therefore, future research should investigate the effects of authenticity between colleagues in teams in addition to the effect of the leader. This could be especially promising as the relationships between teammates are less directed and teammates spend significantly more time together, compared to the time they spend with their leader.

Fifth, upcoming research should expand on our current results and examine further associations suggested by SDT. According to SDT, self-actualization can be regarded as an essential outcome of BPNS (Schoofs et al., 2022). However, theoretical insights from SDT concerning the increase of other well-being indicators, such as burnout, mental health or facets of psychological well-being (Ryff & Singer, 2008) may provide additional important insights. In a related vein, recent research by Reyes and colleagues (2023) has indicated BPNS to favor positive outcomes such self-actualization, but BPNF (basic psychological need frustration) has been proven decisive for negative outcomes such as burnout and even showed corresponding associations in the longitudinal analysis. Future research should therefore focus on both positive as well as negative outcomes and, above all, differentiate between BPNS and BPNF with possibly extrinsic/intrinsic value orientation of employees being taken into account (Reyes et al., 2023).

Finally, our use of cross-sectional data permits any interference of causal effects among the variables of interest. Thus, future longitudinal research with varying time lags is indispensable. It would be even more valuable to investigate these effects in an experimental design in the future, as experiments are the gold standard for testing causality (Antonakis et al., 2010). Our design that relied on cross-sectional data can be considered a limitation due to the lack of control for omitted variables. Nevertheless, we tried to reduce this limitation by collecting all data in the naturally occurring environment of the work context.

Despite those limitations, the present study contributes to the emerging body of authenticity literature. First, by relying on core principles of SDT, our study focused on self-actualization at work as an important outcome of eudaimonic well-being. Second, BPNS was considered as an explanatory, mediating process. Third, the impact of followers within the association has been examined. Finally, compared to previous research (e.g., Maunz & Glaser, 2023; Schoofs et al., 2022) the multilevel approach allows us to draw conclusions of within group processes.

Conclusion

This research provides insights into the impact of authentic leadership on indicators of followers' self-actualization. Our results support SDT's assumption that BPNS serves as a mediating process between authentic leadership and self-actualization. Moreover, the present findings suggest that followers' self-actualization is not solely depending on a leaders' level of authenticity. It rather emerges from a synergistic effect whereby authenticity on behalf of the leader and the follower increase followers' BPNS. Work environments encouraging and maintaining the perception of authentic leadership but also followers' authenticity seem to be essential for self-actualization of employees at modern workplaces. In this regard, authenticity may be particularly useful for any global organization to enhance positive outcomes and prevent negative outcomes related to the fundamental changes and associated challenges of today's workplaces (Avolio & Gardner, 2005).

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s12144-023-05480-6>.

Author Contribution Laura Klara Schoofs: Conceptualization, Methodology, Resources, Data Collection, Investigation, Validation, Writing - Original Draft and Manuscript, Review & Editing.

Funding Open access funding provided by University of Innsbruck and Medical University of Innsbruck.

Declarations

Ethical approval was granted by the Board for Ethical Questions in Science of the University of Innsbruck, Certificate of good standing, 90/2022. The authors did not receive support from any organization for the submitted work. The authors have no relevant financial or non-financial interests to disclose. The authors confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. Open access funding will be provided by the University of Innsbruck and Medical University of Innsbruck.

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