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# The role of the workplace food environment in eating behaviours of employees at small and medium-sized enterprises: a qualitative study in the Netherlands

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## Abstract

**Background** Workplace food environments play a pivotal role in encouraging healthy and sustainable food choices. However, research on food environments in small and medium-sized enterprises (SMEs) without a workplace cafeteria is scarce, with much of the existing research concentrating on larger or specific types of companies. This qualitative study primarily aims to explore how employers and employees perceive the workplace food environment across different types of SMEs in the Netherlands, including desk-based, mobile workforce, and on-site manual labour settings. Second, it aims to gain insight into the perceived opportunities and barriers in SMEs to promote a healthy and sustainable diet.

**Methods** This qualitative study involved 27 interviews conducted between May 2021 and February 2022, engaging both employers and employees across different types of SMEs: 10 desk-based, 8 on-site manual labour, and 9 mobile workforce SMEs. The data was analysed via a hybrid coding process, including deductive coding based on themes included in the interview guide and allowing for further codes to emerge from the data inductively.

**Results** The results showed noticeable differences in the perceived workplace food environment between the three SME types. Although structural food offerings (such as those offered through a workplace cafeteria) were mostly lacking among all SMEs, most desk-based SMEs offered a daily facilitated lunch, whilst employees of mobile workforce SMEs typically received a daily allowance. However, similarities were also observed across the three SME types as there was a noticeable absence of financial incentives, or food policies regarding healthy and sustainable food. Barriers to promoting a healthy and sustainable diet among employees were that SMEs did not identify healthy and sustainable consumption at the workplace as their responsibility, or as a 'problem' that needed to be solved. Both employers and employees found it difficult to identify opportunities to promote healthy and sustainable diets in the workplace.

**Conclusions** Across all three types of SMEs, both employers and employees described a food environment that was limited in actively encouraging healthy and sustainable food choices at the workplace. Future research should focus

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on developing tailored workplace policies and interventions addressing the unique food environment characteristics of different types of SMEs to improve employee eating behaviour.

**Keywords** Workplace, Employee, Health promotion, Food environment, Small- and medium-sized enterprises, Eating behaviour

## Background

Over the past few decades, there has been a significant rise in diet-related chronic diseases, including overweight and obesity, diabetes type 2, and cardiovascular diseases [1, 2]. Besides the loss of healthy life years, diet-related diseases lead to high social costs, such as healthcare costs or costs resulting from the loss of work productivity, predominantly due to absenteeism [3]. In the Netherlands, it has been estimated that the indirect costs associated with absenteeism due to diet-related chronic diseases were €2,88 billion in 2017 [3]. Internationally, OECD (The Organization for Economic Cooperation and Development) countries are estimated to lose 863 United States (US) dollars per capita per year in labour market output (i.e., absenteeism, presenteeism, employment rate, unemployment) due to overweight [4]. In addition to adverse effects on public health, current diets also negatively impact planetary health and climate change [1]. To improve human and planetary health, we need to shift the eating patterns of the population towards healthier and more plant-based diets, consisting of more fruits, vegetables, legumes, nuts, and whole grains whilst consisting less of animal-based products and (ultra)-processed foods that are high in saturated fat, sugar, and salt [5].

Dietary choices are complex and heavily influenced by the surrounding food environment [6, 7]. The food environment can be defined as the collective physical (e.g., availability), economic (e.g., costs), policy (e.g., rules), and sociocultural (e.g., norms and beliefs) surroundings, opportunities, and conditions that influence people's food and beverage choices and nutritional status [8]. The workplace food environment plays a pivotal role in influencing healthy and sustainable food choices [9], with people in OECD countries spending on average 37.6 h per week at work whilst in the Netherlands they spend on average 30.4 h per week at work [10]. However, the workplace food environment's exact role in healthy and sustainable eating behaviours is less clear, especially since workplaces vary substantially in size and character.

Most research on workplace food environments has predominantly concentrated on larger companies with a workplace cafeteria, neglecting smaller companies lacking such catering facilities [9, 11–14]. Moreover, some studies showed the effectiveness of workplace policies to encourage healthy and sustainable food choices, including healthy food procurement policies, creating healthy vending machines (e.g., replacing unhealthy snacks and

soft drinks with healthier alternatives), or decreasing the prices of healthy foods [15–17]. In addition to implementing policies for healthy food choices, few workplaces such as universities have implemented food policies aimed at promoting sustainable food choices, including policies reducing portion sizes or banning meat in cafeterias [18]. Studies on both healthy and sustainable policies are predominantly based on large-sized organisations and companies, whilst the majority of all companies (99%) in the European Union (EU), including the Netherlands, are categorised as small and medium-sized enterprises (SMEs), defined as having fewer than 250 employees [19, 20]. Furthermore, there has been a scarcity of research exploring the facilitators and barriers employers encounter to promote a healthy and sustainable diet among employees in SMEs. Studies on facilitators and barriers to policy implementation that create healthy and sustainable food environments have mainly focused on larger public sector workplaces, such as hospitals [21, 22].

In order to gain an understanding of how healthy and sustainable food environments in SME workplaces can be created, it is important to consider a range of company characteristics such as size and the location of work, as these factors are likely to influence the workplace food environment [23]. For example, in our prior study, we observed that SMEs with a workplace cafeteria or SMEs with more than 50 employees were significantly more likely to offer fruit or have company food policies compared to SMEs without a workplace cafeteria or with less than 50 employees [23]. Moreover, our prior study indicated a limited encouragement of healthy food choices in Dutch SMEs, particularly in small SMEs without a workplace cafeteria. However, we still lack in-depth insights into employers' and employees' perceptions of the workplace food environment of in different types of SMEs as well as the SMEs' rationale to promote or not promote healthy and sustainable diets.

In light of the above-mentioned research gaps, the aims of this study are twofold. First, it aims to explore how both employers and employees perceive the workplace food environment across different types of SMEs in the Netherlands, including desk-based, mobile workforce, and on-site manual labour settings. Second, it aims to gain insight into the perceived opportunities and barriers in SMEs to promote a healthy and sustainable diet.

## Method

### Context and study design

This study was part of and funded by the Regio Deal Foodvalley (grant nr. 162135). Regio Deal Foodvalley is a collaboration between the Dutch government and the Foodvalley Region in the Netherlands, aiming to accelerate the transition to a sustainable and healthy food system. Semi-structured interviews were conducted in the Netherlands between May 2021 and February 2022. The Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines were used to strengthen the reporting of this study (see Additional file 1). This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving research study participants were approved by the Social Sciences Ethics Committee (SEC) from Wageningen University. Written informed consent was obtained from all participants.

### Participant recruitment

A combination of recruitment strategies, including personal referrals, “cold-calling and cold-mailing”, “door-knocking”, involvement of local networks (e.g., regional business associations), and snowball sampling were used to recruit employers and employees of different types of SMEs in the Netherlands. We conducted door-to-door visits at the business park in the Foodvalley region. Also a list of SMEs from within and around the Foodvalley region was compiled using local networks and publicly available business information for cold-calling and cold-mailing. In addition, also SMEs introduced to the research team through personal referrals that were located across other parts of the Netherlands ( $N=10$ ) were contacted to participate in this study. Participants were included if they spoke Dutch, were aged 18 years or older, and currently worked at an SME (i.e., an organisation with 2 to 250 employees) in the Netherlands. Employers and employees working in the hospital or healthcare sector were ineligible for inclusion, as we only aimed to include workplace food environments that accommodate the workforce, and no other consumer groups (e.g., restaurant customers, or patients). The participating SMEs selected their interview representatives, who were classified as employers if they held the following positions: CEO, (managing) director, board member, or business owner. Participant recruitment ceased upon reaching data saturation, as interviews revealed no novel information or emerging themes.

As SME workplaces vary considerably according to the nature of the work (e.g., IT sector vs. transport), we aimed to include participants from three types of SMEs, including desk-based SMEs (e.g., office-based, including IT and legal services); on-site manual labour SMEs (e.g., involving physical work conducted at specific locations

such as production, installation, and construction); and mobile workforce SMEs (e.g., where employees primarily engaged in work whilst on the road, including sectors such as transportation, moving and relocation services, and a driving school). Furthermore, for comprehensive representation across various SME sizes, micro (<10 employees), small (10–49 employees), and medium-sized (50–250 employees) enterprises, as defined by the European Commission [19] were all included.

A total of 109 SMEs were invited to participate across these three types of SMEs, of whom 32 (29.4%) declined without a reason, 18 (16.5%) declined due to having limited time available, two (1.8%) saw no role for themselves in this research and 30 (27.5%) did not reply after our initial email, reminder emails or calls (Table 1). In this study, one participant per SME, either an employer or employee, was interviewed. However, in one SME, both an employer and employee were interviewed together to capture diverse eating locations within that particular SME. This resulted in 28 participants from 27 SMEs: 12 employers and 16 employees. Six of the participating SMEs were located outside the Foodvalley region. Given the challenges in recruiting participants, we were appreciative of those who agreed to participate, though this inadvertently resulted in variations in employer-to-employee ratios across SMEs (Table 1). Out of the 28 interviewees, 19 were women and 9 were men.

### Data collection

One researcher (LG) conducted the interviews. Before the start of each interview, the researcher briefly introduced themselves (name, job position) after which the participants were asked to give their consent for the audio or video recording of the interview. Additionally, participants were briefed on the study's objectives, interview duration, and the assurance of anonymity and confidentiality. A total of 22 interviews were conducted online, via Microsoft Teams, and five interviews were conducted face-to-face at the SME, according to the preference of the interviewees. All participants were interviewed once. The interviews lasted approximately 30 to 60 minutes and were either audio- or video-recorded. During the interviews, no one else was present besides the interviewer and participant(s). No field notes were taken during the interviews.

### Interview guide

A semi-structured interview guide for this study was developed based on the ANALYSIS Grid for Environments Linked to Obesity (ANGELO) theoretical framework [24], obtaining information regarding the (1) physical food environment, (2) sociocultural food environment, (3) policy food environment, and (4) economic food environment at work in these SMEs. Additionally,

**Table 1** Recruitment of participants

Type of SME	SMEs approached and how	SMEs declined	SMEs included
Desk-based SMEs (i.e., IT, legal services)	N = 28 Cold-calling (N = 11) Door-knocking (N = 5) Local network (N = 2) Snowball sampling (N = 2) Personal referrals (N = 8)	No response (N = 7) No time (N = 2) No reason (N = 9)	N = 10 Employers (N = 1) Employee (N = 9)
On-site manual labour SMEs (i.e., production, construction)	N = 35 Cold-calling (N = 22) Door-knocking (N = 6) Local network (N = 3) Snowball sampling (N = 2) Personal referrals (N = 2)	No response (N = 10) No time (N = 7) No reason (N = 9) Sees no role for themselves in this research (N = 1)	N = 8 Employers (N = 3) Employee (N = 5)
Mobile workforce SMEs (i.e., transportation, moving and relocation services, trans- portation passenger services)	N = 46 Cold-calling (N = 45) Local network (N = 1)	No response (N = 13) No time (N = 9) No reason (N = 14) Sees no role for themselves in this research (N = 1)	N = 9 Employers (N = 8) Employee (N = 2)*
Total	N = 109	No response (N = 30) No time (N = 18) No reason (N = 32) Sees no role for themselves in this research (N = 2)	N = 27 Employers (N = 12) Employee- ees (N = 16)*

\* One interview was conducted with two participants (1 employer, and 1 employee) from a small SME in the mobile workforce

**Table 2** Interview topics and prompts

Topics	Prompts
<b>Physical food environment;</b> Facilities, type of food and beverages offered, healthiness and sustainability of food and beverages offered	What facilities and appliances are present to eat or prepare food at the workplace? What type of food and beverages are offered at the workplace for employees? Are the offered food and beverages healthy? Are the offered food and beverages sustainable?
<b>Sociocultural food environment;</b> Eating behaviours, empowerment, norms and values, beliefs, employers and managers setting an example for employees	Where, with whom, when and how long do employees eat at the workplace? Are there certain regular eating behaviours (such as weekly fries' lunch) or other behaviours involving food and beverages such as weekly drinks and birthday celebrations? Does the company empower employees to eat healthily and sustainably? What are the norms, values, and beliefs of employees regarding food and beverages? Do the employers and managers of the company set a good example of eating healthily and sustainably?
<b>Policy food environment;</b> Policy present, procurement policy, informal agreements, vision, initiatives	Is there (procurement) policy regarding healthy or sustainable food and beverages at the workplace? Are there informal agreements regarding food and beverages at the workplace? Is there a company vision for food at the workplace? Are there initiatives to stimulate healthy and sustainable eating at the workplace?
<b>Economic food environment;</b> Free foods and beverages or food services, discounts, budgets, health promotion programmes	Are there free-of-charge food and beverages or food services available at the workplace (such as the provision of free fruit or lunch)? Are there discounts for food and beverages at the workplace (such as lunch at work for only 1 euro), and if yes how are these financed? Are there health promotion programmes available at the workplace, and if so, how are they financed?
<b>Perceived opportunities, motivation, and barriers in SMEs to promote a healthy and sustainable diet;</b> Opportunities, motivation, barriers	If anything is possible and you want to make healthy and sustainable food choices easier for your employees in the workplace/during working hours. Would you like to act on that? And if so, where would you start? If not, why not? What would it take to make these ideas and plans possible? What problems do you foresee that you will encounter in the implementation?

questions were added regarding the perceived opportunities, motivation, and barriers in SMEs to promote a healthy and sustainable diet at work. Following a brief introduction, the interviewer began the interview by asking the interviewee to describe their workplace eating behaviours. Thereafter, the interviewer asked questions based on prompts regarding these topics (Table 2). The full interview guide (translated from Dutch to English) can be found in Additional file 2. Participants were asked to answer questions about the situation as it was before COVID-19 (Coronavirus Disease-19) and reflect on the

possible changes due to remote work or other changes in the work situation. To clarify the terms healthy eating and sustainable eating during the interview, the interviewer exemplified them using the definitions of the Netherlands Nutrition Centre [25]<sup>1</sup>. At the end of each

<sup>1</sup> healthy diet was defined as a diet including fruit, salads or other vegetables, unsalted nuts, whole-grain cereal products such as whole-wheat bread, reduced fat cheese, low-fat or semi-skimmed dairy products, water, tea, and few sweets, snacks, and sugary drinks.

A sustainable diet was defined as a diet including little meat, few dairy products such as milk, yogurt, and cheese, and more vegetable or vegetarian

interview, participants were asked whether any topics or issues of concern had not been raised but were, according to participants, important to include.

### Data analysis

All interviews were transcribed verbatim. Transcripts were imported and analysed in Atlas.ti, version 23. A hybrid coding method was conducted by developing an initial deductive codebook based on the interview guide and the ANGELO theoretical framework, but also allowing for further codes to inductively emerge from the data. The five central themes from the interview guide were initially explored: (1) physical food environment, (2) sociocultural food environment, (3) policy food environment (4), economic food environment, and (5) perceived opportunities, motivation, and barriers influencing the promotion of a healthy and sustainable diet for employees and opportunities for improvements, with several sub-nodes corresponding to each of these broader themes (Table 2). Additionally, through inductive thematic content analysis, additional codes were added to the codebook, forming a final codebook. The transcripts were coded by one researcher (LG) with consensus on the initial codebook being reached after the first interview (LG-FR), possibly due to the pragmatic nature of the research. LG, FR, and MP discussed the codebook after all interviews were coded and a consensus on the final coding was reached. During the coding process, the different SMEs took a central role, not the role/function of the interviewee. Specific quotations were chosen to support the findings. The quotes were translated from Dutch into English.

### Reflexivity

LG (MSc) was the primary researcher in this study and this study is part of her PhD project. SKD(PhD), was in a post-doc position, FCR (PhD), was the project leader, and MP Poelman (PhD), was in the position of associate professor. All of us involved in this study had prior experience in qualitative research within the field of public health nutrition. The study's decisions were informed by existing literature and collaborative discussions among our research team.

## Results

### Participants

Out of the 27 SMEs, three were micro-enterprises (<10 employees), 12 were small enterprises (10–49 employees) and 12 were medium enterprises (50–250 employees).

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products such as legumes, nuts, and milk substitutes such as soy milk and oat milk. Additionally, a sustainable diet can consider combating food waste and reducing the portions of meat and dairy, such as taking 1 slice of cheese instead of 2 slices of cheese.

Table 3 shows the characteristics of participating SMEs and the job position of the interviewees.

### SME food environment

The results of the interviews are organised by the topics central to this study including the food environment domains (physical, sociocultural, policy and economic food environment) and the perceived opportunities, motivation, and barriers in SMEs to promote a healthy and sustainable diet.

### Physical food environment

Concerning the physical food environment, the following themes will be discussed from the interviews: (non-) structural food and beverage offerings, food outlets, and facilitated lunch.

#### (Non-)structural food and beverage offerings

Participants across all three types of SMEs indicated that apart from a limited provision of food and beverage items such as coffee, tea, and fruit, the majority of SMEs lacked structural offerings of diverse food and beverage items. To illustrate, an employee stated, "*Coffee or tea is always available at work. Furthermore, everyone brings their food from home*" (on-site manual labour SME/employee). Food and beverage items were mostly incidentally provided and consisted for example of soup in the winter, ice cream in hot summers, chocolates for Easter, and hotdogs for Sunday workers. These incidental food and beverage offerings were provided mainly to support camaraderie among colleagues and to create an enjoyable work atmosphere. The food and beverage items that were offered more structurally, varied depending on the type of SMEs. For instance, whilst fruit was available at most desk-based SMEs, it was less common in mobile workforce and on-site manual labour SMEs. None of the included SMEs had a workplace cafeteria present. However, desk-based and on-site manual labour SMEs provided a kitchen and cooking appliances for preparing lunch, such as microwaves, refrigerators, coffee machines, electric grills, and kettles. In mobile workforce SMEs, fewer appliances were available in the workplace, but it was noted that microwaves, refrigerators, and coffee machines were often installed in long-distance vehicles.

#### Food outlets

When discussing the physical food environment, participants of all SME types mentioned the food availability beyond the SME. For instance, an employee of an on-site manual labour SME explained the temptation to buy food from a nearby fried food vendor. On the contrary, an employee from another on-site manual labour SME mentioned that the on-site available restaurant and food truck were both seldom used by the staff, as they were



**Table 3** Characteristics of participating SMEs

Type of SME	Interview	Sector of the SME	Size SME †	Nr.of employees	Participants
Desk-based SME	1	Legal services	Small	44	Employee
	2	Retail	Micro	6	Employer
	3	IT	Small	25	Employee
	4	Consultancy food	Medium	85	Employee
	5	Business Services	Medium	55	Employee
	6	IT	Medium	50	Employee
	7	Financial services	Small	20	Employee
	8	Legal services	Medium	91	Employee
	9	IT	Small	42	Employee
	10	Food	Small	14	Employee
On-site manual labour SME	11	Manufacturing and production	Micro	8	Employee
	12	Trade	Medium	150	Employee
	13	Installation technology	Medium	145	Employer
	14	Construction	Small	30	Employer
	15	Engineering	Medium	140	Employer
	16	Manufacturing and production	Medium	53	Employee
	17	Manufacturing and production	Medium	65	Employee
	18	Manufacturing and production	Medium	138	Employee
Mobile workforce SME	19	Transportation and logistics	Small	45	Employer
	20	Moving and relocation	Small	20	Employer+ Employee*
	21	Transportation and logistics	Small	35	Employee
	22	Transportation and logistics	Small	40	Employer
	23	Transportation and logistics	Medium	120	Employee
	24	Driving school	Micro	9	Employer
	25	Transportation and logistics	Small	45	Employer
	26	Transportation and logistics	Medium	120	Employee
	27	Transportation and logistics	Small	36	Employer

\* One interview was conducted with two participants (1 employer, and 1 employee) from a small SME in the mobile workforce

† SME sizes: micro (< 10 employees), small (10–49 employees), and medium-sized (50–250 employees) enterprises, as defined by the European Commission [19]

primarily aimed at the company's customers. Several participants of the mobile workforce SMEs mentioned the influence of truck stops on food consumption. One participant stated *"In a petrol station you see more snacks than you see healthy products. So, it is tempting for drivers to say I will have a meatball with mayonnaise or something like that"* (mobile workforce SME/ employer).

### Facilitated lunch

Whilst structural food offerings were limited in most SMEs, participants working at the majority of the desk-based SMEs mentioned having daily facilitated lunches for all employees, which is a lunch provided by the SME for employees during work hours that can be either catered, ordered from a restaurant, or prepared in-house. However, except for one instance, on-site manual labour and mobile workforce SMEs did not have facilitated lunches or other catering facilities available. Participants of desk-based SMEs described that the facilitated lunch was often initiated by directors who, for example, valued a facilitated lunch highly or because they were used to it in a previous job. Participants mentioned that these lunches were arranged by either a hospitality employee or by an

employee with other responsibilities (e.g., secretary), like ordering groceries. Facilitated lunches were often typical Dutch 'bread lunches' including various types of bread with a variety of toppings such as cheese and spreads. In addition, the facilitated lunch often included an additional meal component that varied according to a weekly menu. One hospitality employee stated, *"On Mondays, we have a boiled egg, Tuesday is Toastie-day, on Wednesday we offer an omelette, on Thursday we usually have a soup day and on Friday we order food such as fries"* (desk-based SME/employee). The facilitated lunch offered was heavily influenced by the employees' wishes in most of these SMEs, with one employee stating, *"If the majority of colleagues starts shouting, 'We like that,' then you can be assured that the product will be bought"* (desk-based SME/ employee). Most desk-based SMEs showed a lack of attention to the healthiness and sustainability of their facilitated lunches, with participants simply noting the presence of healthy or sustainable food options without any further considerations.

### Sociocultural food environment

Concerning the sociocultural food environment, the following themes will be discussed: break time behaviours; eating traditions; values and beliefs related to food and beverages; empowerment and employers and managers setting an example for employees; and profession, gender and age.

#### Break time behaviours

Break time behaviours at work differed substantially between the three types of SMEs. Most desk-based participants described consuming lunch together (regardless of whether this was facilitated or otherwise obtained) in a communal break room on flexible break times. Some participants of desk-based SMEs had a quick lunch behind their desks or combined lunch with a walk or games (e.g., table football), and some participants went home to eat during lunch if they lived near the workplace.

Participants of on-site manual labour SMEs mostly expressed that all colleagues consumed a lunch brought from home, at a scheduled time, together in a communal space. During these breaks, walks were not often taken, with one employer stating *“They [referring to the employees] are physically active, so they do not have to exercise during the break”* (on-site manual labour SME/ employer). Mobile workforce SMEs where employees were on the road for multiple days, reported that employees ate at stops alongside the road. At these stops, they either purchased food from truck stop restaurants or ate food brought from home in their vehicles. One participant explained *“The older generation, so the people who have been working thirty years, they have a strong preference for eating at a truck stop restaurant... the younger group often eats in the car”* (mobile workforce SME/ employee). Financial reasons were mentioned for truck drivers choosing microwaving meals in the vehicle instead of eating at a truck stop restaurant, whereas social interaction with other drivers was mentioned as a reason to eat at a truck stop restaurant. Drivers on multiple-day journeys were obligated to take a 45-minute break every 4.5 h according to European law. Consequently, participants indicated drivers to plan their break times around these regulations as well as loading and unloading times. In SMEs in the mobile workforce, where employees are on the road for one day, employees either ate at truck stops, bought food at a grocery store, or local food vendors, depending on the size of the vehicle. Some employees were incidentally able to eat at the office, in a portable site canteen or at clients (e.g., moving company) where they were occasionally offered lunch.

#### Eating traditions

A commonly raised point during the interviews was the role of eating traditions in shaping eating behaviour

across all SME types. Across all three types of SMEs, there was the typical weekly or monthly “Friday Fries Day”, during which fries and other fried snacks were ordered for all employees. Additionally, participants mentioned different traditions in SMEs with some occasionally ordering fried fish or sausage rolls, one SME ordering sandwiches once a week and one SME having baked goods made by the employees once a week with the employer stating, *“We have a weekly tradition every Thursday morning because we are with only women and we all like cake and pie...every Thursday, one of the employees brings a baked good”* (desk-based SME/ employer). Furthermore, other traditions included employees treating colleagues to sweet and savoury snacks on their birthday, the employee association or employer organising festive events (i.e., summer barbecue, or easter lunch), and weekly or monthly Friday afternoon drinks.

#### Values and beliefs related to food and beverages

During the interviews, participants reflected on what they believed their colleagues valued regarding food and beverages at the workplace. Convenience, taste, and price emerged as the most prominent values, whilst health and especially sustainability were rarely mentioned by participants. Convenience was especially mentioned to be highly valued among colleagues in the mobile workforce due to time constraints and ease of eating whilst driving, with one participant stating, *“Above all, it must be tasty and easy in the sense that when you are driving... you are not going to sit and make a very extensive sandwich.”* (mobile workforce SME/ employer). Participants of desk-based jobs with facilitated lunch also highlighted the value of convenience of available food, specifically indicating that the facilitated lunches were valued by employees for making it ‘easy’ to eat at work. Price was mostly mentioned to be valued by participants working in the mobile workforce or on-site manual labour sites, with participants emphasizing its significance, particularly for employees with lower incomes. Other, less frequently mentioned values were the amount of food, weight-loss goals, seeking a varied diet, getting energy to work (sugar), quality of food, time to eat, and eating together. Support for sustainable food and beverages among colleagues was generally lacking, illustrated by an employee of an on-site manual labour SME stating *“I do not think that [referring to sustainable food offerings] is taken into consideration. I notice here that they are huge meat eaters.”*

#### Empowerment and employers and managers setting an example for employees

Across all three types of SMEs, employers indicated that they did not empower employees to eat healthily or

sustainably. The main action employers indicated to do to empower employees to eat healthily was offering fruit. Some other actions that were mentioned were not offering soft drinks, sweets, and biscuits, and offering a water bottle. However, discouraging unhealthy food choices was not identified as a suitable empowerment strategy, as illustrated by an employee: *"If employees bring unhealthy food themselves, we cannot forbid them"* (desk-based SME, employee). Another employee stated, *"You are not necessarily going to emphasize nutrition so much at work [because] you do not want [employers] to act as a lecturing authority"* (on-site manual labour SME/employee).

Whether employers or managers set an example for employees in healthy and sustainable eating at the workplace was divergent. Furthermore, a few participants discussed whether this should even be expected. An employer of a mobile workforce SME stated: *"I think I should not have to adapt myself for someone else."*, whilst another employer of another mobile workforce SME stated, *"We do our best to set an example, which is difficult because we see them [referring to the employees] only once a week"*.

### Profession, gender and age

Across all three SME types, some generalisations were made by participants about their beliefs on healthy eating based on demographic factors such as profession, gender and age. Participants perceived certain groups, related to these demographic factors, as more or less concerned about making healthy food choices. These employee perspectives were generalized into beliefs about healthy food choices at work, thereby shaping the sociocultural food environment at the workplace.

Among all types of SMEs, certain professions such as engineers, truck drivers and IT personnel were viewed to care less about healthy eating. Moreover, an employer of the mobile workforce also expressed less concern about sustainable eating at work due to their profession, stating *"We are a transporter of cattle for the meat processing industry. It would be strange if we suddenly started pretending that we should all become vegan"* (mobile workforce SME/ employer). Additionally, women were sometimes perceived as being more concerned about healthy eating than men across all three types of SMEs. On the other hand, men were sometimes perceived as being less concerned about sustainability, with one participant emphasizing *"If we provide a dinner, it has to be mainly meat, so it is men who eat a lot of meat and barbecue. Meat is the main meal."* (desk-based SME/ employee). Multiple participants viewed older employees to generally eat healthier than the younger employees in both the mobile workforce and on-site manual labour SMEs, with one employer stating *"The older ones are more concerned with healthy eating, they think a bit about their belly and*

*medical shortcomings. I have a mechanic, he is sixty years old, so he goes for a bit of water, an apple,...cucumber on his bread...But look, I also have young guys who need to stay awake, so they go for Red Bull."* (mobile workforce SME/employer). However, one participant mentioned that it might be easier to support healthy eating among younger employees: *"The older folks who have been in the industry for a hundred years, they will not change, and we are not going to change them...But the youth of today, they think about their figure."* (mobile workforce SME/ employer).

### Policy food environment

Most participants noted the absence of a concrete company vision to support healthy and sustainable food consumption, as well as limited workplace food policies across all types of SMEs. To illustrate, when asked about the presence of a company vision to support healthy and sustainable food consumption an employer of a mobile workforce SME responded, *"No generally not, we give people freedom in those choices"* (mobile workforce SME/ employer).

Procurement policies on healthy and sustainable foods were mentioned only in two SMEs where lunch was provided. In one SME mostly organic food and in another SME mostly locally sourced food was procured and offered, in the context of corporate social responsibility. The food policies that were mentioned mainly focussed on hygiene (e.g., not eating at nearby machines) or the limitation of alcoholic beverages at Friday drinks as there was either a concern about drinking and driving in the context of transportation work or because they aimed to show solidarity with employees working during the drinks in a 24/7 organisation. A healthy food policy that was mentioned multiple times was the offering of free fruit. Other examples mentioned only once included removing a candy jar, limiting birthday treats to once a month and replacing a weekly offering of sausage rolls with a weekly offering of fruit. Finally, some participants expressed the existence of informal agreements such as discouraging employees from drinking energy drinks. However, overall few policies on food consumption, aside from offering fruit, were present with employees expressing the individual responsibility and freedom of employees in food choice *"Food choice is simply a free choice, and employees are responsible for it themselves."* (mobile workforce SME/employee).

### Economic food environment

Concerning the economic food environment, the following themes will be discussed: the costs of facilitated lunches, and the allowances of mobile workforce SMEs.



### Costs of facilitated lunches

Whilst the costs of food and beverages including hot beverages (e.g., coffee, tea), healthy snacks (e.g., fruit) or occasional treats (e.g., ice cream in hot summers), were predominantly free of charge for employees of all types of SMEs, facilitated lunches in desk-based SMEs were not (with various payment systems in use). Some of these SMEs retracted a small amount of the costs of meals from the employee's salary or employed a coin system in which employees paid €2.50 for a full lunch or €1 for a snack. An employee of a desk-based company explained that providing a free lunch was not financially possible due to tax regulations. The employee referred to the current Dutch tax system under which coffee, tea, fruit, and other snacks are not subject to income tax, whilst free meals provided by an employer to their employees are subject to an income tax of 80%. This employee stated that, due to the tax regulations, they were providing a paid, facilitated lunch instead, but that this could exclude some employees; *"For some people, that financial contribution can be a barrier for not taking part in lunch facilities. If I were to remove that barrier so they could join, that would only have positive effects on the social cohesion of the group"* (desk-based SME/employee).

### Allowance mobile workforce SMEs

Apart from whether employers covered the costs of available food and beverages at work, no discounts or budgets were mentioned on healthy or sustainable foods only or on foods from food vendors nearby. However, mobile workforce employees received an allowance, mandated by law [26], based on the number of days worked. This allowance, which was not strictly designated for food and beverages, was used as a justification by an employer to not offer healthy or sustainable foods such as free fruit to drivers, since the allowance was already partially meant for drivers to purchase their own food and beverages.

### Perceived opportunities, motivation, and barriers in SMEs to promote a healthy and sustainable diet

Both employers and employees had difficulties in identifying opportunities to promote healthy and sustainable diets at the workplace. Participants shifted to discussing opportunities for improving other lifestyle behaviours, like exercise instead of focussing on eating behaviour. Even when prompted to imagine a situation without financial constraints, participants often only mentioned providing information with for example flyers or a healthy lifestyle course. If participants did mention opportunities to improve their food environment they mostly focussed on interventions such as offering fruit or focussing on areas out of their control such as petrol stations needing to provide a healthier offering or a healthy restaurant needing to open in the business park where

the company was situated. There was a notable absence of ideas to make changes in the sociocultural or policy food environment to promote healthy and sustainable diets among employees.

Both employers and employees foresaw barriers to promoting a healthy and sustainable diet among employees via these opportunities. Some participants expressed that healthy and sustainable consumption at the workplace was not seen as a 'problem' that needed to be solved. In most of these cases, participants did not see a problem because it was mentioned that the current situation of employee health was already optimal. One employer stated, *"I would not know what to do [referring to making changes to promote healthy and sustainable diets] and that also has to do with the fact that we have healthy people walking around."* (on-site manual labour SME/employer). Furthermore, participants explained that if lifestyle-related issues were to arise and employers or managers recognized the need for change, there would be motivation to promote healthy and sustainable diets, despite the current lack of a seen problem for these policies or health promotion programmes, *"Well, if people have that need [referring to health promotion programmes] we (referring to the SME) are always open to that and we will see what is possible"* (desk-based SME/employee). However, some participants did identify healthy and sustainable food consumption as beneficial for their current workforce, with one employee stating, *"If employees live healthier lives, you as an organization will also benefit from it, because less sick leave correlates with less absenteeism"* (desk-based SME/employee). Whilst an employer stated, *"I immediately think of the [health of] truck drivers. There is certainly a lot to be gained for them in that regard"* (mobile workforce SME/employer).

Another barrier expected in promoting a healthy and sustainable diet by both employers and employees was the fear of colleagues feeling patronized by efforts to influence their food choices. Additionally, there was a perception that dietary habits should be considered an individual's responsibility rather than the responsibility of the SME. One employer expressed *"It is so hard, you know. You have to separate private matters and business, if I get involved with food then I am sure the majority [referring to employees] will say 'What are you getting involved in, mind your own business' (mobile workforce SME/ employer)".* Whilst an employee stated *"If you really want to promote a healthy lifestyle as a company, you should not offer unhealthy snacks. But then again, how far do you take it? I am not so sure about that either (on-site manual labour SME/ employee)".* Furthermore, a lack of interest from employees was perceived as a barrier by employers and employees. An employer of a mobile workforce SME, who tried to facilitate fresh meal packages for truck drivers, expressed that there was

insufficient interest in these meal packages by employees, stating *“It just did not work, the people who already eat healthy anyway, they bring their food from home”* (mobile workforce SME/ employer). Another barrier mentioned especially among the mobile workforce participants was the presence of few contact moments with employees, with employers specifically mentioning lacking control over their employees’ food environment and having few moments of contact to promote healthy and sustainable eating behaviour. Other barriers mentioned by participants were, a large number of competitive food vendors nearby, irregular working times, costs, the fear that employees would feel attacked by comments on their body weight, not knowing how to empower employees since little food was offered, and prioritization of other affairs in the SME (e.g., keeping the company running during COVID-19).

## Discussion

We identified some noticeable differences in the food environment perceived by employers and employees between the three SME types studied; whilst structural food offerings (e.g., via vending machines or workplace restaurants) were mostly lacking among all SMEs, we observed that the majority of desk-based SMEs offered daily facilitated lunches whilst this was not the case for on-site manual labour SMEs and mobile workforce SMEs. Additionally, employees of mobile workforce SMEs received an allowance with which they could buy food, whilst employees of other SME types did not. However, similarities were also observed across the three types of SMEs; there was a noticeable absence of food policies regarding healthy and sustainable food, besides offering free fruit. Additionally, financial incentives or other support for healthy and sustainable eating during work hours were lacking among all SME types. Moreover, health and especially sustainability did not appear as highly valued among employers and employees regarding their eating behaviour. Specifically, certain groups, including male and younger employees as well as those working in certain professions, were perceived as being less concerned about healthy food choices at work. Finally, both employers and employees also found it difficult to identify opportunities to promote healthy and sustainable diets through the workplace food environment. Some SMEs did not perceive a healthy and sustainable diet as a ‘problem’ that needed to be solved, with participants mentioning a currently healthy workforce. Another barrier identified across all three types of SMEs was the belief that a healthy and sustainable diet was primarily the individual responsibility of the employees, rather than the responsibility of the SMEs themselves.

The revealed diversity in perceived food environments within SMEs emphasizes the importance of recognizing

the uniqueness of each setting. These insights reveal that there is no one-size-fits-all approach for promoting healthy and sustainable food environments and consumption at the SME workplace. Instead, there is a need to support SMEs with tailor-made interventions and strategies beyond just food provision (in workplace cafeterias). These outcomes align with a previous intervention study that implemented comprehensive strategies to promote healthy workplace food environments, emphasizing the need to tailor interventions to the local setting for better success [27]. These strategies should go beyond merely the physical offering of food but also consider the other varying domains of the SME food environment, such as the sociocultural, and policy food environment.

We observed a lack of a workplace food vision and little presence of healthy and sustainable food policy actions across the SMEs. This might be explained by health promotion at the workplace not being legally binding in the EU [28]. A study by Verra et al. showed that, on a national level, EU member states mention the term health promotion in their occupational health and safety policy, but that, these references typically lack substantive emphasis on actively and positively promoting health [29]. When it comes to national food environment policies, the Netherlands National Prevention Agreement (NPA), commits to making Dutch citizens healthier by reducing smoking, problematic alcohol use, and obesity [30]. However, the NPA consists of measures aimed at the workplace cafeteria which are uncommon in most SMEs and lacks further measures on sustainable and healthy eating at the workplace [31].

That SMEs do not identify healthy and sustainable consumption at the workplace as their responsibility, or as a ‘problem’ that needs to be solved may be attributed to the prevailing societal norm that food choices are an individual’s responsibility rather than an employer’s responsibility. Participants in our study often suggested interventions focussed on individual responsibility (e.g., providing information) or attributed the lack of interventions to the importance placed on individual responsibility. This is in line with previous research highlighting individuals’ perception of health and diet as their own responsibility in the workplace, finding interference patronizing [31–34]. Additionally, research suggests this sentiment extends beyond the workplace, reflecting a broader societal norm [35]. Moreover, sustainable diets were even more strongly viewed as the individuals’ responsibility, resonating with research suggesting that meat reduction policies can be perceived as patronizing and infringing on freedom of choice, linked with neoliberalism [36]. It could also be argued that employees find it hard to think about the workplace food environment if they do not structurally offer any food, which could strengthen the ideology of individual responsibility

even more. Whilst, studies have shown that some larger organisations are already undergoing a transition towards a healthier and sustainable workplace environment [31]. These studies have highlighted the necessity of pioneering employers or people in management positions who can be frontrunners in creating healthy and sustainable food environments and overcoming barriers to change in workplaces [22, 31, 37].

Noticeably, our study showed that the influence of the food environment outside of the SME itself should be considered when improving employee health of SMEs. The results show that nearby food vendors shape employees' food environments and food choices, especially on and around motorways for mobile workforce SMEs. Indeed, a previous study found a higher density of takeaway food outlets near the workplace to be strongly associated with increased takeaway food consumption [38]. Thus, this broader food environment around workplaces plays a significant role in employees' eating behaviour. The food environment on and around motorways has been identified as an area for improvement in the NPA, however, intervention on and around motorways has not yet occurred [30]. A recent collaborative study in the Netherlands identified factors contributing to this unhealthy food environment and proposed multiple actions for change [39]. This indicates that a comprehensive set of well-defined guidelines is needed to improve this specific food environment for mobile workforce SMEs. These guidelines should be clearly outlined and integrated into the NPA.

Sociocultural factors such as profession, gender, and age were also identified as factors potentially shaping the food environment of SMEs. Considering gender, this aligns with Levi and colleagues' study, which showed that men tend to show significantly lower levels of involvement and interest in healthy food decisions than women [40]. Additionally, older employees being more concerned about healthy food choices aligns with research indicating that individuals older than 60 were more likely to make food choices based on health considerations in contrast to individuals aged 18–30 [41]. Whilst our study suggests variations in concerns about healthy eating across professions, we are not aware of any studies that directly compare values regarding healthy food choices across varying professions. However, research shows that blue-collar workers, like truck drivers, have more unhealthy behaviours than white-collar workers [42]. Additionally, our study finds professions such as transportation in the cattle industry exhibit less concern for sustainability. Although there is limited research in this area, the Dutch farmer protests highlight how professions like farming can conflict with sustainability goals [43].

To the best of our knowledge, this is the first study that investigated the perceptions of employers and employees of different SME types on their workplace food environment whilst additionally gaining insight into the perceived opportunities and barriers in SMEs to promote a healthy and sustainable diet. Furthermore, a strength of this study is the diverse range of types of SMEs included in the study, to highlight the varied nature of SMEs. Nonetheless, several limitations should be acknowledged when interpreting the findings. Firstly, recruitment was challenging during the COVID-19 pandemic, so the researchers' networks were used. However, other recruitment strategies such as cold-calling were also employed ensuring a variety of SMEs and recruitment strategies. Secondly, participants were asked to recall the situation before COVID-19, which may have introduced recall bias into their responses. Thirdly, in all interviews, except one, only one representative from each SME was interviewed, limiting the representation of viewpoints from all employees and the employer within that SME. This could have resulted in differences, for example, between truck drivers and office workers within the same company, not being fully captured. Lastly, the numbers of employers and employees varied across different settings. Desk-based SMEs were predominantly represented by employees whilst workforce SMEs were mostly represented by employers. Although we expect that the responses from employers and employees will be similar—such as regarding the availability of facilities at work—we acknowledge that their perspectives might differ for other aspects as observed by prior research [23]. For instance, employers may have a better understanding of workplace policies, while employees might be more attuned to eating practices at work [23]. This variability in viewpoints underscores the need for further investigation to gain more insight into potential differences.

This study offers initial insights into various aspects of the food environment in different types of SMEs. A key recommendation for future research is to investigate which tailor-made interventions and strategies that extend beyond workplace cafeterias or food provision are most effective in addressing the specific food environment challenges across different SME types. Additionally, policymakers in the EU and at a national level play a crucial role in developing more concrete policies and guidelines tailored to these specific food environments, including for example mobile workforce SMEs and the food environment on and around motorways. Moreover, strategies to promote a healthy and sustainable food environment in SMEs, even in the absence of structural food availability (e.g., a workplace cafeteria), tailored to healthy and sustainable norms and values, may support and encourage employers to think beyond the tangible presence of food when creating a healthy and

sustainable workplace environment. Furthermore, future research could explore how sociocultural factors such as gender and age shape current SME food environments or moderate the effectiveness of tailor-made food environment interventions in SMEs. Another recommendation for future research is to gain an understanding of how to effectively overcome the prevailing norm in SMEs that both healthy and sustainable food choices are an individual's responsibility. As sustainability was even less frequently a topic of concern in SMEs, this warrants extra attention.

## Conclusions

Across all three types of SMEs, both employers and employees described a food environment that was limited in actively encouraging healthy and sustainable food choices, with food policies on (un)healthy and sustainable food being barely present. The food environment varied across different domains such as food availability (physical food environment) and the costs of food and beverages (economic food environment), depending on the type of SMEs. For instance, the majority of desk-based SMEs offered a daily facilitated lunch, whilst mobile workforce SMEs typically received a daily allowance, unlike other types of SMEs. Furthermore, the main barriers to promoting a healthy and sustainable diet among employees were that SMEs do not identify healthy and sustainable consumption at the workplace as their responsibility, or as a 'problem' that needs to be solved. Given the lack of current food environments that actively encourage healthy and sustainable food choices in SMEs, future research should focus on developing tailored workplace policies and interventions that address the unique food environment characteristics of different types of SMEs. This may include strategies that emphasize the occupational and health benefits of a supportive workplace food environment, along with practical examples for implementing such practices, to improve employee eating behaviours and foster a culture of healthy and sustainable diets in SMEs.

## Abbreviations

ANGELO	ANalysis Grid for Environments Linked to Obesity
COVID-19	Coronavirus Disease 2019
EU	European Union
NPA	National Prevention Agreement
OECD	(the)Organization for Economic Cooperation and Development
SEC	Social Sciences Ethics Committee
SME	Small and medium-sized enterprises
COREQ	Consolidated Criteria for Reporting Qualitative Research
US	United States

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12889-025-22270-w>.

Additional file 1: The Consolidated Criteria for Reporting Qualitative Research (COREQ) checklist was used to strengthen the reporting of this study

Additional file 2: The full interview guide (translated from Dutch to English) with questions regarding the food environment of SMEs and the opportunities and barriers in SMEs to promote a healthy and sustainable diet

## Acknowledgements

We would like to thank all employers and employees for their significant contribution to this study.

## Author contributions

LG, FR, and MP designed the study. LG oversaw the data collection and led the data analysis with contributions from FR and MP. LG, SD, FR, and MP assisted in data interpretation. LG wrote the manuscript and all authors provided feedback and approved the final manuscript.

## Funding

The research described in this paper was financially supported by Regio Deal Foodvalley (grant no. 162135). This is a collaboration between the Dutch government, the provinces of Utrecht and Gelderland, eight local municipalities, educational and knowledge institutions, and entrepreneurs within this region [44]. Regio Deal Foodvalley had no role in the design, analysis, or writing of this article.

## Data availability

No datasets were generated or analysed during the current study.

## Declarations

### Ethics approval and consent to participate

This study was conducted according to the guidelines laid down in the Declaration of Helsinki, and all procedures involving research study participants were approved by the Social Sciences Ethics Committee (SEC) of Wageningen University. Written informed consent was obtained from all the participants. Additionally, participation was anonymous and non-invasive.

### Consent for publication

Not applicable.

### Competing interests

The authors declare no competing interests.

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Received: 5 April 2024 / Accepted: 10 March 2025

Published online: 23 March 2025

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