ORIGINAL ARTICLE

Construction and validation of a health assessment tool for organizations

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Abstract

Aim Since there is no short screening instrument that measures the most important factors for assessing an organization's health situation, this study aims to develop and validate an instrument for assessing the state of health of organizations. The instrument should enable a quantitative screening of an organization's health situation on individual mental health, teamwork, supportive leadership, and healthy culture and may be beneficial to professionals in health promotion settings.

Subject and methods The study used a cross-sectional design and yielded 790 complete responses from employees from seven organizations across different sectors. The questionnaire was designed to measure four key dimensions of organizational health: mental health, good teamwork, supportive leadership, and healthy culture. Exploratory factor analysis was used to develop reliable scales. To better understand the nature of the interrelationships between these dimensions, a mediation model was tested using regression analysis.

Results Factor analysis showed that after removing some items from the questionnaire, supportive leadership, good teamwork, healthy culture, and mental health formed independent, distinguishable factors. The scales measuring these constructs were reliable. Supportive leadership, good teamwork and healthy culture correlated positively with mental health. The relationship between supportive leadership and mental health was mediated by good teamwork and healthy culture.

Conclusion The study successfully developed a reliable organizational health questionnaire that provides a practical tool for professionals. It enables a quick assessment of organizational health and identifies problem areas for further analyses. Future studies should use a multilevel design to not only collect data at the individual level.

Introduction

Against the background of demographic and social change, the European Network for Workplace Health Promotion has been emphasizing in its declarations since 1997 that healthy, motivated, and well-trained employees are a prerequisite for the successful social and economic development of the European Union (European Network for Workplace Health Promotion 2014). Meanwhile, scientific research shows

that companies that focus heavily on the well-being of their employees tend to be more profitable and productive (Di Fabio 2017).

At the individual level, workplace health promotion initiatives effectively impact employees' well-being (Blumentritt et al. 2023b). These initiatives include a wide range of measures (Blumentritt et al. 2023a). Blumentritt's literature review (Blumentritt et al. 2023b) shows that scientifically supported health promotion projects in the period from 2000 to 2020 were very rarely preceded by measurements to determine needs and identify relevant stresses and resources. A review of the effectiveness of the measures was cited, but the strategic point of start for developing an organization in a health-oriented way is to perform a screening to identify strengths and weaknesses and ensure traceability and comparability in development (Köhninger et al. 2022). A coherent screening instrument

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that measures the most important factors of an organization's health situation is lacking. The aim of this study is to develop a short screening instrument to assess the key organizational dimensions that are related to individual health.

Our eclectic concept of a healthy organization prioritizes individual well-being. On the basis of the research literature, we have distinguished the following elements of a healthy organization: supportive leadership, good teamwork, and a healthy organizational culture. Supportive leaders are essential in establishing and maintaining a workplace environment that supports employee well-being. We define supportive leadership as a leadership style that aims to help employees maintain their health and improve their performance in an interactive manner.

Rudolph et al. (2020) published a review of research on leadership styles related to health. According to the definitions presented, the leadership style that best fits our definition of supportive leadership is the so-called salutogenic leadership, described as leadership behavior that involves building trust, managing problems, and reducing work-related pressure faced by subordinates. This style is derived from the systemic salutogenic interaction model (SSIM) (Eberz and Herbert Antoni 2016) and was found to be incrementally valid over transformational leadership in predicting a sense of cohesion (Eberz and Antoni 2018).

Good teamwork improves productivity and contributes to an organization's overall well-being and sustainable success (West and Lyubovnikova 2013; Tuckman 1965).

We realize that reality is much more complex and that the use of a screening instrument should be completed with a more in-depth analysis. On the basis of the phenomena mentioned above of a healthy organization, this study tests a time-efficient survey instrument based on a few questions that differentiate and point out organizational optimization potential.

The construction of the questionnaire is based on social science insights on social capital research, according to Ostrom (2000). The term social capital is used to identify characteristics of social systems that can be used to predict their performance and employees' health. This means, for example, the systemic prerequisites of successful cooperation, trusting relationships, shared values, goals and convictions, and supportive leadership. According to Putnam (2002) and Fukuyama (1999) these characteristics can be identified as purpose-orientated interaction.

Badura showed with the Bielefeld company model that the social systems in organizations (e.g., departments, teams) have a significant influence on the health of their employees (Badura et al. 2008, 2010). We have used partial aspects or various factors from Badura's study (Badura et al. 2008) to make the organizational health situation quantitatively measurable.

Badura specifies broad recommendations for conducting screenings. He advises considering the dimensions of the immaterial "soft" influencing factors of organizational culture, leadership, and relationship climate (Badura 2017b). The aim is to make social relationships quantitatively measurable. Badura's proposal is close to the perspective of systemic organizational development, which is based on the theory that organizations should increasingly be viewed as social systems (Badura et al. 2008).

Subsequently, the authors see organizations as "social systems," a term that became particularly in Germany and Italy well known (Greif et al. 2016) through Luhmann's work (Luhmann 1987). Because Luhmann sees organizations as operationally closed systems in which only the communication between interchangeable members counts (Greif et al. 2004), we follow the understanding of von Rosenstiel, who draws on various definitions of organizations and sees them as a system that is open to its environment, that endures over time, pursues specific goals, is composed of individuals or groups, and is therefore a social construct and has a certain structure, which is usually characterized by a division of labor and a hierarchy of responsibility (von Rosenstiel and Comelli 2003).

This explains why dimensions of investigation such as the individual, team, leadership behavior, and organizational culture should be considered together.

The authors followed an eclectic systemic approach, viewing organizations as social systems that develop dynamically through self-organization and cultural work. They aimed to map as large an intersection of reality as possible.

The authors constructed the following hypothetical model "The healthy organization model" to provide insight into the connections between business and health science and development opportunities. Below we define the dimensions of the model that we have taken into account. We reduced the holistic approach to well-being for this study to mental health.

In sociology and ethnography, the term "culture" refers to the thoughts, feelings, values, rules, and behaviors that people share. The literature on the operationalization of corporate culture is relatively scarce; we refer to a definition by Van den Berg and Wilderom (2004) that is based on experience with ten studies in which organizational cultures were measured quantitatively. According to this definition, organizational culture is a shared perception of organizational work practices within organizational units that may differ from those of other organizational units. Organizational work practices are the central part of this definition. The definition is a shortened version of Kostova's (1999, p. 309) (Kostova 1999) definition: "certain ways of performing organisational functions that have evolved over time... [These] practices reflect the shared knowledge and competence of the organisation." We use this definition because

Van den Berg and Wilderom (2004) demonstrate that organizational culture can be better defined by organizational practices. Values are usually not directly visible to employees but are expressed through organizational practices. Therefore, they can be derived from the existing practices within an organization, department or work unit.

Healthy culture is a construct that is closely related to leadership. Most of the existing organizational culture and leadership literature shows a blurring of these two constructs; leadership content is often included in the published operational definitions of organizational culture (Marcoulides and Heck 1993; Ashkanasy and Wilderom 2000). Two important differences between the constructs are: (1) leadership denotes behavior displayed by one or only a few individuals, while culture is a collective behavioral phenomenon; and (2) leadership involves a potentially one-sided dependency relationship. Note, also, that two leadership aspects are shared with those of culture: "a social process defined through interaction as well as a process of defining reality" (Smircich and Morgan 1982). This conceptual overlap may explain the frequent blurring of the two phenomena. Quantitative as well as qualitative assessments of an organizational unit's culture should take into account two sides of the same coin (Schein and Schein 2017). We define organizational culture as the extent to which employees' perspectives on the organization are aligned with the perspectives of their leaders through their interactions. Such a culture should improve employee health in order to be called healthy culture.

For leadership, we are oriented on the definition from House et al. (2002): "Leadership is the ability of an individual to influence, motivate, and enable others to contribute toward the effectiveness and success of an organization of which they are members". We use this definition because, in the past, aspects of culture and leadership have often been mixed up (Wilderom et al. 2012).

For the dimension of good teamwork, we use Sundstrom's frequently used definition of a team. For him, a team or small groups are interdependent individuals who are jointly responsible for achieving specific goals for their organization (Sundstrom et al. 1990). This means that good teamwork is characterized by the support you give each other to get the job done. He based his research on the definition of the ecological approach to analyze factors in the effectiveness of work teams.

For the individual dimension, we use the World Health Organization's definition of health from 1946 as a basis. Accordingly, health is a "state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO 1946). Subjective well-being is, therefore, an important dimension of perceived quality of life. It includes negative aspects, such as the presence of depression and anxiety, but also positive aspects, such as satisfaction (McDowell 2010). For these reasons, well-being is a common outcome measure for different populations (e.g., clinical vs. nonclinical).

To test the questionnaire, the Policy Cycle (Public Health Action Cycle) was chosen as the theoretical framework for the systematic planning and implementation of the intervention study (Ruckstuhl et al. 2008).

Methodology

Sample and procedure

The study had a cross-sectional design, and the data was collected using an online survey in seven German organizations in various sectors and sizes with a total of 1555 employees. A total of 886 participants completed the survey. The total response rate was 57.2%. The study included full-time and part-time employees aged between 16 and 65. Of these, 30.9% were women, and 69.0% were men.

First, the online questionnaire was sent to 1155 employees of small and medium-sized enterprises (including production workers and office staff) from 1 January 2020 to 30 April 2024. The enterprises comprised a mechanical engineering company with 359 employees, an advertising technology manufacturer with 35 employees, a gardening and landscaping company with 31 employees, a flooring manufacturer with 401 employees, and a rescue and care service organization with 332 employees participated. The response rate was 48%.

The second data collection was also carried out by two German police authorities. In one of the two police authorities, four different organizational units were involved from 25 May 2021 to 23 June 2021, with a total of 184 employees. The overall response rate was 66%. The quantitative data collection took place in the second police authority from 28 October 2021 to 26 November 2021; 213 employees took part. The response rate was 68%.

The study was carried out with the awareness that it would influence future workplace health promotion (Bamberg 2011). The analysis should be seen as an intervention. The sensitizing, activating, and motivating potential was utilized (Bamberg n.d.) that employees thought about the connections between health and work and later took part in customized interventions.

Questionnaire

The questionnaire was designed to measure the most important dimensions of organizational health (Uhle and Treier 2019). It is based on a holistic, systemic approach (von Schlippe and Schweitzer 2019) and takes into account the mental health at the individual employee level (WHO 1946).

Closed questions (quantitative) were predominantly asked and supplemented by some open questions (qualitative) (Habermann–Horstmeier 2019).

The development of the German questionnaire was done using items and scales that had proven themselves in other scientific studies (see below). Some new questions were developed for the present questionnaire. The survey begins with questions on basic biographical data and job-related information on activities (including location and department) and management tasks.

The questionnaire consists of 57 individual items which, except some questions on the health promotion situation in the organization and the personal mental health, were surveyed on a five-point interval scale, with the value 1 always representing the lowest level (e.g. "does not apply at all") and the value 5 always representing the highest level (e.g. "applies completely").

Mental health: Mental health was assessed with a five-item questionnaire from the World Health Organization Well-Being Index (WHO-5) (WHO 1998), which measures this construct. This questionnaire has been used in numerous assessments of well-being in patient and non-patient populations. The meta-analysis by Topp et al. (2015) shows that the five-item World Health Organization Well-Being Index is one of the most widely used measures. The WHO-5 allows for a brief assessment of well-being over a 2-week period. Individuals are asked to indicate how they felt over the past two weeks for each of the five statements using a six-point Likert scale ranging from 0 = "at no time" to 5 = "all of the time." The total score is calculated by adding the answers and multiplying by 4. This gives a value between 0 and 100. The higher the value, the better the respondent's well-being.

In their meta-analysis, Topp et al. (2015) conclude that the scale has adequate validity as a screening tool for depression and as an outcome measure in clinical trials. It has also been successfully applied as a generic scale for well-being across a wide range of study fields. The questionnaire can be used in clinical practice and research studies to assess well-being over time or to compare well-being between groups (Topp et al. 2015). A panel of experts in the field of health-related quality of life performed the most adequate evaluation of the WHO-5 (Hall et al. 2011). This group evaluated 85 different questionnaires and found that 20 of these were "acceptable." In terms of clinical validity, the WHO-5 was listed at the top among the 20 scales since any major overlap with specific disease-related aspects and side effects of pharmacological treatment is absent on this scale. The WHO-5 is a pure generic scale for the measurement of general well-being (Hall et al. 2011).

The construct validity of a scale describes its properties as a coherent measure of a dimension of interest (in this case, well-being). Construct validity is evaluated by determining whether each item on the scale contributes unique information regarding the dimension. If this is the case, the scale covers the theoretical range from the complete absence of well-being to the highest imaginable level of well-being (Hall et al. 2011).

We used the Bielefeld Enterprise Model of Badura as a theoretical and structural basis for designing the dimensions of good teamwork, supportive leadership, and health-oriented culture. The model results from a study in commercial enterprises that investigated the effects of social capital on the organization's competitiveness and employees' health (Badura et al. 2008). On the basis of inspiration and hypothetical considerations, we integrated various proven items from Badura's Bielefeld Enterprise Model (Badura et al. 2008).

Supportive Leadership: The supportive leadership dimension is focused on resource and solution orientation (Greif et al. 2004), healthy handling of power and responsibility (Greif et al. 2004), and the development of individual employees (Kauffeld 2014; Bass and Avolio 1994).

Good Teamwork: The teamwork dimension asks about the assessment of problem-solving (Habermann–Horstmeier 2019), conflict resolution (Schiersmann and Thiel 2000), perceived recognition and acceptance (Schiersmann and Thiel 2011), reliability (Sessa 2008), mutual support (Geramanis 2019), open communication in the event of mistakes (Schiersmann and Thiel 2011), and pride in what is achieved together (Geramanis 2019).

Healthy culture: The healthy culture dimension is orientated toward meaning and vision (Kotter 2012), identity, identification and value system (Senge 2011), culture of cooperation and recognition (Schein and Schein 2018), goal-orientation (Drucker 1998), economic efficiency (Drucker 1998), sustainability; processes (process organization) (Bea and Göbel 1999), self-reflection, and feedback (Greif et al. 2004).

The respective work environment conditions in the organizations were queried as part of the survey and assessed through a workplace inspection. This study will not discuss this further.

Analyses

The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 27. An iterative series of exploratory factor analyses with varimax rotation was used to obtain dimensions that are as independent from each other as possible. The reliability of the final scales was tested with Cronbach's alpha.

To examine the common-rater bias in measuring the independent variables, we used Harman's (1976) single-factor technique. This method involves a factor analysis of the items, in which only one factor is extracted. When this factor explains more than 50% of the variance, common-rater

bias is a real problem. In this case, 38% of the variance in the item scores was explained by the single factor. This indicated that there was some common-rater bias, but it was not a big problem.

To test mediation effects, we examined whether Baron and Kenny's (1986) three conditions for mediation were met. Baron and Kenny noted that: (a) a significant relationship should exist between the independent variable and the dependent variable; (b) a significant relationship should exist between the independent variable and the mediator; and (c) a significant relationship should exist between the mediator and the dependent variable while holding the independent variable constant. In the case of a fully mediating effect, the independent variable will have no significant relationship with the dependent variable when the mediator is added to the analysis.

Results

A series of exploratory factor analyses was performed to construct scales of organizational health. The first-factor analysis included all 35 items on mental health, supportive leadership, good teamwork, and healthy culture. In the next factor analysis, we deleted items with a low loading on the intended factor and a relatively high loading on another factor. After four analyses, all items had loadings on the intended factor higher than .50 and had no high loadings on other factors. The results of the final factor analysis are presented in Table 1.

The five questions of the WHO mental health index showed sufficient independence. Cronbach's α was 0.86.

The tested questionnaire construct contained seven items on the teamwork dimension. The factor analysis revealed

Table 1 Results of the final factor analysis

Items	Factor			
	1	2	3	4
Supportive leadership				
My direct manager has my back.	.83	.26	.15	.09
My direct manager cares about the health of their employees.	.81	.24	.18	.09
It is important to my direct manager to alleviate and reduce the health risks at my workplace.	.81	.24	.14	.15
My direct superior is aware of their function as a role model.	.80	.24	.18	.07
My direct manager gives constructive feedback on mistakes.	.77	.26	.19	.09
My direct manager recognizes good performance and special efforts.	.74	.28	.18	.06
My direct superior involves employees in the solution-finding process at an early stage and to a sufficient extent.	.74	.30	.24	.13
Good teamwork				
We can rely on each other in our team.	.23	.82	.15	.07
We offer each other help when difficulties or bottlenecks arise.	.26	.80	.11	.14
We support each other in the fulfilment of our tasks.	.26	.74	.05	.15
We can talk openly about problems and mistakes.	.35	.71	.18	.11
I feel recognized and accepted in my team.	.14	.71	.15	.08
How often do you get the help and support you need from your colleagues when you need it?	.20	.64	.11	.11
Problems and conflicts are identified early in our team and resolved together.	.39	.62	.19	.09
Healthy culture				
I am aware of the organization's objectives.	.07	.08	.83	.01
I know the organization's powerful vision.	.19	.11	.76	.08
I identify strongly with the organization.	.20	.16	.70	.14
My organization acts in a future-oriented and sustainable manner.	.15	.10	.65	.25
I have a sufficient understanding of the context of my organization to be able to prioritize my tasks appropriately.	.13	.13	.62	.05
Suggestions for improvement from the workforce are incorporated into the processes of my organization.	.35	.20	.51	.17
Mental health				
I feel active and full of energy.	.11	.11	.12	.86
I feel calm and relaxed.	.12	.09	.02	.82
I feel happy and in good spirits.	.08	.17	.11	.79
When I wake up, I feel fresh and rested.	.09	.06	.08	.76
My daily life is full of things that interest me.	.05	.11	.22	.64

that all items loaded highly on the second factor and lowly on the other factors. Cronbach's α was 0.89.

The statistical review of the supportive leadership dimension showed that of the original eight items, the item "My direct manager pays attention to meaningfulness, comprehensibility, and manageability when assigning tasks" did not stand up to scrutiny. Cronbach's α was 0.94.

The healthy culture dimension contained 15 items before the statistical review. The following nine questions did not pass the test: My work is fun; There are days when I am proud of what I have achieved at work; The health of employees is a high priority in the company; I experience the working atmosphere as trusting; I experience the working atmosphere as fair; I experience the working atmosphere as constructive; I experience the working atmosphere as respectful; The roles, responsibilities, and tasks are clearly described in my area of work so that tasks can be completed efficiently and successfully; There is the opportunity for personal development in my company. Cronbach's α of the six-item scale was 0.83.

The final factor analysis supported that the four dimensions of (1) supportive leadership, (2) good teamwork, (3) mental health, and (4) healthy culture can be measured independently of each other (see Table 1). Together, they explained 61% of the total variance.

The rotated component matrix showed that the items had high loadings on the intended factor (1–4), which supported the validity of the dimensions. However, some items also showed cross-loadings on other components.

- Some supportive leadership items (factor 1) showed low loadings on factor 2 (good teamwork), indicating that the leader's behavior relates to team dynamics.
- On the other hand, good teamwork items (factor 2) showed low loadings on component 1 (supportive leadership), emphasizing the close relationship between supportive leadership and good teamwork.
- Healthy culture items (factor 4) showed some cross-loadings with factor 3 (mental health), suggesting that cultural aspects of the organization affect individual well-being.

- Mental health items (factor 3) generally showed no significant cross-loadings, indicating that these items specifically measure mental health.

Table 2 presents the correlations between the variables. Supportive leadership was found to be strongly related to healthy culture and good teamwork ($r = .48$ and .64 resp.), suggesting that these organizational characteristics are strongly dependent on the quality of the leader. Healthy culture is moderately related to good teamwork ($r = .43$). The correlations of mental health with the other study variables are a bit lower but significant ($r = .28$ to .32).

We tested the model in Fig. 1 using regression analysis. The results are presented in the second column of Table 3. These results show that good teamwork and healthy culture were related to mental health while controlling for all variables used, but supportive leadership was not. However, the third column shows that supportive leadership was related to mental health when controlling only for
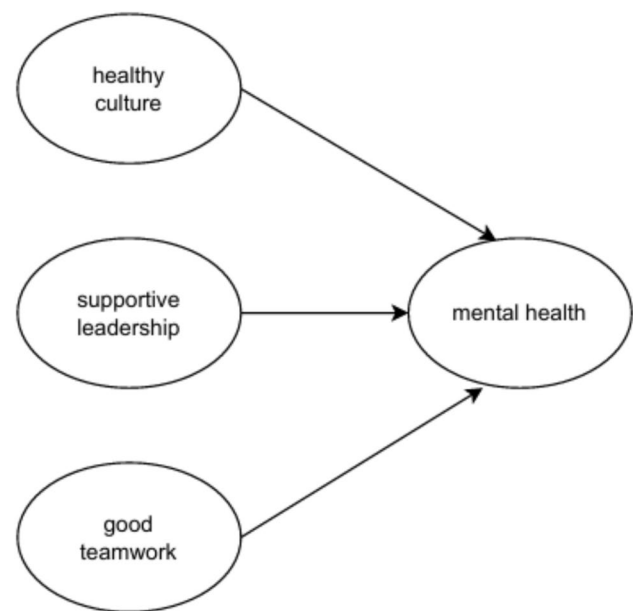

Fig. 1 The healthy organization model

Table 2 Correlations ($N = 790$)

	Mean	SD.	1	2	3	4	5
1. Age group							
2. Gender[a]			.07				
3. Supportive leadership	3.55	1.08	−.13**	−.13**	.**		
4. Healthy culture	3.37	.86	−.01	−.01	.48**		
5. Good teamwork	3.92	.83	−.05	.01	.64**	.43**	
6. Mental health	2.75	1.04	−.03	−.03	.28**	.32**	.32**

**p < .01

[a] 1 = woman, 2 = man

Table 3 Results of regression analyses (*N* = 790)

Independent variables	Mental health	Mental health	Good teamwork	Healthy culture
Supportive leadership	.05	.29**	.65**	.59**
Good teamwork	.20**			
Healthy culture	.21**			
Age group	−.01	.00	.01	.05
Gender	.04	.07	.07*	.05
R^2	.15**	.08**	.42**	.24**

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

age group and gender. This suggests that good teamwork and healthy culture mediate the relationship between supportive leadership and mental health. Therefore, we tested these mediations with Baron and Kenny's method mentioned before (Baron and Kenny 1986).

Above, we have already shown that Baron and Kenny's (1986) conditions (a) and (c) are met. The results in columns 4 and 5 of Table 3 indicate that supportive leadership is also related to good teamwork and health-oriented culture, while age group and gender remained constant, which satisfied the requirement of condition (b). Since the relationship between supportive leadership and mental health is not significant in the second column, the results show that good teamwork and health-oriented culture fully mediate the relationship between supportive leadership and mental health. This suggests that the relationship between supportive leadership and mental health can be explained because supportive leadership influences good teamwork and healthy culture, which in turn influence mental health. These relationships are visually presented in Fig. 2. Because this mediation model was tested post hoc (after the results were available), it should be cross validated in a new sample.

Discussion

The current study aimed to develop a questionnaire that assesses the most important dimensions of organizational health. On the basis of the literature, four dimensions were distinguished: mental health, good teamwork, supportive leadership, and healthy culture. These dimensions were operationalized by formulating items that should measure them. These items were administered to a sample of employees of organizations in which health was an important topic. To obtain dimensions that are as independent as possible, an iterative series of exploratory factor analyses was performed, in which items that did not fit well with the intended factor were removed.

The results showed that although the dimensions are conceptually related, they can be measured relatively independently by means of the constructed scales. The Cronbach alphas of these scales were quite high, indicating high reliabilities. In this way, a new questionnaire was developed to measure the most important dimensions of organizational health.

In contrast to Eberz and Antoni's (2018) results on salutogenic leadership, we found that the items of supportive
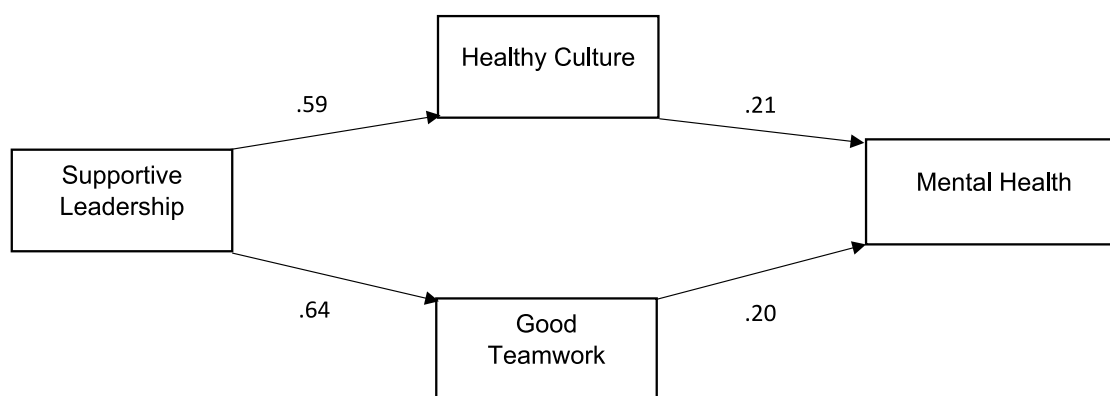
Fig. 2 Mediation model from "The healthy organizational model" in which healthy culture and good teamwork mediate the relationship between supportive leadership and mental health

leadership loaded on the same dimension and formed a single scale.

Post-hoc analysis showed that the relationship between supportive leadership and mental health was mediated by good teamwork and healthy culture, suggesting that supportive leadership stimulates good teamwork and healthy culture, which in turn improves mental health.

Practical implications

The result of this study has practical implications because it offers professionals an instrument to assess organizational health quickly and globally. The questionnaire should, in principle, be used as a screening tool to indicate whether there may be problems regarding organizational health and in which dimension problems can be found. Further in-depth analysis is required to analyze the severity and nature of the problems. The developed questionnaire is suitable for use in management-oriented controlling and reporting in occupational health management and health promotion. The reduction of the number of items due to the redundancies identified can probably be attributed to the participants' prevailing basic attitude. We conclude that the questionnaire is a good first indicator of problem areas, but the deepening of analyses should be continued based on partially structured interviews.

Reality is complex. Theories explain a part of reality. No theory explains the world of a healthy organization as it is. Theories are heuristics that help to analyze the practical situation, sort arguments, and put them on the table. Nevertheless, theoretical thinking can guide action. People look at what they consider a healthy organization from different perspectives.

The internal coordinate system, such as personal values and attitudes, plays just as much a role as external factors that influence the organization. Consultants have a pre-theoretical understanding of an organization's health situation. They attempt to analyze the current situation in a way that allows key practitioners to connect with it. Instruments like this screening questionnaire should be used to limit the subjectivity of the organizational analysis. Individual health promotion is about action, and screening the current situation is the first strategically correct step, regardless of whether satisfaction, happiness, and motivation can be measured quantitatively.

Theoretical implications

This study also has some theoretical implications, as it elaborates on the concept of organizational health by defining its main dimensions and operationalizing them with scales. In addition, the study shows that although the dimensions belong to the same concept of organizational health, they can be measured more or less independently of each other. This indicates that this concept consists of

elements at several levels: the individual, good teamwork, supportive leadership, and organizational levels.

Furthermore, the mediation found in this study suggests that the leader's supportive behavior improves employees' mental health through the leader's effects on the culture and teamwork within the organization. This is consistent with Badura's theory that leaders have a decisive influence on the culture in the company (Badura 2017a). In extreme cases, this can become a culture of fear, mistrust and control, of unconditional competition among each other, or of trusting cooperation based on shared convictions, values, and rules (Badura 2017a). Leaders would also have a direct influence on the success of a company through their influence on motivation and absenteeism (Badura 2017a).

Rudolph et al. (2020) noted that "healthy leadership" components (i.e., attitudes, values, behaviors) of questionnaires should be better defined and related to theories.

Limitations and future studies

In the present study, only organizations with a positive attitude toward individual health promotion at the workplace and with experience implementing measures took part. Further investigations in practice will show whether even critical company management can be persuaded to allow a prospective expansion.

The main limitation of this study is that the data used for analysis was at the individual level, while good teamwork, supportive leadership, and healthy culture are concepts at higher levels. This means that the scores represent individual perceptions of those concepts. This is suitable for constructing the scale, but future validation studies should collect data at the level the organizational health dimensions relate to. In this way, the scale scores of an organization can be compared with the scores of other organizations.

Another limitation is that only a selected type of organizations participated in the study. Future studies should include more and more diverse types of organizations.

We agree with Rudolph et al. (2020) that in future studies the incremental validity of health-related measures such as supportive leadership should be studied using a multilevel design, and that mediating and moderating variables should be investigated to answer the question of why and when the effects of leadership behaviors occur. In addition, they proposed a model that can be used as a guideline for future studies.

In addition, to investigate the effects of the independent variables on health at the job level more employees holding the same job and external observers should rate the health-related stressors at these jobs (Semmer et al. 1996).

Overall, the present study provides a new research tool that may stimulate other researchers to investigate

organizational health with the dimensions and scales presented here.

We must remember that measurements describe only part of reality, but reality is complex. No theory can explain the world of a healthy organization as it is.

So what?

- In practice, lean screenings that measure key elements of a healthy organization should be used in combination with qualitative and methodological approaches to determine organizations' health situations.
- A meta-analysis of organizational health can provide quantitatively valuable information to identify areas in need of intervention.
- A broad analysis to determine the health situation in organizations provides working groups in health management, occupational safety, and personnel and organizational development with significant key figures that can be compared over time.
- In quantitative employee surveys, individual emotions and attitudes negatively impact the objective analysis of an organization's health situation.

Declarations

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