

Editorial

HFE at the frontiers of COVID-19. Human factors/ergonomics to support the communication for safer care in Italy during the COVID-19 pandemic

Abstract

Italy was the first country after China to be affected by COVID-19. The wave of the emergency found our country unprepared to cope with the surge of patients going to first aid departments to seek assistance in the almost complete paralysis of community health. Human factors and ergonomics (HFE) can effectively contribute to, and improve the effectiveness of, a pandemic response working on several key areas: training, adapting workflows and processes, restructuring teams and tasks, effective mechanisms and tools for communication, engaging patients and families and learning from failures and successes. In Italy, HFE expertise has been able to provide our healthcare systems with some easy-to-realize solutions (particularly dedicated to improving communication, team work and situational awareness) in order to cope with the need for rapid adaptations to new and unknown scenarios: ensuring information and communication continuity in the different levels of the healthcare system; identifying hazard opportunity through risk management tool; providing training through simulation; organizing regular briefing and debriefing; enhancing the reporting and learning system as an informal way of communicating adverse events and supporting information campaign and education initiatives for the public.

Key words: human factors and ergonomics, COVID-19, patient safety, communication

Introduction

Italy was the first country after China to be affected by COVID-19. The wave of the emergency found our country unprepared to cope with the surge of patients going to first aid departments to seek assistance in the almost complete paralysis of community health. We were not ready from different perspectives: from managerial to logistics and equipment. Several of these key organizational issues were related to human factors and ergonomics (HFE) and safety culture [1]. As Gurses *et al.* pointed out, HFE can effectively contribute to, and improve the effectiveness of, a pandemic response working on several key areas: just-in-time training development, adapting workflows and processes, restructuring teams and tasks, developing effective mechanisms and tools for communication, engaging patients and families to follow the recommended practices, identifying and mitigating barriers to the implementation of improvement plans and learning from failures and successes to improve both the current and future pandemic responses [2].

HFE experts can play a fundamental role in facilitating the harmonization of issues rising from stakeholders at different levels (hospital, trusts, region, national and international) as well as adapting information to the local context before it is sent to the front line. HFE experts support the deep understanding of stakeholders acting in any sociotechnical context: system actors, system experts, system

decision-makers, system influencers that play strategic roles in facing complex and uncertain situations [3]. This suggests that HFE should always be embedded in the practice of healthcare for effective patient safety [4, 5]. An HFE approach helps in making explicit 'how' to make a change happens in a specific context, how to fit any theory into the real world, taking into account peculiarities of the system and answering questions: who are the stakeholders, their relations and needs, the interactions they have with the different elements of the system and the level at which those stakeholders are acting. During the emergency period, all these questions became fundamental issues. Moreover the poor, discontinuous, opaque communication among the stakeholders represented one of the most critical areas during the management of the pandemic by creating what has been named 'infodemic', the overload of information creating cognitive overload and a sense of disorientation both in the population and also inside healthcare system.

Applied HFE solutions for improvement

With the need for rapid adaptations to new and unknown scenarios, HFE and patient safety tools provided our healthcare systems with some easy-to-realize solutions to cope with the emergency, in particular for improving communication, team work and situational awareness.

One of the main activities that emerged in response to the emergency was to ensure information and communication continuity in the different levels of the healthcare system. The risk manager acted as focal point, as a 'business continuity function' as her role was crucial especially in adapting solutions to specific contexts. This continuity was guaranteed due to the integration of a communication expert, a psychologist and a sociologist in the pandemic management task force. It was also crucial to identify a spokesperson at various levels (international, national, regional, local) to ensure adequate, coordinated and continuous communication. Organization of Safety Walkrounds [6] and observations in the field represented key support for front-line staff in the application of the new guidelines, protocols, new procedures and for the identification of hazards. Most of the analyses were conducted using *ad hoc* checklists and proactive risk analysis methods as the Failure Mode and Effect Analyses [7] and simulations of new emergency scenarios and clinical pathways.

Another effective solution was the creation of teams and identification of team leaders to spread the new knowledge and organizational tips with the delivery of training through webinars and multimedia products to increase risk perception and improve safety culture.

Organization of regular briefings and debriefings became a strategic communication tool for raising awareness and sharing the lessons learned.

The Reporting and Learning System was augmented with an ongoing informal way of communicating adverse events through a network of risk managers and the introduction of a specific tag 'COVID-19' to collect and track all reports of critical activities related to the pandemic.

The integration between different levels of the system (from the facility level to the regional and national crisis units) and respective functions (public health interventions, Infection Prevention and Control, Personal Protective Equipment supply, new organization of clinical pathways and health workers tasks and roles) showed some critical issues at the very beginning of the emergency. The National Crisis Unit and several Regional Crisis Units did not include risk management and HFE experts from the very beginning, and this created a serious gap between the centralized decision making process owned by the medical directions and the translation of central decisions into actions at the front line. Overcoming this first myopic choice at a still early stage of the pandemic allowed the adoption of a systemic approach as the framework for a coordinated action between the management and the front-line operators.

During the pandemic, the integration and coordination with municipalities for the management of communication to citizens, was an opportunity to promote patient safety principles and culture in the civil society by supporting an information campaign and education initiatives with specific communication materials for correct attitudes and behaviours to prevent COVID-19 infection.

Impact of the HFE solutions: the health professionals' voice

The HFE solutions and the support from the patient safety network during the emergency were perceived as very useful from the healthcare operators. We conducted interviews with front-line opera-

tors, specialists in infection and prevention control and risk managers on the capacity to respond to the emergency. One of the physicians from a COVID-19 ward stated 'the group of colleagues who are facilitators for patient safety activities played the key role of fluidizing information coming from the decisional centres and of keeping high the attention of clinicians on issues related to risks of contamination.' Talking about the use of the reporting and learning system during the pandemic, a nurse noted 'I appreciate the reshaping of the reporting and learning system, we had the possibility to report criticalities in an informal way and to have immediate support to fix the problem on key topics as the handover process or the medication administration'. Another physician pointed out that 'the setting up of in situ simulations on donning and doffing PPE, in a room at the entrance of the COVID-19 ward, was really effective and supportive from the psychological point of view'. A risk manager underlined that 'the organization of online Mortality and morbidity reviews was requested by many wards'. A specialist in infection and prevention control confirmed that 'the role of conjunction played by the risk manager expert in HFE was the basis for creating a common ground to work together as a team and build stronger relationships based on trust and collaboration'. In general, the considerations from the healthcare professionals suggest that in the future the planning of the patient safety activities and the HFE approach need to be embedded into the organizational strategy for reinforcing preparedness of the healthcare systems to the emergency.

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