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Research article

Adapting work at the hospital during the COVID-19 pandemic: A qualitative study of administrative staff's teleworking experience

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A B S T R A C T

The COVID-19 pandemic changed the organisation of hospital work with telework and the adaptation of resource management. It is essential to involve the workers themselves in the evaluation of telework, especially the administrative staff who are the most likely to telework. The aim of this study was to assess the feelings of hospital administrative staff in a university hospital in France towards telework, regardless of the period in which they had experienced it (before the COVID-19 crisis, during the first lockdown, or after the crisis). A descriptive exploratory study, using a qualitative approach through semi-structured interviews, was carried out to provide answers to the benefits of continuing telework. Of the hospital's 8815 employees, we included 23 workers (22 women) who were representative of the 400 administrative staff who had experienced teleworking. We showed that the hierarchical barriers to teleworking before the pandemic were overcome after the pandemic, and that some absenteeism was avoided. Teleworking is a good tool for managing public human resources in hospitals, reducing physical symptoms and improving work-life balance. These results should enable human resources departments in healthcare institutions to adapt telework posts and schedules to promote productivity at work and the physical and psychological well-being of employees.

1. Introduction

The health crisis associated with COVID-19 transformed the organisation of work in hospitals, leading to an urgent adaptation of resource management and organisational methods, such as teleconsultation or teleworking, for relevant professions, especially administrative staff [1–4]. This adaptive work organisation had consequences on the Quality of Work Life (QWL) [5–7]. The concept of QWL was first defined in the 1970s [8,9]. Its simplest definition characterises a work environment as positive or negative [10]. There are multiple and inter-correlated components of QWL, including, but not limited to, working conditions, job security, income levels, equity, social interactions and self-esteem [11–15]. The concept of telework was introduced in the 1970s with the oil crisis by Jack Nilles, who defined it as the concept which consisted of working from home using telecommunications [16]. The main advantages of telework identified in the literature are reduced transport costs, less frequent interruptions and greater freedom to allocate time to work tasks. The disadvantages are generally an increase in working time and an intrusion of work into private life [17].

At the hospital, healthcare professionals were not the only ones affected by the COVID-19 pandemic. All hospital's 'support' staff

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(management, logistics/informatics, administration, etc.) have seen their daily lives and QWL changed as a result of new organisational working methods, such as teleworking. Recent studies have mentioned the changes in the transport behaviour of teleworkers and the potential effects in terms of sustainable travel: fewer motorists, avoided journeys, choice of different places to live, etc. [18] For example, a Swedish study highlighted the fact that the increase in telework has led to an increase in the number of people who walk rather than use their bicycle regularly, and that telework would therefore affect transport and indirectly physical activity and sedentariness [19]. Telework, especially for administrative positions, is synonymous with a sharp increase in long periods of work sitting in front of a computer in spaces that are not systematically designed and ergonomically optimised for work, the consequences of which are muscular pains (acute and chronic musculoskeletal pains) [20]. Another aspect of teleworking is the reduction in the possibility of monitoring employees' behaviour, which could be compensated by placing more emphasis on monitoring tasks completed at the end of the project [21–23]. Finally, several studies have assessed the micro and macro-economic barriers and levers of telework, in particular the changes in work productivity, work-life balance and household savings generated by telework [24–27]. The relationship between QWL and telework, which is an important public health issue, has been studied in the general population, in France and abroad [28–30], but little among hospital staff [1,31–33]. Previous work has studied the evolution of organisational work practices separately and in the general population [29,34–37].

The health situation created by COVID-19 and the subsequent developments in work should provide some perspective on the first lessons to be learned from the management of the crisis, particularly in terms of administrative human resource management [35,38,39]. Several studies on the organisational changes in hospital work following the health crisis have focused on healthcare workers, mostly front-line staff, who were subjected to staggered working hours (12-h shifts, inter-service transfers) with physical and mental health consequences [40–43]. Far from minimising these effects, our study looked at staff who are less likely to be on the front line but who are essential to the functioning of hospitals, namely administrative, clerical and supervisory staff.

The current study aimed to assess how hospital administrative staff felt about teleworking before, during and after the COVID-19 crisis and how it influenced their QWL. This work was exploratory, to provide answers to the questions about the benefits of continuing to telework in the hospital.

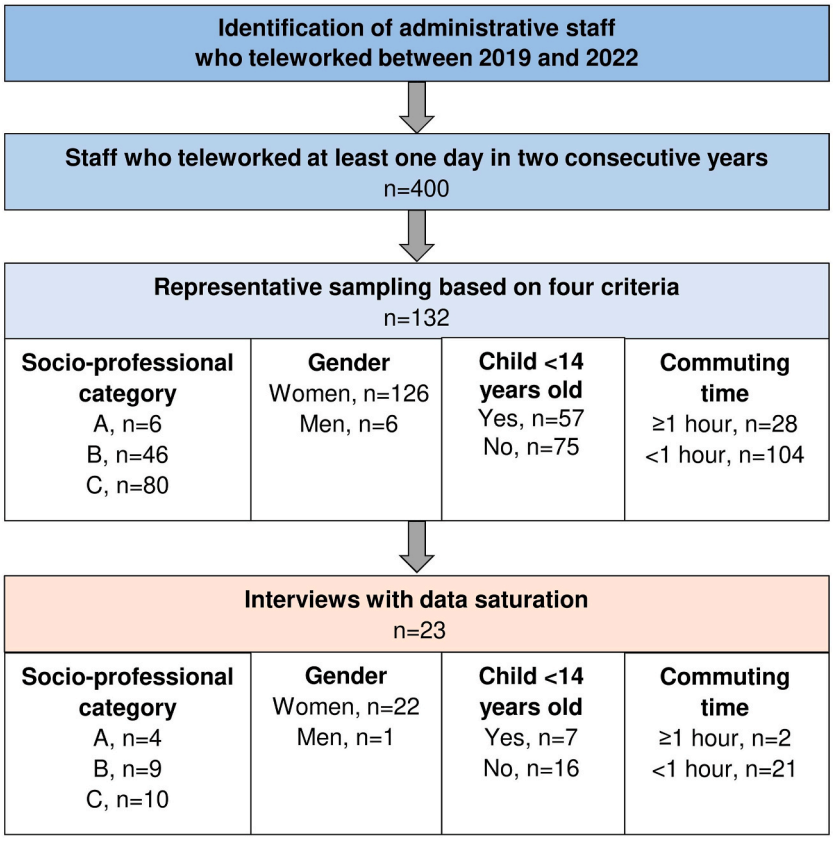

Fig. 1. Flow chart of the sampling of the study population Socio-professional category: A for engineering diploma, master's degree and doctorate, B for educational level from bachelor's to less than master's degree, and C for educational level less than bachelor's degree.

2. Methods

2.1. Study design and participants

A descriptive exploratory study using a qualitative approach through semi-structured open interviews was conducted among workers of the Clermont-Ferrand University Hospital Centre in France between 1 June 2022 and 29 August 2022. We aimed to recruit hospital administrative staff and supervisors who had experienced teleworking before the COVID-19 crisis, during the lockdowns, or currently. To be included, participants had to have teleworked at least one day in two consecutive years. The analysis took both a hospital and an individual perspective. The identification of the administrative staff who teleworked between 2019 and 2022 was done in collaboration with the human resources department.

We decided to take a representative sample of administrative staff based on four criteria: the socio-professional category (A for engineering diploma, master's degree and doctorate, B for educational level from bachelor's to less than master's degree, or C for educational level less than bachelor's degree); gender (female or male); having at least one child under the age of 14 or not; and the commuting time (more than 1 h or less than 1 h of travel) (Fig. 1). These criteria were chosen for several reasons. The socio-professional category may influence the variety of work tasks to be performed, which may influence feelings about teleworking. Women are more likely to have domestic responsibilities in addition to work. Having children under the age of 14 means that they are in middle school and still need special attention from their parents, for example, help with schoolwork, whereas older children in high school or above are more independent and no longer necessarily live with their parents. Commuting time has an impact on feelings of fatigue or stress when travelling to and from work, so teleworking can change these feelings.

An email was sent to a random sample of administrative staff from the representative sample, explaining the objectives and how the study would be conducted. This qualitative study was conducted according to the methodological recommendations of the COREQ checklist [44]. The written transcript of the interviews was completely anonymised using a record number.

2.2. Data collection

Volunteers were contacted by telephone to make an appointment for a face-to-face interview at their place of work. The interview was conducted by a clinical research student who had been trained in qualitative interviewing and had previously completed two interview tests. Interview grids were created to guide the interviews according to the topics to be discussed (Supplementary File 1). These topics were derived from a review of the existing literature: physical health, emotional state, concentration levels, home ergonomics for teleworking, work-life balance, adaptation of tasks and assignments, social relationships and communication with colleagues and supervisors, commuting time, and ideas for improving QWL in relation to teleworking.

Interviews began with a presentation of the purpose of the study and the interview process. If necessary, certain points could be re-explained or clarified until the volunteer was ready to start the interview. A voice recording application was used on the interviewer's telephone. While the audio was being recorded, a Word document was simultaneously created using the 'dictate' function to provide an initial transcription, which was then corrected and formatted by listening to the recorded audio to provide a clean and analysable verbatim transcript. The interview began with a general question that was the same for all participants: *"What are your feelings about your experience of teleworking?"* The participant was then free to answer this question openly and without a time limit, regardless of when they had experienced telework (before, during, or after the COVID-19 crisis). The semi-structured interview then followed the researcher's interview grids. We stopped data collection when we reached saturation (Fig. 1), i.e. when three consecutive interviews did not provide any additional information compared to the previous ones [45].

2.3. Analysis

The analysis of the interviews was carried out by triangulation by two independent researchers after transcription by classifying the verbatim into the different topics predefined in the interview grids [46]. New topics could be defined from the verbatim analysis. Each time an idea related to a topic, it was classified in the interview grid in an Excel format. The results are presented in quantitative terms, i.e. "how many interviews referred to each topic", and in qualitative terms: the positive or negative aspects of the idea, using the topic tags *("what are we talking about?* ") and experience labels (*"what exactly do we mean?"*) [45]. The new ideas were added to the analysis in the same way. The principle of analysis chosen for this study was integrative analysis, which made it possible to integrate the different thematic axes into a comprehensive model that represented all the phenomena inherent to telework, describing the topics and main axes that could have an impact on QWL. Moreover, the analysis took into account the different periods to which the verbatim ideas referred: before the COVID-19 crisis, during the crisis (first lockdown especially), and currently. This made it possible to link the different feelings to the time of the crisis and their experience of teleworking.

3. Results

3.1. Overall considerations

The Clermont-Ferrand University Hospital Centre had 8815 hospital staff, and 130,212 inpatient admissions in 2019, with 1910 beds available. Among the 8815 hospital staff, 400 administrative staff who teleworked for at least one day in two consecutive years were identified. No staff refused to participate in the study. Data saturation was reached after 23 interviews (Fig. 1). The results

presented below show the issues raised by the staff interviewed. Each idea corresponding to a topic in the interview grid was classified according to its positive or negative meaning and according to the period to which it referred: before, during the COVID-19 crisis and currently (Table 1).

3.2. Participant characteristics

Two of the 23 respondents had asked to be allowed to telework before the COVID-19 crisis but had been refused. One of the two requests was for health reasons. Three people reported that they had already teleworked before the health crisis, 21 did so during the health crisis, and 14 reported that they were still doing so. Of those who teleworked during the COVID-19 crisis, five teleworked five days a week, three teleworked three to four days a week, one teleworked two days a week, two teleworked one day a week and one did not telework. The others did not report the exact number of days they teleworked during the COVID-19 crisis. Of the 14 who still reported teleworking today, 5 teleworked one day a week, 5 teleworked two days a week, 3 teleworked two days a month (management positions) and 1 teleworked full-time five days a week. Six participants reported that they teleworked the same number of hours as they did on-site, 3 reported that they started earlier in the morning when teleworking, and 1 reported taking a longer lunch break. Five people reported that their teleworking days were fixed.

3.3. Impact of telework

In terms of their physical and mental feelings, six respondents reported that teleworking was compulsory, forced and sudden because of the lockdown; as the following quotes show: *"We had to get our act together overnight. So we had to adapt quite quickly, I admit the first week was a very stressful week"*. Five of these six respondents, including one middle manager, reported being stressed as a result and because of the context and adaptability required. One out of 23 said that the health crisis did not change anything and 2 reported less stress despite the health situation. These 2 worked in the emergency department, a stressful situation even without a health crisis. In terms of positive feelings, 8 of the 14 respondents who said they were still teleworking reported less stress/nervous fatigue and 6 reported less physical fatigue; 2 reported being more concentrated and calmer and one said he/she had the same concentration as when he/she was on-site. One respondent reported that if teleworking had not come with the crisis, he/she would have considered requesting part-time work due to physical and mental fatigue. One person with a physical disability felt more comfortable at home; in particular, he/she was able to go to the toilet more often. Finally, two out of 14 respondents said that at the end of a teleworking day, they felt they had done a good job.

Thematically, the important ideas/words of each period (Fig. 2) and those to remember are:

Before the COVID-19 crisis, the words that appeared most associated with physical and emotional feelings were "*Backache"*, *"Exhaustion"*, *"Stress*" and travel restrictions such as "*Financial cost"* and *"Petrol consumption*". Two important concepts related to teleworking also emerged: "*Medical reason"* and *"Request refused*", which highlight the needs of staff and the sometimes negative preconceptions of management towards teleworking in professions where it is not common. The following sentences illustrate this idea: "*Since I've been here when I started my job, I had a very cool hierarchy, that was easy to convince, because they had relatives who worked from home, so it was natural. So there was really no objection. This hierarchy felt that it was the results that mattered. If the results were there, it didn't matter how they were achieved (telework or not). Since then, we have changed the hierarchy, which is much more reticent and feels that it lacks the means to control the tasks performed"*.

During the COVID-19 health crisis, and especially during the first lockdown, concepts related to work organisation appeared with the words "*Equip oneself"*, *"Kitchen table"*, *"Hospital reacts quickly"*. Positive concepts also appeared with the words "*Positive impact"*, *"Reduction of stress"*, *"Job well done"*, *"Reduced commuting time*". Some sentences say it clearly: *"I am less tired in the evening when I am teleworking than when I am in the office because we get an hour's sleep in the morning, we do not get tired in the evening from traffic jams"* or *"I get up less early and then, I don't have the stress of the car and all that and when I get home"*. It was also clear that children were present at home for those workers who had them: "*Sharing life with children"*, *"Children's homework*". Finally, the term "*No change*" also seemed to be important for some staff, showing that the tasks that were usually carried out on-site were carried out in the same way when teleworking.

For the post-COVID-19/current period, the topics were in continuity with those of the lockdown, but with some differences that testify to the current organisation of telework by the staff and the hospital; with words such as *"No disturbances"*, *"Desk"*, *"Washing machine"*, "*Staggered break"*. In hindsight, the effects of telework appeared to be beneficial: "*Less nervous exhaustion"*, *"Concentration"* and *"Good relations*".

3.4. Evolutions and suggestions for improvement

By establishing a link between the words that appeared in the three periods, it was possible to trace the evolution of the implementation of teleworking. Before the health crisis, management had negative assumptions about the real needs of the staff. During the crisis, there was a certain necessity for a part of the staff members and the hospital to adapt to teleworking, which was imposed by force, with work life interfering with private life, especially for those with children at home. Finally, in the period following the health crisis, the benefits of teleworking became apparent: better management of time, both personal and professional, adaptation of working hours, tasks requiring greater concentration being carried out while teleworking, and maintaining the concept of part-time teleworking so as not to disrupt the social relationships. The following quotes illustrate this point: *"I still need the contact and 2 days would be excellent but no more"* and *"I think one or two days a week is good"*. These results are in line with the suggestions made by the

Table 1
Main results and predominant topics before, during (first lockdown especially) and after COVID-19 crisis.

		Before COVID-19	During COVID-19 (first lockdown)	After COVID-19
Physical and mental health	First-hand elements, well-being, pain, etc.	- Back pain - Exhaustion - Sound of a helicopter - Stress	- Forced - Obligation - Decrease in stress - No changed - Job well done - Positive impact	- Less stress - Less nervous exhaustion
	Commuting time	- Financial cost - Petrol consumption - Traffic jams	- Decreased commuting time	- Time to collect the children from school - Saving time, financial savings
	Work-life balance		- No changes - Negative consequences - Found balance	- Washing machine - Staggered break - Start earlier
			- Homework assistance - Work interferes with personal life	- Flexible
Adapting home for teleworking / elements that interfere at home	Setting up a home workspace		- Equip oneself - Kitchen table - Already had a desk - Personnel investment	- Desk
	Equipment/materials/programs made available by the hospital		- Problems connecting to the hospital's teleworking interface - Hospital quick to react	
	Family members likely to affect the quality of the work		- Children's homework - Family member disturbance - Self-organise - Personal life interferes with professional life	- No disturbances - Children at school - Not disturbing

			- Share life with children	
Points linked to assignments and to the workflow	Adapting to distance and on-site tasks		- More work in the evening - Quieter activity - Feeling of not doing enough	- Specific concentration tasks - Not all the tasks were suitable for teleworking - All the assignments were suitable for teleworking
	Social relationships with colleagues and supervisors	- Supervisor refusal - Not suitable for reception	- No changes - Good relations - Positive opinion of supervisor - Planning difficulties	- Social link - Remained connected - Part-time teleworking - Good relations - Contactable
	Telework	- Already done - Medical reason - Request refused	- Full time	- Ideally, 2 days per week - 2 days per month supervised

The disadvantages and advantages of telework		- Negative assumptions	- Benefits - Adaptation - Software access - Connection time loss	- Not suitable for all jobs - Avoid part-time and sick leave/absenteeism - Concentration - Less tiredness - Less stress
Idea for improvement of quality of life at work				- The hospital could provide material (7 Euros compensation is not enough for computers, paper and printers) - Update the teleworking charter - Be more consistent - Rights - 2 days/week
				- Anticipate schedules - Align with private sector

The words in green are those that stand out with a positive aspect, those in blue are those that are neutral and those in red are those that stand out with a negative aspect.

respondents regarding the continuation of teleworking, where the majority considered it beneficial, but with minor adjustments, including the possibility for the hospital to provide equipment and, above all, the structuring of the framework and rules for teleworking in the establishment (maximum number of days possible, teleworking hours, planning management, adaptation to models used in private companies).

4. Discussion

This study highlighted the positive and negative feelings of administrative staff about teleworking as they experienced it before, during and/or after the COVID-19 health crisis. The focus was on the self-perception of their productivity in this context to define what is sustainable in terms of teleworking in the hospital. Reduced stress and fatigue at work and in transport, as well as improved concentration and fewer interruptions to tasks, were frequently cited benefits, particularly in the post-lockdown period when the stress associated with the pandemic itself had passed. In terms of travel time, some respondents come to work at the hospital from far away and can spend up to an hour travelling, which explains the reduction in fatigue and stress as a result of teleworking. The negative points were mainly related to the layout of the house, especially during the lockdown, when working with network problems and a lack of trust from the hierarchy, with less direct control over tasks and missions. This can be explained by the fact that there was very little teleworking in the hospital before the crisis and that it was brutally imposed without any preparation on the part of the workers' structures or managers. These results are interesting and will allow the operational services of the hospital (human resources, occupational health) to take concrete actions (framework of rules for teleworking, taking into account the feelings of the staff), and will also increase the progress of research, as little work has specifically studied the feelings of hospital staff teleworking.

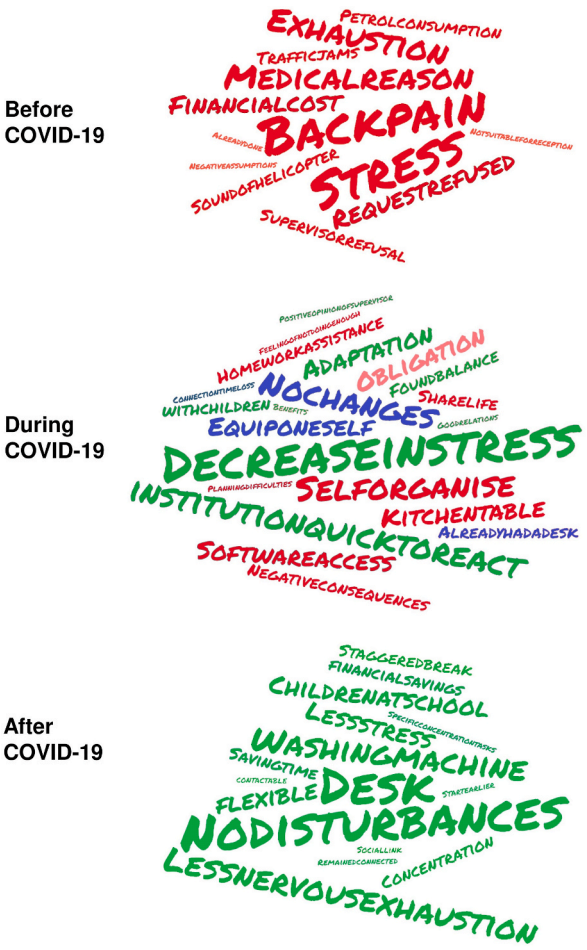

Fig. 2. Word clouds for the periods before, during (fist lockdown especially) and after the COVID-19 crisis. The words in green are those that stand out with a positive aspect, those in blue are those that are neutral and those in red are those that stand out with a negative aspect.

4.1. Positive feelings

The feelings of teleworkers were generally positive, with a reduction in physical pain, but most importantly, a reduction in stress and fatigue thanks to teleworking, particularly by eliminating the need for commuting, which can be long and tiring for people who live far away or who are regularly stuck in traffic jams [47,48].

The physical and emotional impact of teleworking was one of the dominant feelings in our results, with significant pains before the crisis that did not seem to persist during the lockdown, contrary to the literature where poor posture due to teleworking seemed to increase pain [20,49]. Many of the other studies report increased pain due to the lack of ergonomics in teleworkers' homes [50–52]. Some report changes in emotional states, with physical and psychological symptoms of increased stress during the pandemic due to the unanticipated teleworking [53]. In contrast, teleworking outside the pandemic period reduced stress [54]. Several of the staff interviewed said that they had started teleworking from their kitchen tables and then invested in equipment (desk, computer, screen) to set up a teleworking space at home. Some had no choice, although this was not necessarily an expected expense. In the literature, Pulido-Martos et al. studied the results of this forced purchase, which also seems to have occurred in Spain [55]. In our study, the fact of being more sedentary as a result of teleworking did not stand out and was not mentioned in the interviews, although it is a common finding in the literature with increased time spent sitting when working from home [56,57]. Finally, one of the positive effects was the perceived greater flexibility of being able to do more domestic tasks at the same time as teleworking. This was the case for many women in the sample who, for example, started a washing machine before starting to telework, thus saving time. Similar findings (more time for domestic activities such as cleaning or cooking) have been reported in several European studies [58,59]. Conversely, other recent studies have found that teleworking for women increases mental workload and has negative effects on psychological well-being, which our study does not seem to confirm [60–62]. The disruption of work tasks by repeated interruptions from children requiring attention would have a negative effect on psychological well-being and mental fatigue [62]. In our work, although this could have been an issue, especially during the COVID-19 crisis, it was not the case: interruptions from colleagues during face-to-face work seem to have a greater impact than interruptions from the family sphere during telework. Moreover, in the post-COVID-19 period,

when children returned to school, teleworking was described as more quiet.

4.2. Negative feelings

Negative effects may have been felt during the crisis and lockdowns due to the brutal and unpredictable nature of the implementation of telework and the joint management of telework and childcare, as noted in the literature [63,64]. Our sample was mainly female. It was clear that managing the children's homework during lockdowns was a significant task, sometimes to the detriment of work, or at least requiring some adjustment to regain the work-like balance. Other international studies have also noted this aspect, with a new family balance being found between men and women who both work from home and, for some, also have children to look after [65,66]. This led to questions about the respective roles within the couple and the family in the household [67–69]. Furthermore, many studies argue that there was a loss of women's professional role in favour of the personal role of mothers, at least temporarily, at the beginning of the lockdown [70,71]. Oakman et al. also highlighted the fact that the reduction in stress and fatigue was less favourable for women who were under additional pressure to manage their work and private lives simultaneously, this result depending on the degree of support organisation on the part of the hierarchy and other family members living in the same home [72–75].

4.3. Self-perception of productivity

In our sample, the staff's perceptions of their own productivity varied according to their initial tasks and assignments, and based on the change in their activities caused by the crisis. For example, administrative research staff did not perceive any change in their tasks. On the other hand, administrative staff in contact with patients (secretaries, letter writers) saw a reduction in their workload due to the reduced number of consultations and face-to-face treatments. Acceptance of telework and teleworkable tasks also seems to depend on the acceptance and perception of telework by the supervisors, with an idea of minimum productivity and monitoring of the activity and tasks performed, which is also found in the literature on human resource management policies [21,22]. It seems important to convince managers of the benefits of teleworking and to help them adapt their supervisory method to a more relational one. E-leadership should be based on high-quality relationships based on mutual respect and trust [76]. Studies in the literature on the workers' feelings about their productivity have found this aspect, where the change in work demands had an impact on the perception of productivity [77,78].

4.4. Sustainability of teleworking after the COVID-19 crisis

During the period of return to normality after the COVID-19 crisis, staff found it useful to continue teleworking on a part-time basis in order to avoid fatigue and to carry out the task requiring concentration [79]. A pattern of teleworking two days a week appeared appropriate for most respondents who wished to maintain a part of their activity on-site to maintain social relationships with colleagues and managers. De Vries et al. showed that working from home was associated with a feeling of professional isolation among public servants [76]. Certain professions/tasks seemed to be more conducive to teleworking than others requiring on-site presence, such as hospitality. Several studies in the literature have revealed a pre- and post-COVID-19 crisis in terms of work organisation, where the use of teleworking seems to be continuing, and it seems clear that organisational work methods will not return to the pre-COVID-19 structure [80]. Few respondents in our study raised this point, but the opportunity to telework has prevented one person from losing his/her job and allowed a second one to maintain activity with part-time telework. The literature that studied absenteeism during the COVID-19 crisis has made little connection with telework, but more generally with work intensity [81].

4.5. Study limitations

Our study has some limitations that should be acknowledged. Firstly, with the exception of one man, all the participants were women, who are proportionally more numerous in the hospital population. This point is worth discussing as it may have a strong influence on the results, since, as we have seen in the literature, women may approach teleworking differently from men, influenced by the traditional gender roles and domestic responsibilities often assigned to women. The division of time between teleworking and domestic labour and caregiving responsibilities for children is sometimes difficult to distinguish, with one encroaching on the other. In addition, there was no representation of senior managers such as directors (who had more difficulty in finding time to be interviewed than other professional categories); only interviews with middle managers could be carried out. As participation was voluntary, it would have been difficult to obtain a fully representative sample. Future interviews should be conducted with more men and directors to assess their feelings towards telework. Secondly, the transcripts of the interviews were not returned to the participants. Only the first response intention was analysed in this work. With a triangulation analysis of the interviews, the bias associated to one person's interpretation of the data was reduced. Thirdly, the study was exploratory and staff were free to address the issues that they perceived to be important. Thus, some topics from the interview grid were not developed by respondents as they had nothing to say about them. Fourthly, our study was a single-centre study and the results only represent the feelings of the administrative staff working at the Clermont-Ferrand University Hospital with regard to teleworking. This research should be performed in other hospitals. This work must be pursued in order to quantify the effects found, and not only with hospital administrative staff.

5. Conclusion

This study, conducted with hospital administrative workers in a university hospital centre, has made it possible to show the evolution of the feelings of staff and their managers towards telework in the context of its urgent implementation during the COVID-19 health crisis and after. The need to adapt work organisation evoked before the crisis (back pain, requests for medical reasons, teleworking to avoid work stoppages), which encountered hierarchical barriers, had a favourable outcome after the crisis and will have, without doubt, allowed the hospital to record less absenteeism. Teleworking is booming in hospitals, and the satisfaction of all hospital staff with teleworking needs to be assessed, as well as the relationship between teleworking and physical and mental health outcomes.

CRediT authorship contribution statement

Charline Mourgues: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Anais Nuez:** Project administration, Conceptualization. **Bruno Pereira:** Investigation, Data curation. **Benoit Cambon:** Formal analysis. **Claire Doplat:** Conceptualization. **Valérie Quiers:** Formal analysis. **Candy Guiguet-Auclair:** Writing – review & editing, Writing – original draft, Visualization, Validation, Methodology, Data curation. **Frédéric Dutheil:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Methodology, Funding acquisition, Formal analysis, Conceptualization.

Ethical statement

The study was reviewed before the study started and deemed exempt from ethics approval by the French Committee for the Protection of Individuals southeast 6 with the reference number 2022/CE34, dated 19 May 2022. Hospital staff who agreed to participate in the current study received information about the purpose and procedure of the study and the data collection process, including the audio recording of the interview and the confidentiality of participants' information. All participants gave their written informed consent to take part in the study and for their data to be published. In addition, the interviewer requested additional verbal consent from each participant before the interview was recorded.

Data availability

The data that support the findings of this study can be obtained from the corresponding author upon reasonable request. The data are not publicly available due to ethical restrictions.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2025.e43278.

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