



CHALLENGES AND PERSPECTIVES FOR ERGONOMIC ASSESSMENT OF TELEWORK

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Abstract

This article presents a critical analysis of the challenges and contributions of an ergonomic action in the teleworking modality, based on an experience conducted in a public institution in Rio de Janeiro - Brazil, developed during the Covid-19 pandemic scenario and identified as a potential strategy for the new situation in ways of working. Based on the theoretical framework of Activity Ergonomics, Workers' Health and a non-systematic literature review on teleworking, the study aims to identify the perspectives for action in the context of remote work. The discussion addresses the methodological issues of an ergonomic analysis and the macro-organizational context of teleworking, including its regulatory frameworks. It also reflects on the need ensure adequate for guidelines and policies that guarantee full working conditions in this new modality, considering the peculiarities that this discussion involves, such as the different work realities and employment relationships.

Keywords: Ergonomics, Workers' Health, Teleworking, Activity Ergonomics

1. INTRODUCTION

Teleworking has its origins in the 1970s and 1980s, when technological advancements began to allow people to work remotely (Rocha & Amador, 2018). However, it was only with the Covid-19 pandemic, declared by the WHO in 2020, that the adoption of this type of work by several public agencies and private companies became frequent. This process occurred without a preparation and a period of adaptation of the means of work, on the part of workers and organizations, in the face of the reality posed. Such a context generated for workers the need to adapt abruptly to new ways of working (Durães et al., 2021).

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The changes that occurred with the pandemic led to a scenario classified by several authors as the 4th Industrial Revolution. The period is characterized by transformations in the world of work that have been developing in recent decades, based on intense technological advances and great connectivity (Schwab, 2019). The use of ICTs resources, which are increasingly frequent, has made remote work a trend in experimentation in the world of work (Rafalski & Andrade, 2015; Roos & Silva, 2023).

There are several synonyms used to refer to this work model. Among them is telework, a term and concept that presents great variation in the literature. Despite this, there is consensus that it is a form of work organization in which activities are carried out through ICTs, extinguishing the need for the worker to travel to a specific workplace to deliver the results or products of the tasks (Rocha & Amador, 2018). One of the categories inserted in the larger context of telework is the *Home Office*, which has the particularity of being carried out at the worker's home (Rocha & Amador, 2018).

In view of this reality, it is essential to pay attention to the impacts that technological advances have on the ways of working and, consequently, on the lives of workers. Schwartz (2020, p. 283) points out that Oddone (2020) He already referred to the "entry of the digital age" with regard to the reconfiguration of the ways of carrying out "cognitive and social exchanges".

There are several challenges to be faced by workers with regard to the overloads conferred by work restructuring. Towards Antunes (2020, p. 30), The new ways of working are configured as some of the modalities highlighted: "more flexibility, more informality, more intermittence, more outsourcing, more *Home Office*, more teleworking, more distance learning". These new dynamics bring challenges to thinking about workers' health and devices that seek to capture the conditions of work at home or other environments. At this point, it is worth reflecting on how ergonomics is inserted in the field and how it can contribute to the protection of workers' health.

As evidence of the transformations that telework has been provoking, some studies stand out. Moreira (2020), takes as a reference research in the European population, which shows high rates of mental health problems, type 2 diabetes, overweight and obesity among workers. These manifestations are closely related to the new work modalities, including telework. The author also points out that there is a relationship between the current psychic sufferings and those of a physical nature that occurred in the nineteenth century during the industrialization process, which changed the way of working.



The psychosocial risks generated by the change in the type, form and place of work are related, among other aspects, to the disappearance of the separation between professional and personal life, to the establishment of electronic control and to the increasing distance from the worker. Physical risks include permanent exposure to electromagnetic fields, visual fatigue, and musculoskeletal problems (Moreira, 2020). One of the problems highlighted by the author is the need to be constantly *online* and available, significantly raising workers' stress levels (Moreira, 2020, p. 277).

The report of a survey conducted electronically in the Metropolitan Region of Rio de Janeiro, during the Covid-19 pandemic, identified a 50% increase in expenses at home for teleworking workers during the period of social isolation, since some expenses previously attributed to employers or carried out outside the home ended up being passed on to the worker at home (Freitas et al., 2020, p. 10). Castilho e Silva (2020) point out that the policies for reimbursement of these expenses and for the safety of telework are still fragile and uncertain, and that there is a need for protective measures, seeking to avoid the transfer of costs and risks to the worker himself, including equipment and other resources necessary for the execution of the work.

In 2019, Abbad et al. conducted an opinion survey on the subject, with the participation of 270 teleworkers and 266 face-to-face workers on the characteristics of work. The authors did not reach a definitive conclusion regarding the advantages and disadvantages of teleworking for the individual and the organization. However, at the individual level, the results indicated the positive perception of workers on points such as flexibility, autonomy, reduction or elimination of commuting, increased well-being and greater productivity. As negative points, work overload, social isolation and concerns about the management of flexible schedules, increased productivity control, lower professional visibility and misunderstanding of colleagues who work in person appeared (Abbad et al., 2019).

Andrade and Tonin (2023), in a study on the contrast between face-to-face and remote work, identified, in turn, the association of feelings of overload, stress, tension, anxiety, and lack of autonomy with face-to-face work. During the pandemic, a study on the impacts brought about by the change in the work-home relationship found positive effects, such as reduced commuting time and greater autonomy of individuals, and negative effects, such as headaches, low back pain, WMSD/RSI, eye strain, increased stress, difficulty imposing limits, among others (Fernandes & Inoue, 2023). Possibly, some of the negative effects detected are due to the short time to adapt the format and work environment and the lack of protocols and regulatory standards.



Despite the evidence found, Rocha and Amador (2018, p. 155) They emphasized that looking at research on the effects of telework in general does not allow us to reach the various realities, specificities and complexity of work situations that are placed under the "same label". As a result, it is expected that the reality presents even more unequal conditions regarding the conditions and consequences of telework than the cut presented in research.

The needs imposed by telework, as well as in the new work modalities, demand creativity, a reflective attitude, the search for new knowledge and action strategies, both for ergonomists and workers (Falzon, 2018). Research actions and actions of care and attention to workers should be in line with the premises of the field of Workers' Health, with emphasis on the active participation of workers in the processes of construction, decision-making and changes in work activities. Thus, the question arises that brings a new challenge to the field of Workers' Health: how to keep work relations and the process of collective reflection alive, with the increasing adherence to telework?

This article aims to identify the perspectives and challenges of ergonomic assessment in telework, considering the worker's point of view based on an experience in the Public Service. The experience in question was developed and applied at the time of social isolation imposed by the Covid-19 pandemic and constitutes the basis for reflection on the practice presented in this case report.

2. METHODOLOGY

This article was produced based on discussions about workers' health in the telework modality from the perspective of the Ergonomics team of the Center for Ambiences and Ergonomics (NAE) of the General Coordination of People Management (Cogepe), an organ of the Presidency of the Oswaldo Cruz Foundation (Fiocruz).

To support the reflections proposed in this article, a non-systematic literature review was carried out, covering the themes of ergonomics of the activity, workers' health and ergonomics and telework. The review sought to critically explore the different perspectives, theories and practices related to the topic, contextualizing them in the specific scenario of telework in the Public Service from the Covid-19 pandemic. Some legal frameworks related to workers' health, ergonomics and telework were listed for contextualization, theoretical foundation, analysis and discussion of gaps and potentialities.

Additionally, an experience of ergonomic evaluation of telework in the Public Service, workers' health and Ergonomics in Home Office (STERH), conducted during the Covid-19



pandemic, was presented. From this case, a reflection on the practice developed was carried out and considerations about the perspectives and challenges identified were discussed.

Finally, the main findings of the essay were summarized, emphasizing the contributions to the understanding and practice of ergonomic assessment in telework.

3. FINDINGS

3.1. Ergonomics of the Activity

The need to deepen studies focused on the human component (*Human Factors*) was leveraged in the post-war period, when the search for better performance of men and machines was sought. This approach to ergonomics originates from the experiences of North American and British countries (Laville, 2018).

Breaking with the dominant scientific paradigm in the early 1970s, Alain Wisner emphasizes the need to study man's behavior and limits at work beyond controlled studies in the laboratory (Jackson Filho, 2004). This author is one of those who develop another approach to ergonomics, originating in French-speaking countries, centered on the situated analysis of the work activity (Laville, 2018).

The object of study of ergonomics is the work activity and it is to produce possible positive transformations in the situations in which the activities take place. Bonfatti (2004, p. 19) defines a work situation as "something singular and contingent". The author develops the idea that the composition of the work situation occurs through the combination of individual factors of the workers and external factors at a specific time. As individual factors, he mentions competence, training and momentary state, being the external ones, the environment, the norms, the routines, the means of work, his interlocutors and partners (Bonfatti, 2004).

From the point of view of activity, the emphatic approach in situated analysis makes an important contribution when it distinguishes the prescribed work from the actual work and later advances to the concepts of task and activity (Guérin et al., 2001). Ergonomics actions seek to understand the strategies that workers adopt to regulate the variabilities that occur in the work context, aiming to preserve and enforce what is defined by the organization (Vidal, 2003). To Guérin et al. (2001, p. 14), the understanding of the work activity, is the way in which the results are obtained and the means used to perform the task, that is, what is prescribed by the organization.

Supported by the plural contribution of other disciplines, Ergonomics, through the methodology of Ergonomic Work Analysis (EWA), proposes to understand work and its



transformations, understanding workers, individually and collectively, as the main actors in the production of knowledge and transformation about their work and their health (Vidal, 2003).

The methodological structure of the EWA varies. The initial methodological line proposed in 1994 by Wisner, in France, has five stages: analysis of the demand and proposal of contracts, analysis of the technical, economic and social environment, analysis of the activities and the work situation and restitution of the results, ergonomic recommendations and validation of the intervention and efficiency of the recommendations (Wisner, 1994).

Because it is based on fieldwork with a view to knowing the activities that will be analyzed, Vidal (2003) points out the need to apply the observational and interactional methods during the performance of the EWA. The observation *in loco*, as an observational method, allows the ergonomist to familiarize the work situations that will be analyzed and the workers. He says that this route occurs in two directions, that is, it also allows workers to get to know the work of the professional who performs the analysis. However, the interpretation attributed to the situations analyzed by the observer may vary according to the attribution of their senses and meanings (Vidal, 2003). Since this is the limit of observation, the interactional method complements the analysis of the activity based on the verbal description made by the workers. Thus, the ergonomist professional, when directing the interaction in a satisfactory way, (Bonfatti, 2004) will have access to information on the development of the activities (Vidal, 2003).

However, it is emphasized that, in addition to verbalization, interaction allows other types of contact between human beings, such as the context in which speech is being produced (Bonfatti, 2004).

In order for ergonomics actions to achieve their objectives and results, the involvement and participation of workers, at all stages, becomes indispensable. A device proposed by Vidal (2003) called Social Construction was conceived as a means of support for ergonomic action. It provides for the articulation between the ergonomist professional, workers and different groups of the organization through a structure of action, of a participatory, technical and managerial nature. In this way, the ergonomist "dialogues with all the people involved through the existing representations about the work situation" (Vidal, 2003, p. 71).

For Vidal (2003), positive transformations through EWA are ensured because this is a method that brings together focus, ordering, and systematicity in its characteristics and properties.



Teiger & Lacomblez (2013) also offer an important theoretical framework for the practice of ergonomics, based on the "paradigm of the formation of actors in and through the analysis of work for and by action", prioritizing the workers' knowledge, the collective construction of knowledge about work as well as the analysis of real work.

Recently, several studies have been conducted in order to identify health problems of teleworking workers, such as those carried out by Silva (2023), Andrade and Tonin (2023), Milakovic et al. (2023), Chim and Chen (2023) and El Kadri Filho and Lucca (2023). In these studies, it is highlighted that the recommendations for preventive actions are mostly centered on the worker himself.

Despite the advances in the identification of health risks in telework and the elaboration of recommendations, there is still a gap in the literature regarding the ergonomic assessment of telework activity and the parameters for its performance. El Kadri Son and from Lucca (2023) point out the need for companies to develop ways to assess risks among teleworking workers. However, not enough proposals and models have yet been pointed out to deal with this problem.

3.2. The Field of Workers' Health

The field of Workers' Health (WH) developed in the field of Collective Health, influenced by the Latin American Social Medicine movement and the Italian Workers' Movement (MOI). Such a theoretical-social context produced significant scientific advances that expanded the ways of investigating and the perspective on the health-disease process in its articulation with work (Gomez et al., 2018).

Schwartz (2020) emphasizes how much in Brazil the Brazilian Health Reform Movement, also based on the MOI, has achieved transformations and has materialized as a field of action and struggles for health as a universal right. WH incorporated the concept of work process as a central reference for studies of the health-disease relationship and thus inaugurated a new paradigm in the academic debate and in health care practices.

By using the concept of "work process" as an instrument of analysis, the Field of Workers' Health intervenes in hegemonic conceptions of Occupational Medicine and Health, when it is based on the principles of: relativization of quantitative methods in the analysis between cause and effect; in the interdisciplinary bet whose perspective is crossed by the expanded health concept; in the participatory practice centered on the worker as a fundamental actor in the transformation of work and; in understanding the social and historical dimension of work. Thus, the context in which productive relations are established and the specific conditions



in which work takes place are considered, which may or may not become producers of health. The objective is thus to change and control working conditions (Minayo-Gomez & Thedim-Costa, 1997).

By pointing out the historical and social character of the health-disease process, the interrelationship with the production process is observed, identifying in human groups the peculiar ways of living and dying. These are studies that evidence the historical processes of the health-disease relationship, detaching the view from the individual biological phenomenon to the biopsychosocial one (Laurell & Noriega, 1989). In this context, the worker's perspective becomes fundamental to build methodologies and reflections on the worker's practice. From this perspective, inspired by the Italian Workers' Movement, it is possible to know the conditions of possibility of work and the health-disease relationship that it can produce, as well as to enhance the "struggles for the improvement of working conditions and defense of health" (Lacaz, 2007, p. 758).

By privileging the theoretical-methodological contributions proposed by the Italian Workers' Movement, Workers' Health in Brazil incorporated the protagonism of workers in the intervention in the workplace.

In the process of constructing the conceptual matrix exposed above, some guiding questions emerged that reverberate for the ongoing analysis: How to approach/contemplate the perspective of the telework worker in the ergonomic analysis of work? Considering the growth of telework in Brazil in the post-pandemic, how to fight against yet another movement to hold workers accountable for their own health conditions at work? How can ergonomics help in building resources that ensure the transformation of remote work in the direction of workers' health? These reflections were enriched from the proposal of the STERH (Workers' Health and Ergonomics in Home Office) action, described in the following block.

3.3. The Institutional Experience of the STERH Ergonomic Action - Workers' Health and Ergonomics in *Home Office*

The scenario established by the Covid-19 pandemic proved to be a challenge to the development of the work of ergonomists linked to institutions. The challenges involved the impossibility of direct observations in a work situation, whose primary function is to understand the essential forms used by workers to manage the variabilities that arise in the development of their activities (Bonfatti, 2004). In this context, the STERH action (an acronym for Workers' Health and Ergonomics in *Home Office*). This aims to foster the creation of strategies



(individual, collective and institutional) to promote the health of workers in *Home Office*, even with the pandemic context associated with the requirements linked to social isolation (Azambuja et al., 2022).

The difficulty in accessing technologies and tools that allowed remote communication and learning how to use them, both by the team professionals and by the institution's workers, in addition to all the adversities placed in the telework routine in a pandemic situation, encouraged the use of other resources and methods, composing a new methodology of action. The proposal brings together references from the Ergonomics of the Activity, Training Paradigm for Transformation, Workers' Health, Collective Analysis of Work and Digital Ethnography and makes use of technological resources and digital communication as a means of making interventions in the field viable. Following the methodological frameworks of the Ergonomic Analysis of Work recommended by Allan Wisner (1994), the stages of the action could be made more flexible and adapted according to the needs and scenarios of the institution's services or demanding groups.

The STERH action is carried out in 5 stages and begins with the identification of the demand and social construction.

1. In this first phase, the relationship networks that facilitate the development of ergonomic action are built. For this, it is necessary to prepare or receive the demand (which in this case came from a department or unit of the institution). Equally important is the definition of a key actor (or representative of the unit) for the dialogue between the ergonomics team and the representatives of the sectors. Next, the implementation strategies are agreed and established and meetings are scheduled with the key actor, the unit's Work Management Service (SGT), the managers of the department or unit, and the communication and dissemination plan of the action in the unit is defined, aiming to raise awareness among all workers and encouraging voluntary participation in ergonomic actions (Azambuja et al., 2022).
2. The second phase includes the application of a digital instrument to the participating workers that aims to understand the health-work relationship in *home office*. This instrument was based on the EAMETA method (Bonfatti & Vidal, 2016). Its formulation addressed questions about the space and environment of work at home, furniture and equipment used, physical and cognitive loads present in the performance of activities, in addition to issues of work organization in *home office*.



3. The third step consists of providing the link to access the institutional video of guidelines for the adjustment of the workstation in *Home Office* (Azambuja et al., 2022).
4. In the fourth stage, virtual meetings are held to carry out a collective reflection on the theme of home office work. These meetings are based on the premises of the paradigm of training for transformation.

Among other associated methods, the Collective Labor Analysis (ACT) was used for the analysis of work in a group environment, in which the workers are the analysts themselves (Ferreira, 2015). With this, it was proposed to hold meetings whose guiding question was "what do you do in your work". This provocation aims to discuss the work, as much as necessary, so that there is the same understanding by all participants, which in this case, are the workers and ergonomists.

In addition to the ACT, the realization of videos and photographic records by the workers themselves were the resources chosen to enable the process of interaction and observation of tasks in virtual meetings. In these, it was possible to enable collective reflection on the theme of home *office work*, based on the premises of the "paradigm of the formation of actors in and through the analysis of work, for and through action".

Virtual meetings are held in groups, which can have a homogeneous or heterogeneous formation. The homogeneous group is made up of workers from the same sector, who have work processes that are interrelated during the *home office* period, professionals from the same field of activity or workers who, in the previous phases, have presented questions with the theme addressed. The heterogeneous group, on the other hand, allows the involvement of several workers, regardless of their processes and workplaces.

The meeting space *online* It allows the identification of themes with a proposal for the development of workshops for the collective construction of knowledge, discussions aimed at reflection on work and clarification of doubts related to the adjustment of the workstation. It is also possible, through these meetings, to identify possible themes for future workshops (Azambuja et al., 2022).

5. The action ends with the fifth stage, which consists of the preparation of a management report with a view to providing an overview of the critical situations faced by workers, paths and subsidies for their transformation. In addition, the possibility of elaborating action plans involving issues whose forum transcends the potential for construction and mitigation by the workers themselves is highlighted.



The importance of this management instrument is highlighted by Guérin et al. (2001) and Vidal (2003), pointing out that reports can act as a driver of transformation processes, as they are presented in detail, containing well-founded propositions throughout the previous analysis process, and by providing concrete resources for process optimization in order to allow the necessary changes.

These documents maintain their elaboration criteria and methodological rigor also when it comes to the virtual approach in order to maintain the effects related to ergonomic diagnosis, the proposal of improvements, as well as the transformation processes identifiable by the technical team.

In view of the reality posed, the formulation of STERH sought to maintain the core of an ergonomics action, associating strategies for the development of a virtual work that could guarantee the active participation of the individual and collective worker, with the objective of knowing the situations that occurred in the work in *Home Office* and build proposals and measures for adaptations and improvements. Here, we started from the premise of the construction of knowledge with the main actor, the worker (Oddone et al., 2020), even with the advent of teleworking.

4. DISCUSSION

Considering the above, the authors propose a reflection on the challenges for the development of an ergonomic assessment in the telework modality. Then, the aspects of the methodological technique and the look at the principles of an ergonomic action, inserted in the field of workers' health, will be presented and discussed, considering the main objective of instrumentalization of workers' collectives, based on reflection on work and the creation of strategies in search of improvements in working conditions.

Performing an ergonomics action in a virtual way brings several points to consider. Some of them are: the difficulty in carrying out an action whose observation of the real work activity is impossible, the dependence on information and virtual communication technologies, the consequent impacts on interaction and dialogical action and, above all, the *modus operandi* to enable the development of work processes in the face of the organization of telework.

It is envisaged that it is possible to increase the performance of the work through the appropriation of new technological resources and the association of other methodologies. Even using other methodological strategies as alternatives to the impossibility of monitoring and



observing *in situ* the work being carried out, another issue becomes apparent: the form of interaction with and between the people involved needs to be virtual. Here, we are faced with some conditions that can hinder the access of participants and the construction of bonds of trust, essential for the success of the action.

The use of technologies for virtual communication implies having the necessary equipment, programs and applications, having access to a good internet connection and ease in learning how to use such devices and tools. This point could be considered an important obstacle to the access of many workers to the proposed action. Thinking about facilitating the collective's access to the action through virtual means as much as possible, virtual meetings must be held through the platforms frequently used by the participating group.

Another crucial point for the development of the ergonomist's work, deepened by Bonfatti (2004), consists of "being aware of the best way to interact as an essential condition to achieve perhaps the greatest objective of the ERGONOMIST in EWA, that is, to engage in dialogue with the actors of the process in the work situation" (Bonfatti, 2004, p. 40).

Bonfatti (2004) emphasizes that interaction is established by other means of contact between people, in addition to contact through speech. He adds that on the occasions when people see each other in front of each other, various behaviors appear, such as looks, postures, gestures, which would be innumerable. These spontaneous reactions may or may not be intentional and also concern the state of mind that the context poses.

In the virtual environment, the identification and interpretation of behaviors, gestures, postures and looks is minimized and even non-existent, when the connection occurs only through the audio device, without the use of a camera. The virtual environment can also influence, in a different way, people's availability to place themselves, to use the space for speech, and can stimulate or inhibit. The use of virtual space also brings a greater need for concentration and an increase in the cognitive load of ergonomists and workers involved in the process.

In the action proposal carried out, the way of using digital instruments and resources takes a prominent place. We have, as an example, the videoconferencing instrument, especially when used in groups with many participants. At the same time that they make meetings viable, these resources can generate the sensation of a distant and impersonal contact, given the superficiality of the virtual (Sabino, 2022), and thus configure a detrimental factor to the construction of a relationship that boosts participation.



In addition, in the context of remote work, we are faced with the massive use of videoconferences to enable communication at work, in addition to other social relationships, for study and leisure. Effects of this hyperconnectivity and the high time of exposure to this mode of interaction are already being described. There is a cognitive overload that leads to mental fatigue, as Wiederhold suggests (2020) when characterizing "zoom fatigue".

Döring et al. (2022), point out that the *boom* videoconferencing induced by the Covid-19 pandemic has brought some advantages. However, these advantages were accompanied by overload, frustration or physical, cognitive and emotional exhaustion due to constant use. The authors point out that four important causal factors, namely personal, organizational, technological, and environmental factors (Döring et al., 2022).

Given this scenario, the use of videoconferencing as a strategy for the proposed action can become an overload, and therefore not be prioritized among the other various needs of virtual connection. The use of videoconferencing for larger groups, still without defining specific demands, works as an introductory approach and demands the sequence of action with the formation of smaller groups, as a way to favor the process of building trust with the collective. The creation of a bond with workers is essential for the proper development of the action proposal, which aims at the collective construction of knowledge about work.

As a facilitating factor for the process of interaction with the workers, in the present institutional experience, the fact that the team of ergonomists has many years of work experience in the same institution, where part of the process of social construction is already established in several sectors, is considered. An alternative to this strategy, which is not always possible, is the establishment of multipliers, or focal points with key insertion in the environment or with the individuals one wishes to reach.

In addition to the challenges of adopting new methodological strategies for the development of ergonomic analyses in the context of telework, there are also issues related to macro organization, where the guidelines and policies that subsidize and support this type of work are still incipient.

Attempts to regulate telework within the scope of the Brazilian Public Service predate the pandemic, which stems from the agreement with global movements to review production systems by inserting other work modalities. In Brazil, the laws that regulate telework concern the employment relationship to which the worker is subjected. The Consolidation of Labor Laws (Brazil, 2017), in updated versions published in December 2017 and September 2022,



considers the contractual parameters and the protection of teleworking workers and defines teleworking. (Godoy et al., 2019).

In 2018, for the purposes of Work Management in the Federal Public Service, the Ministry of Planning, Budget and Public Management, based on Normative Instruction No. 1, had the guidelines, criteria, and general procedures for the Management Program (Brazil, 2018). In 2020, the Ministry of Economy launched Normative Instruction number 65 also on the Management Program – PG (Brazil, 2020). In 2022, the Management Program was renamed the Management and Performance Program - PGD and established by Decree No. 11,072 of May 17, 2022 in the sphere of direct, autarchic and foundational federal public administration (Brazil, 2022). The PGD comprises teleworking and face-to-face work as work modalities. It leaves it to the discretion of the institution to build its internal plan and its employees to join. In 2023, Normative Instruction No. 24, of July 28, 2023, established the guidelines for the implementation and execution of the aforementioned program (Brazil, 2023).

In recent years, we have observed changes in labor legislation and their impacts on labor relations. Thus, in the context of telework, when presenting the regulatory framework, it is necessary to understand its effects on the weakening of bonds, flexibility of contracts and aggravations on the health of workers. Thus, we highlight the importance of this analysis of the macro organization of work for the performance of Ergonomics. In this sense, Silva (2023) addresses the concern about the actions that should be carried out in view of the nature of telework work. It reflects on the role of the government and companies in order to ensure health, safety and quality of life at work.

In summary, the challenges for ergonomic action in telework have normative and technical-methodological aspects, as shown in Chart 1. The first concerns the guidelines and policies that subsidize and support this type of work are still incipient. The second group includes: the impossibility of monitoring and observing *the work in situ*; the dependence on information and virtual communication technologies; the need to adapt/create information collection instruments; consequent impacts on interaction and dialogic action and; care with the high time of exposure to this mode of interaction, which can generate hyperconnectivity and consequently mental fatigue.

In this scenario, ergonomic action is positioned in order to bring contributions that help with information to subsidize and guide institutional policies and strategies to promote the health of telework workers, also with a view to its extrapolation to the extent that it allows (a) to know how the telework activity is being carried out from the workers' point of view, (b) inform workers and managers about the working conditions and necessary adjustments, (c)



present to management an overview of the impacts of the work process in the remote modality, offering subsidies for future decision-making, (d) guide workers specifically on the adjustments and adaptations of the telework workstation, (e) encourage workers' reflection on working conditions and the possibilities of transforming them, (f) identify issues related to the relationship between health and work in telework, (g) contribute to the improvement of working conditions on a continuous basis and (h) contribute to the reduction of health problems related to working conditions.

Table 1. Challenges and contributions of ergonomic assessment in telework

	Challenges	Contributions
Normative	Guidelines and policies that subsidize and support remote work are still incipient.	Inform workers and managers about working conditions and necessary adjustments;
		Present management with an overview of the impacts of the work process on remote work, offering subsidies for future decision-making.
		Contribute to the construction of institutional actions to promote the health of workers in telework.
Technical-methodological	Impossibility of monitoring and observing <i>the work</i> in situ.	To know how the telework activity is being carried out from the workers' point of view.
	Dependence on information and virtual communication technologies	Consider variables and variabilities in the prescribed time.
	Need to adapt/create information collection instruments	Guide workers specifically on the adjustments and adaptations of the telework workstation.
	Consequent impacts on interaction and dialogic action	Encourage workers' reflection on working conditions and the possibilities of transforming them;
	Be careful in dialogical interaction with the high time of exposure to this mode of interaction that can generate hyper connectivity and therefore mental fatigue.	

The experience of the ergonomic action presented showed that it is possible to intervene in the health-work relationship when the experience of workers is recognized and validated as



an essential resource to guarantee labor dignity, as recommended in the Sustainable Development Goals (SDG 08) (UN, 2015). SDG 8 points out that sustainable and inclusive economic growth must promote progress through decent work, ensuring rights and social protection for all by improving living standards (UN, 2015).

Thus, the analysis of the activity is an important resource to evidence work as a social determinant and promoter of the health of the populations. By identifying the variabilities and possibilities of leeway to handle the tasks, ergonomics highlights the effects of teleworking and authorizes, from the point of view of the workers themselves, to build recommendations in the light of these experiences that are still little considered.

However, even though ergonomic action makes it possible to expose the effects of the economic model on the division of labor, it does not have regulatory means to change the organization of work that structures work situations in remote mode. However, the transversal social construction that brings together management, workers and institutional actors can be a resource to enable and/or intervene in policies to promote workers' health that incorporate the various modalities of work.

Therefore, ergonomic analyses of work cannot be limited only to proving and disseminating the immediate effects of the production system. Added to this is the transformation initiated in ergonomic intervention as an engine of improvement that expands to the various actors and institutional instances (Daniellou, 2004).

5. CONCLUSION

In this critical essay, the changes brought about by remote work were discussed. Initially inserted as a resource to respect social isolation in the context of the pandemic, telework has expanded as a global model of flexibility appropriate to the new modes of intensification of production and consequently whose effects continue to be exposed in recent literature.

First, the fundamentals of Activity Ergonomics were investigated in the correlation with Worker's Health as an epistemological matrix in aid of the analysis of the challenges imposed by telework. To this end, current studies were added that show avenues for analysis and intervention.

Next, an institutional experience of ergonomic action was presented, whose instruction of the demand mobilized the ergonomics team to follow a path of dialogue, interaction and analysis. In addition, the contradictory between the prescribed and the actual of telework was



materialized. Thus, in a third moment, the technical, methodological and normative challenges for ergonomic action were highlighted.

The literature review demonstrated a certain naturalization on the part of organizations of a supposed possibility of transferring face-to-face work to remote work. However, in view of the critical dimension added to the incursion into the real of the activity, a range of questions necessary for the development of ergonomic action are revealed. The need to build a web of resources in social, technological and infrastructure terms was identified in order to effect the transformation in the organization of work, and thus, give visibility to what happens in remote work and its effects on the health of workers.

In the fourth moment, he was urged not to generalize and to consider the peculiarities of the context of the Brazilian public service. In addition to the implementation of telework, there is, for example, a variation in regulations and legal support depending on the employment relationship.

Despite all the limitations of public institutions and the incidences that characterize the capital-labor relationship, Ergonomics, when integrated with a commitment to Workers' Health, seems to be the institutional mechanism that enhances the promotion of workers' health.

Finally, it also aims to answer the question: in the long term, what will be the impact on ergonomic action in the sense of maintaining and strengthening the collectives of workers in telework? The mainstreaming of the issues that emerge from telework concerns the work process in its technical, human, social and environmental dimensions. This brings up the idea that the issue needs to be addressed not only through palliative and welfare-based, but also in a structural, in-depth and assertive way.

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