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## Is it Getting Better or Worse? Health-Oriented Leadership and Psychological Capital as Resources for Sustained Health in Newcomers

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During the transition from university to work, young adults face a stressful period in which leadership behavior serves as a guideline. Positive leadership behavior has the potential to increase internal resources, such as positive psychological capital (PsyCap). The research question addressed in this paper is if health-oriented leadership and PsyCap as resources jointly influence the physical and mental health of novice teachers during the transition to work. In a longitudinal study, 776 novice teachers responded to three questionnaires with a time lag of 10 weeks during the first 5 months of their occupational experience. Results of a latent class growth analysis show that three trajectories of physical health and four trajectories of mental health can be distinguished. Healthoriented leadership and PsyCap predict class membership separately, and the relationship between health-oriented leadership and class membership is mediated by PsyCap. This implies that training supervisors in health-oriented leadership can help novice teachers cope with stressors during their teacher training. Applying latent class growth models in this line of research is novel and adds to the understanding of internal and external resources in the process of adaptation to major life events, such as the transition from university to work.

## INTRODUCTION

The transition from education at university to working in an organization can be a stressful life event. According to adaptation theory, major life events lead to changes in well-being and health (Luhmann, Hofmann, Eid, & Lucas,

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2012). As Ellis et al. (2015) noted, our knowledge of the short- and long-term outcomes of the stress experienced by newcomers during the socialization process is still limited. Applying within-persons designs (i.e., studying the development of outcomes such as health or performance within persons over time) to understand the role of resources during the process of socialization and how these help to shape health outcomes of newcomers is recommended (Ellis et al., 2015). Therefore, in the present study we track the development of physical and mental health of newcomers during the first 5 months after organizational entry by means of the statistical method of latent class growth analysis (LCGA) to identify different trajectories of health in reaction to this transition, as the development of health unfolds over time and, therefore, is inherently dynamic (Palmer, 2016).

Recently, research on adaptation theory is shifting from studying temporary effects of major life events on well-being to factors influencing the trajectory of adaptation (Uglanova & Staudinger, 2013). The development of health and well-being depends on contextual and personal resources available to individuals (Uglanova & Staudinger, 2013). This notion is based on the conservation of resources (COR) theory, which suggests that resources travel in caravans (Chen, Westman, & Hobfoll, 2015). Such resource caravans occur when the availability of resources enables individuals to attain other new resources.

Various reviews and meta-analyses have shown that leadership plays a crucial role in keeping employees healthy despite high demands at work (Kuoppala, Lamminpää, Liira, & Vainio, 2008; Montano, Reeske, Franke, & Hüffmeier, 2017; Skakon, Nielsen, Borg, & Guzman, 2010). Several studies suggested that the link between constructive leadership with health and well-being is mediated by building up personal resources (e.g., Nielsen & Munir, 2009; Nielsen, Yarker, Randall, & Munir, 2009). In the present study, we introduce PsyCap, a malleable, and therefore, trainable motivational tendency (Luthans, Youssef, & Avolio, 2007) as a mediator. PsyCap is a wellvalidated construct consisting of four resources (self-efficacy, hope, resilience, and optimism). Referring to adaptation theory as well as COR theory, we suggest that health-oriented leadership (HoL) and PsyCap are both relevant predictors for the development of health.

By taking a person-centered approach to model trajectories of health, we aim to contribute to socialization literature, as well as leadership literature, following an occupational health psychological perspective in three ways. First, socialization literature has mainly focused on behavioral and organizational outcomes and widely ignored well-being and health as relevant outcomes (Ellis et al., 2015). However, the health of newcomers is an important variable since reduced health produces costs, for example, in the form of productivity loss or turnover of newcomers (Ellis et al., 2015). Therefore, it is an important goal to keep newcomers healthy during their transition. The positive role that supervisor support plays during this transition has been shown (Gruman & Saks, 2013; Jokisaari, 2013; Sluss & Thompson, 2012). We argue it is worthwhile to employ a leadership concept tailored to health promotion for studying health as an outcome during the adaptation process after career entry. It has been shown that HoL predicts health outcomes beyond transformational leadership (Franke, Felfe, & Pundt, 2014). With the present study, we enlarge knowledge on the development of health during organizational socialization and suggest that HoL plays a key role in this process.

Second, the mechanisms that allow HoL to influence health are not yet clear. In their conceptual model, Klug and Felfe (2019) integrated personal attributes as mediators between HoL and outcomes. Mechanisms studied so far are the self-care of employees (Franke et al., 2014; Horstmann, 2018) and working conditions (Horstmann & Remdisch, 2016; Jiménez, Bregenzer, Kallus, Fruhwirth, & Wagner-Hartl, 2017). With this paper, we enlarge knowledge on possible mechanisms by introducing PsyCap as a mediator that incorporates four malleable personal resources.

Third, we apply a person-centered approach and study the development of health over time. According to Roe (2008), a deeper knowledge of behavioral dynamics allows us to monitor the developmental trajectories, warn if critical changes occur, introduce corrections if trajectories diverge from an optimum, prevent unfavorable developments and their negative outcomes, and optimize trajectories by changing the conditions. This knowledge can only be gained by studying trajectories, and, at the moment, these "temporal processes are a bit of a black box in I-O [industrial-organizational] research" (Britt, Shen, Sinclair, Grossman, & Klieger, 2016, p. 394). By applying a person-centered approach in the present study, we generate knowledge on the development of mental and physical health after career entry. This allows us to understand which resources not only help to enhance health at one point in time, but also sustain health during a stressful period following a major life event.

## Adaptation Theory and Development of Health among Newcomers

The main proposition of adaptation theory is that major life events lead to changes in well-being (Luhmann et al., 2012). People adapt to positive or negative events over time and return to a baseline of well-being (Brickman & Campbell, 1971). This process of hedonic adaptation (Lyubomirsky, 2011) leads to a set-point differing between individuals and being above the neutral point (Diener & Diener, 1996). Adaptation is essential for functioning since only the habituation to chronic stimuli allows us to focus on changes and guide our attention to new information (Luhmann et al., 2012). Adaptation

protects people from the possible consequences of prolonged emotional states on physical and mental health (Lucas, 2007).

Two major perspectives guide the thoughts on life events: a developmental perspective and a stress perspective (Luhmann et al., 2012). From a developmental perspective, life events posit specific transitions. One can define transitions as discontinuities in people's lives that require a new behavioral response (Hopson & Adams, 1976). Within the stress perspective, life events posit one specific type of stressor that significantly disturbs the daily routine (Turner & Wheaton, 1997). It is important to delineate minor stressors, such as daily hassles, that are distinct from life events (Luhmann et al., 2012).

Career entry is a transition in life that fits both definitions. Newcomers entering an organization need to adjust to their new work environment (Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007), which is assumed to be stressful (Ellis et al., 2015). This process is known as organizational socialization, which "refers to the process by which newcomers make the transition from being organizational outsiders to being insiders" (Bauer et al., 2007, p. 707). As Bauer and Erdogan (2014) showed in their literature review, socialization is more important in the case of recent college graduates entering a job than for workers who change between jobs and have previous work experience.

Organizational socialization scholars have mainly focused on attitudinal and behavioral outcomes, including commitment, job satisfaction, turnover, or performance (Bauer & Erdogan, 2014). Ellis et al. (2015) included health and well-being as distal outcomes of socialization into their model and call for studies on health during socialization. Several authors answered this call by including burnout (Alessandri et al., 2018; Frögéli, Rudman, Lövgren, & Gustavsson, 2019), emotional exhaustion (Lapointe & Vandenberghe, 2018), or the prevalence of mental health problems (Levecque, Anseel, Beuckelaer, van der Heyden, & Gisle, 2017) in empirical and theoretical models. However, how physical and mental health develop after entering the workforce remains unclear. Positive adaptation to this transition becomes visible in sustained health despite the high and manifold demands experienced by newcomers. We aim to add to this literature by investigating the development of physical as well as mental health during career entry in the present study.

Within the process perspective of adaptation theory, researchers aim to predict trajectories of well-being by focusing on changes within individuals initiated by external stimuli and causing a physical or mental response (Luhmann et al., 2012). Diener, Lucas, and Scollon (2006) argued that if adaptation was an automatic process after life events, then the trajectory of adaptation would be the same for all individuals. However, empirical evidence suggests there are large individual differences in the extent, direction, and rate of adaptation after the same sort of life event (Diener et al., 2006); therefore, differences in individual changes are of interest (Kammeyer-Mueller,

Wanberg, Rubenstein, & Song, 2013). Concerning negative life events, this trajectory depicts a process of recovery in which the life event triggers a psychopathology or sickness that leads back to normal functioning (Bonanno, 2004; Galatzer-Levy, Huang, & Bonanno, 2018). Thus, when studying adaptation during organizational socialization, it is important to measure changes over time in health (Chen, Ployhart, Thomas, Anderson, & Bliese, 2011).

Only a few studies concerning adaptation during the transitioning from university to work or on organizational socialization have employed this approach. For instance, Frögéli, Rudman, and Gustavsson (2019) investigated the development of strain in nurses entering the workforce and found a slight overall decrease of strain during the first 3 months with significant individual differences in this rate of change. Valero and Hirschi (2019) showed that two distinct trajectories of job satisfaction in adolescent workforce newcomers exist, as one-third of their sample showed a high and stable job satisfaction, whereas two-thirds showed decreasing job satisfaction over the first 4 months after career entry.

This leads us to the proposition that different trajectories of physical and mental health exist in newcomers. We expect at least two different trajectories: a group with stable health implying successful adaptation to the new stressors and a second group with decreasing health because of rather unsuccessful adaptation.

*Proposition 1:* The (a) physical health and (b) mental health experienced by newcomers during their first 5 months can each be grouped into different trajectories.

# Embedding Health-Oriented Leadership within Adaptation Theory

The question that arises is the following: What are strategies and factors leading to positive and successful socialization and adaptation? Since most of the work experiences during socialization are new and contribute to the sense-making of the new environment, the role of interpersonal interactions is "likely to resonate especially strongly with newcomers" (Kammeyer-Mueller et al., 2013, p. 1106). Research shows that supervisory support decreases distress (Fisher, 1985; Nelson & Quick, 1991), enhances job satisfaction (Fisher, 1985; Jones, Smith, & Johnston, 2005), and influences affect (Nifadkar, Tsui, & Ashforth, 2012).

Various studies have shown the positive relationship of transformational, relations-oriented, supportive, and considerate leadership with health and well-being (for an overview see Montano et al., 2017; Skakon et al., 2010). However, these classical leadership concepts are not tailored to the question

of how leaders influence health and well-being. Therefore, Franke et al. (2014) developed the concept of HoL, which incorporates three facets of leadership behavior and attitudes towards followers. These are health behavior, value of health, and health awareness (Franke & Felfe, 2011). Health behavior refers to engagement and personal activity in health-enhancing actions. Value of health describes the importance that individuals ascribe to their health or the health of their followers. Aspects such as sensitivity, reflection, and attention paid to health are subsumed under *health awareness* (Franke et al., 2014). Within COR theory (Hobfoll, 1989, 2011), HoL can be categorized as an external resource that helps employees acquire new resources and maintain their health. It is part of the health-promoting behavior of the leader to notice when employees are stressed and to address this in direct communication (Klug, Felfe, & Krick, 2019). In this way, tasks can be prioritized together and the employees can be motivated to make use of health promotion services and live in a healthy way (Franke et al., 2014). This form of behavior should reduce the tension in work situations and thereby unfold its health-promoting potential.

Evidence for this model is derived from studies investigating the relationship of HoL with mental health. When leaders show HoL, employees experience less strain (Franke & Felfe, 2011), fewer health complaints (Horstmann & Remdisch, 2016; Klug et al., 2019), less physical or mental health problems, and higher well-being (Santa Maria, Wolter, Gusy, Kleiber, & Renneberg, 2019) and self-rated health (Klug et al., 2019). Moreover, Franke et al. (2014) showed that HoL has a strong relationship with employees' health measured with a time lag of 4 months. However, in this study, the effect of StaffCare on health 4 months later was tested in a hierarchical regression but without control for health at the first measurement point, with results indicating that StaffCare has incremental validity above and beyond transformational leadership (Franke et al., 2014). The design of the present study goes beyond this lagged design by predicting trajectories of health by HoL.

*Hypothesis 1:* HoL experienced by novice teachers predicts membership in the stable compared to the nonstable trajectories of (a) physical and (b) mental health.

## The Role of Personal Resources in Adaptation Theory

Lyubomirsky's (2011) model of adaptation theory suggests that individual aspects and strategies, such as gratitude or optimism, are able to prolong positive feelings after positive events and help attenuate negative feelings after negative events. In their model of socialization, Ellis et al. (2015) also proposed that personal resources, such as self-efficacy and locus of control, can be threatened by high perceived stress during socialization. During career entry, occupational self-efficacy is an important variable in predicting career satisfaction (Abele & Spurk, 2009), job satisfaction (Gruman, Saks, & Zweig, 2006; Pinquart, Juang, & Silbereisen, 2003), proactive behavior (Gruman et al., 2006), engagement (Saks & Gruman, 2011), performance, intentions to remain, turnover (Bauer et al., 2007), and anxiety and stress (Saks, 1994). An internal locus of control in newcomers is associated with higher job satisfaction and lower work anxiety (Spector & O'Connell, 1994). This demonstrates that different personal resources can play a role in the socialization process.

To more comprehensively study the influence of personal resources in the process of adaptation and socialization of newcomers, the concept of PsyCap (Luthans, Youssef et al., 2007) is well suited (cf., Bauer & Erdogan, 2014; Klemme Larson, & Bell, 2013). PsyCap is a metaconstruct that includes self-efficacy, optimism, hope, and resilience (Luthans, Youssef et al., 2007). Self-efficacy (Bandura, 1977) describes the belief of individuals that they can act out a certain behavior to attain the desired outcome. Optimism is an attributional pattern where defeat is interpreted as temporary, limited to one case, and externally attributable, whereas positive events are interpreted as being permanent, pervasive, and attributable to personal accomplishment (Seligman, 2011). Hope is defined as a positive motivational state derived from pursuing a certain goal, which includes agency and pathways (Snyder, 2002). Resilience is the "positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure, or even positive change, progress, and increased responsibility" (Luthans, 2002, p. 702). These four aspects of PsyCap can be grouped into one second-order factor theoretically (Luthans, Norman, Avolio, & Avey, 2008) and empirically (Luthans, Avolio, Avey, & Norman, 2007). The higher-order construct of PsyCap is defined as "a motivational propensity to accomplish tasks and goals" (Luthans, Avolio et al., 2007, p. 548). The combination of these four aspects should be more impactful and broader than each construct individually (Luthans, Avolio et al., 2007).

In their conceptual model, Youssef-Morgan and Luthans (2015) stated that well-being is driven by positive PsyCap. In a meta-analysis, PsyCap shows a positive relationship to satisfaction, commitment, and mental well-being (Avey, Reichard, Luthans, & Mhatre, 2011). In addition, PsyCap negatively influences mental health problems, substance abuse (Krasikova, Lester, & Harms, 2015), anxiety, depression, negative affect (Roche, Haar, & Luthans, 2014), burnout (Estiri, Nargesian, Dastpish, & Sharifi, 2016), and psychological distress (Mazzetti, Guglielmi, Chiesa, & Mariani, 2016) and positively influences subjective well-being (Rabenu, Yaniv, & Elizur, 2017). We expand these findings in applying it to the outcomes of trajectories of physical and mental health.

*Hypothesis 2:* PsyCap predicts membership in the stable compared to the nonstable trajectories of (a) physical and (b) mental health.

## Psychological Capital as a Mediator

According to COR theory, resources travel in caravans (Hobfoll, 1989, 2011). When experiencing a high level of resources, individuals are more capable of attaining other new resources. We propose that the external resource of HoL will influence PsyCap as an internal resource. On a continuum between the poles of state and trait, PsyCap is seen as a state-like trait (Harms, Vanhove, & Luthans, 2017; Luthans, Avolio et al., 2007). Thus, aspects such as the leaders' behaviors influence the levels of PsyCap of employees (Luthans et al., 2008; Luthans & Youssef-Morgan, 2017). In their socialization resources theory, Gruman and Saks (2013) proposed that different socialization resources, such as training or anticipatory socialization, should lead to higher PsyCap of newcomers, which in turn should positively influence various outcomes, including well-being. They argued that the time as a newcomer can be a turbulent and difficult transition leading to doubt, confusion, anxiety, or disorientation (Klein & Heuser, 2008). In this situation, PsyCap is an important factor and well-being is an important outcome (Gruman & Saks, 2013). This is further supported by empirical evidence showing that empowering (Avey, 2014; Gyu Park, Sik Kim, Yoon, & Joo, 2017), ethical (Avey, 2014), servant (Bouzari & Karatepe, 2017; Karatepe & Talebzadeh, 2016), and authentic (Gill & Caza, 2018) leadership are positively linked to the PsyCap of followers.

In their theoretical reasoning of the HoL approach, Franke et al. (2014) argued that HoL not only influences behavior, but also cognitive and motivational aspects. Therefore, we argue that HoL influences PsyCap. For example, by assigning tasks with appropriate difficulty, health-oriented leaders create opportunities for performance accomplishment (Bandura, 1977) and enhance self-efficacy and goal-directed thinking (Snyder, 2002) in newcomers. Optimism is thwarted by negative and nurtured by positive experiences (Peterson, 2000). By encouraging followers to engage in recreational activities, health-oriented leaders enhance possibilities for positive experiences and thereby help to build or restore optimism and resilience. PsyCap, in turn, influences mental health, as described earlier. PsyCap has been shown to mediate the relation of leadership behavior with performance (e.g., Bouckenooghe, Zafar, & Raja, 2015; Schuckert, Kim, Paek, & Lee, 2018), work engagement (Gyu Park et al., 2017; Karatepe & Talebzadeh, 2016), and intention to quit (Bouzari & Karatepe, 2017; Olaniyan & Hystad, 2016). Only one study investigated PsyCap as a mediator between leadership and health.

Lin (2013) showed that the relationship between organizational support and burnout is mediated via PsyCap (Lin, 2013). Overall, we conclude with the following hypothesis:

*Hypothesis 3:* Psychological capital mediates the relationship between HoL and membership in the stable compared to the nonstable trajectories of (a) physical and (b) mental health.

## METHOD

## Setting

The sample consisted of university graduates entering their careers as teachers in Germany. In Germany, a systematic induction period exists to introduce novice teachers to their new tasks. The length of this period varies among the federal states between 1.5 and 2 years and consists of two parts. On the one hand, novice teachers teach at a school and fulfill the tasks of a teacher. All are federally employed and receive a salary, and most of the trainees are temporary civil servants. On the other hand, they are expected to attend seminars organized by vocational teachers' training colleges (Klusmann, Kunter, Voss, & Baumert, 2012). The work and progress of the novice teachers are monitored by supervisors at the training colleges. These supervisors provide feedback and evaluate the novice teachers' performance according to the prescribed competency goals. The novice teachers have at least weekly interactions with their supervisors.

## Procedure and Sample

The principals of the vocational teachers' training colleges were contacted and asked to administer the questionnaires to novice teachers in their college at three time points. The first time point was during the first week of the induction period ( $N_{t1} = 2,365$ ), and the second ( $N_{t2} = 1,830$ ) and third surveys ( $N_{t3} = 1,305$ ) followed 10 and 20 weeks later, respectively. The final sample consisted of 776 novice teachers who participated in all three surveys. To achieve optimal estimates of growth parameters, only cases with full participation were included in the analysis.

The sample was female dominated with 70.5 percent being women. This gender distribution can be seen to be representative for teachers in Germany, as the share of female teachers in 2018 was reported to be 73 percent across all types of schools (Statistisches Bundesamt, 2019). The mean age of respondents was 27.58 years (SD = 4.59) with a range from 22 to 57 years. An analysis of the participants who answered all three surveys and those who did

not, showed no differences in gender (t(2347) = -0.31, p = .757) and mental health (t(2307) = 1.262, p = .207). However, participants differed in their age (t(2316) = -2.138, p = .033) and level of physical health (t(2307) = 3.384, p = .001), with those completing all surveys being on average 7 months younger and reporting better physical health than those with incomplete participation.

## Measures

*Health.* The physical and mental health of novice teachers was measured using the 12-item Short-Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996). The SF-12 consists of 12 items and weighted use of the items results in two scores: a physical and a mental score of health. Examples of items are "How would you describe your state of health in general?" or "Did you manage less than you wanted in the past month because of your physical health?" Questions were answered either on a binary scale (*yes, no*) or on a Likert scale with five or six points. The German version of the SF-12 has been validated (Wirtz, Morfeld, Glaesmer, & Brähler, 2018), and calculation of scores followed recommendations by Reusch, Zwingmann, and Faller (2002). Overall, the SF-12 reliably and validly measures the subjective health of study participants (Ware et al., 1996). Higher scores indicate better health, and interpretation is in relation to a population mean of 50 (SD = 10). Theoretically, a range from 0 (worst health) to 100 (best health) is possible (Wirtz et al., 2018). Physical and mental health was measured at all time points.

Health-Oriented Leadership. The extent of HoL shown by the supervisor was measured with the instrument developed by Franke et al. (2014). The instrument is comprised of 22 items, building the four subscales of awareness (6 items), value (3 items), behavior (10 items), and lifestyle (3 items). Examples of items are "My supervisor in the training college notices when I reach my health limits" or "My supervisor in the training college makes sure that the topic of health is not neglected." Answers were given on a 5-point Likert scale with the endpoints 1 (not at all true) and 5 (absolutely true). Four items were excluded from further analysis since they decreased the internal validity and the model fit of confirmatory factor analyses. Confirmatory factor analyses revealed that a model with four facets had the best fit ( $\chi^2(129)$  = 638.84, CFI = .94, TLI = .93, RMSEA = .08) compared to a model with only one factor ( $\chi^2(135) = 2274.6$ , CFI = .75, TLI = .72, RMSEA = .15) as well as a model with a second-order factor comprising the other four facets  $(\gamma^2(131) = 657.59, CFI = .94, TLI = .93, RMSEA = .08)$ . However, since we did not assume differential hypotheses for the facets of HoL and the values of CFI, TLI, and RMSEA did not differ between the four-facet model and the hierarchical model, we operationalized HoL as a model with a second-

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order factor in all further analyses. The internal consistency for the global assessment was .94. HoL was only measured at the second time point. Since the first assessment was during the first week of the induction period, it was impossible to measure the leadership behavior of the supervisor. If at all, our respondents only had sporadic meetings with their supervisor within these few days and, therefore, could not evaluate the leadership behavior in a valid way. During the first months of the induction period, novice teachers normally have weekly contact with their supervisor. The evaluation of HoL by the supervisor refers to the first 10 weeks of the induction period.

*Psychological Capital.* To measure the three subscales of hope, optimism, and resilience of PsyCap, the PCQ (Luthans, Youssef et al., 2007) was used. Sample items are "I can think of many ways to reach my current work goals" (hope), "I always look on the bright side of things regarding my job" (optimism), and "I usually take stressful things at work in stride" (resilience). Since the items on self-efficacy of the PCQ were not adequate for the job of teachers, the three items with the highest loadings of the occupational selfefficacy scale by Rigotti, Schyns, and Mohr (2008) were used. Answers for all items were given on a 6-point Likert scale with the endpoints 1 (is not true at all) and 6 (is absolutely true). The internal validity of the scale was high ( $\alpha = .92$ ). The hierarchical structure of PsyCap was replicated with a confirmatory factor analysis comprising a second-order factor ( $\gamma^2(50)$  = 579.61, CFI = .89, TLI = .85, RMSEA = .12). A confirmatory factor analysis with the four facets did not differ significantly from this solution ( $\chi^2(48)$  = 573.77, CFI = .89, TLI = .84, RMSEA = .12). Both models fitted significantly better than the model with only one factor ( $\chi^2(54) = 652.03$ , CFI = .87, TLI = .84, RMSEA = .12). Based on theoretical reasoning and previous research, we decided on the hierarchical model of PsyCap (Luthans, Avolio et al., 2007). The PsyCap measurement at the second time point referred to the momentary state of PsyCap and was used in the analyses to create a temporal fit with the measurement of HoL.

*Control Variables.* Gender, age, and the type of school novice teachers worked at were included as possible control variables. Gender was dummy coded with 0 (*female*) and 1 (*male*). The type of school was measured with the five possible school types, but also dummy coded with 0 (*advanced schools*) and 1 (*other schools*) for subsequent analysis.

## Analyses

One statistical approach that offers the possibility to understand the development of health over time is LCGA, which is a person-centered approach

that assumes the sample includes two or more subpopulations characterized by different patterns of growth parameters (Morin, Bujacz, & Gagné, 2018). Thereby, the results provide a system allowing the classification of individuals into distinct profiles that differ qualitatively and quantitatively. In the present study, LCGA was applied to differentiate trajectories of physical and mental health in an exploratory way, following recommendations by Wickrama, Lee, O'Neal, and Lorenz (2016) and van de Schoot, Sijbrandij, Winter, Depaoli, and Vermunt (2017).

The first step is to estimate a simple growth model—in our case, a linear growth model (Wickrama et al., 2016). The next step is to determine the optimal number of latent classes by applying an iterative process and comparing different possible models (Nylund, Asparouhov, & Muthén, 2007). After deciding on the best model with several classes, one can integrate auxiliary variables and specify moderation or mediation models including the latent classes (McLarnon & O'Neill, 2018). When integrating a predictor into the model, a multinomial regression is performed (Wickrama et al., 2016). To estimate the conditional models, we used the 3-step approach. This approach is superior to the 1-step approach since the estimation of class memberships remains stable while integrating predictors. For the simple inclusion of one or more predictors, the automated auxiliary option of Mplus was used, whereas the 3-step method was conducted manually for the mediation model (Wickrama et al., 2016).

## RESULTS

Means and correlations are displayed in Table 1. A low but significant correlation within physical health across the three time points occurs. Correlations of mental health across the three time points are moderate and means of physical and mental health show a decrease in health over time. We found small but significant correlations of gender and age with physical health at the first time point. However, since the correlations of these two possible control variables with the other measures of physical health were not significant and neither with mental health, we decided not to include them in further analyses.

## Latent Classes of Physical and Mental Health

We proposed that different trajectories of physical and mental health could be distinguished. Models with one to five classes were enumerated and compared (Table 2). We based our decision for one of these models on the significant decrease of fit parameters, on the entropy, and on interpretability. We used the Lo-Mendell-Rubin adjusted likelihood ratio test (LMR-LRT), as it is the most robust and therefore preferable test statistic (Nylund et al., 2007).

			Means	s, Standa	TABLE rd Deviati	∃ 1 ons, and 0	Correlatio	ns				
Variable	М	SD	Ι	7	ŝ	4	S	6	7	8	6	10
1. Gender	0.29	0.45										
2. Age	27.58	4.59	.14**									
<ol><li>School type</li></ol>	0.48	0.50	.16**	.03								
4. Physical health T1	54.60	4.75	07*	10**	01							
5. Physical health T2	54.15	5.71	03	06	03	.34**						
6. Physical health T3	54.31	5.61	.01	02	.02	.22**	.37**					
7. Mental health T1	50.55	7.79	.00	05	.02	19**	.05	.11**				
8. Mental health T2	47.12	9.88	.04	04	01	.02	19**	.11**	.46**			
9. Mental health T3	45.54	10.66	.04	01	04	.02	.04	02	.43**	.62**		
10. HoL T2	2.60	0.86	.02	11**	19**	.06	.01	.07	.13**	.21**	.17**	
11. PsyCap T2	4.12	0.91	.08*	.10**	00	*60.	.03	.07	.30**	.55**	.42**	.28**
Note: HoL = health-orient coded $0 =$ advanced school * $p < .05; **p < .01.$	ed leadership s and 1 = oth	o, PsyCap =	= psychologi ypes.	cal capital;	T1 = time 1,	T2 = time 2,	T3 = time 3;	gender is co	oded 0 = fe	male and	l = male; so	shool type is

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Model	Log L (df)	AIC	BIC	ABIC	LMR	Class sizes	Entr.
Physical Sc	ore						
C1 ( $k = 1$ )	-7093.06 (8)	14202.13	14239.36	14213.96		776	
C2 ( $k = 2$ )	-6992.42 (8)	14000.83	14038.07	14012.66	<.001	62, 714	.95
C3 ( $k = 3$ )	-6871.94 (11)	13765.89	13817.08	13782.15	.04	40, 79, 657	.94
C4 ( $k = 4$ )	-6799.73 (14)	13627.46	13692.62	13648.16	.002	635, 44, 84, 13	.95
C5 (k = 5)	-6762.70 (17)	13559.40	13638.52	13584.54	.11	626, 16, 48, 73, 13	.94
Mental Sco	re						
C1 ( $k = 1$ )	-8217.41 (8)	16450.81	16488.04	16462.64		776	
C2 ( $k = 2$ )	-8157.78 (8)	16331.56	16368.80	16343.39	<.001	620, 156	.89
C3 ( $k = 3$ )	-8074.63 (11)	16171.26	16222.46	16187.53	.05	88, 566, 122	.88
C4 ( $k = 4$ )	-8001.60 (14)	16031.20	16096.36	16051.90	.02	74, 49, 529, 124	.90
C5 (k = 5)	-7976.80 (17)	15987.59	16066.71	16012.73	.21	36, 504, 79, 97, 60	.87

TABLE 2 Fit Indices for Latent Class Growth Models with Different Class Solutions

*Note*: Figures indicating the statistically most favorable class solution are in bold. AIC = Akaike information criterion, BIC = Bayesian Information Criterion, ABIC = Sample-size adjusted BIC, LMR = p-values of the Lo-Mendell-Rubin Adjusted Likelihood Ratio Test, Entr. = Entropy.

Entropy is a measure of the classification accuracy (Wickrama et al., 2016) and is a standardized index with higher values indicating a better enumeration accuracy.

The three-class model of physical health fits the data well compared to the two-, four- or five-class models. Entropy is slightly higher for the twoand the four-class models (*Entropy* = .95) than for the three-class model (*Entropy* = .94). However, the smallest class in the four-class model only consisted of 13 individuals and interpretability of the three-class solution was better. The classes that can be observed (Figure 1) are a class with high and stable physical health (= resilient, 84%), one class with high initial physical health that significantly decreases over the first half year of teaching (= decreasing, 10%), and a class with low initial values of physical health that significantly increase over time (= increasing, 5%). In Table 3 the number of participants in each class as well as estimates of intercept and slope for the classes are depicted. The Wald test of parameter constraints shows that the intercepts of the classes significantly differ (*Wald*  $\chi^2(2) = 130.58$ , p < .001).

The LCGA of the mental health score revealed that a four-class solution best fits the data (Table 2). The decrease in fit indices is significant for the four-class model compared to the three-class model. Moreover, entropy is highest for the four-class solution (*Entropy* = .90) and interpretability is given. Most novice teachers belong to the resilient class (Figure 2) with high initial values in mental health and a slight but significant decrease (= resilient, 68%).

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**3 Clusters** 

FIGURE 1. Latent trajectories of physical health. Higher values indicate a higher health.

Variable	Class	$N\left(\% ight)$	Intercept B(SE)	Slope B(SE)
Physical Score	Resilient	657 (84%)	55.69 (0.14)***	-0.08 (0.14)
	Decreasing	79 (10%)	51.16 (1.20)***	-4.72 (0.51)***
	Increasing	40 (5%)	41.18 (1.39)***	7.40 (0.92)***
Mental Score	Resilient	529 (68%)	53.59 (0.24)***	-1.38 (0.19)***
	Decreasing	124 (16%)	51.29 (0.80)***	-10.60 (0.53)***
	Increasing	74 (10%)	39.02 (1.09)***	2.72 (0.97)**
	Low-chronic	49 (6%)	32.60 (2.09)***	-3.11 (1.10)**

TABLE 3 Properties of Latent Classes of Physical and Mental Health

*Note*: The number of participants in each class of physical and mental health is indicated in absolute numbers as well as in percent in parentheses.

\*\*p < .01; \*\*\*p < .001.



FIGURE 2. Latent trajectories of mental health. Higher values indicate a higher health.

A second class also starts with high initial mental health but experiences a steep significant decrease (= decreasing, 16%). The third class starts with rather low values of mental health but shows a significant increase over time (= increasing, 10%). The last class already starts with very low values of mental health that further decrease significantly within the first months of teaching (= low-chronic, 6%). The Wald test of parameter constraints shows that the intercepts of the classes significantly differ ( $\chi^2(3) = 329.24$ , p < .001). Detailed tests of differences between the latent classes at all measurement points and plots for all possible class solutions can be found in the online supplementary materials. Overall, these results support our proposition that different trajectories of physical and mental health in novice teachers exist. For both aspects of health, we find one class that shows a resilient trajectory. The membership probability to the latent classes of physical and mental health could not be predicted by the possible control variables gender, age, or

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school type. This further supports that these variables must not be taken into consideration.

## Health-Oriented Leadership and Psychological Capital as Predictors of Class Membership

Hypothesis 1 proposed that HoL predicts the probability of belonging to the stable compared to the nonstable trajectories of (a) physical and (b) mental health. Results of the 3-step method reveal that teachers experiencing higher levels of HoL are more likely to belong to the resilient compared to the decreasing trajectory of physical health ( $\gamma = -.58$ , *S.E.* = .24, *p* = .02; Table 4). The difference between the resilient and the increasing trajectory

		Model 1	Model 2	Model 3
		$\gamma(SE)$	$\overline{\gamma(SE)}$	$\overline{\gamma(SE)}$
Physical Score				
Increasing vs. Resilient	HoL	0.01 (0.30)		0.14 (0.31)
	PsyCap		-0.35 (0.28)	-0.39 (0.29)
Decreasing vs. Resilient	HoL	-0.58 (0.24)*		-0.42 (0.26)
	PsyCap		-0.52 (0.15)***	-0.42 (0.17)*
Indirect effects	Increasing vs. Resilient			-0.14 (0.11)
	Decreasing vs. Resilient			-0.15 (0.07)*
Mental Score	-			
Decreasing vs. Resilient	HoL	-0.48 (0.20)*		-0.12 (0.28)
	PsyCap		-1.31 (0.21)***	-1.29 (0.31)***
Increasing vs. Resilient	HoL	-0.39 (0.22) <sup>†</sup>		-0.24 (0.25)
	PsyCap		-0.61 (0.26)*	-0.56 (0.28)*
Low-chronic vs. Resilient	HoL	-0.98 (0.32)**		-0.36 (0.42)
	PsyCap		-2.07 (0.29)***	-1.99 (0.38)***
Indirect effects	Decreasing vs. Resilient			-0.46 (0.14)***
	Increasing vs. Resilient			$-0.20(0.11)^{\dagger}$
	Low-chronic vs. Resilient			-0.71 (0.20)***

 TABLE 4

 Predictors and Mediation Model for Trajectories of Physical and Mental Health

*Note*: HoL = health-oriented leadership, PsyCap = psychological capital; Model 1 = only HoL as predictor, Model 2 = only PsyCap as predictor, Model 3 = mediation of HoL – class membership relationship through PsyCap,  $\gamma$  = unstandardized estimate. \*p < .05; \*\*p < .01; \*\*\*p < .001; <sup>†</sup>p < .10.

of physical health could not be predicted by HoL ( $\gamma = .01$ , *S.E.* = .30, p = .98). For mental health trajectories, we find similar results. With high levels of HoL, it is more likely to belong to the resilient compared to the decreasing ( $\gamma = -48$ , *S.E.* = .20, p = .02) and the low-chronic trajectory ( $\gamma = -.98$ , *S.E.* = .32, p = .002). For the comparison between the increasing and the resilient class, HoL only marginally predicts class membership ( $\gamma = -.39$ , *S.E.* = .22, p = .08) with a higher probability to belong to the resilient class for higher HoL. Overall, Hypothesis 1 is partly supported.

We hypothesized that PsyCap as an internal resource predicts class membership (Hypothesis 2). For physical health trajectories, teachers with high PsyCap are more likely to belong to the resilient class ( $\gamma = -.52$ , *S.E.* = .15, p = .001). The comparison between the resilient and the increasing class of physical health cannot be predicted by PsyCap ( $\gamma = -.35$ , *S.E.* = .28, p = .22). Therefore, Hypothesis 2a is partly supported. Concerning mental health trajectories, we could show that with higher PsyCap, it is significantly more likely to belong to the resilient class compared to the decreasing class of mental health ( $\gamma = -1.31$ , *S.E.* = .21, p < .001), with increasing mental health ( $\gamma = -.61$ , *S.E.* = .26, p = .02), and with persistent low mental health ( $\gamma = -2.07$ , *S.E.* = .29, p < .001). Therefore, Hypothesis 2b is supported.

## **Mediation Model**

Hypothesis 3 indicates that the influence of HoL on class membership probabilities is mediated through PsyCap. For physical health, we found that high levels of experienced HoL are related to high levels of teachers' PsyCap (both measured at T2), which in turn makes it more likely they belong to the resilient class ( $\gamma = -.15$ , *S.E.* = .07, p = .02). The comparison of the increasing and the resilient trajectory again is not significant ( $\gamma = -.14$ , *S.E.* = .11, p = .19). Hypothesis 3a, therefore, is partly supported. For mental health trajectories as an outcome, results show that high HoL leads to higher PsyCap, which leads to a significantly higher probability of belonging to the resilient trajectory of mental health compared to the decreasing ( $\gamma = -.46$ , *S.E.* = .14, p = .001) and the low-chronic trajectory ( $\gamma = -.71$ , *S.E.* = .20, p < .001). The mediation model is only marginally significant for the resilient compared to the increasing trajectory ( $\gamma = -.20$ , *S.E.* = .11, p = .07) with higher HoL and PsyCap leading to a higher probability to belong to the resilient trajectory. Thus, Hypothesis 3b is supported.

## Additional Analysis

In addition to the mediation model with latent trajectories as outcomes, we estimated a simple mediation model for health at T3 as an outcome while controlling for health at T2 (see online supplementary materials). The results

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show that HoL measured at T2 predicts PsyCap at T2 (B = .36, S.E. = .05, p < .001). PsyCap in turn predicts mental health at T3 (B = 1.19, S.E. = .52, p = .02) but not physical health (B = .29, S.E. = .29, p = .32). Similarly, the indirect effect of HoL on mental health via PsyCap is also significant (B = .42, S.E. = .20, p = .03), but not for physical health (B = .10, S.E. = .10, p = .32).

### DISCUSSION

Within a sample of novice teachers experiencing the transition from university to employment, we could find different trajectories of physical and mental health. Results reveal that HoL and PsyCap predict the class membership of individuals and that indirect effects of HoL on class membership via PsyCap exist.

### Theoretical and Practical Implications

The main finding that HoL and PsyCap as resources influence health supports earlier empirical findings (Avey et al., 2011; Franke et al., 2014). However, the results of this study extend previous findings in four important ways. First, prior studies on the impact of PsyCap on health focus on mental health outcomes, whereas physical health is seldom measured. The same holds for outcomes of HoL. Thereby, the empirical evidence on the role of PsyCap and HoL as resources for health is strengthened and broadened.

The second contribution is based on the longitudinal design of the study. Mental and physical health were measured at three time points with a lag of 10 weeks. With this design, we are able to bring adaptation theory to a sound test using health as an outcome (cf., Ellis et al., 2015). In our sample of novice teachers, we found three latent trajectories of physical health and four trajectories of mental health. Based on adaptation theory, we expected one class with stable health that quickly adapts to the new life situation. This could be supported for physical health, as LCGA revealed one stable trajectory with no significant slope. For mental health, LCGA yielded one rather stable trajectory but showed a slight decrease. These resilient trajectories in both cases are the largest ones, with 86 percent of participants belonging to this class for physical health and 67 percent of participants for mental health.

The trajectories with decreasing physical and mental health indicate a class with no positive adaptation during the socialization process. Hence, a quick and positive adaptation does not take place in all cases (see also Bonanno, 2004; Galatzer-Levy et al., 2018). Instead, some novice teachers show a strong reaction to the transition with deteriorating health. For mental health, we found a second decreasing trajectory (low-chronic). The participants belonging to this class (6.5%) seemed to experience very low levels of mental health at the beginning of the induction period, which further deteriorated

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over the course of the next 5 months. It is striking that their mental health is particularly low—their self-reported mental health was nearly two standard deviations below the norm sample of the SF-12. Indeed, this seems to be a high-risk group for developing chronic mental health problems during their careers as teachers (Vilagut et al., 2013).

Moreover, we found an interesting trajectory of physical as well as mental health that shows an increase in health. For both aspects of health, this was only a small group of participants: 5 percent for physical health and 2 percent for mental health. The interpretation of this increasing trajectory is not clear. It seems likely that those novice teachers felt severely stressed by the thought of starting their induction period in the sense of anticipatory stress. Research on anticipatory stress shows that high levels of anticipating future stressors have negative effects on somatic complaints, endocrinological outcomes, and the immune system (Brosschot, Gerin, & Thayer, 2006; Gaab, Rohleder, Nater, & Ehlert, 2005), which thereby supports this assumption.

Taken together, the finding of these classes shows that applying adaptation theory to health as an outcome (Ellis et al., 2015) can be fruitful in differentiating between trajectories of health. Since individuals react differently to the transition from university to work, it is enriching to take a person-centered perspective. Moreover, COR theory can be expanded in not only stating that the availability of resources influences health (Hobfoll, 2011), but also trajectories of health. This broader conceptualization of health as trajectories further supports and strengthens COR theory, and follows the many calls to integrate time into occupational health research (Roe, 2008; Sonnentag, 2012). The person-centered approach to research on resources adds to the understanding of how the availability of internal and external resources shapes the development of health. With our study, we could show that high levels of resources conserve health.

The third contribution of this paper is an investigation of the predictors of positive adaptation to career entry as a major life event. Current work on predictors of adaptation focus on general support by the leader (Gruman & Saks, 2013; Sluss & Thompson, 2012). We expand these findings by showing that the external resource of leadership specific for health and the internal resource of PsyCap predict membership to the latent trajectories of health. This prognostic value is particularly interesting since the mediation analysis with physical health at T3 as an outcome is not significant (see additional analysis) and bivariate correlations of physical health with HoL and PsyCap are low and most are not significant. However, concerning the trajectories of physical health, we find that HoL and PsyCap are significant predictors for the probability of belonging to the resilient compared to the decreasing class. Since both predictors were measured at T2 and trajectories were built with values from T1 to T3, the timely order and causality should be interpreted cautiously. However, this is a challenge inherent in the research on newcomers and organizational socialization. It is important to incorporate a baseline measure of health and well-being; however, possible predictors, such as social support or leadership behavior, are experienced after this baseline measure (see also Tims, Bakker, & Derks, 2013; Valero & Hirschi, 2019).

Fourth, the results on mediation effects further support COR theory, which states that the availability of resources triggers further resource gain and, in consequence, also health (Hobfoll, 2011). We could show that the external resource HoL leads to acquiring additional personal resources in the form of PsyCap, which helps protect physical and mental health in times of stress. This supports the notion of gain spirals of COR theory with one set of resources specific to the occupational context.

Overall, fortunately, most novice teachers remain mentally and physically healthy during the first 5 months of their occupational life. Nevertheless, it is important to strengthen internal and external resources since they can predict the probability of staying healthy in this demanding time. Behavioral and relational interventions must be used together since external resources influence internal resources. Given that leadership behavior is trainable (Kelloway & Barling, 2010), it is a possibility for interventions to create more resources at the availability of employees. Current research points out the possibilities of leadership training and its beneficial role for employees' health and well-being (e.g., Dimoff & Kelloway, 2019). In addition to this, personal resources can be directly trained. A recent meta-analysis showed that PsyCap interventions are effective (Lupsa, Vîrga, Maricuțoiu, & Rusu, 2019). Moreover, since the intercepts of the trajectories of physical and mental health already differ at the beginning of the career of novice teachers, it could help to conduct a screening and offer tailored interventions and support for those with low health when starting teaching. By addressing health topics this early in the career of young teachers, one could prevent the common problems of teacher shortage (OECD, 2005) and high values in burnout and measures of mental strain in teachers.

## Limitations and Future Research

Although our study provides strong empirical evidence for the process of adaptation in novice teachers, it has its limitations. First, we used single-source data from the novice teachers and, therefore, common method bias might occur. Objective measures of health would have been a possible alternative to self-reported health. However, on the one hand, practical reasons of feasibility (e.g., privacy guidelines) argued against it; on the other hand, it was not our goal to assess how the clinical diagnoses of health impairment result in trajectories of adaptation but rather to study subclinical differences in health.

A second limitation is the healthy worker effect. Novice teachers who dropped out of the sample showed lower physical health than participants who answered all questionnaires. Due to this bias, generalizability to the whole population of novice teachers is restricted. Nevertheless, we found a considerable variation in physical as well as mental health. Even though the small restriction in the variance of physical health would lead to an underestimation of the effects, we found effects of HoL and PsyCap on physical health.

Third, we chose the specific time lags of 10 weeks between the measurements. In this time span, changes in physical and mental health are likely to occur. Yet, different time lags would have been possible and could have led to divergent results. Moreover, three time points only allowed for linear modeling of trajectories. Future research on the development of the health of newcomers needs to focus on data with four or more time points to account for possible nonlinear trajectories.

Although the sample was mixed in gender, age, school type, and combination of subjects they teach to minimize constraints of external validity, all participants have the same occupation. We chose this specific occupational group since teacher shortage (OECD, 2005) and burnout in teachers (Schaarschmidt, 2005) are prevalent problems that need to be addressed to provide high-quality education. Future research could address adaptation at career entry by applying this design to other occupations. Moreover, future research could include a broader range of internal and external resources.

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