On care infrastructures and health practices: How people in health promotion programmes try to change their everyday life

Francesco Miele
University of Padova, Italy

Abstract
This paper contributes to challenging common behavioural or cognitive explanations for health and wellbeing outcomes, focussing on social practices through which people, with the help of other subjects, try to improve their health conditions. To renew the debate about health promotion, my work is placed at the intersection between the sociology of health and illness and science and technology studies, adopting the concepts of care infrastructures and health practices that are introduced in the next section. With this goal, my paper draws on a qualitative study concerning a Workplace Health Promotion programme aimed at reducing the risks of Type-2 diabetes and cardiovascular diseases among sedentary workers. The findings illustrate how a care infrastructure in the field of health promotion is designed, put to work, repaired and 'put aside' in relation to two health practices ('doing physical activity' and 'following the Mediterranean diet'). Drawing on the presented case, I show how the change in daily habits in the fields of nutrition and physical activity is a collective effort involving different spheres of life, connecting human and non-human elements and bringing out affective intensities among them.

Keywords
health policy, primary care, lifestyle, technology in healthcare

Introduction

Over the last years, in Western countries, the topic of health and wellbeing has become increasingly present in the public agenda in view of the dramatic rise in the number of people with chronic conditions. The most prevalent methods of public health

Corresponding author:
Francesco Miele, Department of Philosophy, Sociology, Education and Applied Psychology, University of Padova, Padova 35128, Italy.
Email: francesco.miele@unipd.it

communication and prevention of non-communicable diseases on a policy level have focussed on the individual and relied on motivation and information as foundations for change (Halkier et al., 2011; Hargreaves, 2011; Walls et al., 2011). Several social scientists have criticised this approach for turning poor health into a matter of individual blame and, in line with neoliberal ideology, representing 'individuals at risk' as morally deficient and lacking self-control (Petersen and Lupton, 1996).

At the same time, a wide range of empirical studies have highlighted how the adoption of a 'healthy lifestyle' and the compliance with clinical guidelines are strongly influenced by elements such as social class (Dumas et al., 2014), familial cultural resources (Oncini and Guetto, 2017), gender roles intersected with social origins (Lee and Macdonald, 2009), or national culture (Idris et al., 2019). This broad strand of studies, often incorporating Bourdieu's (1977) and Giddens (1984) conceptualisations of social practice, has moved beyond common behavioural or psychological explanations for health and wellbeing outcomes, focussing on the social conditions and the context in which people act. However, as explained well by Maller (2015), the studies inspired by Bourdieu and Giddens have some limitations, such as overlooking the sociomaterial dimension of daily life (Maller, 2015: 63) and focussing on the concepts of structure and agency, falling into the temptation of assigning blame and responsibility for social problems and health outcomes exclusively to one or the other (Maller, 2015: 55).

Following the need to renew the theoretical tools of Sociology of Health and Illness (SHI) and its capability to contribute to current understandings of health promotion, an emerging body of studies has paid attention to the most recent developments in theories of social practice and Science Technology Studies (STS[1]) (Bønnelycke et al., 2019; Cohn, 2014; Cohn and Lynch, 2017; Lynch and Cohn, 2016; Nettleton and Green, 2014). For example, Bønnelycke et al. (2019) have explored the daily practices of families involved in a health promotion programme, adopting the concept of household collectives, intended as assemblages of people, social relations, discourses, materiality and processes. The authors show how apparently simple health practices (e.g. light physical daily activity) in household collectives are based on continuous negotiations and coordination among actors. Analogously, Nettleton and Green (2014) have shown how the so-called 'life-style change', often conceived as an individual process, requires mobilising a social, material and environmental network, comprising practical and tacit knowledge, time and energy, technologies (e.g. a working bicycle), supportive relatives and friends who have time to encourage the subjects to change their daily life, and local places (e.g. parks, quiet roads) where cycling is not only theoretically possible but culturally appropriate.

In my work, I aim at contributing to the development of this strand of studies, drawing on qualitative research concerning a Workplace Health Promotion (WHP[2]) programme and in particular the ways in which the participants, with the help of other human and non-human subjects, try to change their daily habits in the fields of nutrition and physical activity. To consolidate the relevance of practice-oriented and STS theories in health intervention research, my work adopts the concepts of care infrastructures and health practices, which are introduced in the next section. I then present the method adopted in this paper. The findings aim at illustrating how a care infrastructure in the field of health promotion is put to work, repaired, and/or put aside in relation to two health practices

('doing physical activity' and 'following the Mediterranean diet'). In the discussion and the conclusion sections, I reflect on the implications that the concepts of care infrastructure and health practice have for the debate about health and wellbeing.

Care infrastructures and health practices

Over the last years, the conversation between Sociology of Health and Illness (SHI) and STS has increased in intensity. Despite the differences, this interdisciplinary dialogue has contributed to formulating a common vision of care processes, conceived as the result of sociomaterial assemblages that involve human and non-human elements (Buse et al., 2018; McDougall et al., 2018; Oudshoorn, 2018). Using Law's words, the debate at the intersection of SHI and STS, 'instead of asking why things happen, [. . .] asks how they occur. How they arrange themselves. How the materials of the world [. . .] get themselves done in particular locations for a moment in all their heterogeneity. And how they go on shifting and relating themselves in the processes that enact realities, knowledges and all the rest' (Law, 2008: 632).

Among the different theoretical constructs used with this aim, the concept of *care infrastructures* (Danholt and Langstrup, 2012; Langstrup, 2013; Weiner and Will, 2018) seems particularly suitable for analysing how people manage their health and wellbeing on a daily basis. The notion of care infrastructures is based on Bowker and Star's, 2000; Star, 1999) work, in which infrastructures are considered as 'pervasive enabling resources' (Bowker et al., 2009: 98), that is, assemblages that allow people, electricity, knowledge and information to travel. Translated into the field of SHI, the 'analytical conception of infrastructure allows us to engage with self-care as a sociotechnical, material, distributed and de-centred phenomenon consisting of an association of multiple actors, including medication, knowledge, healthcare professionals, and also cupboards, shelves, boxes, pens, paper, refrigerators, pockets, bags, phones and so forth. Thus, infrastructures of care are the more or less embedded "tracks" on which care may "run", shaping and being shaped by actors and settings along the way' (Danholt and Langstrup, 2012: 515). For example, Danholt and Langstrup (2012) have explored the *chronic care infrastructures* in asthma, Type-2 diabetes and haemophilia care, analysing the processes through which medical treatments are prescribed by clinicians and placed in a patient's home, remodelling its spaces and establishing alliances with pre-existing mundane routines. Many actors are involved in collective and daily efforts for assembling and reassembling heterogeneous care infrastructures (composed of medication, standards, control visits, doses, daily routines, sheets of articles for registration and more) that tend to sink into daily self-care practices. Weiner and Will (2018) have applied the concept of care infrastructure beyond chronic conditions (for this reason they have removed the term *chronic*), investigating how people (with or without a diagnosed health issue) monitor their blood pressure at home.

In my work, the concept of care infrastructure is used along with that of *health practice*. As stated by Cohn (2014: 160), 'in contrast to the idea of specific behaviour, everyday practices are always locally situated and composite. They are not a direct result or outcome of mental processes but emerge out of the actions and interactions of individuals in a specific context. Thus, the word practice has the potential to resist both the

psychologising and the individualising features that ultimately have come to define the term health behaviour'. I prefer the concept of health practice over that of self-care practice, often used in the literature concerning healthcare infrastructures; the former term leads me to consider the collective doing that pertains to the health domain (Bønnelycke et al., 2019), rather than focussing only on the activities carried out by someone for self-care. Given the multiple definitions of social practice, in accordance with Gherardi (2012, 2016), in this work I conceive a set of health practices as a mode of ordering heterogeneous materials into a provisional and productive assemblage. This post-humanist understanding of practice is grounded on STS and pushes the researcher to follow and describe the process whereby humans, artefacts, rules, technologies, sensible knowledge and any other resources, along with legitimacy, become interconnected due to collective knowledgeable doing (Gherardi, 2012). A relation between the concepts of *care infrastructure* and *health practices* can be easily established. Recalling Danholt and Langstrup's (2012) definition, care infrastructures are the 'tracks' on which health practices may 'run', shaping and being shaped by actors and settings along the way. Care infrastructures comprise heterogeneous elements (e.g. people with health issues, their relatives and friends, healthcare professionals, care technologies and objects, work and home spaces) that enable certain health practices (e.g. physical activity or a specific diet). However, whenever health practices occur, these above-mentioned elements establish a set of relations that concur to mutually define their qualities.

Research setting and methodology

In Italy safeguards for workers have been traditionally limited to occupational safety. It is only recently that some institutional interventions have created favourable conditions specifically for WHP programmes. Without claiming to be exhaustive, it is important that we mention at least two important changes. In 2008 an act on health and safety at work (known as Legislative Decree N.81/2008) was established promoting a broad conception of health, conceived as 'the state of complete physical, mental and social well-being, consisting not only of an absence of sickness or sickness' (Art. 2). After a few years, the National Institute for Insurance against Accidents at Work (INAIL) became a member of the European Network for Workplace Health Promotion, becoming increasingly interested in promoting and financing projects directed at safeguarding the general well-being of workers. During the 2010s these changes favoured the diffusion and the implementation of WHP programmes across the whole national territory.

The results presented in this work draw on a qualitative research that flanked a WHP programme aimed at reducing the risks of Type-2 diabetes and cardiovascular diseases among sedentary workers. The programme has been implemented in a province of north-east Italy in which, at the time of the research, WHP interventions were still rare.

I was involved in the project as a social researcher in charge of supporting its design and implementation. Following the aim of flanking all phases of the project, I adopted different qualitative techniques with different aims. In the programme design phase, preliminary focus groups[3] were held with workers and other stakeholders (e.g. members of human resources units, trade unions, prevention and safety departments) to explore

workers' expectations. The workers' feedback was then reported to the subjects involved in the design processes (employers and employees, the local government, trade unions and healthcare institutions), using participant observation to investigate how these actors include stakeholders' expectations in the drafting of the programme. After the launch of the project, in-depth interviews with involved workers and healthcare professionals have been carried out to assess how the programme has been implemented in a real-life context.

The data were gathered in compliance with the General Data Protection Regulation, and informed consent was obtained from all interviewees in the study.[4]

In this paper, I focus on the data gathered during the interviews with workers and professionals, aiming to understand how the planned care infrastructure worked to enable health practices.

The research focussed on those workers and professionals who were involved in the project and were members of two organisations, both located in a province of northeast Italy.

- The first organisation was a regional research centre, with approximately 500 workers. Out of the 19 workers 'at risk' of developing cardiovascular diseases and/or Type-2 diabetes and involved in the project, 15 were interviewed.
- The second one was a local government department, with approximately 150 workers. Out of the 13 workers 'at risk' of developing cardiovascular diseases and/or Type-2 diabetes and involved in the project, 8 were interviewed.

Moreover, I interviewed the two occupational physicians and the counsellor involved in the project. The interviews with the workers focussed on topics such as their reasons and motivations for participating in the project; practices carried out to measure their own health risks; self-representations, emotions and feelings about 'being at risk'; the reproduction of considered health practices; the relationships with professionals and healthcare technologies established during the enactment of health practices; the daily re-adjustment or the rejection of new health practices.

In the professionals' case, the interviews focussed on practices and representations that emerged around the tools designed for assessing health risks, the relationships developed with workers during clinical encounters, the relationships built with professionals and other stakeholders during the project, and the representations concerning the workers' attempts at introducing a continuous physical activity and a specific diet in their daily life.

The interviews were analysed using template analysis (King, 1998), a model for coding the content of textual data. Starting from the literature and the expectations for the study, the researcher sets a priori themes expected to be relevant to the analysis. Reading through the data, the researcher codes fragments of text related to these themes and defines new themes to categorise the data that do not fit with a priori themes. Thus, a template emerges: a system of interconnected categories aimed at interpreting the phenomenon at stake. In the case under study here, as the next sections show, the final categories focussed on the initial architecture of the care infrastructure and the ways in which this infrastructure was put to work, repaired, and/or put aside.

Initial architecture of the infrastructure

The programme was designed by a group of actors (i.e. employers and employees, the local government, trade unions and healthcare institutions) that defined a protocol (i.e. a project execution plan presenting the different steps of the project) aimed at promoting a 'healthy lifestyle' in the workplace (for an in-depth analysis of the design phase see: Piras et al., 2017). As is well known in STS literature, protocols are organisational devices consisting of formal elements aimed at regulating and standardising medical activities allowing the interaction between people, technologies, artefacts and spaces (Berg, 1997; Timmermans and Berg, 1997). In this case, the project execution plan can be interpreted as a protocol that delineates how a care infrastructure should work: defining the human and non-human elements that compose it and the ways in which they can enter into relations with each other. The initial protocol was mainly grounded on a behaviourist paradigm, characterised by under-emphasis of the social context and a focus on individual behaviours, conceived as the result of stimuli provided by professionals and technologies (Cohn and Lynch, 2017).

The first element included in the protocol was represented by *workers*, defined as the 'users' of the care infrastructure. The project particularly addressed the workers at risk of developing cardiovascular diseases and/or Type-2 diabetes.

The second element was a standardised *questionnaire for health risk assessment*, delivered online to all workers of the involved organisations and aimed at evaluating their health risks (gathering data such as weight, height, blood pressure, fruit and vegetable intake, waist circumference and daily physical activity). To help workers in the measurement of clinical parameters, measurement instruments (e.g. weighing scale, tape measure, blood pressure monitor) were positioned in designated areas in the workplace.

The third element was represented by *healthcare professionals* (i.e. occupational physicians and a lifestyle counsellor). The physicians had the following duties: analysing the gathered questionnaires, attributing a risk score to each worker and communicating it to them, making a final list of participants, setting clinical goals that each worker had to reach (e.g. losing weight, reducing cholesterol levels, lowering blood pressure values, reducing waist circumference), conducting two clinical encounters for each worker judged at risk during the questionnaire phase, writing a brief report about the initial clinical conditions of each worker, and transmitting it to the lifestyle counsellor. The counsellor had to support the workers with periodic encounters by providing practical advice on reaching the goals set by the physicians.

The fourth element comprised *healthcare technologies* (i.e. a mobile app and fitness trackers). The mobile app was included in the project to continuously support the workers in their adherence to the Mediterranean diet, allowing them to keep track of their meals and providing recommendations about how to follow the Mediterranean diet. Fitness trackers were provided to support workers in the measurement of their step count (with a daily goal of 10,000 steps) and clinical parameters. Therefore, in the initial architecture of the infrastructure, technologies were meant to help workers reach clinical goals, integrating the action of the lifestyle counsellor.

The fifth element consisted of *public activities in the workplace* (i.e. gym class and seminars). The gym class had to be organised near the workplace. An instructor

trained the workers, guiding them in the execution of low-impact exercises aimed at introducing them to more physical activity. In the seminars, national and international experts explained the importance of nutrition in the prevention of chronic diseases, showing the results of the most recent clinical studies and defining some simple rules for a healthy diet.

A care infrastructure at work

The above-described infrastructure primarily comprised objects (e.g. online questionnaires for health risk assessment, blood pressure device and weighing scale), people (occupational physicians who analysed the questionnaires and examined the workers) and spaces (rooms in the workplace where people could measure their clinical parameters) that were to support the workers in evaluating their health status, particularly their health risks.

> In this project, I mainly found people with eating disorders, overweight and having poor physical activity [. . .]. [However,] the criteria had to be widened because the subjects with a significant risk . . . were very few. [Doctor 2]

From the perspective of the occupational physicians involved in the project, the final list of participants mainly includes people without a high clinical risk but who presented some risk factors. This evaluation is carried out by adopting the criteria shared in prevention medicine and embedded in online questionaries on the basis of the screening that, in turn, have produced averagely low risk scores in comparison to clinicians' expectations. This description of the clinical profiles of the participants of the project is fully consistent with the emergence of the 'worried well' phenomenon (Williams and Calnan, 1994), in which people with an overall good health status elaborate self-surveillance techniques and re-organise their daily life around the potential risk for the onset of diseases. Within this frame, conditions once considered 'normal' are increasingly problematised (Armstrong, 1995) and treated through specific actions. The workers often claimed to be surprised and troubled to be labelled 'subjects at risk'. At other times, being evaluated as 'at risk' confirmed what the interviewee already knew or suspected for a long time. In all such cases, the label 'at risk' transformed the workers into 'ready subjects for health discourses, commodities, services, procedures, and technologies' (Clarke et al., 2010: 64), laying the basis for the introduction in their daily life of new health practices.

In the following pages I will shed light on the ways in which the designed infrastructure supports the participant in reproducing the two health practices at the core of considered health promotion programme: 'doing physical activity' and 'following the Mediterranean diet'. The first sub-section will focus on the adoption by the workers of the healthcare technologies provided by the project, while the second attends to the ways in which the project participants, following the counsellor's recommendations, incorporate new people (i.e. relatives and colleagues) into the infrastructure to reconcile new health practices with the other daily practices.

Incorporating technologies and redefining their use

The enactment of health practices, first of all, implies the involvement of the digital technologies (i.e. the mobile app and the fitness trackers) provided by the project designers. However, as is well known (Storni, 2010), when people adopt a new technology for improving their health, appropriation processes occur. Appropriation is 'understood as the way people embed and incorporate a new piece of technology within their daily heath practices by transforming both the ideal use of the device and the practice within which its use occurs' (Storni, 2010: 541).

> [At the first encounter,] first of all, I arrived and asked them [the workers] how it went with the doctor, what they talked about. Then, they told me, "Yes, I should lower [my body weight]". "I should do more physical activity". So, the app was useful for me [. . .] for understanding the context in which I was moving, what kind of food [consumption habits] this person had [. . .]. I watched the screen where there was the food diary with the various weeks; it appeared green [for the foods eaten in the right proportions], red [for the foods consumed excessively]. [Counsellor]

Through appropriation, healthcare technologies become part of daily health practices and, during the reproduction of the latter, are put into connections with the other elements of the emerging care infrastructure.

First, unexpectedly, the mobile app become incorporated in discursive practices produced by workers, along with the counsellor, about previous and future health practices. As effectively explained in the excerpt reported above, the data tracked by the workers in the mobile app were useful to 'understanding the context', knowing in detail the nutritional practices of each worker and how these diverged from the Mediterranean diet. Similarly, in the first encounter, the counsellor asked each worker how many steps the fitness tracker had counted in the last week.

Second, according to Lynch and Cohn (2016: 530) participants incorporate healthcare technologies into their daily life and, in particular, they 'did not simply respond to the task of self-monitoring passively, but actively found ways to incorporate it, adjust it or occasionally exclude it altogether'. Despite the designers' purposes, the mobile app was incorporated into care infrastructures but with a peripheral role, being used by workers mainly during the first phase of the project to understand the discrepancies between their habits and the basic rules of the Mediterranean diet. This happened for two recurrent reasons: the recommendations automatically provided by this technology were considered too general compared with the counsellor's advice, and the manual data entry of meals was considered extremely time-consuming.

> The fitness tracker was certainly an interesting memo. When I had to choose what to eat, the fitness tracker was a string around your finger. [44-year-old female, Org 1]

> The only thing that I don't do [with the fitness tracker] is to monitor [my] sleep and heartbeat during the night. I take it off. It is not a problem of usefulness, but I need freedom. [40-year-old male, Org 2]

In the case of the wristband, the technology is generally used for a longer period, but in creative ways. If the project designers conceived of wristbands as objects aimed at improving physical activity and monitoring various clinical parameters, in the interviews, it was observed that the workers re-interpreted some functions (in the first excerpt, the wristband motivated the worker to decrease her food intake) and avoided others (in the second excerpt, the nightly use of the fitness tracker was considered too intrusive and threatening to individual freedom; see also Mort et al., 2013).

Incorporating people and overlapping practices

In this section, I will show how the enactment of health practices implies the incorporation into the care infrastructure of people belonging to the domestic and working environments of each project participant.

> The impetus for a mom is [that] I finish my workday, I get him [my son] from school, and we [do] homework together. But in this way, you are always stuck. So, [the counsellor] said, "During good weather, go for a ride together"! [. . .] Then, we did it! I walked, while he was biking [. . .]. [51-year-old female, Org 2]

> For physical movement, the support of family members was very important. For example, last Sunday, my husband asked me, "Do you want to go for a walk"? I answered, "During the morning, I'm busy". Then, since we had decided to go and watch my son's match, he asked, "Do you want to go by foot"? And I [said,] "Well done"! He told me he knew I would like the idea! [42-year-old female, Org 1]

The gathered data show how the subjects involved in care infrastructures make great efforts with the aim of overlapping health practices with care, parenting, and mundane and productive practices: the first quoted interviewee goes out with her son for an afternoon's walk, spending time with him and at same time increasing the number of daily steps; for similar reasons the second one and her husband decide to reach their son by foot, not taking the car. In the daily attempts at overlapping, human subjects placed in the contexts crossed daily by workers (the son and the husband in the reported excerpts, but frequently also colleagues and friends) are perfect candidates for becoming 'crossing points', that is, agents undertaking many social practices (Reckwitz, 2002).

The efforts of introducing health practices, encouraged and guided by the counsellor, becomes a particularly complex issue in the case of female workers, called to merge physical activities and gendered parenting practices. As is known, especially in the Mediterranean countries, gender asymmetries in the distribution of family work are still evident, even in dual-income families (Carriero, 2011; Della Puppa & Miele, 2015; Lucchini et al., 2007). Consequently, the interviewed women are in the middle of three 'shifts' (Esmonde and Jette, 2020; Hochschild, 1989): the first shift concerns the paid labour, the second one refers to the home labour that women are expected to do once they finish their working day and, finally, the third one is the expected physical fitness. Within this frame, female workers, engaged in more intense home labour than male partners, often have trouble doing physical activities outside work hours.

However, as recently observed by Will et al. (2020: 7), family relationships appear not only as a limitation to autonomy, but also a source of inspiration for encounters that include quality of attentiveness, responsibility, responsiveness and reciprocity. Closeness is an opportunity for knowing one each other, exploring mutual needs and tastes and buildings new routines in order to fulfil them. Starting from this in-depth mutual knowledge, under the supervision of the counsellor, female workers and their relatives often arranged how to conduct physical activities, reconciling family duties with the need to improve their health conditions. In this way, the distinctions between health practices and other family practices dissolved (see also Bønnelycke et al., 2019); for example, walking with relatives simultaneously became a way to be physically active and spend time with them. If these arrangements did not decrease the female workers' workload and failed to protect them from many significant psycho-social risks connected with the double presence (Moreno et al., 2011), they at least allowed the workers to enact activities that would be useful in reducing the considered health risks.

> [At lunchtime with my colleagues,] I follow my colleagues, because I'm here only twice a week [in the others she works from home] and I don't want to impose on them [. . .]. I try to avoid heavy food, and I take only the first course or only the second course with a side dish. [For the] side dish, I take vegetables without condiments, cooked in the oven or steamed. [49-year-old female, Org 2]

> [Through the wristband] I realized that there were days when I reached the number of steps [fixed with the counsellor] and I didn't. [. . .]. So with her I had identified some things that can be done by foot, like picking up my daughter from school [. . .]. Then I had reflected about gymnastics and now I have enrolled in the course promoted by the internal recreation club so we thank the organisation because otherwise I would not be able to do it. [42-year-old female, Org 2]

It is worth observing that the need to overlap different kinds of practices makes health practices 'semi-stable' (Cohn and Lynch, 2017): in the first excerpt, the interviewee's necessity of socialising with colleagues in the days in which she does not work at home pushes her to adapt her diet to the circumstances (i.e. the bars and restaurants that co-workers frequent); in the second one, the interviewee tells of her continuous attempts to reconcile physical activity with family and working life, with the overall aim of reaching the number of steps fixed with the counsellor. In these excerpts workers show how in order to reach the project's goals and to respond to the demands of paid and domestic labour, they continuously redefine health practices in an 'répétition sans répétition' (Béguin and Clot, 2004), trying to make them compatible with their other daily duties.

Repairing and putting aside the care infrastructure

So far, I have shown how the technologies and recommendations provided by the considered organisations entered into the employees' daily life. Health practices were enacted by the workers with the help of these elements and, frequently, new subjects were included in the infrastructure (e.g. relatives and colleagues), following the instructions of

the professionals. In contrast, in this section I will show how people can autonomously repair the care infrastructure and decide when to put it aside.

First, it is important to show how workers often repair the emerging infrastructure, substituting some of the elements provided by the project with 'replacement parts' procured by themselves. As observed previously, repairing is a practice 'from below', in which users tinker with infrastructures, working in an amateurish way to adjust or mend them (Ciborra, 1992).

> The fitness tracker counts your steps also when you are going to the bathroom [. . .]. In my opinion, that stuff is not movement [. . .]. I count the steps through my mobile phone that I keep in my pocket, when I go to work and when I come home. [38-year-old male, Org 2]

> I didn't do that [the gymnastics course under the project]. But I attended Zumba classes, I needed something funny. Talking about it with the counsellor, she told me, "Look, what is important is that [you do something]" [. . .]. Going to the course with a colleague of mine, this too is very important [. . .]. I am not saying that we keep monitoring each other, but . . . [almost]. [40-year-old female, Org 1]

> I am a supporter of the zone diet [. . .]. [The counsellor] acknowledged that I had a regime I believed in, and she did not change it. [57-year-old male, Org 1]

In the above-cited excerpts, the interviewees described how, from the beginning of the project, they had judged some elements of the infrastructures as unsuitable for supporting health practices and giving them continuity. Sometimes, the workers found newelements that, from their perspective, were more suitable for enacting the health practices promoted by the project designers and by the involved health professionals (see the first excerpt in which the wristband is replaced with a mobile app for counting steps or the second one in which physical activity is carried out through the Zumba classes instead of gym classes). At other times, the workers found elements that supported health practices different from those recommended in the project (in the third excerpt, the interviewee sees a private dietitian that promotes the zone diet in place of the Mediterranean one). In both cases the workers substituted the infrastructural elements provided by the organisation with something else, following their beliefs regarding the best diet plan to follow for weight loss, the features that healthcare technologies must have for tracking steps reliably, and finally the role that friends could play in providing stability to physical activity. Paraphrasing Ciborra (1992: 287), in the above-mentioned excerpts it is evident how tinkering with care infrastructures means applying, experimenting and combining known tools and techniques (i.e. well-known eating plans or exercise fitness programmes, widespread mobile apps) to solve problems that, at least for the considered actors, are new (i.e. enacting health practices in workers' daily life).

The workers involved in the project performed an active role in the emerging infrastructure for a second reason: they could temporarily put it aside. As recently argued by Gorm and Shklovski (2019), continuous use of care infrastructures is commonly seen as a marker of success for workplace health promotion programmes. Nevertheless, as shown by these authors and confirmed by the gathered data, the assumption of non-stop use of care infrastructures fits poorly with the complexities of life and seems to be unrealistic.

> [Now] I try to avoid [sweets]. But if sometimes it happens when someone comes to visit you, I am not demonising this thing [eating sweets]. If on a Saturday night, I invite my friends, and I make a dessert [. . .], I eat it, too [. . .]. [42-year-old female, Org 1]

> Then I had a period, a couple of months ago between September and October, [when] I had a political experience [local elections] where I skipped meals because I didn't have enough time to have lunch or dinner. But sometimes, I drank glasses of wine as the aperitif at the convention [. . .], and she [the counsellor] told me, "Be careful! These are calories". [. . .] But it was connected with the electoral campaign. [51-year-old female, Org 2]

The interviewees' daily life also consisted of practices that were judged as vital for entering and remaining in public life. From a clinical perspective, these practices are often judged as unhealthy; at the same time, the interviewees deemed them desirable in certain situations. Eating a piece of cake with friends or drinking a glass of wine outside of meals with party colleagues are social rituals that can contribute to establishing positive relationships with other people (Neumark-Sztainer et al., 2002). As is widely known, social relationships constitute a human need that is crucial for good personal health (Berkman, 1995; Holt-Lunstad et al., 2010). Therefore, when health practices conflict with practices perceived as essential for maintaining familiar or friendly relationships, the former (and the infrastructure elements sustaining them) are temporarily suspended.

Other times, workers put aside the infrastructure for long periods because, from the interviewees' perspective, health practices could not be reconciled with work and/or care practices.

> I was sorry that at the end of the summer, I passed a quite messy period both with my children and my parents. Therefore, a lot of good intentions go up in smoke. That's it [. . .]. I miss this thing [physical activity], truth be told. Because it is a way for offloading accumulated stress and for blowing off steam. [42-year-old female, Org 1]

> Physical activity is like a drug; you immediately miss it. Then, after the first period, you get used to not doing it, and that is the most dangerous period [. . .] to avoid. [42-year-old female, Org 1]

In the above-mentioned cases, the feelings of guilt and let-down occurred not only because health programmes are built around the assumption of continuous adherence and stigmatise the so-called 'lazy days' (Gorm and Shklovski, 2019), but also because interviewees had developed a sense of attachment to the new routines: the first interviewee claims that she misses physical activity because it is a way to release stress, while the second one compares it to a drug. Nevertheless, probably because most of the people involved in the project have neither full-blown diseases nor very high clinical risks, the dismantling of new practices was not generally perceived as immediately dangerous for personal health, as explained ironically by an interviewee:

> Now I don't see any big problems related to my being 'borderline' [. . .]. Then, of course, if the doctor tells me, "You have six months to live if you don't stop eating eggplant parmesan", then I would probably stop. [44-year-old female, Org 1]

Discussion

In this work, I have reconstructed how a care infrastructure, designed by policy makers and work organisations, enables sedentary workers to carry out daily physical activities and follow the Mediterranean diet, intended as health practices. During their daily life, workers enact health practices with the help of human (e.g. physician, counsellor, partners, relatives, colleagues) and non-human subjects (e.g. clinical artefacts, public and private spaces, food, mobile apps, fitness trackers). On the other hand, following a post-humanist conception of social practices, I have focussed on the ways in which the enactment of these health practices leads to establishing connections among the various elements comprising a care infrastructure. Therefore, incorporating people, technologies and recommendations provided by the project in a daily routine, as well as replacing them with new ones, are activities that at the same time allow the workers to embrace new health practices and give shape to them. The results presented here have shown how the considered care infrastructure is continuously reshaped during its usage; new elements are introduced, and the elements provided by project designers change their qualities. In particular, the theoretical framework adopted here has contributed to raising three cross-cutting topics.

The first topic concerns the multiplicity of the emerging care infrastructure. The initial protocol is a clear example of 'the widespread illusion of the single answer' (Berg, 1997: 1083) that, strongly inspired by behaviourist paradigm, indicate(s) an optimal path of action in which workers are supported mainly by digital technologies and individual meetings with professionals. But, when the infrastructure designed by the protocol is put to work, workers and professionals start to involve other people and technologies in the reproduction of considered health practices, 'betraying' the individualised original approach and transforming the lifestyle change in a collective matter. At the same time, the care infrastructure begins to be reshaped according to the interests and goals of involved actors (e.g. the workers' need to reconcile work, family life and 'healthy lifestyles'), material constrictions (e.g. the need for a counsellor to mediate between clinical guidelines about physical activity and the restricted time at the disposal of female workers) and cultural backgrounds (e.g. workers' and professionals' pre-existing beliefs and assumptions about nutrition and physical activity). The presented empirical case clearly shows that, as Mol (1999: 75) argued some years ago, 'if reality is done, if it is historically, culturally and materially located, then it is also multiple. Realities have become multiple'. Therefore, although the considered care infrastructure had been defined in its composition and functioning by an initial protocol, over time it has been manipulated by workers and professionals, appearing in multiple and diverse versions. Multiplicity brings with it two relevant consequences. The first one is the durability, as that which is adjustable and polymorphic proves more durable than that which is rigid and robust (see de Laet and Mol, 2000). For example, given the complexity and heterogeneity of interviewees' daily lives, it is easily imaginable that professionals with an inflexible attitude towards the compliance with the initial protocol would have driven several participants to drop out of the health promotion programme. The second one is the incomparability. Although formally the workers are involved in the same project, they changed their daily lives in ways that differ radically to each other, giving life to very different versions of

the same care infrastructure (see also: Lynch and Cohn, 2016). This latter aspect seems to be particularly relevant for health intervention research, often characterised by the use of standardised methods aimed at measuring the clinical effects of the same intervention on health conditions of the participants.

The second topic involves the hierarchies that can emerge from infrastructures. The initial architecture of the infrastructure is not characterised by a clear hierarchy among the infrastructural elements. The infrastructure is rather designed to enable horizontal cooperation among clinicians, the counsellor, digital technologies, and workers, with the final aim of improving the workers' health status. When the infrastructure starts to work, the control over it becomes more centralised. Particularly, the figure of the counsellor becomes the infrastructure's 'guardian', deciding how it can be extended, including new elements that can support the enactment of health practices. This occurs in both a top-down approach, recommended directly by the counsellor to the worker, and in a bottom-up way, in which the worker asks the counsellor for advice. At the same time, at least following the accounts gathered during the interviews, digital technologies become increasingly peripheral. In line with an STS-grounded approach, the hierarchies and the asymmetries between human and non-human elements must be interpreted as the effect of a collective performance (Law, 2008: 147–148). Using Latour's (2005: 84) words, in the case discussed here human actors tend to 'turn matter into a mere intermediary faithfully "transporting" or "reflecting" society's agency'. For example, the mobile app provided by the health promotion programme is depicted by the counsellor as an object that reflects the nutritional practices carried out by workers and, by the workers, as a tool that synthesises the clinical knowledge of professionals without any chance of fully replacing it. The discourses mobilised through the interviews can be interpreted as a part of this effort, aimed at representing the embrace of new health practices as a process in which the supremacy of the human over the non-human is reaffirmed once again.

The last issue involves affect, considered as 'impersonal intensities that do not belong to a subject or an object, nor do they reside in the mediating space between a subject or an object' (Anderson et al., 2010: 161) and a concept that 'offers a way to think about feelings, emotion, and other things that are taken to be interior and subjective, in terms of activity and movements within a situated practice' (Gherardi et al., 2019: 297). In the presented results, affect seems to play an important role, at least in three ways. First, affect pushes workers to be involved in the care infrastructure and in health practices. When preliminary diagnostic practices are enacted, workers are affected by them and turn into 'partial patients' (Greaves, 2000). Becoming partial patients is the result of collective practices in which workers establish connections with other infrastructural elements, living affective experiences that trigger emotions (e.g. anxiety, surprise and interest after the results of an online test) and past memories (e.g. an interviewee, 47 year-old female, Org 1, claimed 'filling in the questionnaire was similar to how we felt as kids'). These intense connections lay the basis for undertaking health practices (i.e. physical activity and diet, aimed at improving individual health status). Second, affect contributes to supporting the enactment of these health practices, 'stitching together' (Gherardi et al., 2019) workers, their bodies, relatives, colleagues and/or friends. For example, during a physical activity, workers share with other people their positive

emotions, such as pleasure, excitement or happiness, that reinforce their engagement in this practice. The intensity of the experienced affect also emerges when workers dismiss these health practices, giving way to a sense of loss and sadness (an interviewee, 42-year-old female, Org 1, claims that physical activity 'is like a drug'). Third, affect can also contribute to destabilising care infrastructures. In parallel with the reproduction of health practices, people continue to develop a sense of attachment towards other daily practices. This is the case of, for example, parenting and mundane practices that generate emotions and feelings such as love, joy and empathy. The intensities connected with these practices threaten the unrealistic continuity often demanded of the participants of health promotion programmes (Gorm and Shklovski, 2019).

Conclusions

With this paper, I have contributed to challenging common behavioural or cognitive explanations for health and wellbeing outcomes, focussing on social practices through which people, with the help of other subjects, try to improve their health conditions. Through a theoretical framework based on the concepts of care infrastructures and health practices, I explored a post-humanist perspective on health and wellbeing, cutting through 'the idea that individuals are solely responsible (and can therefore be blamed) for their own health status' (Maller, 2015: 63). In this way, I have shown how the change in daily habits in the fields of nutrition and physical activity is a collective effort involving different spheres of life, connecting human and non-human elements and bringing out affective intensities among them.

Declaration of conflicting interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Francesco Miele https://orcid.org/0000-0003-1337-9112

Notes

1. This term is generally used to circumscribe an interdisciplinary field of studies with the common aim of probing how scientific discovery and its technological applications link up with other social developments in law, politics, public policy, ethics, and culture.
2. The notion of WHP frames the health promotion initiatives adopted by companies and other organisations for improving the health conditions of their members. Unlike occupational health, a field of intervention mostly concerned with safety at work, WHP mainly intervenes in one or more of the four pillars of primary prevention (nutrition, physical activity, alcohol consumption and smoking) with the aim of improving the overall well-being of workers and, hopefully, helping to prevent chronic diseases.

3. I wish to thank Enrico Maria Piras, who played an active role both in focus groups and interviews.
4. Approval from the ethical committee of the local healthcare trust was not required for studies that do not involve medical devices and drugs.

References

Anderson ET, Fong NM, Simester DI, et al. (2010) How sales taxes affect customer and firm behavior: The role of search on the Internet. *JMR, Journal of Marketing Research* 47: 229–239.

Armstrong D (1995) The rise of surveillance medicine. *Sociology of Health & Illness* 17(3): 393–404.

Béguin P and Clot Y (2004) Situated action in the development of activity. *Activites* 1: 1–2.

Berg M (1997) Problems and promises of the protocol. *Social Science & Medicine* 44: 1081–1088.

Berkman LF (1995) The role of social relations in health promotion. *Psychosomatic Medicine* 57: 245–254.

Bourdieu P (1977) *Outline of a Theory of Practice*, vol. 16. Cambridge: Cambridge University Press.

Bowker GC, Baker K, Millerand F, et al. (2009) Toward information infrastructure studies: Ways of knowing in a networked environment. In: Hunsinger J, Klastrup L and Allen M (eds) *International Handbook of Internet Research*. Dordrecht: Springer, pp.97–117.

Bowker GC and Star SL (2000) *Sorting Things Out: Classification and Its Consequences*. Cambridge: MIT Press.

Buse C, Martin D and Nettleton S (2018) Conceptualising 'materialities of care': Making visible mundane material culture in health and social care contexts. *Sociology of Health & Illness* 40: 243–255.

Bønnelycke J, Sandholdt CT and Jespersen AP (2019) Household collectives: Resituating health promotion and physical activity. *Sociology of Health & Illness* 41(3): 533–548.

Carriero R (2011) Perceived fairness and satisfaction with the division of housework among dual-earner couples in Italy. *Marriage & Family Review* 47: 436–458.

Ciborra CU (1992) From thinking to tinkering: The grassroots of strategic information systems. *The Information Society* 8(4): 297–309.

Clarke AE, Shim J, Mamo L, et al. (2010) Biomedicalization. Technoscientific transformation of health, illness, and U.S. Biomedicine. In: Clarke A, Fosket J, Mamo L, et al. (eds) *Biomedicalization: Technoscience and Transformations of Health and Illness in the U.S*. Durham, NC: Duke University Press, pp.47–87.

Cohn S (2014) From health behaviours to health practices: An introduction. *Sociology of Health & Illness* 36: 157–162.

Cohn S and Lynch R (2017) Falling into a routine: From habits to situated practices. *Sociology of Health & Illness* 39(8): 1398–1411.

Danholt P and Langstrup H (2012) Medication as infrastructure: Decentring self-care. *Culture Unbound Journal of Current Cultural Research* 4: 513–532.

de Laet M and Mol A (2000) The Zimbabwe bush pump: Mechanics of a fluid technology. *Social Studies of Science* 30(2): 225–263.

Della Puppa F and Miele F (2015) Beyond (but not too much) the male breadwinner model: A qualitative study on child care and masculinities in contemporary Italy. *Modern Italy* 20(2): 167–184.

Dumas A, Savage M and Stuart S (2014) Anti-normative lifestyles in cardiac rehabilitation: Underprivileged men's post-heart incident lives. *In Health* 18(5): 458–475.

Esmonde K and Jette S (2020) Assembling the 'Fitbit subject': A Foucauldian-sociomaterialist examination of social class, gender and self-surveillance on Fitbit community message boards. *In Health* 24(3): 299–314.
Gherardi S (2012) *How to Conduct a Practice-Based Study: Problems and Methods*. Cheltenham: Edward Elgar.
Gherardi S (2016) To start practice theorizing anew: The contribution of the concepts of agencement and formativeness. *Organization* 23: 680–698.
Gherardi S, Murgia A, Bellè E, et al. (2019) Tracking the sociomaterial traces of affect at the crossroads of affect and practice theories. *Qualitative Research in Organizations and Management An International Journal* 14: 295–316.
Giddens A (1984) *The Constitution of Society: Outline of the Theory of Structuration*. Cambridge: Polity Press.
Gorm N and Shklovski I (2019) Episodic use: Practices of care in self-tracking. *New Media & Society* 21(11–12): 2505–2521.
Greaves D (2000) The creation of partial patients. *Cambridge Quarterly of Healthcare Ethics* 9: 23–33.
Halkier B, Katz-Gerro T and Martens L (2011) Applying practice theory to the study of consumption: Theoretical and methodological considerations. *Journal of Consumer Culture* 11(1): 3–13.
Hargreaves T (2011) Practiceing behaviour change: Applying social practice theory to pro-environmental behaviour change. *Journal of Consumer Culture* 11: 79–99.
Hochschild A (1989) *The Second Shift: Working Parents and the Revolution at Home*. New York, NY: Viking Press.
Holt-Lunstad J, Smith TB and Layton JB (2010) Social relationships and mortality risk: A meta-analytic review. *PLoS Medicine* 7(7): e1000316.
Idris DR, Forrest S and Brown S (2019) Health help-seeking by men in Brunei Darussalam: Masculinities and 'doing' male identities across the life course. *Sociology of Health & Illness* 41,6: 1071–1087.
King N (1998) Template analysis. In: Symon G and Cassel C (eds) *Qualitative Methods and Analysis in Organizational Research: A Practical Guide*. Thousand Oaks, CA: SAGE, pp.118–134.
Langstrup H (2013) Chronic care infrastructures and the home. *Sociology of Health & Illness* 35: 1008–1022.
Latour B (2005) *Reassembling the Social an Introduction to Actor-Network-Theory*. Oxford: Oxford University Press.
Law J (2008) On sociology and STS. *Sociological Review* 56: 623–649.
Lee J and Macdonald D (2009) Rural young people and physical activity: understanding participation through social theory. *Sociology of Health & Illness* 31: 360–374.
Lucchini M, Saraceno C and Schizzerotto A (2007) Dual-earner and dual-career couples in contemporary Italy. *Zeitschrift für Familienforschung* 19: 290–310.
Lynch R and Cohn S (2016) In the loop: Practices of self-monitoring from accounts by trial participants. *In Health* 20(5): 523–538.
McDougall A, Kinsella EA, Goldszmidt M, et al. (2018) Beyond the realist turn: A socio-material analysis of heart failure self-care. *Sociology of Health & Illness* 40: 218–233.
Maller CJ (2015) Understanding health through social practices: Performance and materiality in everyday life. *Sociology of Health & Illness* 37: 52–66.
Mol A (1999) Ontological politics. A word and some questions. *Sociological Review* 47(1_suppl): 74–89.

Moreno N, Moncada S, Llorens C, et al. (2011) Double presence, paid work, and domestic-family work. *New Solutions: A Journal of Environmental and Occupational Health Policy* 20: 511–526.
Mort M, Roberts C and Callén B (2013) Ageing with telecare: Care or coercion in austerity? *Sociology of Health & Illness* 35(6): 799–812.
Nettleton S and Green J (2014) Thinking about changing mobility practices: how a social practice approach can help. *Sociology of Health & Illness* 36: 239–251.
Neumark-Sztainer D, Story M, Hannan PJ, et al. (2002) Overweight status and eating patterns among adolescents: where do youths stand in comparison with the healthy people 2010 objectives? *American Journal of Public Health* 92: 844–851.
Oncini F and Guetto R (2017) Determinants of dietary compliance among Italian children: Disentangling the effect of social origins using Bourdieu's cultural capital theory. *Sociology of Health & Illness* 39(1): 47–62.
Oudshoorn N (2018) Hybrid bodies and the materiality of everyday life: how people living with pacemakers and defibrillators reinvent everyday routines and intimate relations. *Sociology of Health & Illness* 40: 171–187.
Petersen A and Lupton D (1996) *The New Public Health: Health and Self in the Age of Risk*. London: SAGE.
Piras EM, Miele F and Fornasini S (2017) Infrastructuring primary prevention outside healthcare institutions: the governance of a Workplace Health Promotion program. In: *Infrahealth 2017-Proceedings of the 6th international workshop on infrastructure in healthcare*, Aarhus, Denmark, 22–23 June 2017. DOI: 10.18420/ihc2017_017
Reckwitz A (2002) Toward a theory of social practices: A development in culturalist theorizing. *European Journal of Social Theory* 5: 243–263.
Star SL (1999) The ethnography of infrastructure. *American Behavioral Scientist* 43: 377–391.
Storni C (2010) Multiple forms of appropriation in self-monitoring technology: Reflections on the role of evaluation in future self-care. *International Journal of Human-Computer Interaction* 26(5): 537–561.
Timmermans S and Berg M (1997) Standardization in action: Achieving local universality through medical protocols. *Social Studies of Science* 27(2): 273–305.
Walls HL, Peeters A, Proietto J, et al. (2011) Public health campaigns and obesity - a critique. *BMC Public Health* 11: 136.
Weiner K and Will C (2018) Thinking with care infrastructures: People, devices and the home in home blood pressure monitoring. *Sociology of Health & Illness* 40: 270–282.
Will CM, Henwood F, Weiner K, et al. (2020) Negotiating the practical ethics of 'self-tracking'in intimate relationships: Looking for care in healthy living. *Social Science & Medicine* 266: 113301.
Williams SJ and Calnan M (1994) Perspectives on prevention: The views of general practitioners. *Sociology of Health & Illness* 16: 372–393.

Author biography

Francesco Miele is research fellow at the University of Padua and he works with the PaSTIS research unit. His recent research interests include the exploration of knowing processes in patients with a chronic illness, the role of digital technologies in the management of health conditions, the invisible work of patients and caregivers in the management of chronic conditions.