

WHAT MAKES HOSPITAL WORKERS READY TO MANAGE THE COVID-19 PANDEMIC? A PSYCHO-SOCIAL APPROACH

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Abstract

Skills, commitment, and motivation of hospital workers are essential to cope with sanitary crisis (Barasa et al., 2018) such as COVID-19 pandemic. However, most research on the preparation of hospital workers for sanitary crisis shows a mismatch between their level of preparedness and their perceived preparedness and the estimated needs to manage these situations (Gowing et al., 2017; Labrague et al., 2018). In this context, it is crucial to understand how these individuals perceived their readiness to manage these situations and not only their preparedness level. Social psychology can provide clues for understanding the readiness perception (Mishra & Mazumdar, 2015). This study aims to explore hospital workers readiness perception to manage a sanitary crisis upcoming (COVID-19 pandemic) and determinants of this perception. 408 French hospital workers respond to an online survey containing 11 items about COVID-19. Variables studied concern perception of personal preparedness, colleagues preparedness, and institutional preparedness. Results show that hospital workers have a relatively low readiness perception to manage COVID-19 before it came out. This study proposed a model explaining personal readiness perception to manage COVID-19, most important variables are: Colleague hospital service's ($\beta=.37^{***}$), personal preparation perception ($\beta=.29^{***}$), perception of hospital human resources sufficient ($\beta=.22^{**}$), perceived capacity for professional action ($\beta=.097^{***}$), and perception of personal skills as sufficient ($\beta=.11^{**}$). These results show that personal preparedness is not enough to feel ready, there is other essential variables. This study shows that the perception of personal readiness is a complex process which deserves a psycho-social study combining individual and collective variables. For practice, these results suggest that the preparation must therefore be based on the collective and not only on the individual.

Keywords: COVID-19, readiness perception, hospital workers

Introduction

Appeared in November 2019 in China, COVID-19 disease is characterized as a pandemic on March 11th, 2020 (World Health Organization, 2020). All the impacts of this pandemic are unknown yet but they will make history for sure. To reduce risks, hospital system must be efficient. Indeed, the severity of a sanitary crisis depends not only on its intrinsic intensity but also and above all on the vulnerability of the exposed society (Zaninetti, 2013). To manage these crises, the paradigm of zero risk has been replaced by that of the resilient society (Quenault, 2013). The resilience of a health system refers to its

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ability to absorb disruptions, adapt and respond by providing necessary services (Kruk et al., 2015). This concept is confused in its definition (Turenne et al., 2019). However, areas for improving the resilience of health systems are identified, such as planning and preparation for future crises (Barasa et al., 2018). This paradigm thus leads to expectations of health system: they must prepare for the crisis to limit the damage. For this reason, hospitals have procedures for setting up a specific organisation that mobilises all the human and logistical resources needed to manage sanitary crises. In addition to the procedures, hospital workers are key players in the implementation of these plans (Combalbert, 2012; Conseil National pour la Science, 2008). Indeed, their skills, commitment and motivation are essential to cope with these sanitary crisis (Barasa et al., 2018). However, most research on the preparation of hospital workers for sanitary crisis shows a mismatch between their level of preparedness and their perceived preparedness and the estimated needs to manage these situations (Gowing et al., 2017; Labrague et al., 2018). In this context, it is crucial to understand how these individuals perceived their readiness to manage these situations and not only measure their preparedness level. Social psychology can provide clues for understanding the sense of readiness (Mishra & Mazumdar, 2015).

This study aims to explore hospital workers readiness perception to manage a sanitary crisis upcoming and determinants of this perception. COVID-19 pandemic context offers the possibility to assess French hospital workers readiness perception at the start of the crisis. Results may help to understand how the preparation for sanitary crisis is internalized to real situations and how to improve them. We also aim to propose a method for collecting and analysing information to produce a set of guidelines.

Theory and method

What is preparedness?

Concept of preparedness is complex, we differentiate the declared preparedness, the perception of preparedness and the readiness perception. Declared preparedness refers to declaring that one has had preparation behaviors. The perception of preparedness refers to the perception that preparation behaviors are sufficient to manage sanitary crisis. The readiness perception refers to the belief that one is ready to manage the sanitary crisis. The difference is subtle but it is crucial, because individuals may think that they have had enough preparedness behaviors but still feel that they are not ready, and conversely, they may think that they have not had enough preparedness behaviors but still feel that they are ready. Also, individuals may report having participated in preparedness training, but they may not feel sufficiently prepared or ready to manage a crisis. This difference was observed in a previous study that we have conducted (unpublished) made of 43 interviews conducted with hospital workers from all over France from January 2019 to July 2019 about sanitary crisis preparation.

Tools

The survey contains 95 items questioning preparation on sanitary crisis and predictors of readiness perception. 17 items concerned the characterization of the hospital population in the form of Boolean, open-ended or multiple-choice questions. The variables are: experience of one or more sanitary crisis, age, gender, profession, hospital department specialty, work experience, city and department of the hospital, participation in simulation exercises, participation in specialised training, participation in feedback from previous exceptional health situations, reading the emergency plan of the hospital and requesting information from referents of sanitary crisis. 11 items are about their preparation face to the COVID-19 crisis. Items choice was based on the 43 interviews with hospitals workers conducted in a previous study (unpublished). Items about COVID-19 are likert-scale type, ranging from 0 (little agreement) to 10 (totally agree) concern perception of its own preparedness (personal readiness perception to manage a sanitary crisis, perception of the personal preparedness, perception of knowledge, and skills as sufficient to manage a sanitary crisis), perception of colleagues preparedness (readiness perception of colleagues in the speciality department and out the speciality department), perception of institutional preparedness (perception of the human and material resources of hospital as sufficient to manage a sanitary crisis, readiness perception of the hospital).

Procedure

An online survey carried out using the Qualtrics© online survey and analysis platform was broadcasted using the "snowballing" distribution method. With this method, participants share new contacts and these share new contacts and so on (Vogt & Johnson, 2011). To distribute the questionnaire in their hospitals 68 care management departments, 13 district health agencies and networks groups of caregivers were contacted by e-mail. All the participants gave their written declaration of consent before answering the questionnaire and after having information about the study. The survey released from 14th to 20th March 2020 in France. It was sent at a pivotal time in the management of the COVID-19 pandemic. At that time, a sanitary crisis had not yet been declared. However, the international context as well as forecasts suggested that hospital workers would have to manage a sanitary crisis. The evolution of the crisis was uncertain. Indeed, in France, on March 14th, 4500 persons were infected with COVID-19, and 91 persons died as a result. On March 17th, lockdown has been declared in France. By March 20th, the end date, 12612 people were infected with COVID-19, 5226 people were hospitalized and 450 died (French government, 2020). The questionnaire was sent before the overflow from hospitals and close to the crisis enough for hospital workers to be sure they were going to have to manage a sanitary crisis.

Data analysis

Data were analysed using SPSS© software. First, descriptive analyses allowed to observe the data. We then carried out a matrix of correlations between the variables. Simple and multiple linear regressions were performed to quantitative variables. Then we did analysis of variance to the qualitative variables for significant analysis of variance, we carried out post-hoc tests of Bonferoni.

Results

Sample

The sample includes 408 hospital workers. It is composed of 360 women (88.2%) and 48 men (11.8%) with an average age of 36.8 years (minimum= 20 years, maximum= 64 years, standard deviation= 10.4 years). The sample is composed of 8 physicians, 38 health managers (a health manager supervises and manages a team exercising in the paramedical field), 344 paramedics, 9 administrative and directing workers. 82 French counties (including overseas counties) are represented. 143 participants have been working for less than 5 years (35%), 91 between 5 and 10 years (22.3%), 55 between 10 and 15 years (13.5%) and 119 for more than 15 years (29.2%). 122 participants have a prior experience of sanitary crisis (29.9%).

Descriptive results

Concerning individuals variables, participants have a middle score of perception of readiness on a scale of 0 to 10 ; a low score of perception of preparedness and middle scores about their perception of knowledge as sufficient and perception of skills as sufficient (cf. Table 1).

Table 1: Mean and standard deviation of individual variables

Individual variables	Means	Standard deviations
Perception of readiness	4.99	2.73
Perception of skills as sufficient	4.99	2.71
Perception of knowledge as sufficient	4.74	2.74
Perception of preparedness	3.61	2.77

Concerning collective variables, they have a middle score of perception of their colleagues in the same department specialty, just as for colleagues out of their department specialty (cf. Table 2).

Table 2: Mean and standard deviation of collective variables

Collective variables	Means	Standard deviations
Perception of colleagues among the specialty department readiness	5.40	2.82
Perception of colleagues out the specialty department readiness	5.33	2.68

They have a middle score of perception of their hospital as ready and they have low scores of perception of the human and materials resources as sufficient (cf. Table 3).

Table 3: Mean and standard deviation of institutional variables

Institutional variables	Means	Standard deviations
Perception of hospital as ready	5.16	2.82
Perception of hospital as had human resources as sufficient	4.18	2.74
Perception of hospital as had material resources as sufficient	3.22	2.41

Differences among participants experience

Concerning differences among participant experience, we conducted analysis of variance (ANOVA). According to the results, participants with more than 15 years of professional experience feel more ready than those with between 5 and 10 years of experience ($F= 3,02$; $p<.05$). Participants who have already experienced a sanitary crisis feel more ready than those who have never experienced one ($F= 9.00$; $p<.01$). Participants who have already participated in a simulation exercise feel more ready than the others ($F= 12.519$; $p<.001$). Participants who have participated in a feedback exercise on the management of a previous health crisis feel more ready than the others ($F= 13.051$; $p<.001$). Participants who have already read the procedures of management of the sanitary crisis of the hospital feel more ready than the others ($F= 4.882$; $p<.05$). Participants who have already asked for information on sanitary crisis management from referrals in the hospital feel more ready than the others ($F= 4.051$; $p<.05$).

Differences among perception of the participants

Table 5: Correlations matrix between the different dimensions of personal preparation's perception

	Perception of readiness	Perception of preparedness	Perception of knowledge as sufficient
Perception of preparedness	.628***		
Perception of knowledge as sufficient	.487***	.601***	
Perception of skills as sufficient	.420***	.485***	.478***

Table 6: Correlations matrix between personal readiness perception and perception of colleagues' readiness

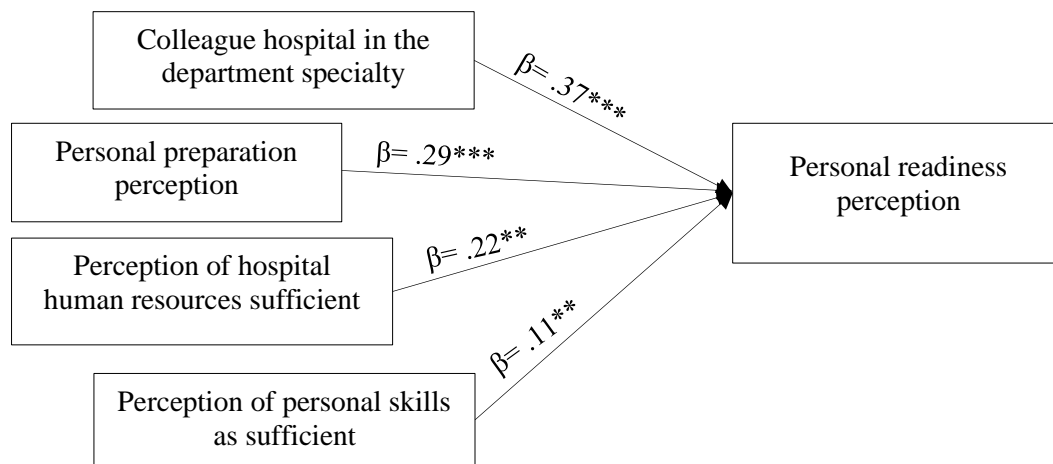
	Perception of readiness	Perception of colleagues among the specialty department readiness
Perception of colleagues among the specialty department readiness	.663***	
Perception of colleagues out the specialty department readiness	.591***	.850***

Table 7: Correlations matrix between personal readiness perception and perception of institutional preparation

	Perception of readiness	Perception of hospital as ready	Perception of hospital as had human resources as sufficient
Perception of hospital as ready	.615***		
Perception of hospital as had human resources as sufficient	.529***	.592***	
Perception of hospital as had material resources as sufficient	.533***	.641***	.694***

All the variables studied are positively correlated with the readiness perception (cf. Tables 5, 6, 7). Therefore, they were all included in the multiple linear (stepwise) regression model to determine the variables which is most related to the perception of personal readiness (cf. Figure 1).

Figure 1: Model of multiple linear regression with personal readiness perception as a dependent variable



The proposed model explains significantly more variability than a model without predictors ($F=147.73$; $p<.001$). It has an R of .77, an R^2 of .60. Perception of colleagues hospital in the department specialty readiness is the most important variable ($\beta= .37$; $t=9.77$; $p<.001$) followed by the personal preparation perception ($\beta= .29$; $t=7.17$; $p<.001$), perception of hospital human resources as sufficient ($\beta= .22$; $t=5.96$; $p<.004$) and personal skills as sufficient ($\beta= .11$; $t=2.90$; $p=.004$).

Discussion

Result summary

Results show that hospital workers have a relatively low readiness perception to manage COVID-19 before it came out. They perceive their own preparation as relatively average, their colleagues more ready than themselves, but it is still relatively average. They perceive their hospital as moderately ready and with insufficient human and material resources. There are no significant differences according to profession, this suggests that this average score is concerning all hospital workers in the same trend. However, these results show that this perception is related to individual factors: the perception of being prepared, the perception that themselves have sufficient skills to manage COVID-19, individual experience direct and indirect. Collective variables also are linked with the perception of readiness such as the perception of readiness of colleagues from the same hospital department specialty and perception that the hospital has enough staff.

The importance of self-perception

Results show that personal preparedness is not enough to feel ready; some other variables are essential. As Mishra and Mazumdar (2015) proposed, social psychology can provide clues for understanding the feeling of being ready. This can be done in two ways. First, by adding psycho-social variables to better understand these determinants. For example, we assume that the feeling of self-efficacy can be a good determinant of this perception. Indeed, it is defined as the belief that individuals can act in a variety of situations. Thus, the feeling of self-efficacy is not limited to the sum of the skills that individuals possess, which is concerning a perception of oneself as a whole, determined by psycho-social processes (Bandura, 2003). Given its definition, this concept seems important in defining one's own capacity to act, for example in our case for the management of a sanitary crisis. Yet, Paton (2003) shown the effectiveness of self-efficacy in predicting preparedness behaviors to disasters. This brings us to the second theoretical added value of the study of perception of readiness: the understanding of this process allows for a better understanding of preparation behaviors to sanitary crisis. Indeed, we propose that personal perception of readiness can fit into a preparation behavioural model such as the one Paton proposed (2003). We assume that this readiness mechanism can also play a role, for example, in the perception of the effectiveness of its response.

The importance of the perception of the hospital workers group

The perception of colleagues in the same department specialty readiness is the most related factor with the feeling of being ready. When the question concerns colleagues in other departments specialty, this

perception plays a less important role. Thus, we assume that this effect should be different depending on the characteristics of the relationships between the individual and his group. The study of belief of belonging or trust in their colleagues allow to better understand this link. Indeed, Arbon et al. (2003) has shown that nurses are more inclined to mobilize themselves during sanitary crises when they trust their leaders and colleagues. Moreover, the quality of leadership is also important for commitment during such crises (Arbon et al., 2013). The comprehension of these mechanisms would therefore make it possible to improve the understanding of preparation and management behaviors. Future research should be based on the study of the relationships between variables concerning perception to the institution and perception of the colleagues.

Recommendations

These results suggest that the preparation must therefore be based on the collective and not only on the individual. For example, future training should focus on the effectiveness of the hospital and colleagues in managing the health crisis by strengthening the sense of collective effectiveness as well as the sense of belonging. Results suggest that the preparation actions are related to the feeling of being ready, the most related are participation in simulation exercises and learning sessions of feedback of anterior sanitary crisis. Thus, these are the ones that must be employed first and foremost.

Conclusion

According to our results, it is necessary to adapt the preparation of hospital workers to improve this perception of readiness. For this purpose, this study shows that it is important to rely on individual, collective and institutional variables at the same time. Indeed, these three sets of factors are related to the perception of personal readiness and are also relatively average. This study also shows that preparation would benefit from concentrating on exercises such as lessons learned (feedback sessions about the management of anterior sanitary crisis) and simulation exercises. The perception of being ready is therefore a process combining individual and collective variables that deserves more research based on social psychology. These new studies would make it possible to refine proposals for recommendations for the practice of hospital workers.

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