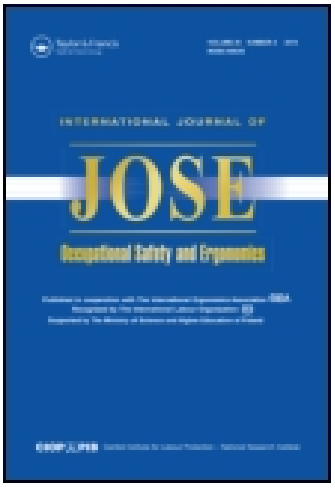

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Patients' Characteristics and Healthcare Providers' Perceived Workload in French Hospital Emergency Wards

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The aim of this research is to understand how patients' characteristics increase healthcare providers' perceived workload. Patients' characteristics and dependency, technical and relational complexities of care seem to increase healthcare providers' workload. As workload is multidimensional, we examine which dimensions are affected by patients' characteristics. Our methodology is based on 121 patients assessed with the NASA task load index (NASA-TLX) and a questionnaire filled in by 57 health providers in 2 emergency wards in French hospital settings, to evaluate their attitudes to different patients' characteristics. Our results show that physical demand is the dimension most affected by patients' behaviour and characteristics. Next, we observe that workload increases more due to patients' behaviour than their social characteristics. We propose that a regulation mechanism be taken into account in further research, using methodology based on observations to identify how healthcare providers might adapt their activities to compensate for workload variations caused by patients.

workload evaluation emergency ward healthcare providers patients' characteristics NASA-TLX

1. INTRODUCTION

This article is based on research focusing on the relationship between patients' characteristics and healthcare providers' perceived workload. Its secondary objective is to define workload dimensions most affected by patients' characteristics.

1.1. Workload

The definition of workload implies a weight, a cost, a quantity of effort that the worker feels [1, 2, 3, 4]. Despite its imprecision [5] and the existence of an ongoing debate about its definition [6], workload revolves around three factors: operator, task

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and environment. Among all factors involved in workload, work organization and task characteristics are two factors that are often used to explain increasing workload; they are not the only ones, however. For example, the notion of nurses' workload must not be limited to patients' care [7]. Activities other than caretaking, and other aspects of the job are also significant in evaluating workload [8, 9].

In the particular case of emergency wards, which interest us here, other factors of workload are also highlighted. Indeed, work in emergency wards is unpredictable and changes of activity are constant [10, 11, 12, 13], which increases the stress felt by healthcare providers [14]. In addition, pressure caused by this unpredictability and by facing patients' violence contributes to increased workers' stress [12]. Patients' violence towards healthcare providers results from different factors, including severity of the disease, overcrowded wards and excessive waiting time [15, 16, 17, 12]. Furthermore, the sequence of care in this type of ward is confusing for outpatients, who arrive in pain (medically justified or not), with an egocentric point of view, which cannot allow them to put their disease into perspective and compare their situation with that of the other patients [18], which is the task of the healthcare providers who receive them. Thus, the time required to take care of them, and good management of the ward are important for the patient (cared for quickly, satisfied), for the other patients who are waiting (in a calm environment), and also for the staff, who avoid violent behaviours and, consequently, an additional load for healthcare providers who develop skills in prevention and conflict management [19]. The management of patients and their behaviours seems more uncontrollable than the application of treatment and care [12]. Thus, there has been little research on "patient factors" taken as part of care and as part of the work situation to manage: this dimension constitutes a factor of workload that appears relevant to analyse.

1.2. Patients' Impact on Workload

A few studies with anthropological methodology have mentioned the burden some patients cause (e.g., dependent, psychiatric, homeless or trouble-making patients [12, 20] or the easy bonding with other categories of unconscious or weakened patients [21]). Healthcare providers usually consider managing confused patients as an increase in their workload because these patients require more time to be cared for, watched over, accompanied; they need more physical nursing and it is more difficult to make them co-operate [22]. Healthcare providers are suspicious and wary of drug-addicted patients, whom they see as not co-operating and not adhering to rules [23]. Homeless patients have the reputation of taking too much advantage of the space of emergency wards; they represent a problem for the staff [24]. These kinds of patients could be described as complex because they do not let health providers give "standard care" [25]. The behaviour of a more or less easy patient seems to be a factor to take into account. Patients who are the most difficult to manage correspond to dissocialized patients (such as the homeless), those with anxious behaviour (under the influence of drugs or not), those with communication difficulties, and the elderly for whom finding a place in another service is problematic [26]. It seems interesting to take into account patients who present behaviour problems such as shouting for no reason or walking around the ward.

1.3. Research Context

The patient factor has hardly been studied. We chose to identify how it contributes to increasing healthcare providers' perceived workload in emergency wards and also which dimensions of the workload are the most affected. What are the effects of an aggressive patient on workload? Do patients' demands, e.g., if they protest, increase workload and, if so, in which process?

2. METHODOLOGY

2.1. Place of the Study

The methodology was based on systematic observations of real work situations in a hospital setting. Data were collected over 10 months (February–November 2010) in the emergency wards of two French hospitals.

2.2. Tool of Data Collection

The activity of the two emergency wards was directly observed. We made individual observations of interactions between healthcare providers and patients. After each observed situation, the healthcare providers had to complete a questionnaire measuring workload perception and the complexity of the situation. So, each workload assessment was done in relation to each patient observed, and each patient's characteristics were evaluated by the healthcare provider we followed.

Workload, divided into six dimensions, was evaluated with the NASA task load index (NASA-TLX) [4]:

- mental demand (how many mental and perceptual activities are required);
- physical demand (how much physical activity is required);
- temporal demand (how much time pressure the worker feels during the task);
- performance (how successful the worker thinks they have been in achieving the goal of the task);
- effort (how hard the worker has to work);
- frustration (how insecure, discouraged, irritated, stressed or annoyed the worker feels during the task).

The results were assessed on a scale ranging from *very low* to *very high*, and converted as percentage for each dimension. In our survey, $\alpha = .778$, which allowed us to calculate a global score with Hart and Staveland's method [4].

We collected information on each patient: their age, gender and ethnic origin.

Finally, to evaluate the difficulties that healthcare providers have with patients, on the basis of the in-depth interviews from Schoenenberger, Moulin and Brangier's study [26], we developed a questionnaire.

In part 1 of this questionnaire (eight items), the respondents had to evaluate patients' behaviour on a 6-point Likert scale (1 = *not at all*, 6 = *totally*).

- Do you assess this patient as aggressive?
- Do you assess this patient as full of demand?
- Do you assess this patient as having poor hygiene?
- Do you assess this patient as having behaviour problems?
- Do you assess this patient as having psychiatric disorders?
- To what extent did you have difficulties in communicating with this patient because of their linguistic problems?
- To what extent did you have difficulties in communicating with this patient because of their physical disability?
- To what extent did you have difficulties in communicating with this patient because of their psychological problems?

In part 2 of this questionnaire (seven items), the healthcare providers had to evaluate patients' characteristics on a *yes–no* scale.

- Is the patient you have just met a foreigner?
- Does the patient you have just met have foreign origins?
- Is the patient you have just met homeless?
- Does the patient you have just met have any physical disability?
- Does the patient you have just met have any psychological disability?
- Is the patient you have just met drug-addicted?
- Is the patient you have just met an alcoholic?

We asked the healthcare providers to note down those items, so that we could assess their perception of each patient. We preferred this kind of evaluation because our aim was not to know if the patients were, e.g., really aggressive, but what the health providers' subjective perceptions were.

2.3. Sample

We observed 121 patients cared for by 57 healthcare providers. The patients' mean age was 48.6 years (*SD* 22.6); 71 (58.7%) were men, 11 (9.1%) did not speak French, 22 (18.2%) were drunk. In the health providers' opinion, 7 patients were homeless (5.8%), 5 were drug-addicted (4.1%), 20 were alcoholics (16.5%), 8 had a physical disability (6.6%) and 16 had a psychological disability (13.2%).

The healthcare providers' mean age was 31.7 years (*SD* 8.1); 45 (78.9%) were women, 39 (68.4%) were nurses, 7 (12.3%) were physicians,

6 (10.5%) were medical students, 4 (7.0%) were nurse's aides and 1 (1.8%) was a stretcher-bearer.

3. PROBLEM AND HYPOTHESIS

This research studied

- dependent variables: percentage of load in each dimension and global scale of the NASA-TLX [4];
- independent variables: gender, ethnic origin, foreign nationality, age, homelessness, physical disability, psychological disability, drug addiction, alcoholism, being drunk, aggressiveness, tendency to protest, poor hygiene, general perception of behaviour problems, psychiatric disorders, communication difficulties (linguistic, physical or psychological).

We assumed that the more difficult the patients were, e.g., because of their behaviour, the greater the healthcare providers' perceived workload was.

4. RESULTS

Psychometric indicators showed good reliability of our questionnaire on patients' behaviour (.763). However, we did not use only a global score but also each dimension of workload. In this way, we had more accurate results on the relationship between patients' characteristics and workload, which was our aim.

To achieve this, we compared each workload dimension for each patient's characteristics (present–absence). As the distribution of the evaluation of workload dimensions was not normal, we used the nonparametric Mann–Whitney *U* test. Then, we made mean comparisons between the dimensions of the NASA-TLX [4] and correlations between patients' behaviour. Again, we used a nonparametric test, Spearman correlation, r_s.

4.1. Workload Variation and Patients' Characteristics

The physical demand dimension was more important when healthcare providers had to care for drunk patients (p = .042). Drug-addicted patients increased physical demand (p = .030) and effort (p = .030) perceived by healthcare providers. The other characteristics measured in the questionnaire were not linked with workload variations (Table 1).

TABLE 1. Mann–Whitney *U* Test for Workload Variation by Patients' Characteristics

	Patients	
Workload Dimension	**Drunk[a]**	**Drug-Addicted[a]**
Mental demand	1027	161
Physical demand	786*	91*
Temporal demand	1010	127
Performance	1019	143
Effort	1038	92*
Frustration	905	135
Global workload	844	132

Notes. *p < .05; a = compared with other patients.

4.2. Workload Variations and Patients' Behaviour

According to Table 2, the score in the mental demand and temporal demand dimensions seemed unrelated to the patients' attitude. Moreover, the other dimensions of the NASA-TLX [4] varied according to patients' behaviour.

Physical demand seemed higher when patients presented psychiatric disorders (p = .010), poor hygiene (p = .010), behaviour problems (p = .002) and, above all, when they were aggressive (p < .001) or tended to protest (p < .001). The performance dimension decreased when patients protested (p = .030). The effort dimension was positively correlated with patients' poor hygiene (p = .040), patients' aggressiveness (p = .010) and their tendency to protest (p = .001). The frustration dimension varied according to patients' aggressiveness (p = .030), psychiatric disorders (p = .020), tendency to protest (p = .004) and poor hygiene (p = .002).

Logically, according to the variation in the workload dimension, the global score of workload varied and indicated that the more difficult a patient was deemed, the higher the healthcare providers' perceived workload was.

TABLE 2. Spearman Correlation of Workload Variation by Patients' Behaviour/State/Attitude and Communication Difficulties

	Patients' Behaviour/State/Attitude				
Workload Dimension	**Aggressiveness**	**Protester**	**Poor Hygiene**	**Behaviour Problems**	**Psychiatric Disorders**
Mental demand	.03	.06	.06	.46	.67
Physical demand	.34***	.38***	.22*	.27**	.21*
Temporal demand	.11	.16	.16	.06	.12
Performance	−.14	−.19*	−.04	−.03	.07
Effort	.23*	.31**	.18*	.15	.15
Frustration	.19*	.25**	.27**	.16	.20*
Global workload	.23*	.26**	.22*	.20*	.22*

	Communication Difficulties		
Workload Dimension	**Linguistic**	**Physical**	**Psychological**
Mental demand	.08	.33***	.06
Physical demand	.02	.19*	.29*
Temporal demand	.64	.23*	.09
Performance	−.03	.01	−.05
Effort	.00	.21*	.14
Frustration	.05	.25**	.21*
Global workload	.04	.28**	.21*

Notes. *$p < .05$, **$p < .01$, ***$p < .001$.

4.3. Workload Variation and Communication Difficulties

NASA-TLX dimensions [4] were not correlated with communication difficulties caused by linguistic problems (Table 2). Moreover, when communication appeared to be difficult because of a physical disability (e.g., deafness), all the workload dimensions were scored higher, except for performance. In the same way, some workload dimensions increased when communication seemed to be difficult because of psychological problems: frustration ($p = .024$), physical demand ($p < .001$) and global workload ($p = .026$).

4.4. Patients' Characteristics and Workload Variations

We studied the effect of 18 patients' characteristics on healthcare providers' perceived workload. After counting how many patients' characteristics increased each dimension of workload, we noticed that workload dimensions could be split into three groups (Figure 1):

- The high impact group concerns physical demand. This dimension is involved when patients are difficult to manage (e.g., because they are drunk or aggressive, because they have behaviour or psychological problems, or because of communication difficulties related to a disability) and unpleasant to care for (poor hygiene). Here, patients who are difficult to manage make the task more physical; e.g., healthcare providers must often keep an eye on drunk patients who try to run away, sometimes they have to bind them.
- The middle impact group is related to the frustration and effort dimensions. Frustration and effort result from patients who are difficult to manage (e.g., because they have communication difficulties related to a disability or they are aggressive) or unpleasant to care for (e.g., because of poor hygiene). When healthcare providers have to care for patients like that, they need to make a greater effort because they have to adapt. They also feel more frustrated if they cannot do their job properly.
- The limited impact group concerns mental demand, temporal demand and performance. Mental demand is higher for European versus African patients and when communication is perceived as difficult because of a disability.

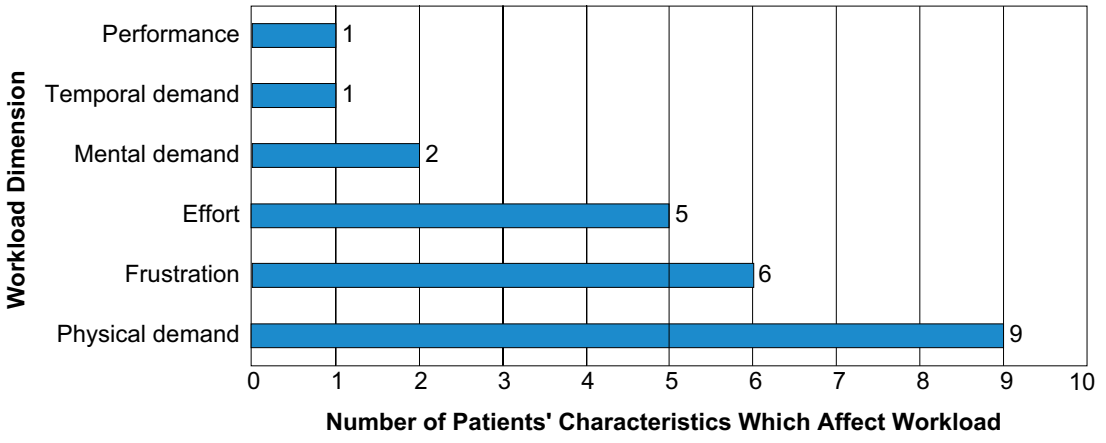

Figure 1. Workload dimensions by patient's characteristics.

Temporal demand is increased when communication is difficult because of a disability. Moreover, performance decreases when patients protest. Here, the patients' characteristics slightly affect mental and temporal demands, that is to say those dimensions are not influenced by the patients but more by the care itself and the work organization (e.g., how much time is allotted). By contrast, maybe performance decreases when dealing with patients who protest, because of the healthcare providers' lack of interest in patients who are always unsatisfied with the care they receive.

5. DISCUSSION AND CONCLUSION

Facing some patients' individual characteristics appears to be a factor in healthcare providers' perception of an increase in their workload. So-called difficult patients (i.e., patients who are difficult to manage) particularly increase the physical demand, effort and frustration dimensions on the NASA-TLX scale [4].

5.1. Patients Who Increase Workload

Although Vega proposed a definition of a "bad patient" based on well-defined and definable characteristics (drug-addicted, homeless, of Northern African origin, alcoholic, bedridden) [20], those criteria are not those which increase healthcare providers' perceived workload the most. The factors which increase workload perception the most are communication difficulties related to a physical disability, patients full of demands, aggressiveness and poor hygiene. All these factors are hardest for healthcare providers. In other words, the problems in managing patients are the most important cause of the feeling of increased workload resulting from patients' characteristics.

In addition, we can observe high variations in workload related to patients' (un)conscious behaviour. Thus, an aggressive patient raises the physical demand dimension. As a result, it is not the fact of being categorized in a specific group (e.g., drug addicts, homeless), which increases the workload, but the patients' social behaviour (easy or difficult to manage) [11, 24]. The complexity of caring for a patient must take their behaviour into account, including the risk of disorganization of the providers' routines [25].

5.2. Workload Dimensions Most Affected by the "Patient" Factor

Physical demand is the workload dimension which correlates the most with patients' characteristics [22]. Admittedly, some aggressive patients need enhanced surveillance to limit the risk of running away or violent outbursts. In this kind of surveillance, healthcare providers have to change their activity to keep the patient in sight (e.g., take files into the waiting area to keep an eye on the patient) or frequently check on the patient. In extreme cases, tying agitated patients

becomes imperative, but it is a physically demanding task because these patients struggle. In other instances, when drug addicts arrive unconscious, they must be watched over, have a gastric lavage, etc., which is gruelling for healthcare providers.

Concerning dimensions which moderately affected workload, when healthcare providers evaluated the frustration dimension, they regularly explained that they were frustrated by patients for whom they did not feel they could deliver good care, as if their work was impossible to do properly. The more prominent example is the case of the homeless who are left in a corner without medical examination, sleeping. Patients whose way of life does not allow them to "invest in their health" [27] are barely tolerated by healthcare providers. Putting them away in a specific place, where no one will come (no one will pester or examine them) is a way of discouraging them from unnecessarily congesting emergency wards [24].

The dimensions of workload that are least affected by patients' characteristics concern the mental and temporal demands. Emergency wards are characterized by an unpredictable activity which constantly changes and generates stress among healthcare providers. Healthcare providers are used to working under high temporal pressure because of the necessity to frequently adjust the prioritization of emergencies according to the severity of new patients' disorders [10, 11, 12, 13, 28]. Patients' behaviours, e.g., having numerous demands, which is not considered as a criterion of pathology severity, increase temporal pressure in emergency wards. This element can explain why healthcare providers do not feel modification in mental demand. In the same way, they have such high motivation to cure patients [19] and are so used to concentrating during activities that are regularly disrupted [29] that patients' characteristics do not affect mental demand and performance.

To conclude, it seems that it is not the patient's characteristics which are important in the variation in workload but how these characteristics interfere with the work process. For example, a patient who tries to run away implies that at least one care provider will stay next to them to make sure they will not leave.

Peneff [11] and Vega [20] were the first to define bad patients on the basis of general and definite psychosociological characteristics (drug-addicted, homeless, of Northern African origin, alcoholic, bedridden). Our contribution allows us to question this point by showing that it is not these definite characteristics which impact workload but the behaviours associated (or not) which make healthcare providers' work more difficult due to their impact on their daily procedures. Thus, we could consider intervening on the organization of activity to manage those problematic behaviours (e.g., by implementing specific protocols or recruiting mediators), as well as designing specific training to teach healthcare providers how to manage these patients.

We could also explore the regulation mechanisms of healthcare providers faced with an increase in workload generated by patients. Qualitative observation in situ could be made, in addition to the questionnaires we used here. Thus, by using patients' characteristics, behaviours and the workload they generate, we could identify how healthcare providers modify their work to regulate their workload.

Studying behaviours is relevant because healthcare providers distinguish between patients on the basis of their behaviours rather than their affiliations. Without analysing affiliations, healthcare providers seem to link patients' behaviour with their workload. Therefore, it is an interesting lead, both in terms of understanding the processes involved and as a driver of change.

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