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ORIGINAL ARTICLE

Pilot implementation of MiLES: a web-based intervention targeted at managers with the aim of enhancing the successful return to work of employees with cancer

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ABSTRACT

Background: MiLES is a web-based intervention targeted at managers with the aim of enhancing the successful return to work (RTW) of employees with cancer. The purpose of this study was to identify barriers to and facilitators of implementing MiLES in organizations, from a manager's perspective.

Material and Methods: MiLES was implemented as a pilot in four organizations for six weeks. Sixteen managers were included, of which fourteen were interviewed regarding their perceived barriers to and facilitators of implementation of MiLES in their organization. Interviews were recorded, transcribed verbatim and analyzed with content analysis.

Results: The managers experienced barriers to and facilitators of implementation related to: (1) implementation responsibilities, (2) the intervention's content, and (3) organizational characteristics. Regarding implementation responsibilities, management board approval and an organizational infrastructure with distinct described implementation responsibilities were perceived as facilitators. Regarding the intervention's content, its accessibility, user-friendliness and completeness were perceived as facilitators. If the content did not meet the manager's specific needs, this was perceived as a barrier. Regarding organizational characteristics, several intangible (e.g., added value of MiLES within different organizations) and tangible (e.g., integration into absenteeism registration) organizational characteristics were perceived as facilitators. The absence of a quiet place to use MiLES was perceived as barrier.

Conclusion: Implementation of MiLES in organizations may benefit from an infrastructure within the organization that defines responsibilities regarding intervention delivery to managers of employees with cancer. Such an infrastructure should be aligned to existing organizational structures. As per interviewed managers, MiLES has added value in diverse organizations.

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Background

Improved cancer treatment and the rising retirement age will increase the number of cancer survivors in the working population [1,2]. Work is important for employees with cancer, as work provides structure, feelings of social belonging, and financial security [3]. Thus, returning to work can improve the quality of life of employees with cancer [4].

Many employees with cancer, however, experience problems with returning to work [5]. Return to work (RTW) can be hindered by various personal, social and work-related factors [5–9]. Employees with cancer are on average 10–18 months on sick leave, and have significantly higher chances of becoming unemployed than 'healthy' individuals [10,11]. Cancer thereby imposes an economic burden on the employees themselves, on organizations and on society [3,12].

Specifically, when an employee is diagnosed with cancer, managers express a need for support, since they perceive supporting employees with cancer as complex and demanding [13,14]. We therefore developed a web-based intervention, entitled MiLES ('the Missing Link: optimizing the return to work of Employees diagnosed with cancer, by Supporting employers'), which supports managers through all phases of RTW: (1) disclosure, (2) treatment, (3) RTW planning, and (4) actual RTW [15]. The intervention

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prompts managers about how to take the most important managerial actions, such as providing emotional and practical support, and communicating [16]. The aim of MiLES is to optimize the successful RTW of employees with cancer by supporting managers [15].

Use and perceived usefulness of MiLES were found to be good among individual managers [17]. Next, it is important to assess the ecological validity of its usability in organizations and to make an initial assessment of implementation [18]. A pilot implementation can take this next step, as its purpose is to learn about how an intervention performs in a real environment, how users react to it and how to integrate it into (or transform) existing practice [18]. It is also important to gather specific knowledge on the implementation of MiLES as a precursor to instituting an effectiveness study [19,20]. By piloting an implementation, barriers to and facilitators of implementation can be discovered, which can be used to enhance the success of implementation during the effectiveness study, increasing the likelihood that MiLES will be effective. Such a pilot implementation can also prevent a costly and unfeasible effectiveness study being carried out. The purpose of this study was therefore to identify barriers to and facilitators of implementing MiLES in organizations, from a manager's perspective.

Material and methods

Study design

A qualitative study was carried out in the context of a pilot implementation [18]. Implementation theories and models of organizational change formed the basis for this pilot implementation, meaning that organizational factors (e.g., organizational culture and profit or nonprofit sector) and determinants of behavior (e.g., perception of risk and awareness of urgency) were taken into account to achieve organization-wide support [21–23]. Organizations were recruited and participating managers (the participants) were given access to MiLES for six weeks. After six weeks, semi-structured interviews were conducted about the participants' perceived barriers to and facilitators of the implementation of MiLES. The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist for qualitative research was used to enhance complete reporting (see Supplementary material 1) [24].

Recruitment of organizations and participants

The first author (MB) contacted persons (henceforth 'organizational representatives') working at strategic levels of 24 organizations in the network of the research group by telephone and e-mail with an information sheet that explained the aims, procedures and burden attached, to enroll organizations interested in participating in the pilot-implementation. The organizational representatives of the organizations were responsible for the initial implementation activities and were mostly organizations' heads of Human Resource (HR) or occupational physicians. Study participants were 'managers': personnel either directly (e.g., as line manager or direct supervisor) or indirectly (e.g., as HR manager or manager responsible for the sustainable employability policy to enhance worker retention: the 'sustainable employability manager') involved in the sickness absence and RTW guidance of at least one employee with cancer at the time of study. Organizations' inclusion criteria included (1) assigning an organizational representative, and (2) having at least one manager participating in the study. Recruitment took place until four organizations were enrolled, as we expected that this would be sufficient for this pilot implementation study. We strived for including both profit and nonprofit organizations [25] and for including managers both directly and indirectly involved in sickness absence and RTW guidance. The organizational representative identified at least three potential managers willing to participate.

MiLES

MiLES is an open-access, web-based intervention with information and practical tools targeted at the manager [15]. The intervention has been developed based on the trans-theoretical model of change and with input from relevant stakeholders, such as employees with cancer and managers [15]. It consists of succinct tips and information on how to take the most important managerial actions during the RTW of employees with cancer, as identified in a prior study [16]. It also includes interactive communication videos with recognizable conversations between an employee with cancer and his/her manager, so that managers can visualize how to communicate in different situations. In addition, it contains an animation about differences among employees with cancer – to highlight the importance of tailored RTW support –, conversation checklists, and links to external sources [15]. The content of MiLES is tailored to each RTW phase: (1) disclosure, (2) treatment, (3) RTW planning, and (4) actual RTW [16]. MiLES is based on behavior change methodologies such as active learning, communication skills training, modeling and goal setting [15]. A comprehensive description of MiLES has been published elsewhere [15], as well as managers' use and the intervention's perceived usefulness [17].

Pilot implementation of MiLES

We organized a face-to-face introduction meeting including the organizational representative, potential managers and two authors (MB and MG) to explain the study, preview MiLES, verify eligibility, and collect signed informed consent forms. Thereafter, the organizational representative disseminated the URL of the intervention among the participating managers. These managers had unlimited access to MiLES for six weeks, on any device with Internet access. The six-week period was based on Dutch legislation that obliges managers to have contact with employees who are registered sick every six weeks [26]. We anticipated that participating managers would be able to acquire sufficient information about potential barriers to and facilitators of implementation of MiLES after one meeting with their employee with cancer.

Data collection

During the introduction meeting, the participating managers filled out a five-minute hardcopy questionnaire about their demographics and work-related characteristics. Participating managers were also asked to indicate the RTW phase of their current employee who they were supporting with cancer [16].

After the six weeks, an individual semi-structured telephone interview of ±30 min was scheduled with all managers to gather data on perceived barriers to and facilitators of implementation of MiLES as well as expected barriers to and facilitators of long-term organization-wide implementation. The interview guide (Table 1) had been sent to the managers prior to the interview. The interviews were conducted by the first author (MB), who had no pre-study contact with any of the managers, and who was trained to and experienced with qualitative interview techniques. At the end of the interview, the manager was asked to reflect and comment on the interviewer's summary of the main barriers to and facilitators for implementation that have been discussed during the interview to assess internal validity. If a manager dropped out before the telephone interview, the first author asked for a voluntary reason for dropout by e-mail.

The interviews were recorded and transcribed verbatim by a professional transcription agency. Two authors (MB and MG) monitored and discussed the interview's content after every two to four interviews, and added topics if deemed necessary to answer the research question.

Data analysis

Two authors (MB and MG) performed a conventional content analysis using MAXQDA qualitative data analysis software [27]. Firstly, both authors assigned codes (i.e., barriers and/or facilitators) to the interviews and assigned them to categories that reflected the original text as much as possible. Subsequently, categories were clustered to represent overarching themes. Both authors performed these two steps independently to increase reliability. After each of these steps, analyses were compared; if there was disagreement, final decisions were made by consensus.

Results

From the 24 contacted organizations, four organizations with a total 16 managers were enrolled in the study (Table 2). The other organizations were either not interested to participate ($N = 14$) or did not meet the criteria, i.e., they did not have at least one manager willing to participate in the study ($N = 6$). The 16 managers were mostly men ($N = 11$; 69%) and mostly worked as direct supervisors ($N = 5$; 31%). Two managers declined the interview due to personal reasons and the other 14 were interviewed for an average 32 min (range: 18–52 min).

Facilitators and barriers for implementation of MiLES

The analysis identified three major themes: (1) implementation responsibilities, (2) the intervention's content, and (3) organizational characteristics (Table 3).

Implementation responsibilities

It is regarded essential that the organization's managing board agrees with and acts to support the implementation (Table 4: quotation 1). If so, a clear organizational infrastructure with distinct implementation responsibilities was regarded a facilitator, that is, an individual stakeholder or stakeholder group is responsible for the deployment of MiLES among managers of employees with cancer. A variety of stakeholders were mentioned, illustrating the many options under Dutch legislation. One manager suggested that a sustainable employability manager of the HR department should initially be responsible for informing each department's HR manager. Thereafter, the department's HR or case manager should act as a catalyst and ensure the department's implementation (Table 4: quotation 2 and 3). Another manager indicated though, that an absence coordinator should be made responsible for implementing MiLES and should be the designated contact person when a manager needs additional support or a person to discuss with as well (Table 4: quotation 4), while a third suggested that the occupational physician should carry the main responsibility for implementing MiLES (Table 4: quotation 5).

Managers differed regarding whether it would be a facilitator or not to have someone, e.g., a case manager or absence coordinator, who reviews MiLES with them, either in a group with other managers or individually, before using it themselves. Some managers regarded the intervention to be clear and self-explanatory and found an introduction unnecessary, while others suggested that implementation of MiLES would be facilitated if they could have consultation available for any questions (Table 4: quotation 6 and 7). Those preferring a facilitator, expressed that this would support them and give them the feeling that they were not just

Table 1. Topic list interviews.

Topic	Example questions
Experience with current implementation strategy	How has MiLES been implemented into your organization in the past six weeks? What are your thoughts about this implementation strategy?
Barriers to implementation	What barriers to implementation of MiLES did you experience? What could potentially hinder prolonged implementation of MiLES in your organization?
Facilitators for implementation	What facilitators for implementation of MiLES did you experience? What could potentially facilitate prolonged implementation of MiLES in your organization?

For each question, several alternative and more in-depth questions were asked, in order to gain a profound insight into the topics concerned.

Table 2. Participants' demographics and work-related characteristics.

Participant number	Age (*years*)	Sex	Experience (*years*)	Experience (*employees with cancer*)	Current number of employees with cancer	RTW phase current employee with cancer (*1 = disclosure, 2 = treatment, 3 = RTW planning, 4 = actual RTW*)	Type of organization	Current position	Interviewed (if not, reason for dropping-out)
A1	>50	M	13	1	1	3	NP	Direct supervisor	Yes
A2		F				2			No, family circumstances
A3	≤30	M	2	1	1	4	NP	Direct supervisor	Yes
A4	41–50	M	9	Multiple, indirectly	Multiple, indirectly	NR	NP	HR manager & sustainable employability manager	Yes
A5	>50	M	15	1	1	4	NP	Direct supervisor	Yes
B1		F				4			No, sick leave
B2	>50	M	20	2	3	1 & 4	NP	Direct supervisor	Yes
B3	>50	M	19	1	1	2	NP	Direct supervisor	Yes
B4	31–40	F	5	3	1	1	NP	Direct supervisor	Yes
C1	41–50	F	1	1 + multiple indirectly	1 + multiple indirectly	2 & 3	NP	HR manager & sustainable employability manager*	Yes
C2	41–50	M	15	2	2	2 & 4	NP	Direct supervisor	Yes
D1	>50	M	2	Multiple, indirectly	Multiple, indirectly	NR	P	Direct supervisor & sustainable employability manager*	Yes
D2	41–50	M	2	1	1	2	P	Direct supervisor	Yes
D3	41–50	M	10	1	1	2	P	Direct supervisor	Yes
D4	≤30	F	1	Multiple, indirectly	Multiple, indirectly	NR	P	HR manager	Yes
D5	41–50	M	2	1	1	2	P	Direct supervisor	Yes

M: male; F: female; P: profit; NP: nonprofit; NR: not reported.
*Also organizational representative.

left to get on with the intervention's URL just put on the organization's intranet (Table 4: quotation 8, 9 and 10). Some managers suggested an introductory meeting with managers, and pointed at the added value of sharing experiences (Table 4: quotation 11). Finally, providing the manager with MiLES during a time when it is relevant was perceived a facilitator (Table 4: quotation 12).

The intervention's content

Managers indicated the degree of implementation of MiLES to depend on its content and on the extent to which they perceive the intervention as useful during the sickness absence and RTW guidance of their employee with cancer. Managers mentioned that MiLES comprised a complete tool that helped them through the different RTW phases, which was regarded a facilitator (Table 4: quotation 13). Managers appreciated the accessibility and simplicity of MiLES. Together with the tailoring per RTW phase, it contributed to the intervention's user-friendliness. Moreover, MiLES gave new information, which made it more attractive to use (Table 4: quotation 14). Managers particularly appreciated that MiLES contributed to more effective communication with their employee with cancer. It enhanced their awareness of the important topics that should be discussed with the employee with cancer, and thereby decreased managers' uncertainty when talking about these topics, which was regarded a facilitator (Table 4: quotation 15). Some managers regarded MiLES, or parts of the intervention, to be useful for the sickness absence and RTW guidance of employees with other sicknesses as well, which was regarded a facilitator (Table 4: quotation 16).

Managers also addressed some implementation barriers related to content. Some managers mentioned that the intervention's content did not meet al.l their specific needs. For example, according to some managers, the intervention did not adequately cover tips on how to support employees with cancer who are not able to ever return to work, and how to manage the employee's colleagues (Table 4: quotation 17). Lastly, some experienced managers mentioned that the communication videos did not match their current level of expertise (i.e., the managers were too advanced) or actual practice, and this was a barrier to using the videos (Table 4: quotation 18).

Organizational characteristics

The managers perceived MiLES as having added value both in organizations that lacked support for managers, those that have no well-implemented policies, and those in which communicating is not part of its culture. Some managers indicated that managers within their organization are predominantly individually responsible for the sickness absence and RTW guidance of employees with cancer, with support services such as the HR department not closely involved. In such organizations with high levels of autonomy, MiLES could fill this gap (Table 4: quotation 19). Another manager indicated that within their organization, there is great attention to reducing long-term sickness absence, without having well-implemented

Table 3. the three major themes with barriers to and facilitators for the implementation of MiLES.

Implementation responsibilities	The intervention's content	Organizational characteristics
Facilitators: • Agreement of organization's managing board • Making a stakeholder responsible for the deployment of the intervention • An introductory meeting for the manager to get the intervention explained individually or in groups (not needed for all managers) • Good timing of the deployment (precisely when manager is in need)	*Facilitators:* • Supportive and complete • Easily accessible and user-friendly • Contributes to effective communication with employee with cancer • Also useful for non-cancer related sickness absence and RTW guidance	*Facilitators:* • Autonomy of managers when guiding the sickness absence and RTW of employees with cancer (i.e., support services not closely involved) • Organization pays great attention to reducing long-term sickness absence, but without having well-implemented policies • When communicating is not part of the organization's culture or employees' natures • Integration into the organization's absenteeism registration system • Early involvement of IT services
Barriers: • Only putting the intervention's URL on the organization's intranet	*Barriers:* • No meet managers' specific needs, managers' current level of expertise, actual practice, or managers' design preferences	*Barriers:* • The absence of a quiet place to use the intervention

policies. MiLES is in line with this organizations' objective, which was regarded a facilitator (Table 4: quotation 20). Another group of organizations that perceived a need for MiLES are those in which communicating is not part of its culture or employees' natures. In these organizations, MiLES could help managers to communicate more openly with employees with cancer (Table 4: quotation 21). Participating managers also mentioned that implementation would be facilitated if (parts of) the intervention were to be incorporated in the absenteeism registration system (Table 4: quotation 22).

Although MiLES may thus be of added value to different organizations, which evidently facilitated implementation, managers also mentioned that their computers at work had no sound, so they were not able to watch the videos at the workplace. To overcome this, Information Technology (IT) services would need to be involved from the beginning of the intervention (Table 4: quotation 23). Another manager indicated that it was not appropriate to watch and listen to the intervention videos while working among other employees, without earphones. Therefore, having access to a private and quiet place was perceived a facilitator (Table 4: quotation 24). Finally, not having access to a private and quiet place was perceived a barrier to implementation.

Discussion

With this qualitative study in the context of a pilot implementation of MiLES in four organizations, we aimed to identify barriers to and facilitators of implementation in the context of organizations and from a manager's perspective. In total, 16 managers were included, of which 14 managers were interviewed following the pilot implementation. Barriers and facilitators were all related to implementation responsibilities, to the intervention's content, and to organizational characteristics.

Interpretation of findings

The organization's managing board was perceived as a facilitator, expressing adoption, which precedes implementation but which does not guarantee successful implementation [28]. In a similar vein, managers perceived it essential to make one stakeholder responsible for the deployment of MiLES, an 'implementation leader', which can signal the organization's support for adoption [28]. According to the Consolidated Framework for Implementation Research (CFIR), this implementation leader could either be a formally appointed stakeholder within the organization (i.e., a team leader or project manager), an experiencer, an external intervention affiliate or someone with formal or informal influence on the managers [29]. Drawing on suggestions from the current study, the implementation leader for MiLES should be a formally appointed internal stakeholder, such as an HR manager. This pilot showed diverse options for this implementation leader. This corroborated previous research from the Netherlands that found differences in responsibilities during the sickness absence and the reintegration of employees on long-term sick leave [13]. In contrast, a Belgian study on small and medium enterprises [30] and a Danish study [31] found less variation in stakeholders' responsibilities regarding providing sickness absence and RTW guidance between organizations in these countries. However, it might be that overall the differences are small, and at micro level, variations can be detected [32]. The variations at micro level were also detected in the current study, among others, regarding the need of a short introductory meeting about MiLES.

Managers also indicated that the positive perceived intervention's content could facilitate the implementation of MiLES. This is consistent with previous implementation research [29,33]. Especially for eHealth interventions, 'ease of use' and 'user-friendliness' are among the most frequently mentioned implementation facilitators [34]. If the advantage of the intervention is not clear – for example, where the intervention does not fit the managers' current level of expertise or actual practices – this was regarded a barrier [29]. Therefore, managerial-based interventions such as MiLES should include content for managers with varying degrees of experience and skills [29,35].

Managers from different organizations indicated that MiLES would be of added value for their organization. These organizations include organizations with great attention to reducing long-term sickness absence, without well-implemented organizational sickness absence and RTW policies, and organizations where managers work with high levels of autonomy. In such organizations, managers depend on their own experience and

Table 4. Quotations.

	Quotations: Implementation responsibilities
1	*When the management says, 'we are going to embrace [the intervention], we are going to encourage that, we are going to instruct the [absenteeism managers]', then I think the [intervention] will sell itself.* (A5, direct supervisor)
2	*Well, I think to introduce it within the [organization] that [the sustainable employability manager] is the right person. (…) If at some point [the intervention] is to be rolled out in the organization, the HR representatives of the departments will be responsible for [the implementation] within the department.* (D2, direct supervisor)
3	*So I would expect that to be handed over to the [HR manager of the department], so that they make sure it is implemented per department, because maybe some departments would require a slightly different approach than others.* (D2, direct supervisor)
4	*It would not be bad when one or two [absenteeism managers] would specialize themselves in this field. (…) So really a combination of [the intervention] with possibilities for discussion. (.) I think that is very important.* (B2, direct supervisor)
5	*Eventually an occupational physician will be told [about the employee's diagnosis of cancer]. He could then draw the manager's attention to this, with a copy to the sustainable employability manager. Then the ball will start rolling, I think.* (D3, direct supervisor)
6	*I do not think [an introductory meeting] is necessary. (…) I found [the intervention] so clear, insightful and user-friendly that I do not think it is necessary for someone to explain [the intervention].* (B3, direct supervisor)
7	*There are managers who would rather first look at such an [intervention] at their own leisure.* (D3, direct supervisor)
8	*I think that this combination [of support from a absenteeism manager and the intervention] … Then you have the opportunity to do a number of things yourself with that [intervention], but you also always have some kind of support system to fall back on. I think that helps.* (B2, direct supervisor)
9	*For example, that the case manager sits down for an hour with the new manager who will be using the [intervention] (…) [the case manager] has some knowledge about how [the intervention] is structured and could explain for an hour or half an hour.* (D3, direct supervisor)
10	*Do not put a link somewhere on a support HR site and think, 'everyone will find it now'. My experience shows that this is not quite the case.* (A3, direct supervisor)
11	*Facilitating such a conversation (…), sharing experiences with each other; that is actually the only thing [related to the introductory meeting, resp.] I found very valuable. That you hear how [colleagues] deal with it. You do take that with you.* (B4, direct supervisor)
12	*(…) at the moment that a manager has to deal [with an employee who got diagnosed with cancer] I would invite [that manager], and then I would start the conversation and show [the intervention].* (D3, direct supervisor)
	Quotations: The intervention's content
13	*There is a lot of information on this topic available these days, (…) but no intervention comprises all information, with tips, videos, explanations and a very nice distinction between a number of phases (…). For me, these are all facilitators of implementation.* (D4, HR manager)
14	*I certainly think it is a hugely supportive tool. (…) This tool has thought about something you would rather not think about [an employee getting diagnosed with cancer, resp.] and supports you in offering guidance, so I think it is an invention.* (A3, direct supervisor)
15	*Yes, we have an easier or better conversation. (…) [The intervention] also helps with that, even if only because you have seen the various questions and answers in advance, so that you know for yourself [the conversation] can go that way, the 'I can ask that'.* (D5, direct supervisor)
16	*I can imagine that if I would show [the intervention] to a novice team leader like '(…) take a look at [the intervention], forget the word cancer for a moment and see what you can do with it in the context of absenteeism discussions'. I think it could be helpful for that as well.* (C1, HR manager & sustainable employability manager)
17	*How do you do that together with your team, if a colleague has cancer?* (B2, direct supervisor)
18	*I found the videos a bit old-fashioned. (…) I have been a manager for thirty years now and have been through a lot. (…) I do not know if I need videos to just have the right conversation.* (B2, direct supervisor)
	Quotations: Organizational characteristics
19	*We work in an organization in which, as a manager, you have to do many things yourself, look things up yourself. HR is remote. (…) Yes, so this fits very well in, like 'do it yourself'.* (B2, direct supervisor)
20	*If I can speak on behalf of my management, they pay plenty of attention to reducing long-term absenteeism currently. (…) Also for reducing sickness absence (…) That is good for the employee, but also for the organization (…) that fits completely.* (A5, direct supervisor)
21	*We are better in doing than in talking. (…) I think it is important to make sure that you get to the core of things, that you say 'how do I make it negotiable; even when [the employee with cancer] does not want to talk (…) how do I get him to talk about it so that we make good agreements?' So especially for our company, (…) I think it is actually nice.* (D2, direct supervisor)
22	*So that you have [the conversation checklist] directly in the [absenteeism system]. That saves a number of actions. It is not a barrier, but the more accessible it is, the easier it is for people to use it.* (C2, direct supervisor)
23	*But I would also like to include [IT personnel] at a very early stage. Otherwise we could run into a situation in which we have a very good [intervention], but because we do not include the technology in time, the implementation will still cause problems.* (A5, direct supervisor)
24	*I think [the intervention] is preeminently something for which you look up the privacy of a quiet place or something. We are of course working more and more in flexible offices and we as managers are also regularly among our employees, but I would not watch this [intervention], including sound, in a place with other employees nearby. No, the subject is too sensitive for that.* (B2, direct supervisor)

skills during the sickness absence and RTW guidance of employees with cancer. Easily accessible interventions such as MiLES fit well with managers' needs in such situations, especially when managers are not sufficiently skilled in important aspects of guiding employees with cancer, such as communicating effectively [16]. Thus, the need for MiLES varies between organizations and is especially of added value when an organization does not have much RTW policy nor experience with RTW of employees with cancer in place. However, a requirement for successful implementation is that an organization clearly defines responsibilities regarding intervention delivery. Such essential conditions for effective implementation should be assessed prior to implementation of MiLES or similar RTW interventions, in order to decide whether implementation should be initiated at all [36].

Lastly, consistent with previous studies on eHealth interventions' implementation [34], we found that implementation can be affected by alignment with the existing digital infrastructure within the organization, for example the organizational absenteeism registration system, to avoid fragmentation of different systems and tools. Early involvement of the organizational IT services is therefore crucial when implementing MiLES or similar web-based interventions.

Strengths and limitations

The variation within the study sample, i.e., managers working at different organizational levels, is an important study strength, as it resulted in identifying perceived barriers and facilitators at different levels of each organization. Another

strength lays in the thorough data collection and analysis, which clearly contributes to the reliability of the findings.

Limitations are, firstly, complete data saturation was not reached. Secondly, the follow-up period of the pilot implementation, i.e., six weeks, was relatively short. Although this period is adequate for a pilot implementation, this period did not allow organization-wide implementation of MiLES, such as integrating the intervention into the organizational absenteeism registration system. As organization-wide implementation has been discussed thoroughly during the interviews, and the managers that were interviewed actually already perceived implementation after only six weeks, we believe that this relatively short period did not significantly affect the identified barriers and facilitators. Lastly, as the Netherlands has a more strict legislation on sickness absence guidance and RTW support by managers than most other countries, which also applies for an exceptional period of two years [37], the external validity of the results of this study to other countries might be limited as their legislation might not support implementation to the extend it is supported in the Netherlands. Although legislation was not experienced as a facilitator for implementation in this study, the results should thus be interpreted in the light of this distinct legal context.

Recommendation for future research

We recommend future research on the implementation of managerial-based interventions to identify factors influencing implementation into private-sector small and medium enterprises (SMEs), since a previous study found that implementation of a managerial-based intervention was most challenging in such SMEs [38]. Managers working at SMEs may face specific challenges, as they often work with limited HR resources or clear organizational policies [30,39], which may be crucial to initiate and maintain the implementation of interventions related to disability management [40], as was also perceived by managers in the current study. On the other hand, the necessity of the intervention may be underlined in cases when supportive services and policies are absent [30,39]. And these organizations may therefore experience even greater benefit from easily accessible, web-based interventions [30,39].

Based on our results, we also recommend that, when studying the effectiveness of interventions such as MiLES, a working group meeting be planned with all relevant stakeholders of an organization, to draw-up a tailored implementation strategy during the effectiveness study. We also recommend that, when studying implementation of MiLES or similar web-based interventions, scientific tools and substantiations are used to shape the study protocol (e.g., the interview guide and data analysis). These may include a framework for implementing the intervention and evaluate the implementation (e.g., [21,29]) and theories and models to analyze behavioral and environmental factors (e.g., [22,23]). This may contribute to a more detailed understanding of the implementation process [36]. Finally, in corroboration with previous research [13], we recommend that the content of MiLES should include tips on how to support employees with cancer who will never be able to return to work.

Recommendations for practice

Considering the above, we recommend the following when implementing MiLES or similar web-based interventions targeted at managers:

1. Get approval of the organization's managing board prior to the implementation;
2. Organize a meeting with all stakeholders, to tailor the implementation strategy to the organizational infrastructure and do justice to the different needs of individual managers;
3. Involve IT services at an early stage, to properly integrate the intervention into the existing digital infrastructure;
4. Consider implementation consultancy in the event the organization's management has insufficient resources (e.g., time, knowledge and skills) to implement the intervention successfully.

Conclusions

Implementation of MiLES in organizations may benefit from an infrastructure within the organization that defines responsibilities regarding intervention delivery to managers of employees with cancer. Such an infrastructure should be aligned to the existing organizational structures. According to managers, MiLES has added value in diverse organizations.

Ethics approval

Ethical approval from the Medical Ethics Committee of the Amsterdam UMC, location Academic Medical Center (AMC), the Netherlands, was sought. The Executive Board of this Committee decided that the study did not fall within the scope of the Medical Research Involving Human Subjects Act, as participants were not subjected to actions nor behavior was imposed on them. Therefore, the Medical Ethics Committee of the Academic Medical Center (AMC) had no objection to the conduct of this study (W18_385 #18.462). All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000.

Consent to participate

Informed consent was obtained from all participants.

Author contributions

M.A. Berkhout, S.J. Tamminga, A. de Jong and M.A. Greidanus contributed to the study conception and design. Study materials were prepared by M.A. Berkhout and commented on by M.A. Greidanus. Data was collected by M.A. Berkhout (a trained female researcher with MSc credential) and thereafter analyzed by M.A. Berkhout and M.A. Greidanus. The first draft of the manuscript was written by M.A. Berkhout, M.A.

Greidanus, and S.J. Tamminga, and discussed with A.G.E.M. de Boer, C.S. Dewa, A. de Jong and A.E. de Rijk. All authors read, commented on and approved the final manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

Data is available from the last author (MG) upon reasonable request.

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