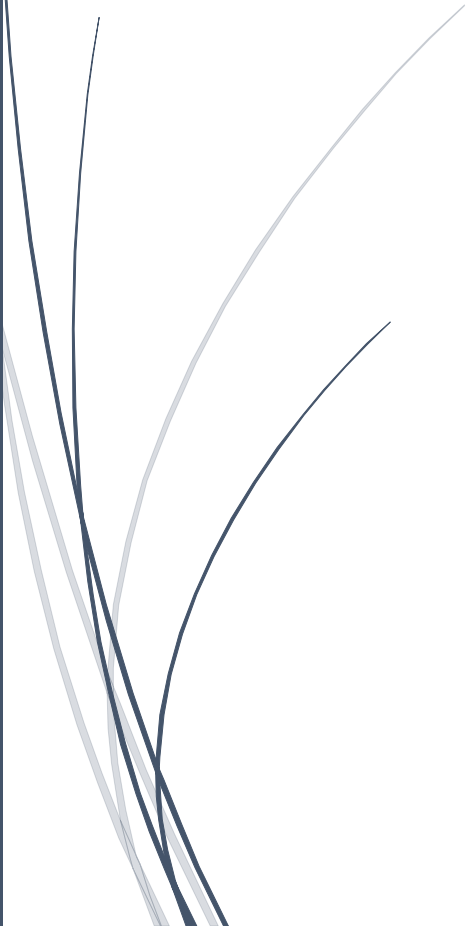# How can leaders affect their followers' health behaviour?

A systematic literature review

Cedric Bijl (S1816934)
University of Twente
Health Sciences Bachelor thesis

Conducted under the supervision of:
prof. dr. C.P.M. Wilderom
dr. W.A. Keijser

Abstract

A good state of employee health is of importance to organizations and the individual employees themselves. This state of health is affected by the individual employee's health behaviour. A key factor of influence on the individual employee's health behaviour is their direct supervisor. Health behaviour by the employee manifest both at the workplace and in their private lives. The mechanisms through which a leader affects the individual employee's health behaviour are unknown. This systematic review aimed to chart these mechanisms. Even though few studies have addressed these sought after mechanisms or referred to how health behaviour changed in the employee's private life, fourteen papers were included for the qualitative analysis. A set of eleven categories of variables that may play a role in the studied relationship were identified. These categories were subsequently incorporated into a new, conceptual model that offers several new insights in how healthy leadership affects the individual employee's health behaviours. At the core of this change model are a personal relationship between leader and individual employee, role modelling and resource management. It is suggested for future research to empirically test the conceptual model, further investigate the relations between the variables in the model including reciprocal effects and explore individual variables in depth.

Table of contents

1. Introduction

It has been long since established that both the societal and financial costs due to worldwide healthcare needs are constantly growing (WHO, 2019). A key component of this global problem is the high prevalence of chronic diseases (Abegunde, Mathers, Adam, Ortegon, & Strong, 2007; Biener, Cawley, & Meyerhoefer, 2017; Dieleman et al., 2017; WHO, 2005). This growth can be attributed to an aging population, but also to more young adults that are living with one or more chronic diseases. The increase in the prevalence of people living with comorbidities is a particularly tough challenge, both economically and medically (Hajat & Stein, 2018). Fighting this trend is one of the big endeavours our society faces in this day and age (WHO, 2005).

Not only society as a whole is affected by this burden. It takes its toll on organizations and individuals as well. Firstly, organizations suffer due to employee absenteeism as a result of illness and decreased employee productivity as a result of this decrease in health (Spieß & Stadler, 2016; Wright & Cropanzano, 2000). Past research has shown that especially chronic conditions are at the core of this health-related loss in productivity (Loeppke et al., 2009; Mitchell & Bates, 2011). This research has also shown that the costs of this loss in productivity outweigh costs to counteract these potential losses through prevention. The workplace is a promising place for health promotion, due to the amount of time employees spend there (Arena et al., 2013). Hence, organizations have started to take measures aimed at improving employee health, for example in the form of worksite health promotion programmes. Over the years, extensive literature reviews on the effectiveness of these measures have indicated mixed results (Brand et al., 2017; Harden, Peersman, Oliver, Mauthner, & Oakley, 1999; Ni Mhurchu, Aston, & Jebb, 2010; Rongen, Robroek, van Lenthe, & Burdorf, 2013; van de Ven, Robroek, & Burdorf, 2020). Ample worksite health promotion programmes have had a positive influence on employee health and fostered their resource use. A common theme these programmes struggle with however, is engaging the employees who struggle with their health the most (Krick, Felfe, & Klug, 2019). This is especially of concern, as these employees stand to gain the most from health promotion.

Secondly, the individual employees of organizations are experiencing an environment that is constantly demanding more of them. To effectively take care of one's own health takes constant attention, both at work or at home. They have to find a balance in managing their own health and adequately performing the duties their jobs demand of them. Finding this balance can be an issue due to both of the matters taking time and effort and thus being perceived as stressors to the individual (Krick et al., 2019). The need to have to take care of one's own health by behaving healthily both at work and beyond, combined with the pressures of modern day working life can prove quite demanding. For the sake of the present study, health behaviour is defined as ''the activity undertaken by individuals for the purpose of maintaining or enhancing their health, preventing health problems, or achieving a positive body image'' (Cockerham, 2014). Importantly, health is understood as ''a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'' (WHO, 2002, p. 984). In effect this means that for the present study no distinction will be made

between mental and physical health. Balancing job performance and the management of one's own health is particularly challenging for employees already struggling with their health behaviours or those who lack awareness to the importance of their own health (Bakker & Costa, 2014; Kaluza, Schuh, Kern, Xin, & Dick, 2018; Pundt, Felfe, & Pundt, 2014; Salvagioni et al., 2017).

As people spend a large proportion of their time at the workplace, factors at work play a key role in how an individual employee functions. This also holds true to the behaviours relating to their health (Arena et al., 2013; Krick et al., 2019). An important element present at the workplace is the direct supervisor. Indeed, past research has shown that the role of the supervisor as an influence on employee health cannot be understated. Due to the nature of how employees look at their leaders they are more likely to take their words and deeds to heart and change their own ways than is the case with other individuals (Hoert, Herd, & Hambrick, 2016; Ljungblad, Granström, Dellve, & Akerlind, 2014; Wegge, Shemla, & Haslam, 2014).

As such, the role of the leader here is twofold. Firstly, leaders within organizations have the obligation to their employer to achieve positive organizational results. In order to achieve these results, maintaining and promoting a healthy workforce is of integral importance (Van De Voorde, Paauwe, & Van Veldhoven, 2012; Wright & Cropanzano, 2000). Not only is this of importance to prevent employees not being able to work due to illness, but healthy employees also are happier and more engaged with their organization (Avey, Reichard, Luthans, & Mhatre, 2011; Markos & Sridevi, 2010). Due to these matters, a healthy workforce is beneficial to organizational performance both on the short and long term. A leader's effect of the health of the workforce is thus of direct importance to the achievement of organizational goals.

Secondly, leaders have a more social, moral obligation to the employees working with them to keep their best interests in mind (Karri & Caldwell, 2019). As leaders are in a position of relative power over the individual employee they can make an effort to push them towards better health (Montano, 2015; Zigarmi, Peyton, & Randolph, 2015). Conversely, through inadequate leadership practises they can let employees plummet towards a worse state of health (e.g. through getting employees overworked). Employees place a great deal of value in their leader's judgements and actions towards them and a leader, knowingly or unknowingly, affects the employees' health though those (Wegge et al., 2014).

Through daily leadership practises, leaders are capable of affecting their employees in a variety of ways. Specifically of interest is the relatively recent emergence of leadership styles aimed at maintaining and promoting employee health. These styles of leadership can be taken under the umbrella term ''healthy leadership (HL)''. Examples include health-promoting leadership (Eriksson, Axelsson, & Axelsson, 2011), health-oriented leadership (Pundt & Felfe, 2011) and health-specific leadership (Gurt, Schwennen, & Elke, 2011). Recently, a review was conducted by Rudolph, Murphy, and Zacher (2019) to examine the plethora of existing styles of HL present in the literature and critique that there is a lack of consensus towards defining a singular style of HL. How several of the currently existing models of HL conflict with each other makes the effort towards creating a uniform model of

HL even more of a challenge (Rudolph et al., 2019). For the sake of the present review, ''general'' HL is defined as leadership behaviour or actions that contribute to employees being able to maintain and improve their health .

Recent literature has attempted to explain the mechanisms through which HL contributes to employee health outcomes (e.g. physical and mental wellbeing) (Inceoglu, Thomas, Chu, Plans, & Gerbasi, 2018). The mechanisms explaining how HL has an impact on the actual health behaviours carried out by the individual employee that precede these changes in health outcomes however remain relatively unexplored (Rudolph et al., 2019). Until now studies have focused on primarily looking at direct health outcomes (e.g. stress, general health complaints). Yet, it would be especially relevant to look at changes in health behaviour, as health behaviour has the potential to enhance the individual's health for an extended period of time and is a prerequisite to a structural improvement of one's state of health. Hence, this review aims to examine the current body of literature to shed light on the mechanisms that explain how HL impacts the individual employee's health behaviour. The following main research question was formulated:

Through what mechanisms does healthy leadership lead to change in health behaviour by individual employees?

To further elucidate the research question a basic representation of the assumed relationship between HL and the individual employee's health behaviour was made (Figure 1). A central place in this figure is taken by the ''black box''. This black box represents the several uncharted mechanisms or interactions between the leader and individual employee dyad that play a role between HL and the individual employee's health behaviour. Opening this black box and translating the mechanisms within to tangible constructs can be seen as the primary goal of this review. Successfully uncovering the mechanisms inside the black box would offer organizations, leaders and employees knowledge towards more effective health promotion through leadership. Past research, including literature on health behaviours, has shown similar approaches in deconstructing a black box to uncover previously unexplored mechanisms (Harachi, Abbott, Catalano, Haggerty, & Fleming, 1999; Travert, Sidney Annerstedt, & Daivadanam, 2019). For instance, in a similar vein Travert et al. (2019) conducted a review of reviews to deconstruct the black box between built environment and health behaviours and subsequently construed a new, conceptual model based on their findings.
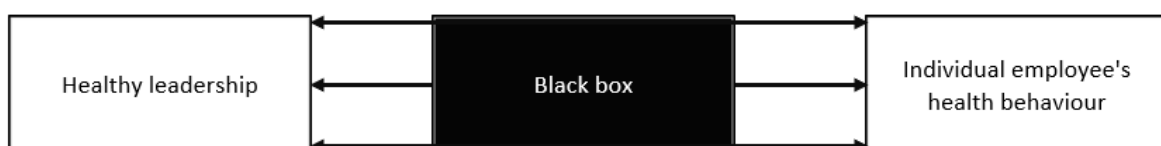

Figure 1. *Basic representation of the black box between HL and individual employee's health behaviour*

Moreover, how health behaviours acquired by the individual employee through HL relate to their health behaviours beyond the workplace itself is also an underrepresented area of research (Kent et al., 2018). Employees are capable of adopting health behaviours at the workplace, but how these behaviours spill over into their private lives is as of yet unknown. Spillover refers to experiences at work transferring and interfering with life not at the workplace (Demerouti, Bakker, & Schaufeli, 2005). Furthermore, employees could potentially pass these behaviours on to others in their social circle in a crossover effect. Crossover refers to the process of others (e.g. spouse) in the social circle of the individual's private life attaining the same characteristics the aforementioned individual picked up at work (Demerouti et al., 2005). Previously, both crossover and spillover of (health related) outcomes have already been established, in both positive and negative ways (Demerouti, 2012; Demerouti et al., 2005; Lawson, Davis, McHale, Hammer, & Buxton, 2014). Past studies have also looked into the spillover of behaviour, for instance behaviours related to sustainability (Klade, Mert, Seebacher, & Schultz, 2013; Schultz & Seebacher, 2010). Seeing as of yet no research was found relating to crossover and spillover of health behaviours, in this study special consideration will be given to examine those changes in health behaviour by employees through HL that stretch beyond the limits of the workplace.

2. Methods

In order to conduct a thorough systematic literature review this research made use of the five-stage grounded literature review process by Wolfswinkel, Furtmueller, and Wilderom (2013). As established through the systematic literature review by Rudolph et al. (2019), the current literature on HL consists of a multitude of types of HL with several differences between them. This is why Grounded Theory (GT) was best suited to this literature review, as GT is especially useful when delving into novel areas of research that contain plurality within the data. This is due to each individual study being assessed with a fresh and unbiased view. The approaches taken for the five-stages of the grounded literature review process (define, search, select, analyse and synthesize) are consecutively elucidated in the remainder of this section.

2.1 Define
The commencing stage of the review process was to clearly state the main research goal and grasp what data is required to achieve this. Based on iterative scoping searches and discussions between the researchers the final research question was refined and preliminary in- and exclusion criteria were formulated (Armstrong, Hall, Doyle, & Waters, 2011). The scoping searches were conducted by using general search terms that were deemed relevant in the iterative discussions (e.g. ''healthy leadership'' and ''employee health'') in a multitude of databases. From several identified key papers the references were scanned for additional information. Moreover, as part of the scoping search the electronic databases were selected. These were Scopus, Web of Science and PsycINFO.

The subsequent step in the defining phase was to compose the search string to be used. The base of this search strings was formed by the main elements of the research question (e.g. employee, behaviour) and relevant synonyms (e.g. worker, habits). Moreover, the styles of HL as reviewed by Rudolph et al. (2019) were added to the search string in order to further saturate the results. The Boolean operators ''AND'' and ''OR'' were used where appropriate.

2.2 Search

The second stage was conducting the actual search using the formulated search string. This search was ran on the fourth of May 2020. Due to the relatively new nature of the field of HL the decision was made to only search for literature published in 2011 or thereafter written in the English language. All search results were exported to Microsoft Excel for the later selection process. Moreover, references in identified key papers were checked for additional eligible literature and forward citations. Any duplicates resulting from the search process were removed.

2.3 Select

Selection of the search results was conducted in three phases. Firstly screening based on titles, subsequently based on abstract and finally based on full text.

Included papers had to: (1) refer to leadership practises, (2) refer to change in health behaviour by the employee through leadership, (3) be relevant to a Western work culture setting and (4) be written in the English language.

Grey literature (e.g. books, unpublished theses) was excluded for this review. Moreover, papers only discussing directly work-related health outcomes (e.g. burn-out, work related stress) were excluded as they don't fit the scope of general health behaviour. Also papers only dealing with health behaviour changes directly relating to the profession of the employee (e.g. getting vaccinations in a healthcare setting) were excluded as these changes might be expected in such a setting and not be a result of HL. For similar reasons organizations with exceptionally strict hierarchical relationships between leader and employee (e.g. military settings) were excluded as well. Furthermore, due to the review focusing on mechanisms in a work setting, papers discussing other types of leader-follower relationships (e.g. religious leaders and followers, volunteer work) were not eligible for inclusion. The penultimate criterium for exclusion was that eligible papers should not focus on specific workplace related issues, such as (psychological) safety, bullying and/or violence, unless as a mechanism through which HL affects an employee's health behaviour. Finally, papers discussing very specific groups of employees (e.g. religious groups, labourers on oil rigs) were not included as results might not be generalizable to other populations. An overview of in- and exclusion criteria can be found in Table 1.

Table 1. *Overview of established in- and exclusion criteria for literature*

Inclusion	Exclusion
Refers to leadership practises	Grey literature
	Records dating before 2011
Refers to change in health behaviour by the employee through said leadership practises	Pertains only work-related health outcomes
	Pertains only health behaviour changes directly related to the profession of the employee
Relates to a Western work culture	Concerns organizations with an exceptionally strict hierarchical relationship between leader and employee
Written in English	Concerns a leader-follower relationship not related to a work setting
	Concerns workplace (psychological) safety/violence/bullying, unless as a mechanism between the research variables
	Targets very specific groups of employees

At the start of the title screening phase two researchers (CB and WK) both independently screened the first two hundred titles in batches of fifty. After each batch differences in opinion on eligibility would be discussed to further align judgements on eligibility. Next the inter-rater reliability was established. The remainder of the search results was split between the two researchers who each made their own judgement whether a title was eligible for inclusion. In order to keep individual judgements as equal as possible, two more intermediate discussions between the researchers took place at regular intervals during the screening of the remaining titles. When a researcher doubted about inclusion of a title it was included for the next phase.

In the phase of abstract screening two researchers (CB and WK) both individually judged the eligibility of all papers. After each batch of fifty results had been screened by both researchers on abstract, a discussion was held to further align the judging for eligibility and to decide on inclusion of papers that were judged differently.

Finally, the papers that were deemed eligible for inclusion based on abstract were retrieved and screened by two researchers (CB and WK) based on full text. Discussions between the two researchers to discuss the eligibility for inclusion of the remaining papers were held after each interval of fifteen papers. When there was disagreement on the inclusion of a paper a discussion between the researchers was held to reach a consensus. If no agreement could be made the third researcher (CW) would make the decision. This was the case for both the second phase and final phase of the selection process. All discussions held in the whole of the selection stage ranged from a half an hour to two hours in length, averaging approximately an hour per meeting and were held by phone.

2.4 Analyse

In the fourth stage the papers that were deemed eligible for final inclusion based on full text were analysed by two researchers (CB and WK) using the process of open coding as described by Wolfswinkel et al. (2013). As per the concept of open coding any information that was assessed as relevant to answering the research question was marked in the texts. Marking of the text was initially done by one researcher (CB). Next, the second researcher (WK) would mark any additional text deemed as relevant and underline any text assessed as being of vital importance. Discussions were held after each set of five papers to go over preliminary remarks. These discussions held by phone took about an hour each.

2.5 Synthesize

Finally the concepts of axial coding and selective coding (Wolfswinkel et al., 2013) were applied. Marked text was copied to Word where any ideas or concepts for categories of retrieved mechanisms that arose during the analysis were noted. As increasingly more papers were analysed in this way any changes in previously devised categories were meticulously noted. Moreover, based on the findings of each individual paper, for every paper a concept-map displaying the relations and mechanisms described in that paper was constructed by a researcher (CB) (Meier et al., 2007; Rowley & Slack, 2004). With these concept-maps and the preliminary categories in hand a meeting of three hours between two researchers (CB and WK) was organized to establish the final categories that were deemed to be relevant to the black box. A rough sketch of a new, conceptual model of the HL-individual employee's health behaviour relationship was made. Based on these categories and the sketch a new, conceptual model was constructed the next day by a researcher (CB).

3. Results

In this section the search results, results of the data extraction and synthesis and a newly constructed conceptual model are presented.

3.1 Search results

The search ran on the fourth of May 2020 yielded a total of 3340 results. After removing duplicates and applying the earlier specified methods of screening and selection fourteen papers were deemed eligible for final inclusion. This process is displayed as a PRISMA flow diagram in Figure 2 (Moher, Liberati, Tetzlaff, & Altman, 2009). Inter-rater reliability during the title screening phase was 95%. Moreover, Cohen's kappa was determined at 0.84 indicating an almost perfect agreement between the two researchers (Landis & Koch, 1977). Mediation of the third researchers over disagreements on eligibility was not required.

The included papers ranged in publication year from 2012 up to and including 2020. All included studies were of an empirical nature, most of them conducting either interviews or surveys of a cross-sectional or longitudinal nature. Remarkably, half of the research of the included fourteen papers took place in Germany (n=7) and also a significant part took place in a Scandinavian country (n=3). The remaining studies were conducted in the US (n=4). An additional observation is that the sectors that the researched populations of the included papers were working in were of a widely varied nature.

One of the included papers researched service members of the national guard in the US (Sianoja et al., 2019). The inclusion of this paper seems to be in contrast to the exclusion criterium on exceptionally hierarchical organizations. However, as suggested in the discussion section of said paper the results are likely generalizable to other populations due to the researched service members being active in a multitude of different functions. Thus the decision was made to include the paper in the final selection.
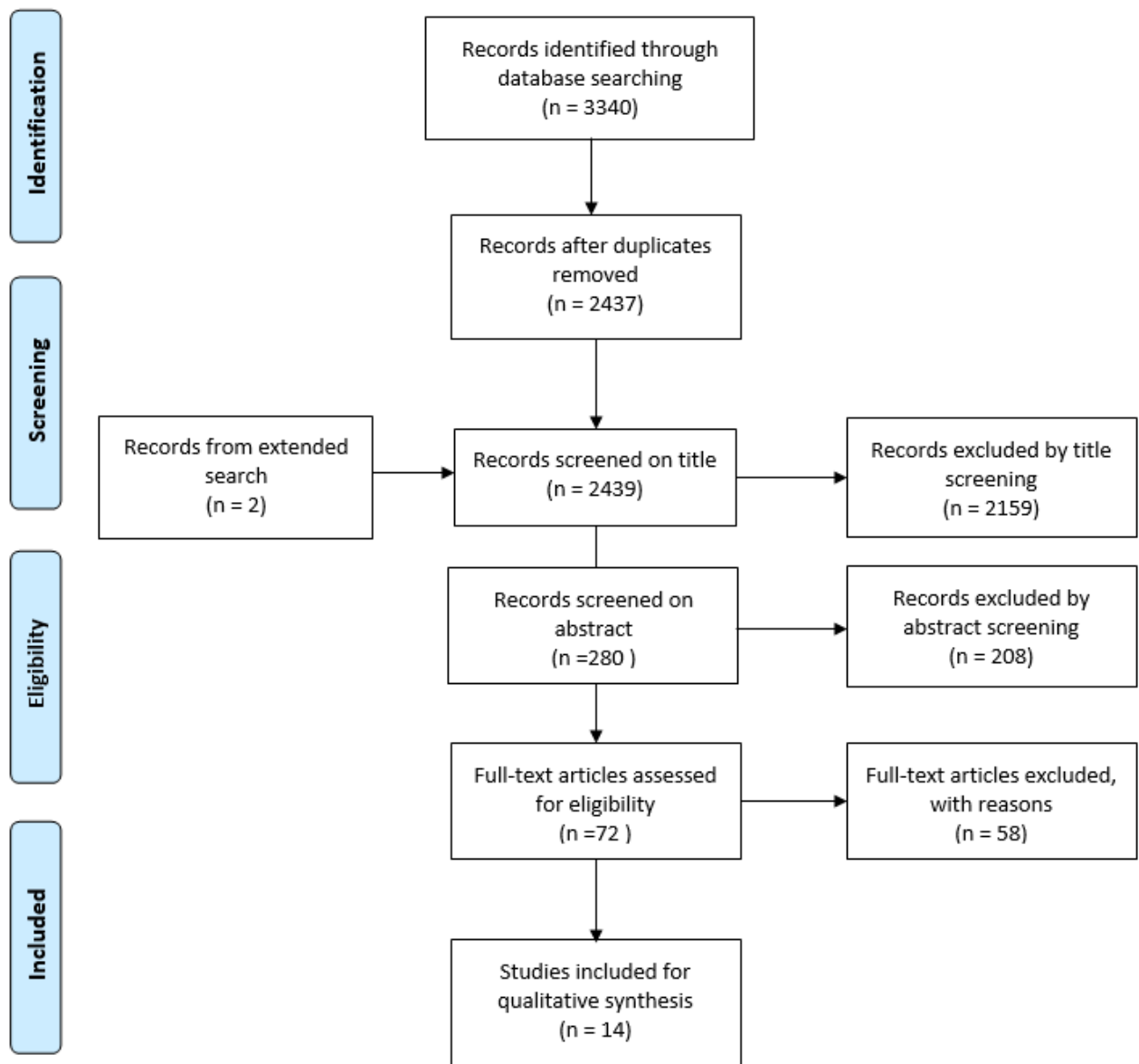
Figure 2. *PRISMA flow diagram of the systematic review process (Moher et al., 2009)*

3.2 Data extraction and synthesis

A data extraction form was used to carefully note down the author(s), year of publishing, type of study (e.g. longitudinal survey), setting (e.g. nurses in geriatric care facilities, Germany), research objectives, individual employee's health behavioural aspects, researched leadership styles and/or aspects, employee health outcomes and suggested mechanisms present in the final fourteen papers. This served as an overview of the preliminary findings. This data extraction form can be found as Appendix A.

Based on the subsequent iterative process of marking relevant text in the papers, noting down thoughts and ideas of possible categories, constant discussions between the researchers and the construction of concept-maps schematically showing the relations raised in each paper (Appendix B), categories of factors playing a role in the relationship between HL and individual employee health behaviour were determined (Meier et al., 2007; Rowley & Slack, 2004). A total of eleven categories were identified, divided over three different category types.

Type 1 categories are the axis of individual change through which employees are able to engage in healthier behaviour. These can be seen as the gears in the black box that make the change to healthier behaviour happen. Type 2 categories are individual employee or leader specific aspects that play a role on the road towards healthier behaviour. They allow the gears in the black box to rotate more smoothly. Lastly, type 3 categories are contextual factors that influence all relevant actors. They are not just relevant directly to the black box, but the entire machinery around it. Tables 2, 3 and 4 display each of the identified categories for Types 1, 2 and 3 respectively, providing a brief explanation for each category, stating from which combination of papers it was derived and the total number of papers it was derived from. Due to the findings, the idea of forming a new, conceptual model of the HL-individual employee's health behaviour relationship arose. Based on the basic representation of the black box (Figure 1), identified categories, the fourteen concept-maps and a preliminary sketch this model was constructed (Figure 3).

Type 1 categories, axis of individual change		
Category	**Description**	**Derived from**
Personal relation between individual employee and leader	In order for a leader to function as an effective change agent for an individual employee's health behaviour a strong and positive personal relationship build on mutual trust, respect and openness between the two has to be established. These personal relations take time working together to grow and are more explicitly present in organizations where leader and employee share their immediate workspace.	(Avey, Wernsing, & Palanski, 2012; Bäckström, Ingelsson, & Johansson, 2016; Bregenzer, Felfe, Bergner, & Jimenez, 2019; Dietz, Zacher, Scheel, Otto, & Rigotti, 2020; Dimoff & Kelloway, 2018; Horstmann & Remdisch, 2019; Justesen, Eskerod, Christensen, & Sjøgaard, 2017; Kranabetter & Niessen, 2016; Krick et al., 2019; Payne, Cluff, Lang, Koffman, & Morgan-Lopez, 2018; Perko, Kinnunen, & Feldt, 2014; Pundt et al., 2014; Sianoja et al., 2019) n=13
Role modelling	Due to their position in organizations leaders are perceived by employees as role models for desirable behaviours. As such employees are known to emulate health behaviours displayed by their direct supervisor.	(Avey et al., 2012; Dietz et al., 2020; Horstmann, 2018; Horstmann & Remdisch, 2019; Kranabetter & Niessen, 2016; Krick et al., 2019; Payne et al., 2018; Perko et al., 2014; Pundt et al., 2014) n=9
Resource management	Resource management encompasses the individual's ability to identify, acquire and utilize resources that lead to healthier behaviours. Resources exist on the intrapersonal level, interpersonal level or contextual level.	(Avey et al., 2012; Bäckström et al., 2016; Bregenzer et al., 2019; Dimoff & Kelloway, 2018; Horstmann, 2018; Justesen et al., 2017; Kranabetter & Niessen, 2016; Krick et al., 2019; Payne et al., 2018; Perko et al., 2014; Pundt et al., 2014; Sianoja et al., 2019) n=12

Table 2. Type 1 categories

Type 2 categories, individual employee or leader specific aspects		
Category	**Description**	**Derived from**
HL professionalism	HL professionalism refers to the expertise a leader has to affect individual employees in their healthy behaviours. This professionalism manifests itself on three levels: 1). Health specific knowledge on how to identify employee health needs and guide them to the appropriate resources 2) Knowledge of the importance of their personal relationship with the employee and their role in building this relationship 3) Knowledge of the importance of a positive and supportive environment and their role in building this environment	(Avey et al., 2012; Bäckström et al., 2016; Bregenzer et al., 2019; Dimoff & Kelloway, 2018; Horstmann, 2018; Horstmann & Remdisch, 2019; Justesen et al., 2017; Kranabetter & Niessen, 2016; Krick et al., 2019; Payne et al., 2018; Perko et al., 2014; Pundt et al., 2014; Sianoja et al., 2019) n=13
Individual HL characteristics	Individual HL characteristics are traits that are inherent to individual leaders that are known to affect employees. These include for example the intrinsic motivations and convictions a leader has towards employee health, level of authentic leadership and personal attitude towards own presenteeism.	(Avey et al., 2012; Bäckström et al., 2016; Dietz et al., 2020; Dimoff & Kelloway, 2018; Horstmann, 2018; Horstmann & Remdisch, 2019; Justesen et al., 2017; Kranabetter & Niessen, 2016; Krick et al., 2019; Payne et al., 2018; Perko et al., 2014; Pundt et al., 2014; Sianoja et al., 2019) n=13
Employee internal resources	Employee internal resources are resources available to the individual that affect how they will function as a person. A distinction in internal resources is made in 1) task resources (e.g. autonomy in job design) and 2) personal resources that are characteristics inherent to the personality of the employee (e.g. emotional stability).	(Avey et al., 2012; Bregenzer et al., 2019; Horstmann, 2018; Horstmann & Remdisch, 2019; Justesen et al., 2017; Krick et al., 2019; Payne et al., 2018; Pundt et al., 2014; Sianoja et al., 2019) n=9
Employee work-private life perspective	How an employee perceives the division between their work life and their private life is an additional factor influencing their resource use and health behaviours both at the workplace and beyond (e.g. getting sufficient rest during off-time to perform during work time and conversely being able to rest during off-time without being bothered by work-related strain).	(Justesen et al., 2017; Krick et al., 2019; Perko et al., 2014; Sianoja et al., 2019) n=4

Table 3. *Type 2 categories*

| Type 3 categories, contextual factors influencing all actors		
Category	**Description**	**Derived from**
Collectivism	Collectivism refers to a sense of cohesiveness and support from the social group(s) at work. Both individual employees and leaders play a role in how collectivism manifests and both also experience the effects of this manifestation.	(Avey et al., 2012; Bäckström et al., 2016; Bregenzer et al., 2019; Dimoff & Kelloway, 2018; Horstmann, 2018; Justesen et al., 2017; Krick et al., 2019; Payne et al., 2018; Perko et al., 2014; Pundt et al., 2014; Sianoja et al., 2019) n=11
Organizational values and norms	Organizational values and norms can be seen as a set of beliefs and both written and unwritten rules that are inherent to a specific organization. This includes how an organization cares for their employees' health. Employee perception of how an organization cares for their health is an important part of their motivations regarding behavioural change. Direct supervisors play a key role in shaping this perception by being the primary communicator of these values and norms.	(Bäckström et al., 2016; Bregenzer et al., 2019; Horstmann & Remdisch, 2019; Justesen et al., 2017; Krick et al., 2019; Perko et al., 2014) n=6
HL values and norms	HL values and norms refers to outside efforts that are made that improve the individual practice of HL professionalism (e.g. leadership training, senior management support).	(Bäckström et al., 2016; Bregenzer et al., 2019; Dimoff & Kelloway, 2018; Horstmann & Remdisch, 2019; Justesen et al., 2017; Payne et al., 2018) n=6
Resource availability	The availability of resources required to enhance healthier behaviours might be affected by factors beyond the reach of individual employees or leaders (e.g. due to too high financial costs or decisions by senior management).	(Dimoff & Kelloway, 2018; Horstmann & Remdisch, 2019; Justesen et al., 2017; Krick et al., 2019; Payne et al., 2018) n=5

Table 4. *Type 3 categories*
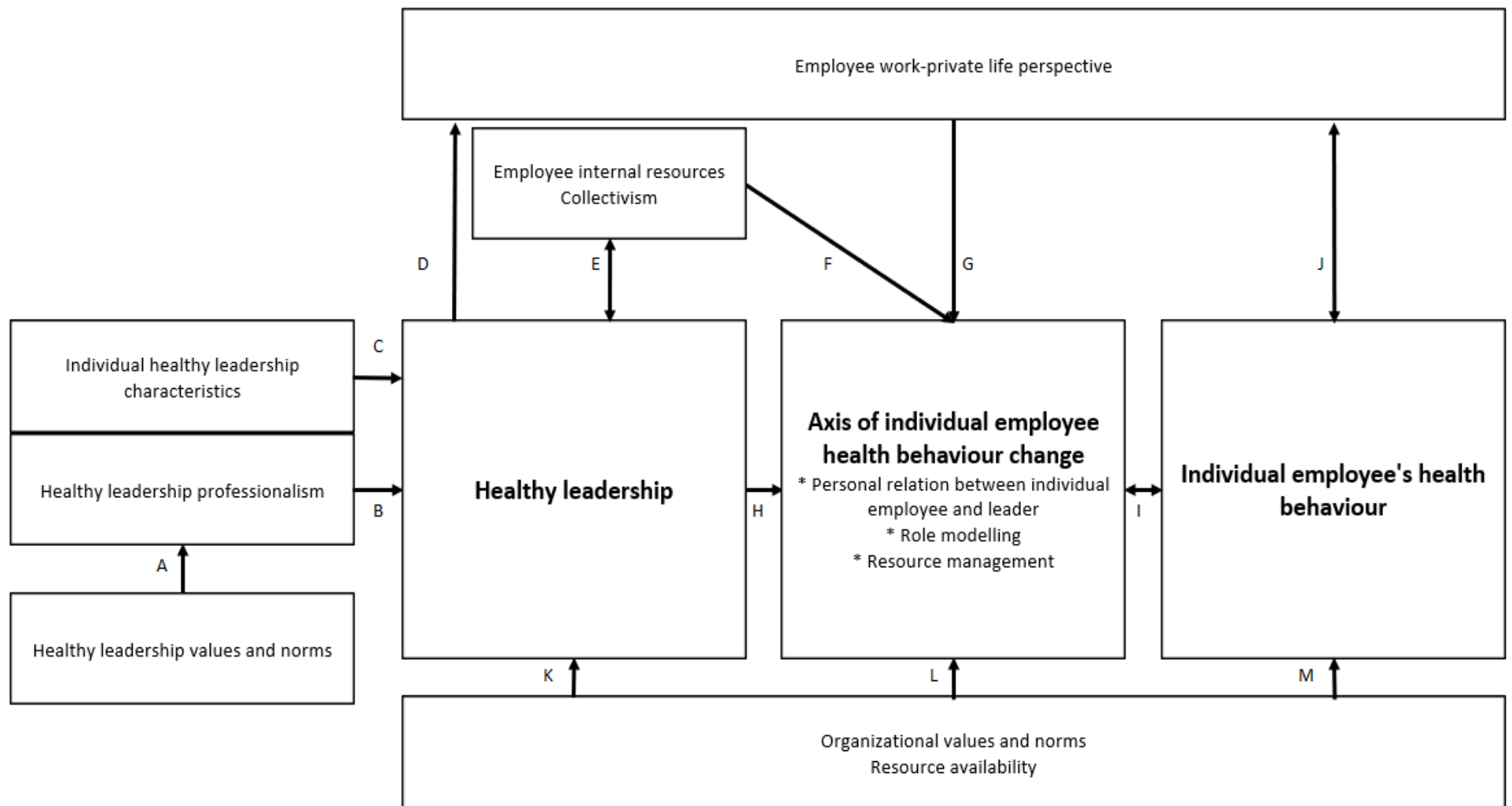
Figure 3. Proposed conceptual model of individual employee's health behaviour change through healthy leadership

3.3 The conceptual model

In this section the proposed relations presented in the model, labelled A through M, will be explained one by one in Table 5. Where deemed appropriate an example of the relationship from the literature was provided. The letters correspond to relations present in Figure 3.

Table 5. *Elucidation of the relations present in Figure 3*

A	HL values and norms are of a positive influence to HL professionalism. This means that due to active efforts made a leader's HL professionalism improves. For example, Dimoff and Kelloway (2018) found that a short training for leaders on mental health awareness increased their ability to identify struggling employees and subsequently identify the correct resources to assist them.
B	HL professionalism plays a major part in the effective practice of HL. HL professionalism offers leaders the know-how on the health-specific needs of their employees and the importance of support from both the leader him-/herself and the environment to the employees and how to offer this support. The importance of HL professionalism to HL practice is for example evident in the way in which leaders approach struggling employees. They should offer their support without seeming judgemental. Dimoff and Kelloway (2018, p. 6) described it quite fitting as a leader's role is to ''detect, but not diagnose''.
C	Individual HL characteristics are traits that are part of the leader as a person and thus important to the practice of HL. Due to these factors being of an intrinsic nature they are more difficult to nurture than HL professionalism. An instance of an individual HL characteristic promoting HL practises is a manager's personal initiative moderating the practice of health-specific leadership (Horstmann, 2018). Another case of intrinsic motivation for the leader is made by Payne et al. (2018) who state that a leader should be able to exhibit genuine care for their employees health.
D	As the balance between an employee's work and private life is known to impact their health and behaviours, effective HL should aim to contribute to a positive perspective for the employee in this regard. Sianoja et al. (2019) for example state that through family-supportive supervisor behaviours leaders contribute to their followers' work-life integration.
E	Leaders have a strong influence over their employees' internal resources. Their influence on task resources is evident as they usually have a major role in deciding how an employee is to perform their work or conversely providing autonomy in job design. Moreover, leaders can also influence the employees' personal resources through their interactions. An instance of these effects on resources occurring is when examining the effect of a manager's health awareness on both a follower's task and social resources (Bregenzer et al., 2019). These effects can occur the other way around as well, as an employee that is more willing to voice concerns (through internal resources) might be more willing to ask their leaders for changes in the fulfilment of their tasks. As mentioned earlier, effective healthy leaders know the importance and have the knowledge and skills to create a sense of collectivism at the workplace. As leaders are also a part of the workplace they themselves will also experience the effects of this supportive environment or lack thereof in practising

	HL. This is supported by the finding that the state of team climate in an organization can function as a driver or barrier towards health-specific leadership (Horstmann & Remdisch, 2019).
F	Employee internal resources play a key role on the axis of change as employees can either be driven or held back by their internal resources, for example in relation to an individual's self-efficacy as demonstrated by Perko et al. (2014)
	Collectivism impact the axis of individual change by providing an environment supportive of change. In an unsupportive environment employees might be reluctant to change due to fear of stigmatization or being seen as weak (Krick et al., 2019). The importance of collectivism is understated by findings that co-worker support and interest for one another are also significant factors towards adopting healthier behaviours (Payne et al., 2018).
	Moreover, both employee internal resources and the collective environment shape the individual's expectations of changing ones health behaviour. Expectations of the results from behavioural change, both negative and positive, play a major role in the employee's decision to translate behavioural intentions into action. It could be seen that employees make a sort of cost-benefit analysis of perceived potential gains and losses of the change in behaviour (Krick et al., 2019).
G	Employees might not be willing to change their behaviours if they feel it would be negatively impacted by a discrepancy in their work-private life. A positive work-private life perspective makes it less difficult for individuals to engage in new behaviours as they experience less stress and utilise more psychological resources (Sianoja et al., 2019).
H	Healthy leaders directly affect the axis of change in several ways.
	Firstly, healthy leaders engage in a relationship on a personal level with the individual employee build on trust, openness and respect. This is achieved through an individual approach towards each employee that is non-stigmatizing, being open for employee participation and showing honest concern for an employee's situation (Justesen et al., 2017). This engagement between leader and employee is also crucial in overcoming the ethical barriers in the HL-individual employee's health behaviour link. Leaders might consider it inappropriate to meddle in the personal health behaviours of their employees, while employees might be reluctant to change based on recommendations from a leader they do not align with on a personal level. Due to the engagement process leaders have more confidence in their reach of influence and employee are willing to accept their help (Justesen et al., 2017).
	Secondly, due to the nature of the leadership role, leaders are perceived by employees as role models for how one should behave. A leader should be aware of their own health behaviours and how these impact the employee (Kranabetter & Niessen, 2016). This means that the actual health behaviours that are observed from the leader could subsequently be emulated by the employees. If the personal relationship between leader and follower is strong and positive this emulation is more likely to occur.

	Finally, healthy leaders aid the employee in fostering their resource management. This is for example due to their combined knowledge of what resources the employee needs and what resources the organization has to offer. Moreover, they possess the communicative skills to push employees towards actual resource utilization (Bäckström et al., 2016).
I	This is where employees utilize the resources they acquired to actually adopt more health behaviours. Employees are more willing to accept help from their leaders towards improving themselves and are more willing to take an extra step to stay healthy due to the importance they attach to the way their leader perceives them. Moreover, employees will emulate the health behaviours of their leaders through role modelling. Role modelling of behaviours can be seen for example in the findings by Dietz et al. (2020), who found that a leader's presenteeism (working while being ill), has a positive effect on subsequent employee presenteeism. Employees enact behavioural change through the identification, acquirement, utilization and retention of resources on all levels. The effect in this relationship is seen as reciprocal. The conservation of resources theory states that individuals who have access to more resources tend to acquire more of them. Conversely individuals low on resources tend to be more likely to lose these resources (loss spirals) (Hobfoll, 1989; Perko et al., 2014).
J	Adopting healthier behaviours through HL ideally not only impacts the way employees act at work, but also beyond. The employees take these new behaviours home with them, where they impact their private lives. An example is found in the relation between work-related rumination when employees are not working and depressive symptoms (Perko et al., 2014). Conversely elements of the employee's private life naturally impact the way in which they behave due to for example deeply rooted habits.
K	Organizational values and norms affect the practice of HL in several ways. For example, middle managers might only be able to help their employees as far as organizational policy allows them. Middle managers are especially important as they are seen as ''the face of the organization'' to the employee (Payne et al., 2018, p. 1556). In this role, they shape the perception an employee has on how the organization cares for them. Secondly, resource availability impacts the way in which leaders practice HL. A leader cannot offer an employee the resources that they need if those resources are not there, for example due to a lack of funds or permission (Horstmann & Remdisch, 2019).
L	Both organizational values and norms and resource availability directly affect the axis of individual change. For example, individuals might be more willing to change due to the idea that the organization expects that from them. Senior management of the organization can also offer additional resources to the individual, for example in the form of health promotion programmes at the workplace or offering healthier options in cafeterias (Payne et al., 2018).
M	The resources that are available and organizational values and norms directly influence the enactment of behaviour, as they could be drivers or barriers to the behaviour that are beyond the reach of individual influence.

4. Discussion

This review aimed to chart the mechanisms that play a role in the relationship between HL and the individual employee's change in health behaviour, at the workplace and beyond. After an extensive search, it was concluded that the current body of literature severely lacks in knowledge on the mechanisms that explain this relationship. However, based on the findings that were relevant to the goal of this review, several new insights were acquired and incorporated into a new, conceptual model of the studied relationship.

The conceptual model presented in this review provides several valuable new insights. Firstly, the black box containing the mechanism at play has been translated into the functional axis of individual employee health behaviour change. This has increased the understanding of how HL can lead to health behaviour change by the individual employee. Secondly, several other (contextual) factors influencing the actors in the researched relationship have been identified and incorporated in the new model. As these factors are absent in previous models of HL (e.g. Jiménez, Bregenzer, Kallus, Fruhwirth, and Wagner-Hartl (2017); Pundt and Felfe (2011)), the new model offers a wider, more complex view on the relationship. This unveils possibilities to promote both the leader's and employee's behaviours from unexpected angles.

An interesting point of discussion is the amount of papers that led to the identification of the individual categories. These amounts and combinations of papers can be found in Tables 2, 3 and 4. Especially worth consideration are the categories that were derived from the highest amount of papers and those derived from the lowest amount of papers. Three categories were derived from a total of thirteen papers, namely ''Personal relation between individual employee and leader'', ''HL professionalism'' and ''Individual HL characteristics''. Interesting to note is that all of these categories stand very close to the individual leader and less so to the employee, notable exception being ''Personal relation between individual employee and leader''. This indicates that the focus of current research is largely on the leader and not so much on the employees they lead. However, it has to be stated that included papers had to explicitly refer to leadership. Due to this inclusion criterium it is reasonable to assume that retrieved literature would focus more on leader than employee.

The variable that was addressed the least (n=4) was ''Employee work-private life perspective''. This corresponds with the observation that the effects of HL on health behaviours beyond the workplace are an underresearched topic. This could be explained due to the stigma surrounding the ethical concern over whether a leader should meddle in the personal affairs of their employees as mentioned by Justesen et al. (2017).

Worth mentioning is that three out of the four Type 3 categories have a relatively low number of papers they were derived from. This could be explained due to the fact that these three factors are broad contextual factors that stand relatively far from the reach of the individual leader and employee. As such it is reasonable to assume that these factors came up less in the included literature due to this review's focus on individual employees and HL practice.

The category of ''employee internal resources'', specifically ''personal resources'', is of note as research towards these resources could be conducted differently than seen thus far. As the personal resources are often of a mental nature, they offer the possibility to be measured by, for instance, changes in hormone levels in the employee. Such research was not found during this study and could provide a more detailed account of what happens with the employee through actions taken by the leader.

Another point to consider is the difference between intention or willingness to change health behaviours and the actual deed of translating these intentions into action as described in both the Health Action Process Approach (HAPA) model, explicitly aimed towards explaining individual changes in health behaviours, and the commonly used theory of planned behaviour (Ajzen, 1991; Schwarzer, 2008). As different employees have differences in what barriers are the toughest to overcome, the existence of a universal approach to health promotion suited for every individual employee is unlikely. For example, individual employees who exhibit less healthy behaviours have higher intentions to change than individuals who already exhibit healthy behaviours. However, due to individuals who behave less healthily usually having a lack of resources, they perceive greater barriers to translate their intentions into actions than individuals high on resources (Krick et al., 2019). The distinction between intention and action behavioural change is something that should be explored more in depth for individual employees.

It is of interest to compare the similarities some of the categories in the new conceptual model have to factors present in more traditional models of change in (health) behaviour. A classic theory on behavioural change still commonly referenced by researchers today is the social cognitive theory (SCT) by Bandura (1986). An important point in SCT is that people will adopt new behaviours based on the observations that they make of other people's behaviours. This draws a significant parallel to the role-modelling of behaviours that is a significant part of the conceptual model. Moreover, the expectations an individual has of adopting new behaviours is another significant part of SCT. In the conceptual model this comes back in the form of the individual's personal resources and collective environment shaping their expectations of their change in health behaviour. Looking at a theory directly explaining change in health behaviour might draw even more parallels. The health belief model (HBM) by Rosenstock (2005) also includes an inner weighing of the perceived gains and benefits of change in health behaviour. This is influenced by the individual's psychological characteristics, similar to the employee's internal resources and collectivism in the conceptual model. These similarities to past models were to be expected and add to the validity of the new conceptual model.

During and after the qualitative data analysis it was becoming increasingly clear that explanations as to how health behaviours adopted by individuals at the workplace spilled over to how they behaved in their private time were particularly sparse. This was disappointing as one of the research goals was to shed more light on this phenomenon. The things that could be concluded on this subject were mostly based on general measures of health behaviours, not specifically related to a certain time and/or location. A specific case of health behaviour change beyond the workplace that

was observed, was in Sianoja et al. (2019). Here it was suggested that followers whose leaders rated themselves highly in showing family-supportive supervisor behaviours (e.g. being supportive of both the employee's work-related and not work-related responsibilities (Hammer, Kossek, Yragui, Bodner, & Hanson, 2009)) had access to increased psychological resources. These resources allowed the employee to practice better sleeping habits.

The lack of knowledge on the transfer of health behaviour at work to an individual's private life could be explained due to the ethical concern that is related to the matter. Leaders have difficulty in interfering with an individual's private life, while individual employees do not appreciate an ''outsider'' meddling in their own affairs (Justesen et al., 2017). Some strikingly fitting quotes from middle managers regarding this ethical concern can be found in Justesen et al. (2017). An example would be: '' It can be problematic to interfere in employees' health, and I see a tendency for companies to interfere with how you live your private life, which worries me. '' (Justesen et al., 2017, p. 172). Overcoming this stigma is a barrier that both employees and leaders have to face together. This lends itself to the importance of the newly established axis of change described in this paper that a strong engagement on a personal level between leader and employee is a crucial component in achieving change in health behaviour. Additionally, dealing with this ethical concern might differ greatly per organization. Organizations for example could be dealing with differing legal requirements or strong cultural norms that prohibit leaders from getting to involved with employees' private lives.

Finally, it is worth noting that the current conceptual model is but the first rendition of an attempt to crystallize the black box based on the identified categories from the literature. It would be of interest to look into alternative ways to draw the model. Especially the possibility of layering the model in a multi-level visualization would be of added value. Currently conceived layers would be at the organizational, team/leader and individual employee level.

5. Future research

Following the findings of the present study, several recommendations for future research can be made. Firstly, empirical testing of the conceptual model presents ample opportunity for future research. This research preferably would be of longitudinal nature, as examining behavioural change in a cross-sectional study design is less than optimal. Recently several scales towards measuring HL styles and related concepts have been developed and tested (Kent et al., 2018; Pundt et al., 2014; Vincent-Höper & Stein, 2019; Zweber, Henning, & Magley, 2015). Adjusting and complementing these scales to take into consideration the variables in the conceptual model and subsequently validating them should be feasible. Then, the strength of the effect of each of the variables in the model can be determined, as well as eventual mediation or moderation.

Secondly, a more thorough exploration of the individual components of the established categories could benefit a deeper understanding of the new model and offer recommendations to improve the practice of HL. For example, a commonly recurring element in the category ''Personal relation between individual employee and leader'' were the notions of trust, respect and openness. It would be valuable to determine how strongly each of these single components has an effect on the individual category and whether there might be more components or prerequisites that were missed. For the ''personal resources'' part of the category ''employee internal resources'', future research could be conducted based on measuring an employee's change in hormones as stated in the discussion.

A third avenue for future research would be investigating how to incorporate the two stages of health behaviour change of ''intent'' and ''action'' as described in the HAPA into the new conceptual model (Schwarzer, 2008). Incorporation of these principles would further increase the understanding of what drives the individual towards health behaviour change through healthy leadership as further distinctions could be made in what factors affect the employee in which way preceding health behaviour change. Deeping the understanding of the conceptual model would allow for more targeted interventions to be developed targeting the improvement of specific aspects of HL.

Furthermore, future research should take the fact that different groups of stakeholders and scientific disciplines come together in this area of research into consideration. Obvious groups of stakeholders in practice are an organization's senior management, leaders in middle management and individual employees. Moreover, literature that was selected for this particular study originated in a broad variety of scientific disciplines, including, but not limited to, occupational health psychology, leadership studies, HRM, organizational studies and public health. Uniting expertise from the relevant disciplines and approaching the subject from the perspective of all the different stakeholders should prove beneficial in future research.

Additionally, future research should take a closer look at how health behaviours adopted at the workplace relate to how those changes in behaviour translate into the private life of the individual employee. As stated in the discussion, an ethical concern can be raised regarding this type of behavioural change, but nonetheless it would be valuable to know more of this transfer of behaviours. Also, researchers themselves need to be willing to design studies that overcome this stigma.

Finally, it is suggested to explore the reciprocal effects that might be present in the HL-employee's health behaviour relationship. As it has been well established that leader and follower function in a dyadic way (e.g. in leader-member exchange theory), it is reasonable to assume that the employee's health behaviour might impact the leader more strongly than anticipated (Gerstner & Day, 1997).

6. Practical implications

The findings presented in this review have implications for practice in organizations, teams and for individual leaders and their followers.

Firstly, leaders need to be aware of their importance in shaping the health behaviour of individual employees. As leaders are a role model for their employees through words and deeds, the health behaviours they themselves manifest when interacting with employees are what an employee perceives as normative behaviour and attempts to emulate. Moreover, leaders need to be capable of shaping collective and supportive working environments, identifying the needs of individual employees and adequately being able to offer assistance in the form of social and resource support.

Organizations play a key role in the limitations of how far a leader is capable of practicing effective HL. While leaders might be limited in their reach of influence, organizations are more capable of impacting contextual categories like resource availability. As such they would do well to support leaders' HL practises through policy, funding and time allocated towards directly improving worksite health and by enhancing leaders' HL professionalism through promotion of HL values and norms (e.g. by offering leaders training towards better communication with employees). Furthermore, organizations would do well to incorporate attention towards individual HL characteristics in their hiring policy. As these characteristics are of an inherent nature (e.g. sincere concern towards employees, empathy) to the individual leader, organizations can already make or break the practice of HL at the workplace based on who they hire and whether they have the desired inherent traits.

Lastly, employees need to have an open mind towards change in health behaviour on account of what they see from their leaders. The employee and leader share the responsibility here by having to engage in a relationship build on trust in order for the employee to open up towards the leader and the leader feeling comfortable enough to get involved in someone else's personal life. Increased efforts towards bonding with one another at the workplace could aid in this regard.

7. Limitations

Several research limitations have to be taken into consideration. Firstly, a portion of the included papers in this review were of a cross-sectional research design. Due to the nature of this type of research, no definite conclusions regarding causality can be drawn. This assessment lends itself to the already mentioned notion that future research should preferably be of a longitudinal research design.

Secondly, the results presented in this review stem from a relatively small sample size. The fourteen included papers were all of either a cross-sectional or longitudinal research design. Though literature reviews were viable for inclusion based on the maintained criteria, none were finally included due to valid reasons. As literature reviews by their very nature cover a sample size that is

broader than other types of research, inclusion of reviews would have been of great benefit to the eventual sample size. The wide variety of job sectors the researched populations were active in can however be seen as a strength of the study as it adds to the generalizability.

Also, no judgement on methodological quality of the included papers was made. This decision was made due to the already relatively small sample size and recentness of the area of research. For future reviews, it would be wise to include some sort of quality assessment in the process of selecting studies for eligibility.

Next, though discussed, no value was placed on the prevalence of a category among the included papers. As each new category that was encountered was immediately written down, refined and finally incorporated in the model every category has the same weight attached to it. In practice this might not be the case. Future research should provide more insight into this.

A final limitation of the study is that included papers were inconsistent in the definitions or measures they maintained for several relevant factors. What is meant by this is that, for example, not every paper used the same definition or measure for ''well-being''. As this review was focused on more general definitions and outcomes, slight discrepancies in this regard amongst the included literature should not be problematic.

8. Conclusion

The current body of scientific literature was lacking in research on the mechanisms explaining the relationship between change in health behaviour by individual employees and HL. Especially data on how changes in health behaviour spilled over into an individual's private life were sparse. Nonetheless, based on the knowledge that could currently be retrieved a new, conceptual model of the studied relationship was proposed. This model offers several new insights in the way this relationship works and several surrounding categories of factors that play a role. Most importantly it was concluded that change in health behaviour by the individual employee through HL is accomplished through the personal relationship between the leader and the individual employee, role modelling and the resource managing capabilities of said employee. It is suggested for future research to empirically test the new, conceptual model, further explore the (relations between) individual variables present in the model and study possible reciprocal effects.

References

Abegunde, D. O., Mathers, C. D., Adam, T., Ortegon, M., & Strong, K. (2007). The burden and costs of chronic diseases in low-income and middle-income countries. *The Lancet, 370*(9603), 1929-1938. doi:https://doi.org/10.1016/S0140-6736(07)61696-1

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211. doi:https://doi.org/10.1016/0749-5978(91)90020-T

Arena, R., Guazzi, M., Briggs, P., Cahalin, L., Myers, J., Kaminsky, L., . . . Lavie, C. (2013). Promoting Health and Wellness in the Workplace: A Unique Opportunity to Establish Primary and Extended Secondary Cardiovascular Risk Reduction Programs. *Mayo Clinic proceedings. Mayo Clinic, 88*, 605-617. doi:10.1016/j.mayocp.2013.03.002

Armstrong, R., Hall, B. J., Doyle, J., & Waters, E. (2011). 'Scoping the scope' of a cochrane review. *Journal of Public Health, 33*(1), 147-150. doi:10.1093/pubmed/fdr015

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human Resource Development Quarterly, 22*(2), 127-152. doi:10.1002/hrdq.20070

Avey, J. B., Wernsing, T., & Palanski, M. (2012). Exploring the Process of Ethical Leadership: The Mediating Role of Employee Voice and Psychological Ownership. *Journal of Business Ethics, 107*. doi:10.1007/s10551-012-1298-2

Bäckström, I., Ingelsson, P., & Johansson, C. (2016). How communicative leadership influences co-workers' health – a quality management perspective. *International Journal of Quality and Service Sciences, 8*, 143-158. doi:10.1108/IJQSS-08-2015-0059

Bakker, A. B., & Costa, P. L. (2014). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research, 1*(3), 112-119. doi:https://doi.org/10.1016/j.burn.2014.04.003

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ, US: Prentice-Hall, Inc.

Biener, A., Cawley, J., & Meyerhoefer, C. (2017). The High and Rising Costs of Obesity to the US Health Care System. *Journal of General Internal Medicine, 32*(1), 6-8. doi:10.1007/s11606-016-3968-8

Brand, S. L., Thompson Coon, J., Fleming, L. E., Carroll, L., Bethel, A., & Wyatt, K. (2017). Whole-system approaches to improving the health and wellbeing of healthcare workers: A systematic review. *PloS one, 12*(12), e0188418-e0188418. doi:10.1371/journal.pone.0188418

Bregenzer, A., Felfe, J., Bergner, S., & Jimenez, P. (2019). How followers' emotional stability and cultural value orientations moderate the impact of health-promoting leadership and abusive supervision on health-related resources. *German Journal of Human Resource Management: Zeitschrift für Personalforschung*, 239700221882330. doi:10.1177/2397002218823300

Cockerham, W. C. (2014). Health Behavior. *The Wiley Blackwell Encyclopedia of Health, Illness, Behavior, and Society*, 764-766. doi:doi:10.1002/9781118410868.wbehibs296

Demerouti, E. (2012). The Spillover and Crossover of Resources Among Partners: The Role of Work-Self and Family-Self Facilitation. *Journal of Occupational Health Psychology, 17*, 184-195. doi:10.1037/a0026877

Demerouti, E., Bakker, A. B., & Schaufeli, W. B. (2005). Spillover and crossover of exhaustion and life satisfaction among dual-earner parents. *Journal of Vocational Behavior, 67*(2), 266-289. doi:https://doi.org/10.1016/j.jvb.2004.07.001

Dieleman, J. L., Squires, E., Bui, A. L., Campbell, M., Chapin, A., Hamavid, H., . . . Murray, C. J. L. (2017). Factors Associated With Increases in US Health Care Spending, 1996-2013. *JAMA, 318*(17), 1668-1678. doi:10.1001/jama.2017.15927

Dietz, C., Zacher, H., Scheel, T., Otto, K., & Rigotti, T. (2020). Leaders as Role Models: Effects of Leader Presenteeism on Employee Presenteeism and Sick Leave. *Work and Stress*, 1-23. doi:10.1080/02678373.2020.1728420

Dimoff, J., & Kelloway, K. (2018). With a Little Help From My Boss: The Impact of Workplace Mental Health Training on Leader Behaviors and Employee Resource Utilization. *Journal of Occupational Health Psychology, 24*(1), 4-19. doi:10.1037/ocp0000126

Eriksson, A., Axelsson, R., & Axelsson, S. (2011). Health promoting leadership - Different views of the concept. *Work (Reading, Mass.), 40*, 75-84. doi:10.3233/WOR-2011-1208

Gerstner, C. R., & Day, D. V. (1997). Meta-Analytic review of leader–member exchange theory: Correlates and construct issues. *Journal of applied psychology, 82*(6), 827.

Gurt, J., Schwennen, C., & Elke, G. (2011). Health-specific leadership: Is there an association between leader consideration for the health of employees and their strain and well-being? *Work & Stress Vol. 25, No. 2*, 108-127. doi:10.1080/02678373.2011.595947

Hajat, C., & Stein, E. (2018). The global burden of multiple chronic conditions: A narrative review. *Preventive medicine reports, 12*, 284-293. doi:10.1016/j.pmedr.2018.10.008

Hammer, L. B., Kossek, E. E., Yragui, N. L., Bodner, T. E., & Hanson, G. C. (2009). Development and Validation of a Multidimensional Measure of Family Supportive Supervisor Behaviors (FSSB). *Journal of management, 35*(4), 837-856. doi:10.1177/0149206308328510

Harachi, T. W., Abbott, R. D., Catalano, R. F., Haggerty, K. P., & Fleming, C. B. (1999). Opening the Black Box: Using Process Evaluation Measures to Assess Implementation and Theory Building. *American Journal of Community Psychology, 27*(5), 711-731. doi:10.1023/A:1022194005511

Harden, A., Peersman, G., Oliver, S., Mauthner, M., & Oakley, A. (1999). A systematic review of the effectiveness of health promotion interventions in the workplace. *Occupational Medicine, 49*(8), 540-548. doi:10.1093/occmed/49.8.540

Hobfoll, S. (1989). Conservation of Resources: A New Attempt at Conceptualizing Stress. *The American psychologist, 44*, 513-524. doi:10.1037/0003-066X.44.3.513

Hoert, J., Herd, A., & Hambrick, M. (2016). The Role of Leadership Support for Health Promotion in Employee Wellness Program Participation, Perceived Job Stress, and Health Behaviors. *American Journal of Health Promotion, 32*, 1054-1061. doi:10.1177/0890117116677798

Horstmann, D. (2018). Enhancing Employee Self-Care: The Moderating Effect of Personal Initiative on Health-Specific Leadership. *Zeitschrift für Gesundheitspsychologie, 25*, 96-106. doi:10.1027/2512-8442/a000014

Horstmann, D., & Remdisch, S. (2019). Drivers and barriers in the practice of health-specific leadership: A qualitative study in healthcare. *Work, 64*, 1-11. doi:10.3233/WOR-192994

Inceoglu, I., Thomas, G., Chu, C., Plans, D., & Gerbasi, A. (2018). Leadership behavior and employee well-being: An integrated review and a future research agenda. *The Leadership Quarterly, 29*(1), 179-202. doi:https://doi.org/10.1016/j.leaqua.2017.12.006

Jiménez, P., Bregenzer, A., Kallus, K. W., Fruhwirth, B., & Wagner-Hartl, V. (2017). Enhancing Resources at the Workplace with Health-Promoting Leadership. *International journal of environmental research and public health, 14*(10), 1264. doi:10.3390/ijerph14101264

Justesen, J., Eskerod, P., Christensen, J., & Sjøgaard, G. (2017). Implementing workplace health promotion ? role of middle managers. *International Journal of Workplace Health Management, 10*, 164-178. doi:10.1108/IJWHM-04-2016-0030

Kaluza, A., Schuh, S., Kern, M., Xin, K., & Dick, R. (2018). The Importance of Organizational Health Climate for Employee Health: A Multilevel Cascading Model. *Academy of Management Proceedings, 2018*, 11709. doi:10.5465/AMBPP.2018.157

Karri, R., & Caldwell, C. (2019). Leadership Morality: A Transformative Philosophy Approach. *1*(2).

Kent, K., Goetzel, R., Roemer, E., McCleary, K., Henke, R., Head, M., & Fabius, R. (2018). Developing Two Culture of Health Measurement Tools: Examining Employers' Efforts to Influence Population Health Inside and Outside Company Walls. *Journal of Occupational and Environmental Medicine, 60*, 1. doi:10.1097/JOM.0000000000001438

Klade, M., Mert, W., Seebacher, U., & Schultz, I. (2013). Sustainable behaviour at work and in private life: The contribution of enterprises. *Int. J. of Innovation and Sustainable Development, 7*, 321-332. doi:10.1504/IJISD.2013.057035

Kranabetter, C., & Niessen, C. (2016). Managers as Role Models for Health: Moderators of the Relationship of Transformational Leadership With Employee Exhaustion and Cynicism. *Journal of Occupational Health Psychology, 22*(4), 492-502. doi:10.1037/ocp0000044

Krick, A., Felfe, J., & Klug, K. (2019). Turning intention into participation in OHP courses? The moderating role of organizational, intrapersonal and interpersonal factors. *Journal of Occupational and Environmental Medicine, 61*. doi:10.1097/JOM.0000000000001670

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*(1), 159. doi:10.2307/2529310

Lawson, K. M., Davis, K. D., McHale, S. M., Hammer, L. B., & Buxton, O. M. (2014). Daily positive spillover and crossover from mothers' work to youth health. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43), 28*(6), 897-907. doi:10.1037/fam0000028

Ljungblad, C., Granström, F., Dellve, L., & Akerlind, I. (2014). Workplace health promotion and working conditions as determinants of employee health. *International Journal of Workplace Health Management, 7*. doi:10.1108/IJWHM-02-2013-0003

Loeppke, R., Taitel, M., Haufle, V., Parry, P. D. T., Kessler, R., & Jinnett, K. (2009). Health and Productivity as a Business Strategy: A Multiemployer Study. *Journal of occupational and environmental medicine / American College of Occupational and Environmental Medicine, 51*, 411-428. doi:10.1097/JOM.0b013e3181a39180

Markos, S., & Sridevi, M. S. (2010). Employee engagement: The key to improving performance. *International journal of business and management, 5*(12), 89.

Meier, P., Holland, B., Preston, L., Squires, P., Lewis, C., Santhanam, J., . . . Oatley, G. (2007). Mind-mapping: a tool for eliciting and representing knowledge held by diverse informants.

Mitchell, R. J., & Bates, P. (2011). Measuring health-related productivity loss. *Population health management, 14*(2), 93-98. doi:10.1089/pop.2010.0014

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: the PRISMA statement. *Br Med J, 8*, 336-341. doi:10.1371/joumal.pmedl000097

Montano, D. (2015). Supervisor behaviour and its associations with employees' health in Europe. *International archives of occupational and environmental health, 89*. doi:10.1007/s00420-015-1072-8

Ni Mhurchu, C., Aston, L. M., & Jebb, S. A. (2010). Effects of worksite health promotion interventions on employee diets: a systematic review. *BMC Public Health, 10*(1), 62. doi:10.1186/1471-2458-10-62

Payne, J., Cluff, L., Lang, J., Koffman, D., & Morgan-Lopez, A. (2018). Elements of a Workplace Culture of Health, Perceived Organizational Support for Health, and Lifestyle Risk. *American Journal of Health Promotion, 32*, 089011711875823. doi:10.1177/0890117118758235

Perko, K., Kinnunen, U., & Feldt, T. (2014). Transformational leadership and depressive symptoms among employees: Mediating factors. *Leadership and Organization Development Journal, 35*. doi:10.1108/LODJ-07-2012-0082

Pundt, F., & Felfe, J. (2011). Diagnose gesundheitsförderlicher Führung – Das Instrument „Health-oriented Leadership". In (pp. 3-13).

Pundt, F., Felfe, J., & Pundt, A. (2014). The Impact of Health-Oriented Leadership on Follower Health: Development and Test of a New Instrument Measuring Health-Promoting Leadership. *Zeitschrift für Personalforschung, 28*, 139-161. doi:10.1688/ZfP-2014-01-Franke

Rongen, A., Robroek, S. J. W., van Lenthe, F. J., & Burdorf, A. (2013). Workplace Health Promotion: A Meta-Analysis of Effectiveness. *American Journal of Preventive Medicine, 44*(4), 406-415. doi:https://doi.org/10.1016/j.amepre.2012.12.007

Rosenstock, I. M. (2005). Why People Use Health Services. *The Milbank Quarterly, 83*(4), 10.1111/j.1468-0009.2005.00425.x. doi:10.1111/j.1468-0009.2005.00425.x

Rowley, J., & Slack, F. (2004). Conducting a literature review. *Management Research News, 27*. doi:10.1108/01409170410784185

Rudolph, C., Murphy, L., & Zacher, H. (2019). A Systematic Review and Critique of Research on "Healthy Leadership". *The Leadership Quarterly*. doi:10.1016/j.leaqua.2019.101335

Salvagioni, D. A. J., Melanda, F. N., Mesas, A. E., González, A. D., Gabani, F. L., & Andrade, S. M. d. (2017). Physical, psychological and occupational consequences of job burnout: A systematic review of prospective studies. *PloS one, 12*(10), e0185781. doi:10.1371/journal.pone.0185781

Schultz, I., & Seebacher, U. (2010). *Sustainable behaviour at work and in private life: Preconditions, measures and tools for promoting a spillover*.

Schwarzer, R. (2008). Modeling Health Behavior Change: How to Predict and Modify the Adoption and Maintenance of Health Behaviors. *Applied Psychology, 57*, 1-29. doi:10.1111/j.1464-0597.2007.00325.x

Sianoja, M., Crain, T., Hammer, L., Bodner, T., Brockwood, K., Lopresti, M., & Shea, S. (2019). The relationship between leadership support and employee sleep. *Journal of Occupational Health Psychology, 25*. doi:10.1037/ocp0000173

Spieß, E., & Stadler, P. (2016). Four-Level Model of Health-Promoting Leadership. In (pp. 103-113).

Travert, A.-S., Sidney Annerstedt, K., & Daivadanam, M. (2019). Built Environment and Health Behaviors: Deconstructing the Black Box of Interactions-A Review of Reviews. *International journal of environmental research and public health, 16*(8), 1454. doi:10.3390/ijerph16081454

van de Ven, D., Robroek, S. J. W., & Burdorf, A. (2020). Are workplace health promotion programmes effective for all socioeconomic groups? A systematic review. *Occupational and Environmental Medicine*, oemed-2019-106311. doi:10.1136/oemed-2019-106311

Van De Voorde, K., Paauwe, J., & Van Veldhoven, M. (2012). Employee Well-being and the HRM–Organizational Performance Relationship: A Review of Quantitative Studies. *International Journal of Management Reviews, 14*(4), 391-407. doi:10.1111/j.1468-2370.2011.00322.x

Vincent-Höper, S., & Stein, M. (2019). The Role of Leaders in Designing Employees' Work Characteristics: Validation of the Health- and Development-Promoting Leadership Behavior Questionnaire. *Frontiers in Psychology, 10*(1049). doi:10.3389/fpsyg.2019.01049

Wegge, J., Shemla, M., & Haslam, S. A. (2014). Leader Behavior as a Determinant of Health at Work: Specification and Evidence of Five Key Pathways. *German Journal of Human Resource Management, 28*(1-2), 6-23. doi:10.1177/239700221402800102

WHO. (2002). Constitution of the World Health Organization. 1946. *Bulletin of the World Health Organization, 80*(12), 983-984. Retrieved from https://apps.who.int/iris/handle/10665/268688

WHO. (2005). Preventing chronic diseases: A vital investment WHO global report. In. Geneva: World Health Organization.

WHO. (2019). *Global spending on health: A world in transition*. Retrieved from Geneva: https://apps.who.int/iris/handle/10665/330357

Wolfswinkel, J., Furtmueller, E., & Wilderom, C. (2013). Using Grounded Theory as a method for rigorously reviewing literature. *European Journal of Information Systems, 22*, 45-55. doi:10.1057/ejis.2011.51

Wright, T., & Cropanzano, R. (2000). Psychological well-being and job satisfaction as predictors of job performance. *Journal of Occupational Health Psychology, 5*, 84-94. doi:10.1037/1076-8998.5.1.84

Zigarmi, D., Peyton, T., & Randolph, W. (2015). Employees' Perceived Use of Leader Power and Implications for Affect and Work Intentions. *Human Resource Development Quarterly, 26*, n/a-n/a. doi:10.1002/hrdq.21216

Zweber, Z., Henning, R., & Magley, V. (2015). A Practical Scale for Multi-Faceted Organizational Health Climate Assessment. *Journal of Occupational Health Psychology, 21*(2), 250-259. doi:10.1037/a0039895

Appendices

Appendix A, Data extraction form

Year	Author	Type of study	Setting	Objective	Individual employee's health behaviour aspects	Researched leadership styles/aspects	Employee health outcomes	Suggested mechanism(s) of leadership-individual employee's health behaviour relationship
2012	Avey et al.	Longitudinal, two time survey	Working alumni from large universities, US	To examine the relationships between ethical leadership with positive employee outcomes	Employee voice behaviour	Ethical leadership	Psychological wellbeing	By role modelling and encouraging voice behaviours of ethical leaders, employees perceive social norms for speaking out in their work environments. As a they feel a positive effect associated with psychological wellbeing. Social support, structure and increased degree of trust play a role.
2016	Bäckström et al.	Cross-sectional interviews	Managers of a multinational manufacturing company, Sweden	To describe leaders' views on how Communicative Leadership influences co-worker health by comparing their opinions with the health-related values	n/a	Communicative leadership, quality management	n/a	If managers are acting and behaving in accordance with the communicative behaviors and communicative methodologies related to the health-related quality management values of ''participation of everybody'' and ''leadership

			within Quality Management.				commitment'', they can influence co-worker health in a positive way.
2019	Bregenzer et al.	Online cross-sectional survey	Employees in several sectors, Germany, Austria and Slovenia	To investigate the impact of health-promoting leadership as well as abusive supervision on followers' social and task resources as antecedents of their health. Moreover, it examines whether the impact of leadership on followers' health-related resources is moderated by the followers' emotional stability and cultural value orientations.	Social and task resources at the workplace	Health awareness dimension of health-promoting leadership, abusive supervison	n/a	The results suggest that followers benefit from or suffer differently under perceived leadership: high power distance enhances the positive effect of health-promoting leadership on followers' social resources, while collectivism strengthens the negative impact of abusive supervision on followers' social resources. Emotionally stable followers who are working with highly abusive leaders experience a stronger threat to their resources compared to emotionally stable followers who are working with less abusive leaders.

Year	Author	Study design	Sample	Aim	Outcome variable	Independent variable	Mediator/Moderator	Dependent variable	Results
2020	Dietz et al.	Three-wave longitudinal study	Leaders and employees active in several industries, Germany	To determine whether employee presenteeism mediates the positive association between leader presenteeism and employee sick leave.	Employee presenteeism and sick leave	Leader presenteeism		Self-reported general health	Leader presenteeism is positively related to subsequent employee presenteeism. Next, this is positively related to subsequent employee sick leave. This effect seems to be explained by following the leader role model (trickle-down effect).
2019	Dimoff & Kelloway	Longitudinal, three time survey	Leaders and employees from a small publishing company and a small property management company, US	To evaluate the impact of a leader-focused mental health training on employees' resource use and leaders' communication about mental health and mental health resources.	Willingness to use resources, resource use	Stigma, warning sign recognition, SOS utility, communication about mental health and resources, consideration for struggling employees, actions taken		n/a	Training leaders about mental health makes it so they subsequently communicate better with their employees and have a better perception of their needs. Due to better communication, the behaviour of employees changes in that they are more willing to use and actually utilize more resources.
2014	Pundt et al.	Two studies, one cross-sectional survey, the other two time	Employees in several sectors, Germany	To develop and test a new instrument measuring health-promoting leadership	SelfCare	Transformational leadership		State of health, irritation, health complaints	Transformational leaders influence their employees SelfCare through Staffcare.

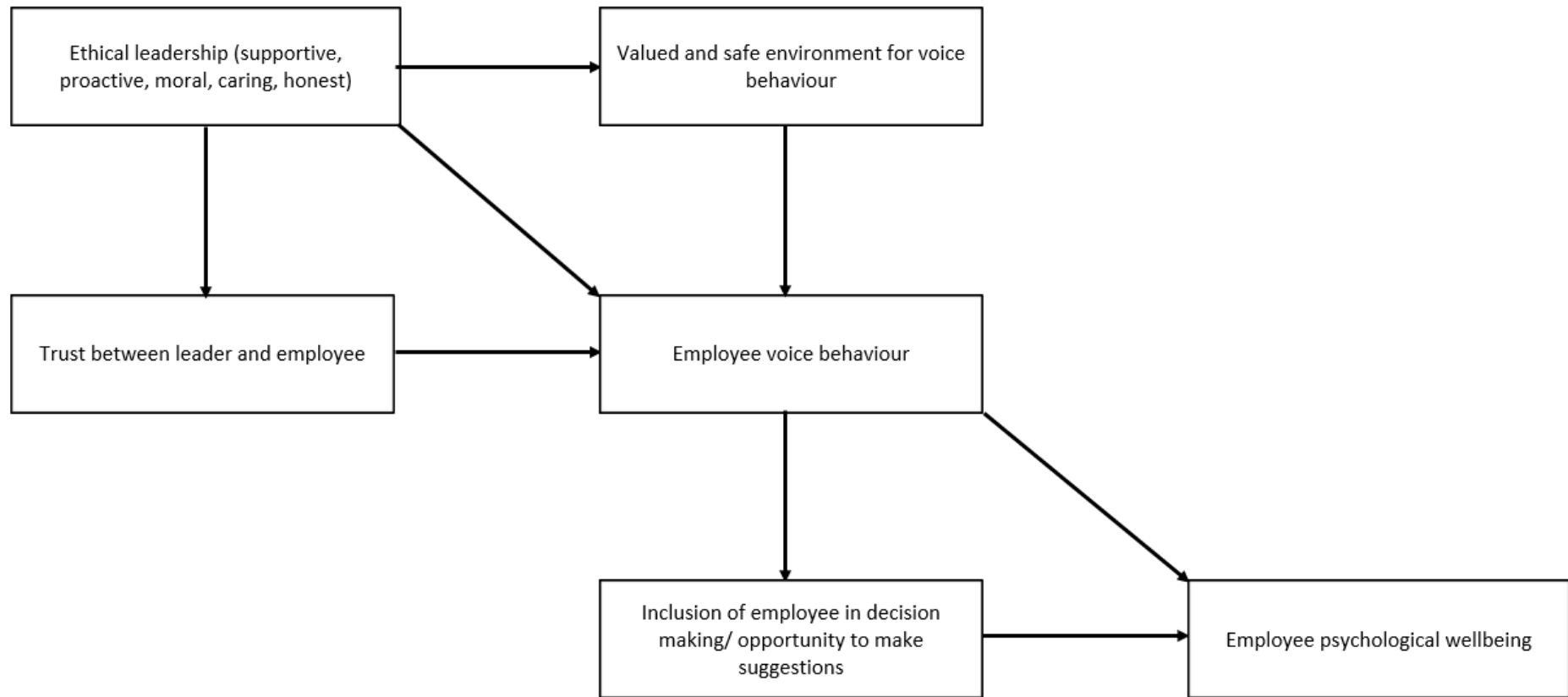|								
		longitudinal survey						
2019	Horstmann & Remdisch	Cross-sectional interviews	Managers of geriatric-care facilities, Germany	To survey the experiences of healthcare managers with health-specific leadership skills and identify the drivers and barriers in the practice of health-specific leadership.	n/a	Health-specific leadership	n/a	To be willing to change employees should be sensitized about their individual responsibility towards their health and motivated to exhibit healthy behaviours.
2018	Horstmann	Cross-sectional survey	Employees of geriatric-care facilities, Germany	To investigate the relationship between health-specific leadership and employee burnout.	Employee self-care	Health-specific leadership, personal initiative	Burn-out	The relationship between health-specific leadership and employee self-care is stronger when managers' personal initiative is high. So manager PI is a moderator in this relationship.
2017	Justesen et al.	Longitudinal, questionnaire and interviews	Employees from both private and public companies, Denmark	To address the role of the middle managers between top management and employees when it comes to understanding how to successfully	Engagement/participation in workplace health promotion	n/a	n/a	Leaders have a crucial role in keeping their employees engaged in WHP and should communicate the importance of health-related behaviour to their employees through their own behaviours and attitudes.

				implement and embed workplace health promotion as a strategy within organizations.					
2016	Kranabetter & Niessen	Cross-sectional survey	Managers and employees of a savings bank and a medical systems company, Germany	To examine managers' health awareness and health behavior moderators of the relationships between transformational leadership and employee exhaustion and cynicism.	Health awareness and behaviour	Transformational leadership	Employee exhaustion and cynicism	Transformational leaders reflect competence and build trust, which in turn leads to role modeling behaviour.
2019	Krick et al.	Two cross-sectional studies using surveys	Employees of a public service organization, Germany	To investigate organizational, intrapersonal and interpersonal factors as predictors for employees' participation in occupational health promotion and the mediating effect of	Intention to participate	Leaders' staff-care and leader participation (role modelling)	n/a	Intention (as a core construct preceding actual behavior: participation)

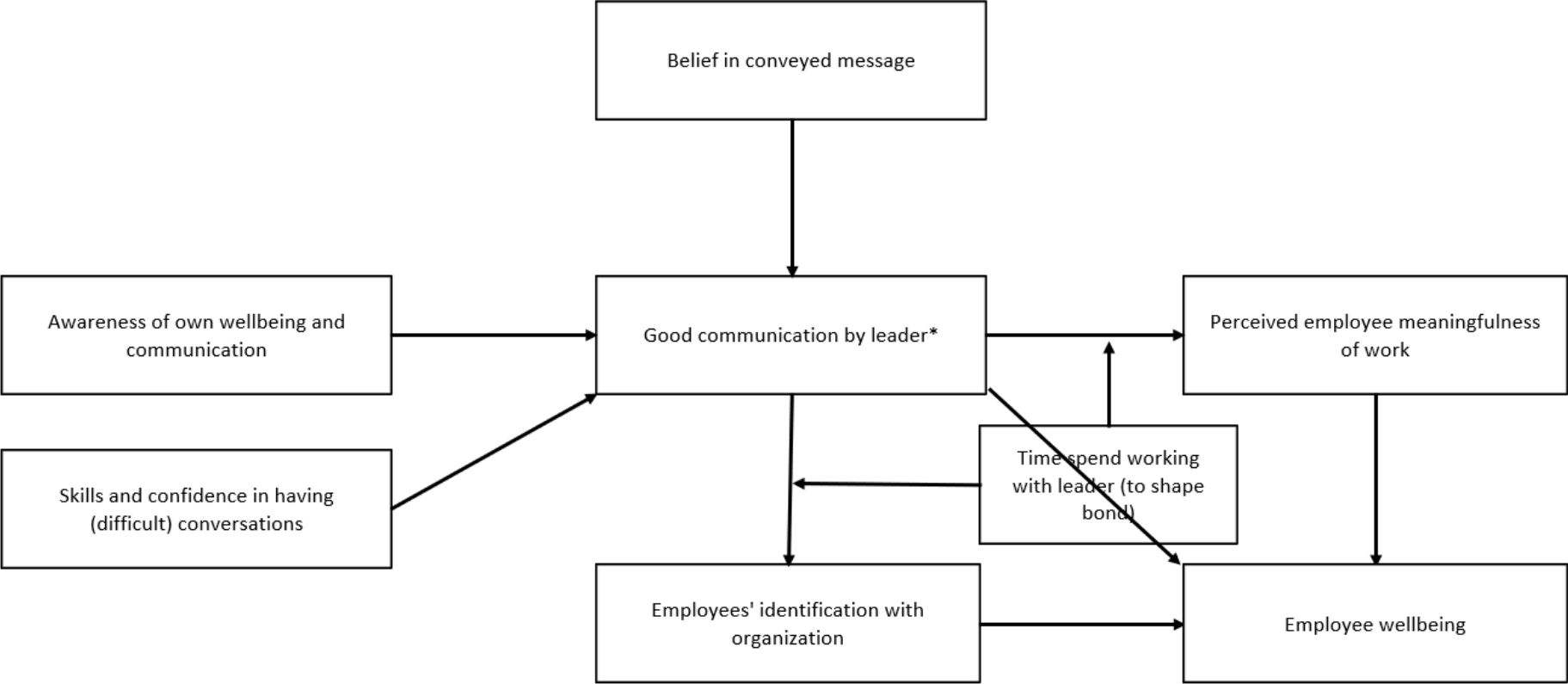|				intention. Identifying moderators that strengthen the relationship between intention and participation.				
2018	Payne et al.	Longitudinal data analysis	Employees from a multitude of employers, US	To investigate the impact of elements of a workplace culture of health on employees' perceptions of employer support for health and lifestyle risk.	Self-reported nutrition, physical activity, and tobacco use	Supervisor concerned about the welfare of employees, Supervisor encourages healthy behaviors	n/a	The consistent effects for leadership support reflect the critical role that leaders play in developing WHPPs, allocating resources that support the programs, creating opportunities to adopt a healthy lifestyle (ie, by providing time and flexibility to use programming), and modeling healthy behaviors with words and deeds. The consistent effects likewise back our contention that leadership support may be one of the most important and perhaps even an essential element for effective health promotion programs.

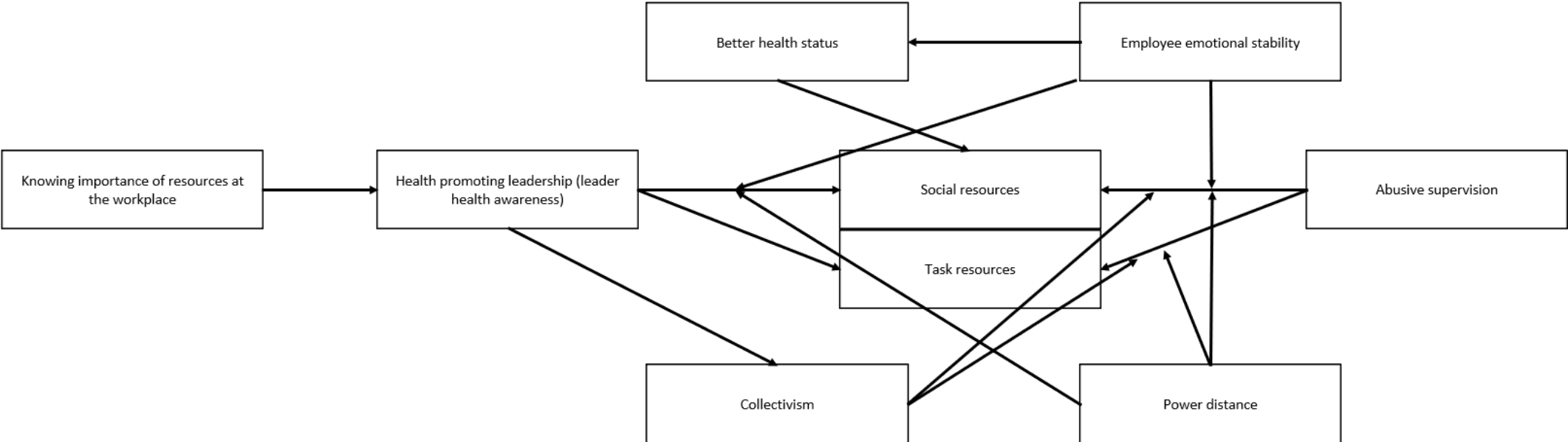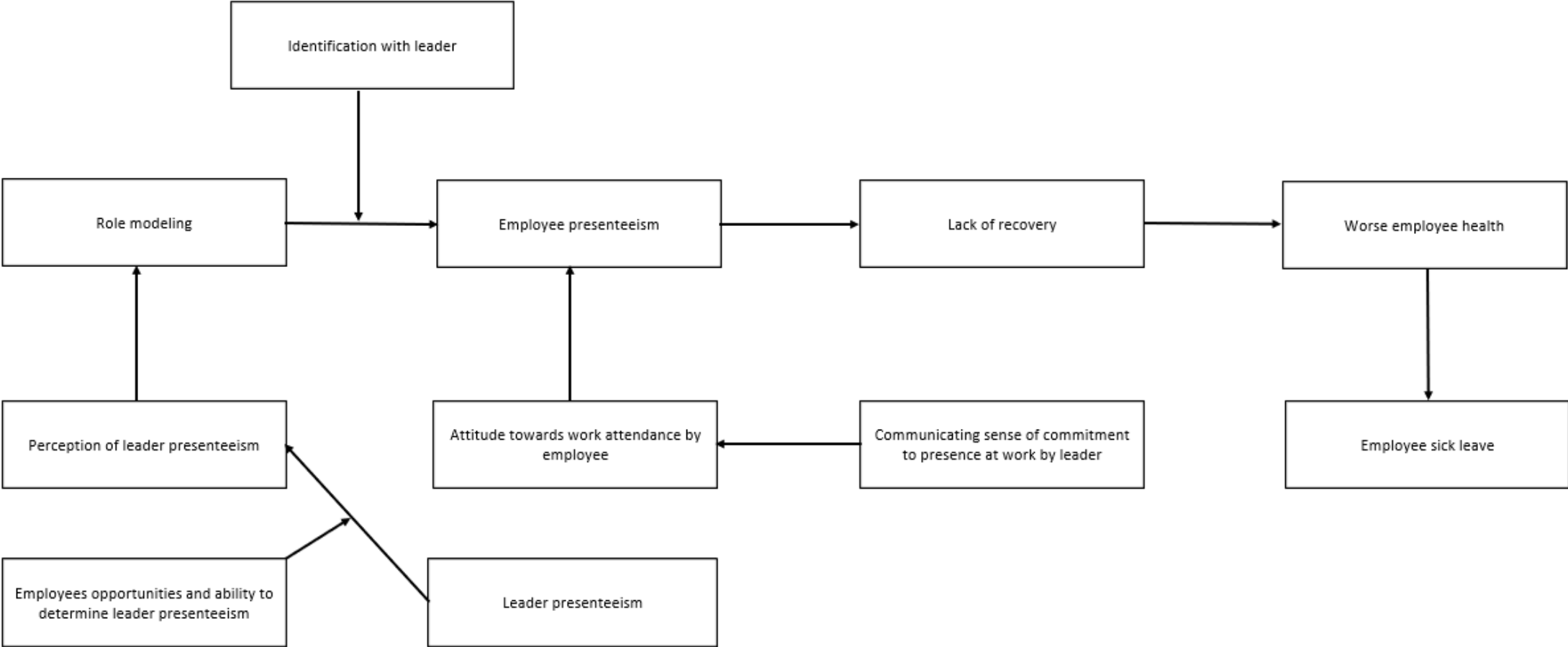| Year	Author	Design	Sample	Aim	Mediators	Predictor	Outcome	Findings
2014	Perko et al.	Cross-sectional survey	Municipal employees in various occupations, Finland	To examine whether the link between transformational leadership and depressive symptoms among employees is mediated by such personal resources as occupational self-efficacy, perceived meaningfulness of the work, and work-related rumination.	Rumination, self-efficacy, meaningfulness	Transformational leadership	Depressive symptoms	transformational leadership behaviors may decrease depressiveness among employees through strengthening the personal resources of employees.
2019	Sianoja et al.	Cross-sectional and observational	Full time national guard service members in a multitude of functions, US	To examine the relationship of sleep leadership and family-supportive supervisor behaviors (FSSB) to employees' sleep.	Employees' subjective sleep hygeine and resources	Sleep leadership and FSSB	Sleep quality and sleep quantity	Supervisors' supportive behaviors increase employees' resources (e.g., time) and reduce stress, thus enhancing employee sleep.

Avey et al. (2012)

Bäckström et al. (2016)

Bregenzer et al. (2019)

Dietz et al. (2020)

Identification with leader

Role modeling → Employee presenteeism → Lack of recovery → Worse employee health

Perception of leader presenteeism

Attitude towards work attendance by employee ← Communicating sense of commitment to presence at work by leader

Employee sick leave

Employees opportunities and ability to determine leader presenteeism

Leader presenteeism

Dimoff and Kelloway (2018)
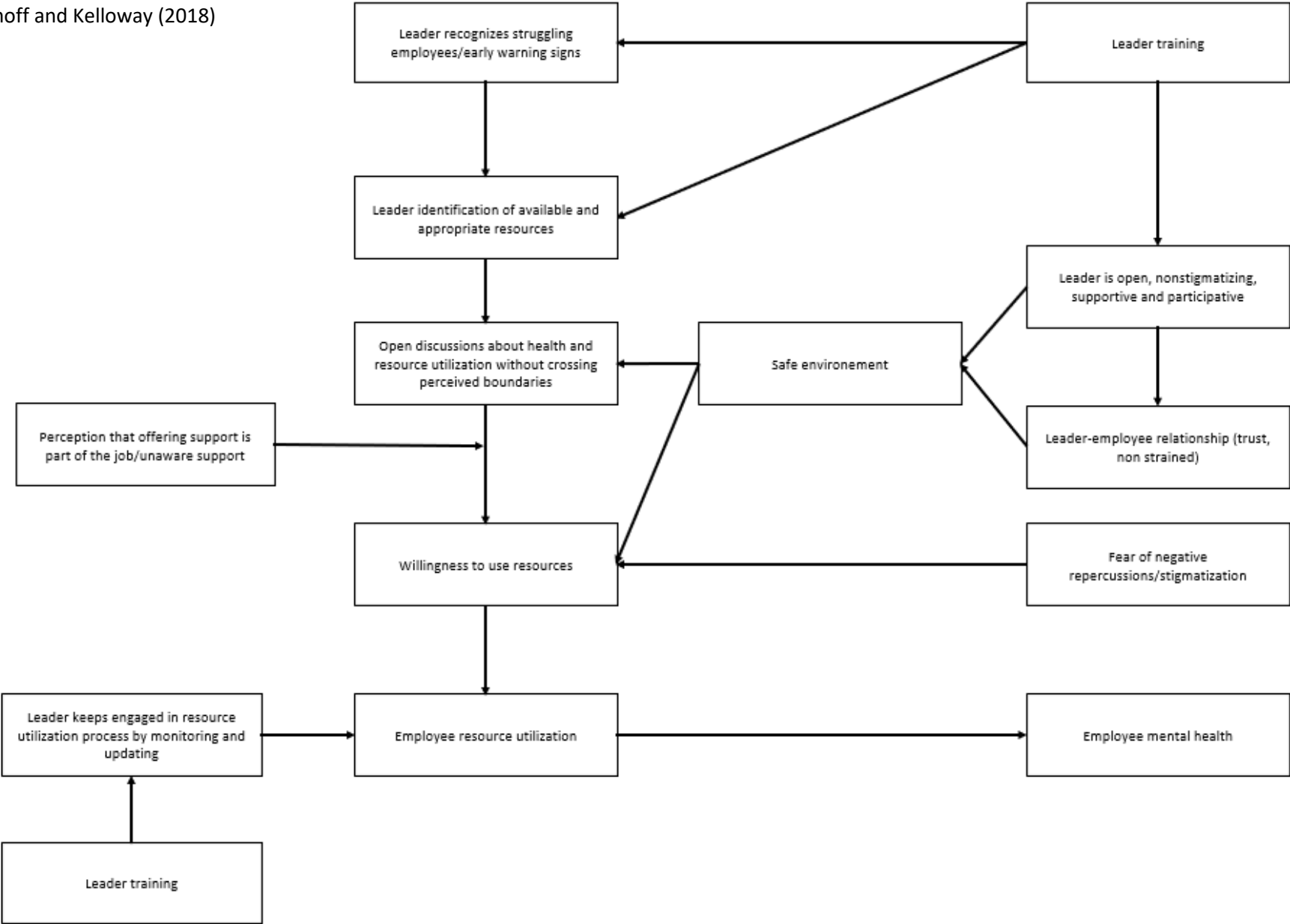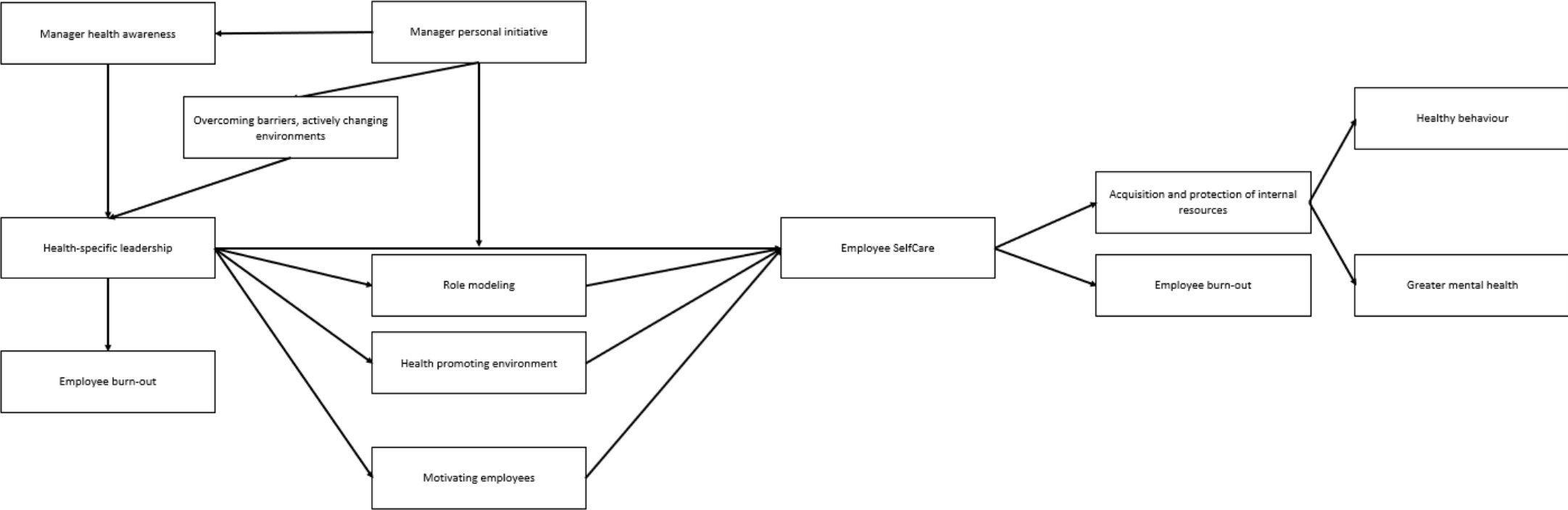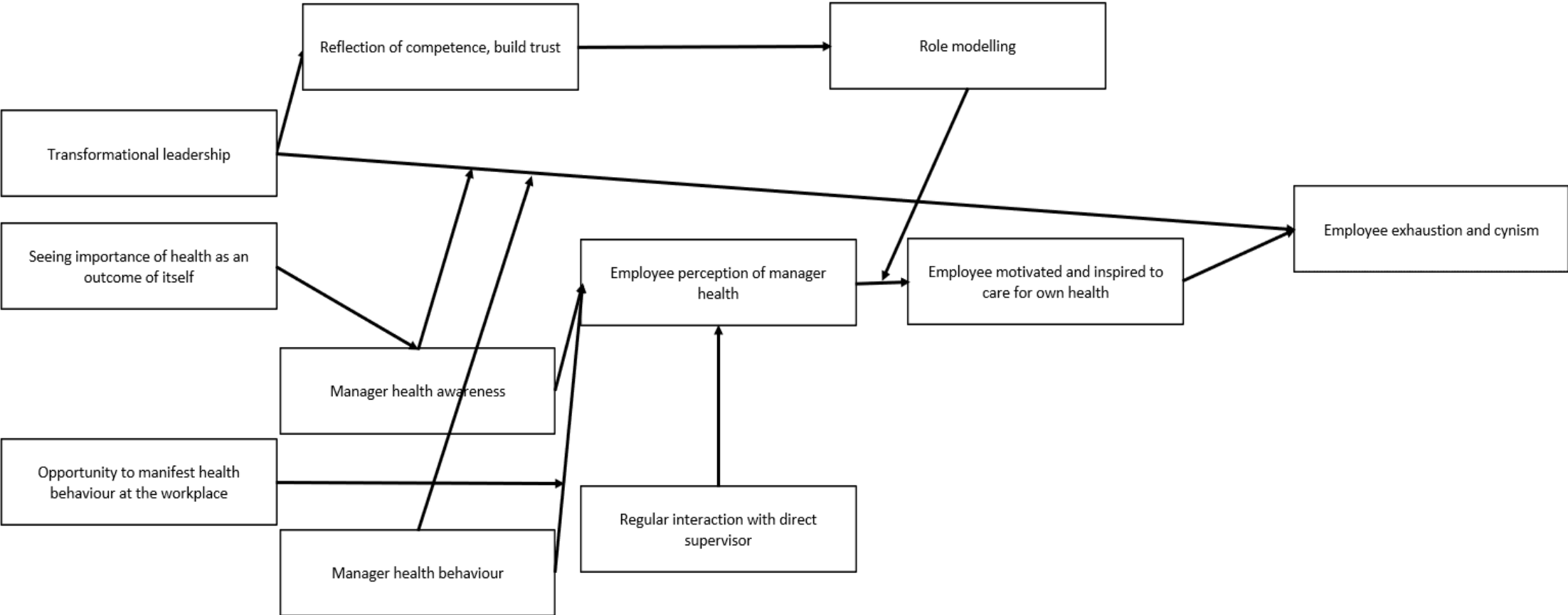
Horstmann (2018)
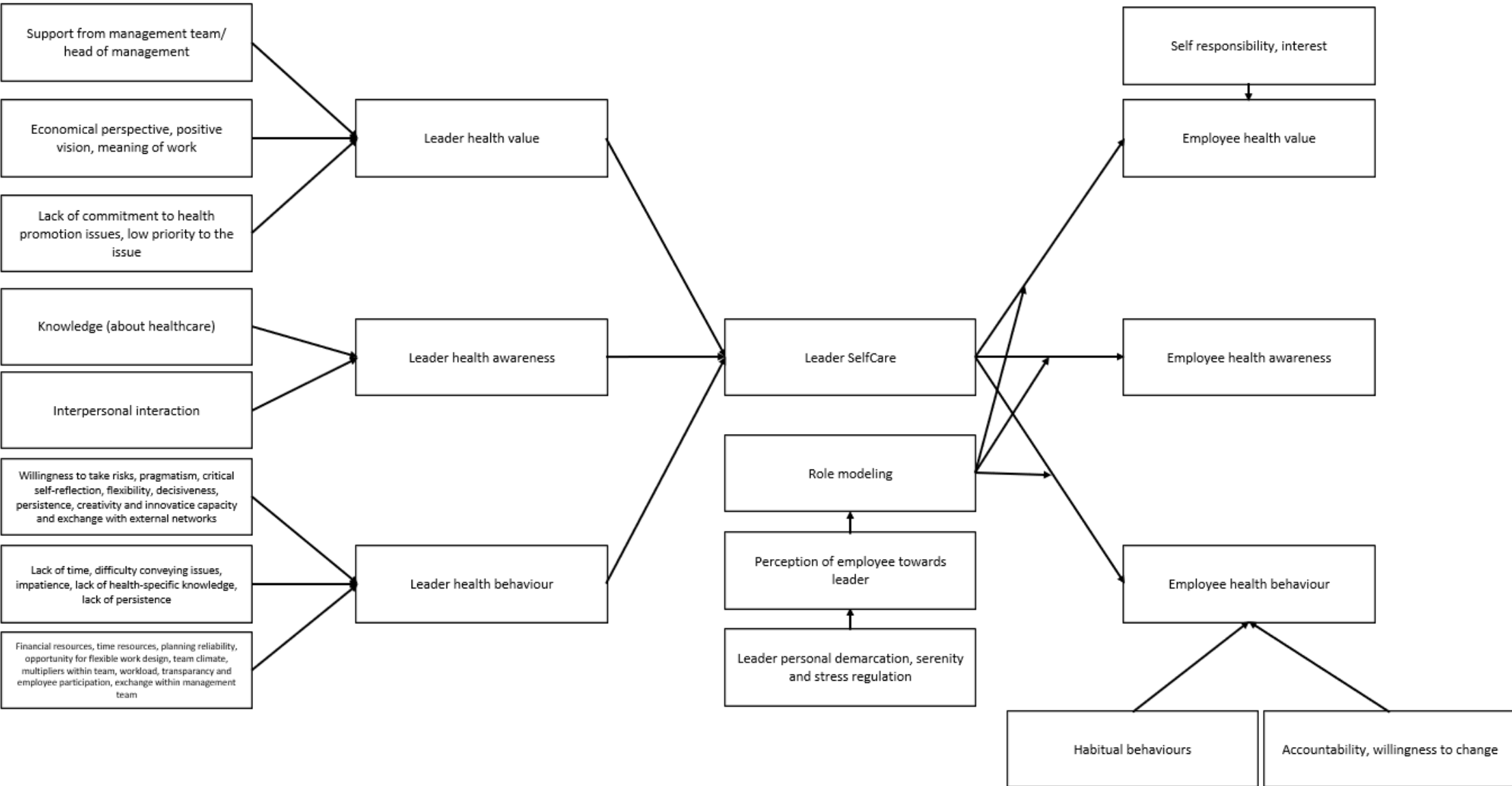
Justesen et al. (2017)
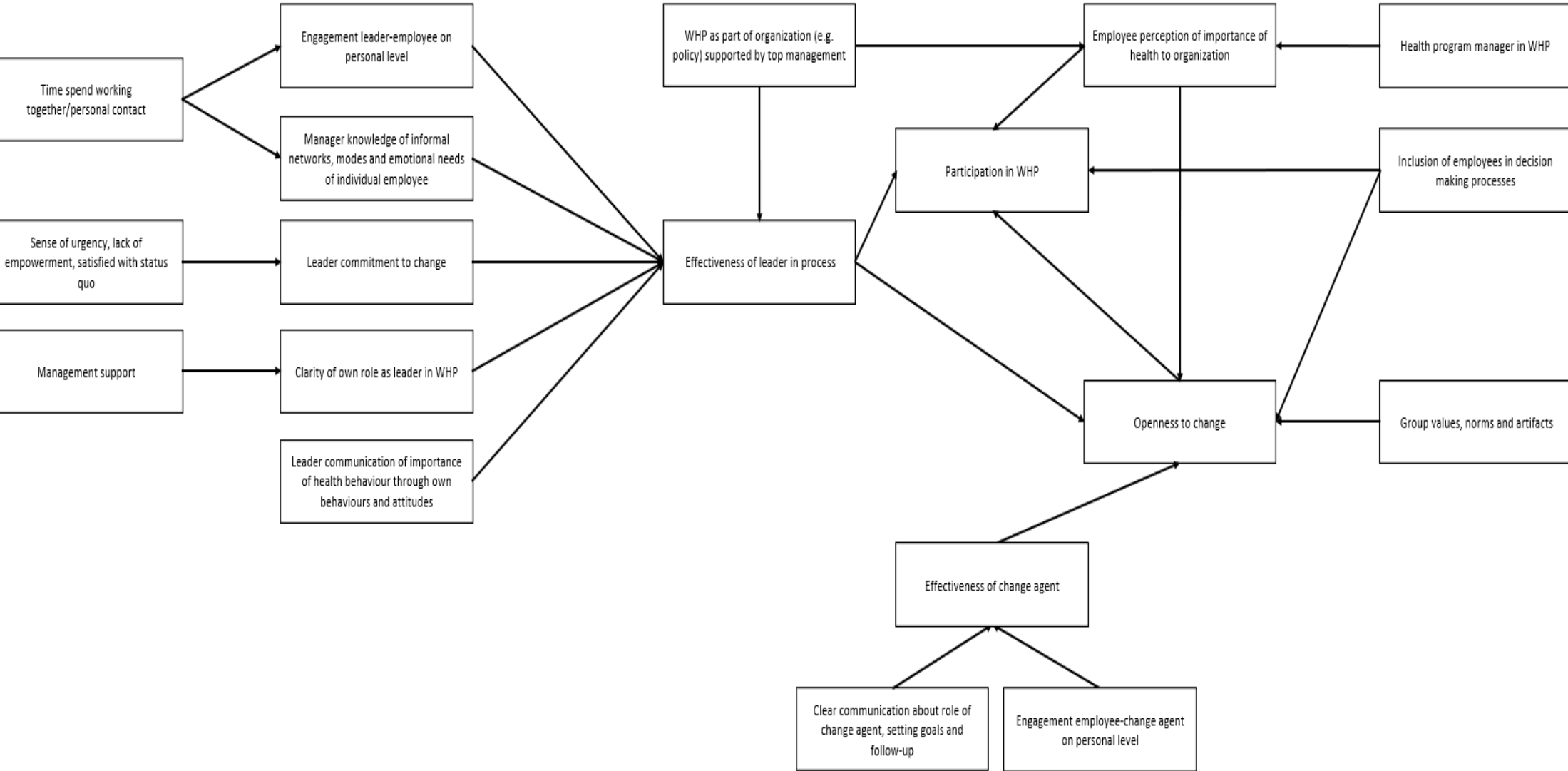
Kranabetter and Niessen (2016)

Krick et al. (2019)

Payne et al. (2018)

Size and intimacy of social group

Creating opportunities and allocating resources to adopt healthier behaviours

Additional incentives to participate (e.g. competitions)

Coworker social support

Creation of supportive environment by leader

Encouraging health promoting behaviours

Employee enthousiasm about WHPP

Engagement in WHPP

Participation in WHPP

Healthier lifestyles

Motivation to participate and adopt healthier behaviours

Role modeling through words and deeds of leader

Tailored messages, champions, success stories

Ownership of WHPP

Exercise and nutritional behaviour of coworkers

Leader concern demonstrated towards employee health

Employee perception of leaders/the organizations structural concern for their health

Strategic communication

Participation of employee in planning of WHPP/opportunity to offer suggestions

Senior decisions

Environmental andolicy support

Communication of organizational values

47

Perko et al. (2014)

Pundt et al. (2014)

External resources *

StaffCare

Health specific communication,

Employee personality/emotions

Follower SelfCare awareness

Employee perception that leader cares
and notices follower health

Employee health

Relationship between leader and
employee

Follower SelfCare value

Interest respect and consideration

Internal resources**

Role modeling

Follower SelfCare behaviour

Leader SelfCare

Follower SelfCare

Sianoja et al. (2019)