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WORKPLACE HEALTH PROMOTION IN JAPAN

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ABSTRACT

The rapidly aging population in Japan constitutes a problem as public health expenditure is expected to increase. At the same time, the working part of the population is decreasing straining the health insurance scheme. Since the workplace is a setting that influences a large part of the adults for a long part of their lives, workplace health promotion has potential to improve the situation.

This paper examines how workplaces in Japan are used for health promotion. Deductive content analysis is used to examine how workplace interventions are examined in the research literature.

The findings suggest that there is considerable variation in workplace health promotion in Japan.

Key words

Health promotion, Japan, Workplace

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INTRODUCTION

Work is at the same time a part of life and a context in which people act and interact. (Okhuysen et al. 2013) It has a major impact on public (Swedish Institute of Public Health, 2004) as well as individual health (Koh & Sng, 2011). The content of work and the context in which it is being done, can lead to ill health through accidents (ibid.) or stress (Burton, 2010), but it can also be a source of better health e.g. through personal development, financial resources and social status (ibid.). In turn, the work being done is equally affected by the health of the people performing it. A relatively healthy person is more likely to be productive than one who is less healthy (Koh & Sng, 2011).

Consequently, on the national level, a healthy workforce is fundamental for the socioeconomic wellbeing of a country (Chu et al., 1997, Burton, 2010). Due to the low birth rate in Japan, 38.5 million workers are expected to disappear from the Japanese workforce between 2005 and 2055. During the same period, the proportion of the population over 65 is expected to rise from 20.2% to 40.5% (Shinkawa, 2012). The aging population is expected to put a huge burden on the Japanese health insurance system because this group carries a relatively larger proportion of the countries ill health, and therefore also its health expenditure (Commission of inquire for welfare, The panel for the next health promotion plan [Bunkai], 2012). Those under 65, on the other hand, are a comparatively bigger contributor of revenue to the system (Ikegami et al., 2011). Because of this, it is urgent that Japan maintain a healthy workforce and promote the health of its workers so that they can be productive while young and so that they retain a high level of functionality in their older years. It is also important to minimize the costs that arise from work related ill health (Burton, 2010).

BACKGROUND

Work and Health

Health can be explained as being the product of the presence of health promoting and risk factors (Cox, 1997). Health and work influence each other through these factors. They are a part of the physical work environment and of the content of the work itself, as well as the organization and the culture at a workplace (ibid.).

In a similar fashion, a separation can be made between the process of health promotion and that of disease prevention. WHO defines health promotion as the process of empowering people to take control over and improve their own health, while prevention focuses on minimizing exposure to risk factors (Nutbeam, 1986). Health promoting interventions in turn is an umbrella term for activities aimed at promoting health (Janlert, 2000).

Health promoting settings

The concept of health promoting settings is based in the Ottawa and Sundsvall health conferences (Dooris, 2009). The Sundsvall declaration on health promoting arenas (WHO, 1991) emphasizes the mutual impact of health and environment, and the importance to shape environments to support health. One such environment is the workplace (ibid.). According to

the declaration, health is affected by all aspects of the environment, e.g. its social, cultural and economical aspects as well as its physical aspects.

Based on the Sundsvall declaration, Dooris (2009) differentiates between health promoting settings on the one hand, and settings for health promoting interventions on the other. According to him (ibid.) a health promoting setting is based in values of inclusion and equity, and characterized by 3 dimensions, which he labels, 'an ecological model of health promotion', 'a system perspective' and 'whole-system development and change'

An ecological model of health promotion puts focus on the creation and maintenance of health rather than simply the avoidance of disease and risk factors. It also entails an understanding of the complex interaction of the factors effecting health.

From a system perspective the setting is seen as a dynamic and complex system with inputs, throughputs and outputs. It is also understood that the systems contain smaller systems and are parts of larger ones, and that these systems are unpredictable.

'Whole-system development and change', finally, emphasizes that changes to promote health should be done long term and throughout the setting as supposed to interventions that only takes in to account one or two aspects of the area for a limited time.

Dooris (2009) further claims that the health promoting settings, which fulfill these criteria, are better suited for solving today's complex, multidimensional health problems, such as obesity, than are conventional interventions with a linear understanding of health as being determined through linear causal chains.

Whitelaw et al. (2001) also differentiate between different kinds of settings based health promotion. Based in theory and by examining actual interventions and programs they identified 5 ways in which programs are different from one another;

1. Whether the problems and solutions are thought of as being a part of the setting itself or of the people active there.
2. The relationship between the intervention and the arena, i.e. what aspects of the arena that are being used.
3. The focus of the intervention
4. The theoretical base of the intervention, i.e. what disciplines are drawn on to plan the intervention.
5. How progress is measured.

Health promotion in the workplace.

Cox (1997) argues that the state alone cannot be responsible for promoting the health of its citizens, and that the workplace therefore must be a setting that supports health. WHO also

points out the moral and legal responsibility that employers have to care for the wellbeing of the employees at their workplace (Burton, 2010). The World Health Assembly has endorsed the Global Plan of Action for Workers' Health. This plan provides a political framework for supporting workers health and to connect occupational and public health issues. The plan sets out five partially overlapping objectives: To provide and have implemented policy instruments for workers' health; to protect and promote health at the workplace; to improve occupational health services; to disseminate evidence for practice; and to make workers' health part of other policies (Burton, 2010).

The Japanese law, too, stresses the responsibility of the employer to go beyond the minimum requirements for workplace safety, and create a comfortable environment for the employees (Industrial Safety and Health Act, 1972 1st chapter 3rd paragraph). The same law also stipulates that the Minister of health labor and welfare publish guidelines for health promotion in the workplace (Industrial Safety and Health Act 1972, 69th chapter, paragraph 1-2, 70th chapter, paragraph 1-2). According to these guidelines, health promotion in the workplace should be devised in close cooperation with the employees, taking into account their time spent in the workplace as well as outside of it, and their physical and mental health (Japan industrial safety and health association [Jisha], 2007).

Traditionally preventive interventions, focusing on risk factors, have been more common in the workplace than have health promoting ones (Cox, 1997). Gradually, however, the workplace is being seen from a health promoting perspective, i.e. as a possible resource for good health and empowerment, due to its potential to influence the employees' physical, mental, social and economical wellbeing as well as that of their families and communities and society at large (Chu et al., 2000). On top of this, the financial advantages of a healthy workforce for the company is being recognized (ibid, Burton, 2010).

The few health promotion focused interventions have been limited in scope, often focusing on individual behavioral change, such as smoking cessation (Chu et al., 1997), or the use of safety gear (Hymel et al., 2011). In a similar vein as Dooris (2009), Cox (1997) argues that such behavior focused interventions are not enough, and that more attention needs to be paid to the circumstances in which these behaviors occur. This includes the physical environment and the interaction between people there as well as the content of the work.

The WHO framework on healthy workplaces define the a healthy workplace as one that considers the health and safety concerns of the physical and psychosocial environment and the culture, as well as personal health resources and ways to participate with the community. Managers and workers collaborate to make these considerations based on needs in a continual improvement process for well-being, health and sustainability (Burton, 2010).

Health promotion in Japan.

Japan has a high standard of living and a high life expectancy (Bunkai, 2012) but it also has the fastest aging population in history (ibid.). The aging population is expected to put a strain on the health budget, since a large percentage is spent on disease that is believed to be caused, in part, by lifestyle, such as cancer and coronary disease (ibid.). Previous public health policies have tried to curb this trend but without sufficient success. The current public health plan argues that one of the reasons limiting success is that too much focus have been put on

individual behavior change, whereas not enough importance have been paid to environmental influences (ibid.). In accordance with the above mentioned Sundsvall declaration (WHO, 1991), the current health plan stresses the environments effect on health (Bunkai, 2012).

The Japanese health plan recognizes the importance of workplaces in tackling the challenges facing Japan, and the need for these workplaces to independently engage in health promoting activities. For this purpose the Smart Life Project (SLP) was created (Bunkai, 2012). SLP is a network encouraging companies to promote health in and through their organization. The project has three focus areas; healthy diet, exercise and smoking cessation. Organizations that join the network get to use the SLP logo on their products etc., get access to informational posters and other material, and get to share their projects and experiences on the SLP website forum (Smart life project committee, Ministry of health, labor and welfare, undated).

Apart from this, workplace health promotion is encouraged in the Industrial Safety and Health Act, and in the guidelines published by the Minister of health labor and welfare, as mentioned above. There also exists a Japanese Industrial Safety and Health Association [Jisha] which was created under the Industrial Accident Prevention Organizations Act and whose objective is to aid in workplace health promotion. (Jisha, 2013)

Thus, Japan can be said to have good reasons to promote health through the workplace since;

- Workplace health promotion reach a large part of the population, where they spend a big part of their lives (Chu et al., 1997)
- Policies and organizations, exists to aid workplace health promotion as described above.
- Workplace health promotion can potentially lead to more people retiring at a later age. Blekesaune & Solem (2005), for example, argues that ill health leads to a discrepancy between work requirements and capabilities that in turn motivates early retirement. In Japan employing a larger part of the older population is one of the strategies employed to make up for the decreasing birthrates (Shinkawa, 2012). Because an increase in productivity also leads to larger tax revenue, that partly finance the health insurance scheme (Ikegami et al, 2011), this also influence the health of the nation beyond the workplace.

In spite of this less than 10% of the Japanese companies have implemented the health promotion plan that the law requires (Muto et al., 2010). According to Muto et al. (2010) this is partially because the companies don't see the financial benefits in doing so. In WHO's framework for healthy workplaces it is also noted that many workplaces don't understand the advantages of healthy workplaces or lack the skills or knowledge how to implement the necessary changes (Burton, 2010). This in turn might be in part because health promoting workplaces are difficult to evaluate (Dooris, 2006).

Evaluation of workplace health promotion.

Evaluating health promoting workplaces has proven difficult (Dooris, 2006), especially the more comprehensive programs aiming to create an environment to improve all aspects of health (ibid.). Research in the field is often limited to evaluation of one or a few influencing factors and health outcomes (Shain & Kramer, 2004).

Green et al. (2009) argues that it is difficult to create guidelines for evidence based public health interventions. Such guidelines have been successful in improving the field of medicine and are desired in public health as well. The relation between research and implementation is, however, different in the fields of public health and medicine, they argue. They attribute this to the much larger impact of contextual factors in public health. The process of generating evidence traditionally involves sorting out research with low internal validity through literary reviews. According to Green et al. (2009) this leads to a focus on adopting the recommended practice rather than adapting them to the circumstances. They further argue that research with negative results are as useful to practitioners as is successful results as they make salient barriers in implementation. The WHO healthy workplace framework citing the chairperson of India's National Committee on Population and Health, points out that a template of practices for workplaces to follow is not practical as each workplace has different conditions and goals (Burton, 2010). The WHO health workplace framework also notes that in lack of robust evidence and other published material can provide valuable guidance.

The aim of this paper is therefore to make an overview of the different ways that the workplace is used to promote health in hope that this could help researchers and practitioners to consider different and perhaps new approaches. In the preliminary review of the literature for this study no such overview was found.

PURPOSE

The purpose of this paper was to examine how the workplace is used in health promotion in Japan.

The research was lead by the following questions:

- How are Japanese workplaces used for health promotion?
 - What are the interventions aimed at?
 - What is the content of these interventions? What is done? By whom?
 - How are the interventions thought to influence health? What processes are implied?

METHOD

The research was conducted as a qualitative content analysis based on previous research on workplace health promotion in Japan. According to Graneheim & Lundman (2004) the first step of any content analysis is to decide the unit of analysis i.e. what is being studied. For this paper descriptions of health promotion interventions in research articles were chosen as the units of analysis.

Collection of data

Inclusion and exclusion criteria

Data was compiled of articles describing interventions to promote health in Japanese workplaces. Only articles published since 2005 in scientific journals were used. Literary reviews were omitted from analysis, as were articles describing interventions that had yet to be implemented. Only articles written in English or Japanese were used. Since the purpose was to understand how the workplace is used in Japan, rather than to review evidence for effect of interventions, articles were not judged on the quality of their research.

Databases.

In a first stage, searches were made in the databases Pubmed, Medline, Cinahl and PsychARTICLES. These databases are recommended when searching for health related articles by the Blekinge Institute of Technology (BTH) library (Schwartz, 2014-03-27). The library also recommends Google scholar but this database was omitted at this stage, because it generates different results based on the searchers history (University of Adelaide, 2010) and because it lacks advanced search functions. It was, however, used in a later step.

Search terms

Different combinations of the terms 'workplace' 'Japan' and 'health promotion' were used but as these gave either too many or too few results, the search term index of each database

were used. The search term index indicates how many articles are available for each term. The resulting search terms are shown in Table 1.

Table 1: Search terms and results

Database	Search term	Articles found	Articles downloaded	Articles found in reference lists
Pubmed	"health promotion" AND "japan" AND ("worksite" OR "workplace" OR "work place" OR "work site")	47	30	8
Medline	(MH "Health Promotion") AND (MH "Japan") AND (MH "Workplace")	16	0	0
Cinahl	(MH "Health Promotion") AND (MH "Japan") AND (MH "Work Environment")	3	1	1
Psych ARTICLES	"Health Promotion" AND Japan AND (workplace OR worksite OR work-site OR work-place OR "work place" OR "work site")	1	0	0

Selection method.

First all titles were read. At this stage some articles were excluded based on their title. Then, the abstract of the remaining articles were scanned and those that were deemed as not fulfilling the inclusion criteria were discarded. The remaining articles that could be accessed were downloaded, including reviews. Next, the reference lists of the downloaded articles were scanned for further articles. Titles that seemed to fulfill the inclusion criteria were selected. These titles were then searched for in Google scholar and BTH's database Summon. The abstracts for the articles that could be located was scanned and the ones that were available and matched the criteria were downloaded for analysis (Table 1)

Analysis method

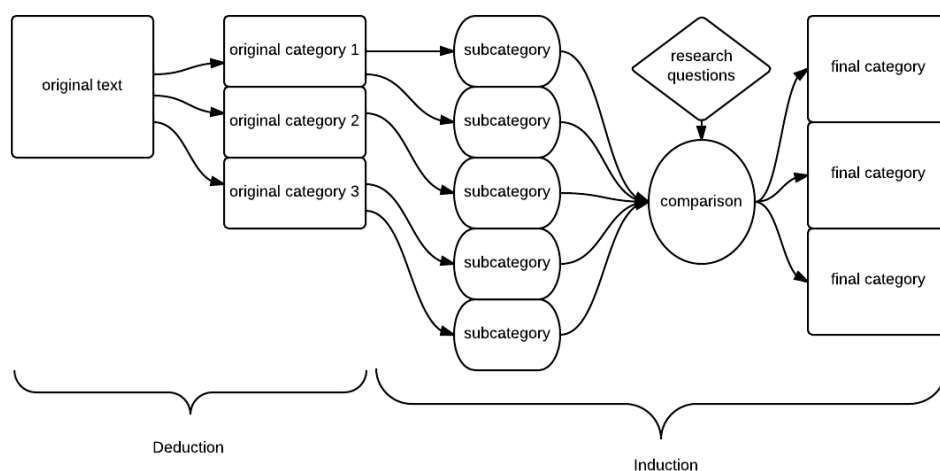
A qualitative deductive content analysis method was employed to extract the answers to the research questions from the data. In qualitative content analysis, a phenomenon is described by separating data into categories based on the meaning of that data (Elo & Kynäs, 2008). According to Graneheim & Lundman (2004) a basic issue when conducting content analysis is whether to focus on latent or manifest content. They describe manifest content as visible

and obvious whereas latent content is the meaning of the words.. Elo & Kyngäs (2008) on the other hand describe latent content as what is not said, such as pauses and posture in the case of interviews. In this content analysis the focus was of the meaning of the words.

Qualitative content analysis can be inductive, meaning that the categories are extracted from data through analysis, or deductive, in which case the categories are chosen beforehand. These categories can be derived from existing theory, models or literature reviews etc. (Elo & Kyngäs, 2008). Deductive content analysis is often used to test categories or concepts etc. but can also help focus the research question and help deciding the initial coding scheme (Hsieh & Shannon , 2005), which was the purpose of its use for this analysis. In this paper an unconstrained categorization matrix was used, meaning that initial categories were created but that these were allowed to change as the analysis proceeded. This part of the process is done in an inductive fashion (Elo & Kyngäs 2008).

Before the data was approached, a categorization matrix was constructed based on the findings of of Whitelaw et al. (2001). The categorization matrix is shown in table two. One matrix per article was used. In the first step all material was read and meaning units that seemed to answer one of the questions were sorted under that question. A meaning unit is according to Graneheim & Lundman (2004, p. 106) a “constellation of words or statements that relate to the same central meaning”. Sometimes comments were added to explain the context. In the next step, the text was condensed i.e. shortening the text while still retaining the core meaning of it (Graneheim & Lundman, 2004) and coded according to it's meaning under 'code' in the matrix using induction. They were then aggregated into subcategories under 'subcategory' in the matrix. Finally the subcategories were compared across the main categories to check for overlap. According Graneheim & Ludman (2004) categories should be mutually exclusive and together involve all the data related to the purpose. In the last step new categories were therefore constructed based on how the subcategories responded to the research questions. The process is described visually in illustration 1

Illustration 1: Analysis procedure



Categories	Text example	Comment	Code	interpretation
Where is the problem?				
Where is the solution?				
What is the aim?				
What theories are used?				
What indicators are used to measure progress?				

Table 2: Categorization matrix

Ethical considerations

Since the research consisted of reviewing literature, no ethical consequences for humans or animals were expected. It was assumed that ethics of the examined interventions had been considered before being published.

RESULTS

Thirty-seven articles that were accessible were chosen to be read in full. Out of these 11 were deemed not fit for analysis; six on account of them describing an intervention that had not actually been employed, two that turned out to be reviews, one that wasn't about Japan, and two that were describing the same intervention as other articles in the analysis. The remaining 26 articles were analysed according to the method described above. The authors of the articles, their titles and the aim and design of their research is summarized in appendix 1.

Five categories that were considered relevant to the purpose were extracted:

- The cause of the problem
- Location of the solution
- The role of the workplace
- Stakeholders
- Types of health problems

The cause of the problem.

This category contains descriptions of the sources of the different problems. It helps to show what processes are thought to be involved in creating health as it shows what risk factors are being considered. The result shows that these factors exist on 3 levels; Outside the workplace, In the workplace on an organizational level and at the individual level.

External factors

Factors that in the text were described as causing health problems from outside the workplace were global economic trends; national laws; a lack of women in the workforce; nationwide attitudes to smoking; and globalization.

Organizational factors

Organizational factors that influence health exists in the physical and social work environment and in the character and organization of the work. Uncomfortable working positions; busy schedules; the general psychosocial work environment; a team-based approach to work; lack of resources for health promotion; forms of employment; and the amount of work were the organizational factors that were described as causing ill health.

Individual factors

Some articles described the problems as stemming from the risk factors within the individual. These were poor dietary or exercise habits; lifestyle in general; and lack of knowledge and self-efficacy for health promotion.

Location of the solution

To improve the health of the people at a workplace, an intervention aims to change some aspect of it. The descriptions of where the interventions created change were gathered under this category. The location of the solution shows through what processes health are thought to be created and what is done to influence these processes. Interventions aimed to create change either on an individual level or on a work-site level.

Individual level

Interventions that aimed to change the individual directly all tried to do so by providing information. The information was either the same for all and distributed through computers, brochures, posters or books. Information was also provided through training for workers and meetings.

Other information was tailored to fit the individual. This type of information was delivered through computer based systems and meeting with counsellors, dieticians, trainers, physicians, dentists, and public health nurses. They also included health education and goal setting sessions.

Organization level

The result shows three areas targeted for change on the organizational level. One such area is the skill of management. Interventions tried to improve health by improving the skills of management through stress management training; mental health promotion training; participatory stress reduction training; work environment improvement training; and active

listening training. One intervention also sought to improve the food through educating the restaurant manager.

Another area that was target for change was the physical environment where smoking areas were established, walking paths constructed, and exercise facilities installed.

The culture of the workplace was also a target for change. Interventions sought to improve the culture through meetings and social gatherings aimed at improving communication; giving away prizes for sustained smoking cessation; and creating non coercive environments.

Coordination was also a target for change through interventions. This was done by informing about outside medical and health promotion facilities; improving cooperation between management and workers around health issues; arranging meetings between health staff and management; and by incorporating mental health assessments at regular health check-ups.

The role of the workplace

Interventions differ in what feature of the workplace they are taking advantage of. The feature of the workplace that is being used indicates how the relationship between the environment, the people and their health is viewed. The different interventions used the workplace as a context for relationships; a place where many people gather; and as a physical environment that people are exposed to.

Relationships

Many interventions used the hierarchical nature of workplace relationships between workers and superiors, while others targeted the horizontal relationships between workers.

A place where people gather

The workplace is used as a place where people gather and thus a convenient place to spread information; preform screenings; and meet with health professionals such as physicans, trainers and dietitians.

The physical environment

Some interventions used the workplace as a physical environment to which people are exposed for several hours every day.

Stakeholders

How the health promoting process is viewed is further illustrated by what stakeholders that are identified. The result shows that stakeholders existed inside and outside the workplace and were active or passive in the interventions.

Outside stakeholders

The outside actors were most often the writers of the articles. Many had an active role either performing some kind of educational activity or constructing educational material. Other outside actors were a trainer, a dietician. They are all considered to have been active in the interventions.

Inside stakeholders

Actors inside the workplace were supervisors, workers, public health nurses and a cafeteria manager.

Many managers had an active role as receiving training and then applying this training in the workplace. Other managers were active in planning the intervention and yet others were passive receivers of information.

Most workers were passively receiving information and support. Others were somewhat active in planning their own activities and setting goals for themselves and yet others had a more active role in planning the improvements

The worksite public health nurses and physicians were active in counselling or in planning improvements. The cafeteria manager of one workplace was active in planning a healthy menu.

Types of health problems

The aim of the interventions ranged from quite specific diseases to factors influencing health. These were either health promoting factors or risk factors. The risk factors in focus were smoking and alcohol intake and stress. The health promoting factors were diet and exercise, communication, sleep, coping skills, dental care and empowerment.

Illustration 2 shows what sub-categories were found in what articles.

Illustration 2: The distribution of categories according to articles

articles	category																										
	Location of problem			Location of solution					Role of the workplace					Internal stakeholders			problems										
	External	worksite	Individuals	Work-site			individual		Relations			gathering		physical	supervisor		worker	risk factors	Health factors								
				Supervisor	Culture	Physical	coordination	General	Tailored	Hierarchy	other	information	screening	professional	active	passive	active	passive	stress	smoking	Diet/exercise	communication	sleep	coping	empowerment		
Haruyama et al., 2013			X				X	X			X						X		X	X							
Eguchi et al., 2012				X	X		X	X		X	X							X		X							
Sugiyama et al., 2011							X				X	X	X				X			X							
Adachi et al., 2010							X				X						X							X			
Maruyama et al., 2010		X						X			X	X	X				X										
Kudo et al., 2009								X			X	X	X				X			X							
Umanodan et al., 2009				X						X	X				X		X		X	X							
Shimazu et al., 2006		X								X	X				X		X		X	X						X	
Ichihashi et al., 2006			X					X			X	X	X				X										
Tanaka et al., 2006	X				X			X		X	X		X				X		X								
Tsutsumi et al., 2005		X		X	X			X		X	X				X		X		X	X			X		X		
Kawakami et al., 2006				X						X	X				X		X		X	X							
Itani et al., 2006		X					X	X			X			X	X	X	X		X							X	
Nishikido et al., 2007		X					X	X			X		X			X		X								X	
Nishiuchi et al., 2007	X	X		X						X	X				X		X		X	X			X				
Tsutsumi et al., 2009		X		X			X			X	X		X		X		X		X							X	
Naito et al., 2008					X		X	X			X	X	X	X	X		X		X			X					
Aro et al., 2007					X			X			X	X	X	X		X				X							
Hase et al., 2008				X	X			X	X	X	X				X		X		X				X				
Ikegami et al., 2008				X						X	X	X					X					X					
Kobayashi et al., 2008				X			X			X	X	X			X		X									X	
Ariyoshi, 2009	X	X					X			X		X	X				X					X					
Ariyoshi 2008	X						X			X		X					X					X					

DISCUSSION

Method discussion

A deductive content analysis was employed using an unstructured categorization matrix. Elo & Kyngäs (2008) as well as Hsieh & Shannon (2005) describes the deductive content analysis as appropriate when the purpose of the research is to test theories and models and such. Here, a deductive content analysis was employed even though the purpose was not to test the division of different kinds of health promoting settings derived from Whitelaw et al (2001). The intent was instead to use their model as a way to approach the text.

Trustworthiness

Trustworthiness refers to the validity and reliability of qualitative research. It describes whether the research is credible, dependable, conformable, transferable, and authentic (Elo et al., 2014).

Credibility means that the phenomenon is described accurately by the participants (Elo et al., 2014) (in this case the authors of the research articles). The researchers can be expected to be credible in their descriptions of the interventions as they most likely have formal training in being objective in reporting their research.

Dependability refers to whether the data is stable invariable of time and context. It can be assessed by asking whether the findings would be different if it was to be repeated with different participants but with similar characteristics as described in the research (Elo et al., 2014). If the researchers are to be regarded as the participants of this study the dependability can be said to be low as they are not described. If on the other hand the articles are viewed as the participants, there is a higher possibility that other articles with the same purposes and study designs would yield similar data. Even in this case, however, the dependability would benefit from more detailed description of the articles.

The use of the pre-constructed categorization matrix might have improved the conformability of the results. Conformability refers to the objectivity of the results i.e. how dependant they are on the researcher (Elo et al., 2014). It seems likely that two researchers that approach data without a set reference frame are more likely to arrive at different conclusion than if they were to approach it from a set of apriori decided questions.

Transferability refers to whether the findings can be applied to other settings or conditions. Elo et al. (2014) points out that this is ultimately a question for the reader to decide, but notes that the author can make suggestions about it. This is further discussed under in the next part.

Elo et al. (2014) describes the data collection method as the main trustworthiness issue of the preparation phase of a content analysis. They stress that the data collection method as well as the sampling should be the best in answering the research question. Here, the research question was how Japanese workplaces are used for health promotion. This question might be better answered through observations or interviews since the descriptions in research literature often are sparse on details. It would however probably have been difficult to get a broad variety of practices considering the limited time and resources available. Considering this the data collection and sampling methods might still be considered good alternatives.

Elo et al. (2014) further argues that it is essential to pretest a categorization matrix when using a deductive content analysis in a pilot phase. This was not done but it might have helped in securing the acknowledgement of all the aspects of the phenomenon.

In the organization phase, where categories are constructed, an appropriate number of concepts and non-overlapping categories are described as important (Elo et al., 2014). It is however difficult to know how many categories are appropriate. In the results of this study some of the meaning units have been sorted under several categories. This is due to the use of the pre-constructed categorization matrix which allowed for the text to be viewed from different perspectives.

To avoid over interpretation (interpretation that's invented by the inquirer) Elo et al. (2014) recommend that multiple researchers perform the analysis. This was however not possible so there is some risk of over interpretation.

A weakness of this study is that it doesn't show how common or rare the different kinds of interventions are. To answer these questions a more comprehensive survey of Japanese workplaces needs to be undertaken.

A strength of this paper is that it included articles written both in English and in Japanese. Another strength is that it includes articles as far back as 2005. This resulted in a broad variety of articles for analysis.

Overall, the method was successful in answering how health is promoted in Japanese workplaces, what problems the solutions are attempting to solve, what is practically done, and how this is thought to promote health.

Result discussion

The results show that there is a variety of approaches to workplace health promotion in Japan.

Health promotion interventions deal with problems that are seen as arising from both outside and inside the workplaces. These problems are being handled using physical, cultural and social aspects of the workplace in different ways. There is also a variety of how the relationship between actors are used.

Although, many of the interventions analyzed do not live up to the standards of Dooris (2009), several categories found resemble the dimensions of what he describes as a health promoting arena. The interventions focusing on health promoting factors such as empowerment and a pleasant psychological environment indicates an ecological model. The recognition of external factors influencing worker health such as the global economic environment indicates that the workplace is seen as a system within other systems.

The interventions where employees at the workplaces were active in the intervention can be argued to aim for whole-system change. These interventions often focused on empowering employees to identify both problems and their solutions. This includes changes in

organisation as workers get new responsibility, changes in culture as everyone is encouraged to cooperate and ultimately changes in the physical environment where the employees find the need to do so. It's not necessarily long term, but it seems more likely to be than for example an information campaign with posters that are replaced at the end of the campaign.

None of the interventions, however, seem to fulfil all of these requirements at once. This might not necessarily mean that they are underdeveloped as Whitelaw et al (2001) points out that there are big differences between different settings and problems and that no one solution is optimal for all of them.

Whitelaw et al. (2001) found five models of settings based health promotion that share some features; the passive, active, vehicle, organic and comprehensive models.

The passive model sees both problems and solutions as located in individuals. The setting is used for access to these people and health is promoted through education. The articles analysed in this paper, which identified the problems as being with the individual, and that used education to solve that problem without activating these individuals seem to fit the passive model.

In the active model too, the problem and its solution are seen as being within the individual. But he or she is restricted in acting to solve the problems due to restrictions that lie within features of the setting. Categories in this paper that seem to respond to the active model are individual located problems; worksite solutions, the use relations or physical aspects of the workplace and passive stakeholders.

In the vehicle model, an intervention with focus on individual behaviour is used but with the goal of initiating broader setting feature change. Interventions that were found to see the solution as being in improving the culture via the improvement of supervisor's skills could be argued to be examples of this model.

Processes like communication and participation are thought of as linked to health in the organic model. The focus in this model is on solving setting based problems through collective action and by teaching individuals throughout the setting more general skills. The interventions that focused on empowerment and improving coordination are possibly examples of this model.

The comprehensive model, finally, sees both the problems and their solutions as being within the setting and the focus is therefore on changing the broad structures and cultural features of the structure so that health is at its core. This corresponds to interventions that see the problems in the worksite or external to the worksite and that seeks to improve the coordination and culture without activating the workers at the workplace.

Examples of all models are thus represented in the findings of this paper but there also seems like there are interventions that are hard to pin down using these models. This is again not surprising considering the diversity of the settings. Another reason for this could be the

limited insight that the research articles give into each intervention, something that is evident looking at the *location of the solution* category in illustration 1. Further analysis is needed to establish if this is indeed the case, as no attempt have been made to sort the interventions in that fashion.

It is difficult to say whether these findings are general for workplace health promotion in Japan because of the study design. Many health promotion activities are not reported in the scientific literature and those that are not might have different characteristics. The descriptions of the workplaces in such literature is on top of this often sparse and focused on aspects that are seen as important by the researchers. This might be especially true for the many randomized controlled studies that were used since these try to control cofounders. It is therefore likely that several other ways of using the workplace exists than those reported here.

Suggested applications of the findings

As mentioned in the background, there was a hope that the findings of this paper could be helpful to practitioners and researchers. It is indeed possible that these findings could help practitioners to look for different ways to approach workplace health promotion provided that they are made accesible. This would probably have to include a different presentation and a translation to Japanese.

As for researchers, they might also be able to use the results to remind them of the different aspects of a workplace and the different possibilites to promote health there. Future studies should however first validate and extend these results, preferably through observational studies and interviews.

CONCLUSION

This paper used a form of deductive content analysis on research articles to find out how the workplaces are used for health promotion in Japan. Characteristics of such interventions identified by Whitelaw et al. (2001) were used as a basis of this analysis. The results suggest that there is considerable variation in how and why the workplace is used. Some weaknesses regarding the trustworthiness makes it difficult to draw any general conclusions about how the findings correspond with health promotion in Japanese workplaces in general but they might still be used by researchers and possibly practitioners to broaden their view of workplace health promotion.

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APPENDIX 1: SUMMARY OF ANALYZED ARTICLES

Author(s)	Title	Purpose/aim	Design
Haruyama, Y., Fukuda, H., Arai, T., Muto, T. (2013)	Change in Lifestyle through Health Promotion Program without Face-to-Face Intervention in a Large-scale Japanese Enterprise	To evaluate a program supporting healthy behaviour changes through personalized information through internet.	Controlled trial
Eguchi, H., Tsuda, Y., Tsukahara, T., Washizuka, S., Kawakami, N., Nomiya, T. (2012)	The effects of workplace occupational mental health and related activities on psychological distress among workers	To evaluate the relation between interventions for mental health and communication on the one hand, and working conditions and psychosocial health on the other.	Cross sectional
Sugiyama, S., Okuda, M., Kinoshita, T., Inada, K., Tateishi, H., Uehara, M., Hobara, T. (2011)	Association between visual message and health knowledge in a 4-month follow-up study at worksites.	To evaluate the effect of an information campaign on knowledge and attitudes concerning vegetable intake and exercise.	Cohort study
Adachi, Y., Kunitsuka, K., Taniyama, K., Hayashi, C., Tanaka, M., Sato, C. (2010)	Non-face-to-face sleep improvement program in a workplace bibliotherapy with and without behavioral self-control procedure.	To compare short term effects between to interventions designed to enhance sleep quality.	Cluster randomized trail.
Maruyama, C., Kimura, M., Hayashi, K., Arao, T. (2010)	Effect of a worksite-based intervention program on metabolic parameters in middle-aged white-collar workers: A randomized controlled trial.	To evaluate the effects on diet and metabolic syndrome of an individual consultation intervention	Randomized controlled trial
Kudo, Y., Okada, M., Tsunoda, M., Satoh, T., Aizawa, Y. (2009)	Predictors of Japanese workers' motivation to use the results of worksite health checkups in their daily health management.	To evaluate the factors influencing workers motivation to use the results of health checkups at work	Cross-sectional study
Umanodan, R., Kobayashi, Y., Nakamura, M., Kitaoka-Higashiguchi, K., Kawakami, N., Shimazu, A., (2009)	Effects of a worksite stress management training program with six short-hour sessions a controlled trial among Japanese employees.	To evaluate the effect of lectures in the workplace	Cluster controlled study
Shimazu, A. Umanodan, R., Schaufeil., B. (2006)	Effects of a brief worksite stress management program on coping skills,	To evaluate the effect of a single cognitive behavioural training session at a work site	Cluster controlled trial.

	psychological distress and physical complaints: a controlled trial	on worker's knowledge about stress, coping behaviour, psychological distress and psychical complaints	
Ichihashi, T., Muto, T., Shibuya, K. (2006)	Cost-benefit analysis of a worksite oral-health promotion program	To evaluate the economic benefit of a worksite screening and educational program	Case control study
Tanaka, H., Yamato, H., Tanaka, T., Kadowaki, T., Okamura, T., Nakamura, N., Okayama, A., Ueshima, H. (2006)	Effectiveness of a low-intensity intra-worksite intervention on smoking cessation in Japanese employees: a three-year intervention trial.	To test the effectiveness of a comprehensive long-term smoking cessation program in the workplace	Cluster controlled study
Tsutsumi, A., Takao, S., Mineyama, S., Nishiuchi, K., Komatsu, H., Kawakami, N. (2005)	Effects of a supervisory education for positive mental health in the workplace a quasi-experimental study	To evaluate the effect of supervisory mental health promotion training on supervisors behaviors, attitudes and knowledge and psychological distress among employees	Quasi-experimental study
Kawakami, N., Takao, S., Kobayashi, Y., Tsutsumi A., (2006)	Effects of web-based supervisor training on supervisor support and psychological distress among workers: a randomized controlled trial.	To evaluate the effect of web-based supervisor education on job stressors, support, and psychological distress among subordinates	Randomized controlled trial
Itani, T., Tachi, N., Takeyama, H., Ebara, T., Takanishi, T., Murata, K., Inoue, T., Suzumura, H., Kuungkraiong, S., Khuvasanont, T., Bation, j. M. (2006)	Approaches to occupational health based on participatory methodology in small workplaces	To define the necessary supports for the managers and workers to improve working conditions in small workplaces and the informal sector.”	Descriptive
Nishikido, N., Matsuda, K., Fukuda, E., Motoki, C., Tsutaki, M., Kawakami, Y., Yuasa, A., Ijima, M., Tanaka, M., Hirata, M., Ohjoh, M., Ikeda, T., Maeda, K., Miyosi, Y., Arai, S., Mitsuhashi, H. (2007)	Development and process evaluation of the participatory and action-oriented empowerment model facilitated by occupational health nurses for workplace health promotion in small and medium-sized enterprises	To develop and evaluate an empowerment model for SMEs to voluntarily engage in worksite health promotion.	Case study
Nishiuchi, K., Tsutsumi, A., Takao, S., Mineyama, S., Kawakami, N. (2007)	Effects of an education program for stress reduction on supervisor knowledge, attitudes, and behavior in the workplace a randomized control	To evaluate the effect of supervisor training on supervisors knowledge, attitudes and behaviours related to work-site mental	Randomized controlled trial

		health promotion	
Tsutsumi, A., Nagami, N., Yoshikawa, T., Kogi, K., Kawakami, N. (2009)	Participatory intervention for workplace improvements on mental health and job performance among blue-collar workers a cluster randomized controlled trial	To explore the effects of a participatory intervention for workplace improvement on mental health and work performance	Cluster Randomized controlled trial
Naito, M., Nakayama, T., Okamura, T., Miura, K., Yanagita, M., Fujieda, Y., Kinoshita, F., Naito, Y., Nakagawa, H., Tanaka, T., Ueshima, H. (2008)	Effect of a 4-year workplace-based physical activity intervention program on the blood lipid profiles of participating employees the high-risk and population strategy for occupational health promotion (HIPOP-OHP) study	Assessing the effect of a workplace based intervention program on the blood lipid profiles of participating employees as part of a population strategy for promoting long-term increases in physical activity”	Clustered Controlled trial
Aro, T., Oida, Y., Murayama, C., Mutou, T., Sawada, S., Matsuzuki, H., Nakanishi, Y. (2007)	Impact of lifestyle intervention on physical activity and diet of Japanese workers	To evaluate the effectiveness of this program compared to a standard conventional healthcare (SCH) program in the worksite setting	non-randomized cluster controlled trial
Hase, Y., Hori, H., Nakayasu, I., Matsushita, Y., Inagaki, m., Unno, A., Nishigaya, E., Nishijima, C., Enta, K., Sashihara, S. (2008)	Approach to easing occupational stress for high-stress workers applying the brief job stress questionnaire to workplace mental health promotion	to improve the working environment at a workplace with a high incidence of depression among the workers,	Controlled trial
Ikegami, K., Tagawa, Y., Mafune, K., Hiro, H., Nagata, S. (2008)	Effectiveness of mental health training including active listening for managers	to examine the effect on managers and employees in the workplace on the training	Cohort study
Kobayashi, Y., Kaneyoshi, A., Yokota, A., Kawakami, N. (2008)	Effects of a worker participatory program for improving work environments on job stressors and mental health among workers a controlled trial	To investigate the effects of an organizational intervention using MHACL on job stressor and psychological distress of workers	Controlled trial
Ariyoshi, H. (2009)	Development and Evaluation of a Mental Health Care System at a Japanese Company	To describe the development of and evaluate the mental health care at a company	Case study
Ariyoshi, H. (2008)	Development and Evaluation of a Women's Health Support System at a Japanese Company	To evaluate a support system for creating a comfortable work environment for women.	Case study.

Adachi, Y., Kunitsuka, K., Taniyama, K., Hayashi, C., Tanaka, M., Sato, C. (2010) Non-face-to-face sleep improvement program in a workplace bibliotherapy with and without behavioural self-control procedure. [In Japanese, 職域の非対面の行業的睡眠プログラムにおける目標行動設定とセルフモニタリング-読者療法のみとの比較 *San Ei Shi*, 52, p. 276-284

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