

# What is not known is not aimed for — Understanding staff knowledge and readiness to embrace sustainable and healthy food

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**ABSTRACT:** To mitigate the adverse effects of excessive consumption of animal proteins on both the environment and human well-being, a transition is needed toward plant-based proteins. Such a shift requires a change in eating behaviours, both at home and elsewhere. Focusing on hospitality and leisure settings, the aim of this study is threefold: firstly, to evaluate the alignment between the organisational policies and support mechanisms on one side and employees' beliefs and daily experiences towards healthy and sustainable food on the other; secondly, to explore the staff's readiness to embrace the protein transition using the stages of change model; and thirdly, to outline the prerequisites needed to ensure that employees show healthy and sustainable food behaviour drawing upon the COM-B model (motivation, opportunity, and capability for behavioural interventions) and the behaviour change wheel. Findings from a multi-case-study approach, which utilises a combination of research methods, suggest that employees across all cases exhibit a limited degree of readiness. Moreover, while the motivation to shift toward more healthy and sustainable food is high, capability and opportunity are rated low. To address this, various intervention strategies tailored to the context of hospitality and leisure are proposed that are pertinent to the cases under investigation.

## Introduction<sup>1</sup>

Although the recovery of tourism after the pandemic has not followed the more sustainable and considerate path that many scholars had envisioned, guests, particularly younger ones, value the social and environmental impact of brands and lament a lack of sustainable options (Arjona, 2020; Centraal Bureau voor de Statistiek, 2021). Focusing on food options, there is a growing consensus that the high consumption of animal proteins has a major negative impact both on the climate and on people's health. Therefore, hospitality businesses have been called upon to join the protein transition, that is the change from an animal-based to a plant-based protein offering to their staff and guests (Aiking & De Boer, 2020).

Staff commitment is critical to the successful implementation of any change (Chou, 2014). However, whether hospitality staff are committed to the protein transition and whether they have the knowledge and motivation needed for a successful implementation of plant-based proteins in dishes is unclear. Consider, for example, that the *chef rôti* — the chef in charge of meat preparation — is traditionally considered the most important position after the executive chef in professional kitchens and that the curricula of schools training chefs are still giving animal-proteins based dishes more attention than plant-based ones (Attwood et al., 2019). Bearing in mind this context, the aim of this study is threefold: firstly, to evaluate the alignment between organisational policies and support

mechanisms, and employees' beliefs towards and experiences with healthy and sustainable food in hospitality and leisure settings; secondly, to explore staff readiness to embrace the protein transition using the stages of change model (Prochaska & DiClemente, 1983); and thirdly, to outline the prerequisites needed to ensure that employees show healthy and sustainable food behaviour. The exploration of these prerequisites will be guided by the COM-B model developed by Michie et al. (2011). The COM-B model posits that behaviour is influenced by three overarching variables: capability, opportunity and motivation. The COM-B model and the behaviour change wheel (BCW) derived from it have been widely and successfully adopted in health care, but have seen limited application in the field of sustainability and healthy food consumption. This article demonstrates the usefulness of the COM-B model in a hospitality and leisure setting. The overall purpose of the study is to propose a set of interventions that are likely to be appropriate for the behavioural target of healthy and sustainable food consumption, considering the specific context in which the hospitality and leisure sector operate, as well as the target population — hospitality staff — under scrutiny.

Studies promoting healthy and sustainable eating have predominantly been conducted under controlled circumstances, such as in a laboratory (Skov et al., 2013). Their conclusions therefore cannot be immediately applied to real-life settings, while, as observed above, there is an urgent need for the hospitality and leisure sector to engage in the protein transition.

The data for this research have been collected in real-life environments, thus answering the need for real-life studies expressed by Skov et al. (2013). The real-life setting, however, has also been challenging, particularly due to the severe lockdowns during the data gathering phase. This notwithstanding, the research findings give useful insights for those hospitality and leisure businesses that wish to implement sustainable and healthy food options.

The structure of the article is as follows: relevant literature is reviewed and the method for the research outlined. After the presentation of the findings and the discussion, the conclusion ties the article together and, after acknowledging limitations, it points to actions that can be taken by scholars in future research, and by the hospitality and leisure sector to implement more sustainable and healthy food options.

### Literature review

The literature review addresses the following topics: staff commitment and its antecedents; the role of employee behaviour in shaping guests' choices; and antecedents of sustainable and healthy behaviour such as choosing plant-based instead of animal-based proteins.

The commitment and behaviour of employees is critical for any organisational change (Chou, 2014), including change towards more sustainable and healthy food choices (Bastič & Gojčič, 2012; Kim et al., 2019). There is increasing evidence that employees' commitment and behaviour depends on their attitude towards the organisation (affective organisational commitment) and the perceived organisational support (Chan & Hawkins, 2010; Lamm et al., 2013; Temminck et al., 2015; Kim et al., 2019). At corporate level, employees are influenced by contextual factors like the values and norms of the organisation (Andersson et al., 2005). Moreover, sustainability efforts must be structured at various levels in organisations, from organisational-level policies down to individual-level actions of front-line employees (Starik & Rands, 1995). In other words, and applied to the context of this study, alignment is required between corporate policies and support mechanisms on the one hand, and on the other hand, the personal beliefs and perceptions of employees toward sustainable and healthy food choices (Lamm et al., 2013; Paillé & Raineri, 2015). While corporate policies and mechanisms are widely studied, Jenkin et al. (2011) have emphasised the lack of research on front-line employees at the individual level. To address this gap and uncover eventual misalignments, this study explores whether the staff's perception of the food offering to both themselves and the guests aligns with the sustainability policy of their organisations.

Employees' behaviour shapes the context in which guests make choices, including but not limited to food choices (Kiefte-de Jong et al., 2014; Saulais et al., 2019). Although research on the factors influencing everyday sustainability behaviour of employees is limited (Lamm et al., 2013), there is an emerging consensus that traditional motivational factors such as monetary rewards barely affect sustainable behaviour (Lamm et al., 2013; Chou, 2014; Paillé & Raineri, 2015; Temminck et al., 2015). Greaves et al. (2013) suggest that personal values, beliefs and norms about the natural environment influence healthy food choices. These findings align with the value beliefs norm (VBN) theory already proposed by Stern and colleagues in their seminal 1999 study. Stern et al. (1999) propose that values, beliefs and

pro-environmental personal norms are the main antecedents of pro-environmental behaviour. Relatedly, personal motivation was also found to be a factor that positively influences sustainable behaviour (Chou, 2014).

Besides employee commitment towards pro-environmental behaviour, based on intrinsic personal values, beliefs, norms and motivation and guided by their attitude towards the organisation, employees need to have the right knowledge, skills and opportunities to show a specific behaviour such as contributing to sustainable and healthy food practices. To help handle the vast number of antecedents of behaviour, Michie et al. (2011) created a framework in which these antecedents are incorporated under three overlying ones: capability, opportunity and motivation. Capability is defined as the individual's psychological and physical capacity to engage in the activity concerned. It includes having the necessary knowledge, appropriate beliefs and relevant skills. Employees may not be aware of the environmental and health impacts of the different types of food they serve (for awareness of consequences in VBN theory, see Stern et al., 1999). Employees may also not recognise the important role that they can play in boosting customer demand for more sustainable and healthy options and may not ascribe to themselves the responsibility for supporting the protein transition in the organisation they work for (for ascription of responsibility in VBN, see Stern et al., 1999). The lack of physical capability and skills can also be a factor preventing employees from offering sustainable and healthy food choices. Plant-based dishes tend to contain more varied ingredients than animal-based ones. Moreover, each of these ingredients requires different preparation and cooking techniques — techniques that may be unfamiliar to chefs trained in courses traditionally focused on meat-intense dishes (Attwood et al., 2019). Even if chefs and kitchen staff have the psychological and physical capabilities to offer plant-based dishes, they may lack the opportunity to successfully implement these practices. Opportunity is defined as factors that lie outside the individual and that make the behaviour possible, or prompt it (Michie et al., 2011). Think of infrastructure such as tools and equipment that employees can use to prepare and serve more healthy and sustainable food options. By investing in the right equipment for chefs, an organisation can clearly signal its intent to enable its staff to make positive change happen (Attwood et al., 2019). Time and human resources are also a component of opportunity in the framework proposed by Michie et al. (2011). After reviewing studies on the role of staff in food behaviour interventions, Taufik et al. (2020) conclude that lack of time is among the most often-mentioned barriers by staff to implement changes. Finally, motivation is defined as those brain processes that initialise and direct behaviour. Alongside conscious decision-making processes, it also covers non-conscious processes such as habits and practices (Michie et al., 2011). Capability, opportunity and motivation can influence each other (Michie et al., 2011). For example, employee motivation to contribute to sustainable and healthy food practices is affected by their knowledge and skills related to preparing and serving plant-based food options. Stated differently, focusing only on one of the behavioural aspects (e.g. employee motivation) might not lead to changed practices when other important behavioural barriers (e.g. lack of knowledge and time) are ignored. In line with the VBN theory and the COM-B model, this study attempts to explore factors influencing staff behaviour holistically.

The COM-B model connects the three overarching antecedents of behaviour to behavioural change techniques in the so-called behaviour change wheel (Michie et al., 2011). For example, to counteract an eventual lack of knowledge and enhance awareness of consequences, facts on the impact on the natural environment of animal-based food can be shared (Mullee et al., 2017). When discussing the study's findings, the behaviour change wheel will be used to suggest techniques to enhance staff readiness to change.

To explore staff's readiness to change from a mainly animal-protein based to a plant-protein based food offer, the stages of change theory is utilised. This theory focuses on change processes involved in the modification of old behaviour and the maintenance of new behaviour, and postulates that people pass through six stages from precontemplation via action to maintenance (Prochaska & DiClemente, 1983). The stages of change theory has been widely and successfully applied in health care to explain individual level behaviour (Norcross et al., 2011). Its application in food-related contexts to address staff readiness to embrace the protein transitions is new. As this study targets individual staff behaviour to address the remark by Jenkin et al. (2011) that little research has focused on the front-line employees at the individual level, the stages of change theory seems appropriate.

**Research method**

This study's aim is threefold: in a real-life setting, to evaluate the alignment between organisational policies and staff's beliefs and day-to-day experiences towards healthy and sustainable food by exploring whether the food offering to the staff and guests seen from the staff perspective aligns with the sustainability policy of an organisation; to explore the staff's readiness to embrace the protein transition using the stages of change theory (Prochaska & DiClemente, 1983); and to outline the prerequisites needed to ensure that employees show healthy and sustainable food behaviour using the VBN theory and the COM-B model (Stern et al., 1999; Michie et al., 2011).

Two industry partners, Landal GreenParks (a European network of holiday villages) and Accor Hotels (a French multinational hospitality company that owns, manages and franchises hotels, resorts and vacation properties), offered the real-life setting for this research. Both companies acknowledge the need for change in the industry and have been acting strongly upon it. Landal GreenParks has been the most sustainable travel and tourism brand in the Netherlands for four years (Landal GreenParks, 2021). Accor Hotels has a very extensive sustainability policy and has dedicated sustained efforts in making the employees aware of their role in the transition to a sustainable enterprise. In its so-called "2019 Food Charter", Accor Hotels acknowledge

that meat production is responsible for 15% of global carbon emissions, and set as a goal to be achieved by end 2020 that — alongside avoiding food waste, including local, organic and fair-trade ingredients — "balanced menus including vegetarian dishes" should be offered (Accor, 2019). The 2020–2021 Sustainability Report by Landal GreenParks is centred on four focus areas: biodiversity; energy; waste; and education. The report acknowledges that the food offering touches on all the four focus areas. It explicitly mentions the offering of seasonal, local and (fair trade and organic) certified ingredients and the need to fight food waste. It also adds that at least 40% of the menu offering should be vegetarian or vegan (Landal GreenParks, 2023.)

In the participating Accor Hotels data were collected from three levels of employees in each of the cases involved in the research: kitchen chefs and food and beverage employees serving the food; management; and front office employees. Landal GreenParks Miggelenberg data were collected from employees involved in the kitchen and/or in serving the food. Consent forms were presented to all participants (n = 48 staff members in case 3; and n = 28 staff members in case 4). Participants were directly invited by the researchers on behalf of management via an e-mail. Purposive sampling was used to find people who could share relevant information to answer the research aims. A baseline survey was administrated in September–November 2019 with the aim of conducting a second survey following a series of interventions aimed at increasing participants' capabilities, opportunities, or motivations toward healthy and sustainable food options, and reaching a higher readiness to change in line with the ultimate purpose of this research: to propose a set of interventions that are likely to be appropriate for the behavioural target of healthy and sustainable food consumption. Due to the severe lockdowns during the COVID-19 pandemic, we were unable to conduct interventions and gather post-intervention data as planned. The limited experience and data gathered at Landal Greenpark Miggelenberg in October 2020 and at IBIS Schiphol Amsterdam Airport in February 2021 will be, when appropriate, referred to in the discussion and conclusion.

For data gathering, a mixed-method approach was used, combining semi-structured interviews with an explorative survey. A mixed-methods approach builds robustness and adds to a study's overall credibility (Kerlinger, 1986; Yin, 2018). Semi-structured interviews were preferred as topics could be aligned with the survey to complement it while still leaving the possibility to explore more deeply the perceptions of the interviewees (Bryman & Bell, 2015). Table 1 provides an overview of the cases under scrutiny, including samples.

The male (51%) to female (49%) distribution is almost equal in cases 1, 2 and 3, and 85% of the respondents are permanent

Table 1: Respondents for the surveys and interviews per case

Case	Surveys	Interviews	Rating	Rooms	Main target
Case 1 Ibis Amsterdam Centre Stopera	31	8	3-star	207	Leisure
Case 2 Mercure Hotel Amsterdam City	23	10	4-star	368	Business
Case 3 Ibis Schiphol Amsterdam Airport & limited post-measurement	44	20	3-star	644	Leisure
Case 4 Landal Greenpark Mingelenberg	T0: 13 T1: 25		n.a.	n.a.	Leisure
Total	98	38			

All data gathering instruments are available on request

staff. Case 4 presents a similar distribution (46% male; 54% female; 77% permanent staff). Items for both the survey and the interviews were based on the stages of change theory (Prochaska & DiClemente, 1983) and the COM-B model (Michie et al., 2011). Items were adapted, however, to fit the research context in the present study. In the survey, items on a five-point or ten-point Likert scale and open questions were used. Interviews were recorded, transcribed in Word, and analysed by thematic coding leaning on both inductive and deductive reasoning using NVivo12 (Braun & Clarke, 2006). Each case was first analysed separately to strengthen credibility and dependability, then compared to the others. Table 2 displays the themes that emerged after the thematic analysis and shows the complementarity of the data gathered.

Surveys were analysed by means of descriptive statistics (frequencies and mean scores). Due to the limited sample size, only the simple chi-squared test was applied when justified. As stated above, COVID-19 greatly impacted the research plans, including executing interventions. In particular, the hotel of case 2 closed completely during the pandemic, while the food and beverage facilities of the other cases were closed for extended periods of time, and when open had to work with take-away formulas only, and received a different set of guests than from before the pandemic (e.g. off-shore workers instead of tourists in case 3). These circumstances certainly had an impact on the sample size and the robustness of the data. Despite this, the multiple case study approach, leaning on interviews and surveys from participants from both hospitality and leisure real-life settings, resulted in rich data. This research was performed in the framework of the public/private partnership (PPP) *Implementatie van voedingsinterventies in intramurale zorginstellingen en horeca* (Implementation of food interventions in intramural health care and hospitality), co-ordinated by Wageningen University and Research, co-funded by the Dutch Ministry of Agriculture and co-facilitated by Topsector Agri&Food

in the Netherlands. The Accor and Landal cases are two out of eleven cases in this framework.

## Findings

In this section, the findings from the cross-case analysis combining surveys and semi-structured interviews are presented. An initial theory-driven thematic analysis resulted in six themes from the interviews and five from the survey (Table 2). During the data reduction phase, four main themes emerged (Table 3).

Findings from these themes are presented in connection with the three aims of the article and its ultimate purposes, i.e. to evaluate the alignment between organisational policies and staff beliefs and daily experiences with healthy and sustainable food, to explore staff readiness to embrace the protein transition using the stages of change theory (Prochaska & DiClemente, 1983), and to outline the prerequisites needed to ensure that employees show healthy and sustainable food behaviour using the VBN theory and the COM-B model (Stern et al., 1999; Michie et al., 2011).

## Alignment

First, this article will present and discuss findings related to the alignment between organisational policies and support mechanisms, on the one hand, and employees' personal beliefs and daily experiences, on the other. In the context of the study, the focus is on whether the food offering to the staff and the guests seen from the staff perspective aligns with the sustainability policy of an organisation. This was investigated by looking into food consumption at work, the attitudes and satisfaction with the food offered at work (variation, taste, health and sustainability; price has not been considered as the meals are provided free of charge to staff) and by exploring the food offered to guests from the employees' perspective.

Table 2: Themes from the interview and survey

Interview	Survey
1. Profile of the respondents	1. Profile of the respondents
2. Sensitivity to healthy and sustainable food	2. Associations with healthy and sustainable food
3. Degree of involvement with food (personal lifestyle)	3. Food choices at home. Consumption of vegetables and fruits
4. Food preferences in out-of-home settings (restaurants)	n.a.
5. Food consumption at work	4. Food offering: attitude and satisfaction at work
6. Food offering for guests and the possible use of nudges	5. Food offering for guests and ambition and willingness of employees to implement healthy and sustainable food

Table 3. Themes from the interview and survey after reduction

Interview	Survey
1. Profile of the respondents	1. Profile of the respondents
2. Sensitivity to healthy and sustainable food	2. Associations with healthy and sustainable food
3. Food consumption at work	3. Food offering: attitude and satisfaction at work
4. Food offering for guests, and the possible use of nudges	4. Food offering for guests, and ambition and willingness of employees to implement healthy and sustainable food

The hotels' employees (cases 1, 2 and 3) rated the food in their hotel with a 6.79 on average on a scale of 1 to 10 (where 1 is very dissatisfied and 10 is very satisfied). They consider healthy food as more important than sustainable food ( $M = 4.19$  versus 3.69 on a 1–5 scale across hotels) and are satisfied with the variety and presentation of the current food offering ( $M = 3.33$ ), but less so with its healthiness (3.07) and sustainability (3.10). More particularly, employees tend to be less satisfied with the portions of fresh fruit and vegetables ( $M = 2.75$ ). It is relevant to note that case 2 scores the lowest on satisfaction for the portions of fruit and vegetables, although employees do have the possibility to get fruit throughout the day.

When practices are considered, and particularly eating less meat and more vegetables at work, an interesting result emerges. While contemplating previous attempts to offer healthy food, chefs complain that employees prefer meat and quickly relapse into unhealthy eating patterns. Yet, employees repeatedly question the practice to serve ready-made dishes to them, and emphasise the importance of the skills of the chef as well as the consistency of what is on offer. Quotes from interviews with employees from cases 2 and 3 illustrate the dynamics between kitchen and the other respondents well:

*I notice there is demand for this in the hotel (less meat, more vegetables). I also note there is resistance in the kitchen... (Case 2)*

*I think the quality also...varies a lot, because sometimes it's really good and it's healthy, it's prepared fresh. But what also happens is that they just...order pre-prepared food, they warm up, they heat it up, and then they serve it for our colleagues (Case 3).*

Across the three hotels, food choices at work are predominantly guided by convenience ("easy" for cases 1 and 3) or taste ("delicious" for case 2). Even though "healthy" is named, the aspect of "sustainability" hardly plays a role when considering food choices. It does play a role, however, in case 2 where more attention was given to avoiding food waste. As the quote below shows, this result is ascribed to the work of the sustainability manager:

*I see a change for sure since we've been walking around [with the sustainability coordinator] talking about food waste and so on. We see many more empty plates in the employee canteen. People take less food from the buffet or eat it all. It's definitely moving in the right direction.*

There are no data on staff perceptions of the healthiness and sustainability of meals offered to them in case 4 because this case was aimed at the food offered to guests in the park restaurant.

When asked how important the price, healthiness and sustainability of a meal are to guests, the employees' answers were in line with the perception about the food served to themselves. Where health and sustainability score high, price is considered less relevant for guests. This last point is an interesting finding because one would suppose that price does play a role in guests' out-of-home food decisions. Employees are not satisfied with how sustainable ( $M = 2.85$ ) and healthy the food served to guests ( $M = 2.92$ ) truly is. When discussing the expectations of guests during the interviews, the employees emphasised the complexity of properly mapping out demand because of the disparity of individual requirements. However, employees questioned the current food offering and were

adamant that further customisation and cooking with fresh products is imperative. This is illustrated by a respondent in case 2: *"What is the actual demand of the clients? Need to adapt to the profile of the various segments...There are numerous assumptions — the clients pay for it, so he wants it. I want to engage in this discussion"*.

Case 4 employees described the food served to guests as tasty ( $M = 4.17$ , on a scale from 1 to 5), and to a lesser extent as sustainable ( $M = 3.58$ ) and healthy ( $M = 3.50$ ). Tasty food was also considered to be the most important aspect for guests ( $M = 4.50$ ), followed by healthy ( $M = 4.17$ ) and then sustainability ( $M = 3.83$ ).

These findings suggest a misalignment between Accor Hotels' policy (the "2019 Food Charter") and the focus area of Landal GreenParks sustainability policy that set sustainable and healthy food for both staff and guests as a priority, and the actual situation on the floor. The misalignment may be caused by a lack of in-depth understanding of the corporate policies and objectives pertaining to sustainability as illustrated by participants from case 1 and case 3:

*I have not heard a lot about it [Planet21 objective], but I know they're working on this. It has something to do with food waste (Case 1).*

*Nice to see corporate puts so much emphasis on this [sustainability goal]. But how this can be implemented must be developed in further detail. It's funny to observe at times (Case 3).*

#### **Readiness to engage with the protein transition**

The second aim was to explore the staff readiness to embrace the protein transition by choosing plant-based dishes. Plant-based dishes are healthier for people and more environmentally sustainable than animal-based dishes. The readiness of the employees was measured in the survey through 12 items based on the stages of change theory (Prochaska & DiClemente, 1983).

Healthy food is higher on the employees' list of priorities than sustainable food. This finding can be explained considering that employees seem to be more familiar with the concept of healthy food than sustainable food, a result that will be presented in the section on COM-B below.

Considering "healthy" food, there is a clear difference between a group of hotel staff in the precontemplation stage and a group in the preparation stage. As an example, 22.7% of the respondents in case 2 and 51.5% in case 3 stated that they have *"no plans for development in that respect in the next six months"*, while 27.3% in case 3 and 48.1% in case 1 answered that they *"plan to start in the next 6 months"*. Very few employees indicated that they had started with concrete actions in the past six months (action stage), or had been active for more than six months (maintenance stage).

When looking at the hotels individually, it is interesting to observe that case 2 comprises the highest number of employees in the preparation and action stages. The interviews showed that these employees are more aware and willing thanks to the sustainability coordinator and the "green team" that are in place, thus stressing the importance of mechanisms supporting change in an organisation. Of the 12 items measuring the stages of change, the three with the highest mean are:

- *I think I am ready to make the hotel food range healthier/more sustainable ( $M = 3.87$ ).*



- *Maybe I need some support to maintain the changes that I have already achieved in making the offering healthier/more sustainable* ( $M = 3.44$ ).
- *I wish I had more ideas on how to make the offering healthier/more sustainable* ( $M = 3.43$ ).

This indicates that the staff experience clear barriers in moving from precontemplation or contemplation to planning and action. In the last section below, some possible interventions to remove these barriers are presented.

In contrast to the hotel cases, most employees in case 4 stated that they had *"already started with making the food offer healthier"* (55.6%), meaning that they had reached the action stage. Here, too, however, a significant minority was lagging behind: 22.2% state that they *"have no intention, but sometimes I serve something healthy"* (22.2%). Very few employees indicated that they had been active for more than six months. Similar to the hotels, sustainability is of lower interest than healthy food: only eight people answered the sustainability-related question. Of the 12 items measuring the stages of change, two stand out:

- *I think I am ready to make the food more sustainable* ( $M = 3.67$ ), and
- *I wish I had more ideas for how to make the offer more sustainable* ( $M = 3.56$ ).

This indicates that the staff in case 4 was mainly experiencing a lack of inspiration and knowledge, and less a lack of internal support.

In sum, looking at the stages of change theory (Prochaska & DiClemente, 1983) participants across the cases can be categorised at stage 1: pre-contemplation (no intention to change behaviour), and stage 2: contemplation (seriously thinking about overcoming the problem at hand). Only in case 2 did employees touch upon stage 4 action (having successfully implemented behaviour change under the supervision of the sustainability manager).

#### **Antecedents of behaviour**

The third aim was to outline the prerequisites needed to ensure that employees show healthy and sustainable food behaviour using the VBN theory and the COM-B model (Stern et al., 1999; Michie et al., 2011). To explore knowledge, a component of capability, employees were asked to choose from a wide variety of variables the ones that they associate with healthy and sustainable food. No notable differences between hotels were found, with most participants associating healthy with large amounts of vegetables (87% in case 2 and 75% in case 3 respectively) and less fat (68% in case 1). Less sugar and processed/unprocessed food also scored high as associations with healthy food. Employees in case 4 associated healthy food with fresh and unprocessed (83%), but also with fruit and vegetables (75%) — less meat was rarely mentioned.

Most respondents associate sustainable food with animal welfare (71% in case 1; 96% in case 2; 83% in case 4) and with environmentally friendliness (77% in case 3 and 100% in case 4). Social aspects of sustainability and less visible associations such as land use and biodiversity loss were ignored.

Overall, employees had a general understanding about what healthy food is, but were unable to define the concept of sustainability when prompted during the interviews. This was confirmed by management across hotels, who emphasised the supervision that is required to ensure members of staff

prepare a balanced menu. Teaching the employees basic product knowledge appears to be necessary, as illustrated by management in case 1: *"Teaching members of staff basic product knowledge proves necessary and essential in order to support healthier eating patterns"*.

Data from case 4 reinforce the need for knowledge and skills to cook tasty, healthy and more sustainable meals. Knowledge and skills are rated higher for preparing tasty and healthy meals ( $M = 3.17$  for both) than sustainable meals ( $M = 3.00$ ). These scores are slightly higher than the midpoint of the scale, indicating that there is a need for more knowledge, particularly regarding what a sustainable meal is.

Finally, in terms of capability, increasing use of semi-finished products and a decrease in skilled kitchen staff (having a degree in the field) over the past decades has had a significant impact on the ability of chefs to deliver on the aspects of both healthy and sustainable offerings. The situation is described as follows by a chef in case 2:

*I think we have about 11 staff in the kitchen now. Only cooks, but there used to be many more. Real cooks with a degree. Now we have assistants, like colleagues performing well in stewarding and moving to the production kitchen over time.*

Opportunities were investigated in the survey for case 4. Data are around the middle of the scale, but lower than the ones about knowledge. Staff perceived that they had more opportunities and autonomy in making dishes tastier ( $M = 3.08$ ), than healthier and more sustainable (both  $M = 2.92$ ).

Motivation to work on sustainable and healthy food options is rated by all participants as substantially higher than capability and opportunity, with the highest mean score for case 2 (the hotel with a sustainability manager), ( $M = 8.05$ ), followed by case 4 ( $M = 7.67$ ), case 1 ( $M = 7.03$ ) and case 3 ( $M = 6.97$ ).

With reference to the three main antecedents of behaviour, it may be concluded that eventual interventions should be aimed at increasing capabilities, particularly knowledge about what sustainable food is and how it can be prepared, and at increasing opportunities.

In short, our findings suggest that most participants are still in the (pre)-contemplation stage when it comes to offering more healthy and sustainable food options and engaging in the protein transition. One of the reasons for this poor state of readiness to change may be found in a lack of knowledge of the organisation's sustainability policy and misalignment between the policy and the day-to-day experiences of the staff about the meals offered to them and the guests. While motivation for the change is high, there is a clear lack of capability, particularly knowledge, in what a sustainable meal entails and relevant skills to cook healthy and sustainable meals. Participants also perceived the opportunity to transition toward less animal-based and more plant-based dishes. In the discussion below, we compare these findings to the literature and suggest some interventions to remove these perceived barriers.

#### **Discussion, conclusion and recommendations**

This research set out to evaluate the alignment between organisational policies and staff perceptions and day-to-day experiences with a healthy and sustainable food offering, to explore the staff's readiness to embrace the protein transition using the stages of change theory (Prochaska & DiClemente,

1983), and to outline the prerequisites needed to ensure that employees show healthy and sustainable food behaviour using the VBN theory and the COM-B model (Stern et al., 1999; Michie et al., 2011).

The findings gathered in four real-life settings suggest, firstly, that there is potential for a better alignment between the policies of the involved organisations regarding the food offering and how employees perceive the food offered to them and to guests. In fact, staff doubted whether the food offered to them and to guests was truly healthy and sustainable. A lack of alignment is a barrier to any organisational change (Chou, 2014), including the protein transition (Batstič & Gojčič, 2012; Kim et al., 2019). More particularly, the findings that point toward the role of a sustainability manager in connecting central policies and industry practices support the notion that, in governing sustainability, all levels in organisations should be considered and that the operationalisation of objectives is necessary to give employees the information and tools they need (Starik & Rands, 1995).

An emerging finding is the complex dynamic between hotel and kitchen staff, particularly the chef, in the protein transition. This finding needs to be explored in further research to probe whether the main barrier toward the transition is the chef, possibly due to their training (Attwood et al., 2019) and past experiences, or the unhealthy eating habits of the staff.

Considering the readiness to change, participants are mainly at the pre-contemplation and contemplation stages, the first two stages in the stages of change theory (Prochaska & DiClemente, 1983). Only in case 2 did employees reach the fourth stage (action), thanks to the support of the sustainability manager, a finding that supports the importance of such a role, as already touched upon above. Although the targeted behaviour is similar across cases (healthy and sustainable food consumption), the target population and the context varies. Moreover, antecedents of behaviour should be considered before proposing any intervention following the systematic approach proposed by Michie et al. (2011). Therefore, before suggesting specific change techniques, the findings from the COM-B model and VBN theory should be considered.

The findings on antecedents of behaviour show that motivation is not lacking. Participants seem mainly to lack knowledge about the similarities and differences between healthy and sustainable food, and lament a lack of skills and opportunities to act. Lack of knowledge may be surprising due to the attention that sustainable and healthy food has received lately in the Dutch public debate, and in the policies of the involved organisation. Moreover, it underlines again how difficult it is for policy developed and information presented at corporate level to trickle down to the daily staff operations. Lack of skills confirms Attwood et al.'s (2019) observation that most existing training for chefs is still focused on meat preparation. This problem is compounded by the fact that plant-based ingredients, due to their sheer amount and the diversity of techniques required to cook them in a correct and tasty way, would need sustained and dedicated attention (Attwood et al., 2019). The lack of time is found in previous research to be a major barrier to change (Taufik et al., 2020).

Considering the above main findings and leaning on the behaviour change wheel framework developed by Michie et al. (2011), this conclusion suggests behavioural interventions to target the lack of knowledge, skills and opportunities uncovered

above. It then addresses limitations and offers suggestions for further research.

To tackle the lack of skills, inspiration sessions (for food and beverage employees) and cooking workshops (for kitchen staff) are advisable. These sessions should be designed considering the following objectives:

- (1) Show how "healthy" and "sustainable" can be translated into the design of new menus for both employees and guests;
- (2) Develop alternative dishes such as attractive vegetarian options and seasonal dishes, and learn how to work with herbs as an alternative to animal-based flavour enhancers. Such workshops could be facilitated either by the operation's own chef or by an external organisation; and
- (3) Involve the food and beverage employees who are in contact with the guests; simultaneously with b) or separately, let them taste the new dishes while explaining to them the ingredients and preparation methods used so that they will be able to communicate it to the guests later.

To tackle the lack of knowledge and provide more insights into the meaning of "healthy" and "sustainable", two routes are suggested:

- (1) Opening the session or workshop (see above) by sharing information on why a protein transition is needed and addressing the similarities and differences between "healthy" and "sustainable" ingredients; and
- (2) Choosing a more developed (online) course on sustainable and healthy food specifically designed for hospitality operations and assisting staff in following it.

Although, as briefly explained in the method section, COVID-19 impeded the full deployment and a proper evaluation of interventions, inspiration workshops with information on healthy and sustainable food choices were designed and delivered in case 3, while employees from case 4 had the opportunity to attend the Greendish Academy, which presents a series of flexible educational modules addressing several aspects of sustainable and healthy food in hospitality and leisure settings (see Greendish, n.d.). Anecdotal evidence (observation during the inspiration sessions and subsequent changes in the menu offering for staff in case 3 and interviews in case 4 suggest that both interventions were successful in addressing the gaps of knowledge and skills.

As already mentioned, the study could not be fully executed as planned due to the severe lockdowns during the pandemic. Moreover, during COVID-19, operations were scaled down leading to fewer people employed and thus fewer participants. Accommodation that stayed open during the pandemic signalled a difference in the type of guests. The findings of this study, though sound, are therefore less robust than hoped for and will need replication. In particular, future research could test the above noted interventions. Further studies may also wish to take a different definition of healthy and sustainable food as a starting point than the one used in this study, i.e. more plant-based and less animal-based proteins, to include, for example, beverages.

#### Note

1. An earlier version of this article entitled "Exploring hospitality staff readiness and ability to support the protein transition" was presented at the 2023 CHME Conference in Leeuwarden, The Netherlands.

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