

# The quality perceived in emergency departments between patients and caregivers according to waiting time: A cross sectional multicenter study

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**Abstract.** *Background and aim:* In recent years there has been a growing interest in risk management and the quality of services offered to the user in healthcare services, a concept that has undergone a series of changes following its diffusion, entering into all productive processes, especially in Emergency Departments (EDs). The present study aims to assess which indicators invalidate in the perception of the quality of care received by the sample, as well as how it varies according to differences in the characteristics of patients and caregivers. *Methods:* A multicenter, cross sectional observational study was conducted through the snowball sampling method. A link was created thanks to the Google forms platform and disseminated through the social platforms of Triage Training Group and of the University of Turin, Italy. *Results:* A total of 624 participants agreed to participate in this study, specifically, 390 were patients and 234 were caregivers. The quality level perception was assessed by referring to the first phases of the ED. Most of the patients interviewed considered information received at the triage phase as insufficient (15.9%) and very insufficient (5.3%), ( $p=0.008$ ). *Conclusions:* Emerged data suggested a degree of user dissatisfaction, specifically in the triage and waiting phases, which aimed to strengthen the motivations to implement organizational solutions to decrease waiting times, not just increase a subjective feeling of satisfaction. ([www.actabiomedica.it](http://www.actabiomedica.it))

**Key words:** caregiver, emergency department, patient, quality perception, waiting time

## Introduction

The scientific-technological progress, socio-demographic, economic changes, cultural growth of the population, the increase in available information allowed to radically transform modern societies and

health systems in industrialized countries, of which the purpose has become to satisfy the user, through the assessment of perceived quality, a pivotal point for total quality assessment. There has been a growing interest in risk management and the quality of services offered to the user in healthcare services, a

concept that has undergone a series of changes following its diffusion also entering all those production processes that provide goods and services to the user (1). The Emergency Department (ED) service was characterized by a constant increase in accesses, especially those made by patients who were assigned a minor code, signaling the need for non-urgent services (2). Literature often found that most of dissatisfied patients were influenced by the overcrowding, unfortunately in constantly rising. In most cases, patients went to ED also without a real cause, but, at the same time, all citizens considered their presence in the ED as absolutely legitimate and adequate. This condition might represent stressing source and frustration for healthcare professionals, who negatively perceived these influences and affecting their professional attitudes (3). Emergency room overcrowding is considered a global public health crisis with potential implications (4). According to the Salway et al. study (5), the main consequences due to the overcrowding comprehended: long waiting times by users before receiving urgent treatment; increasing in length of stay due to a hospitalization delay; increasing in patients dropping out of the ED before receiving medical care; reduction in the quality of care and increased risk of medical errors; increased mortality and morbidity; increasing in ambulances being diverted to other hospitals. Therefore, waiting in the emergency room, both for patients and their family members represented a critical phase in the user's relationship with the healthcare service. There were numerous factors that decreased the quality of service level perceived by the user, specifically: the length of the waiting, the anxiety related to concern for one's health, the expectation of a quick response (4,5). Waiting time in the ED could represent an opportunity to convey useful and coherent information to citizens on their experiences, both as patient or caregiver. It became important to understand how the user evaluates his or her stay in the hospital, from their first access, which often takes the form of access to the emergency room: a context in which the triage nurse, rationalizing waiting times, using as criterion of choice, the clinical and psychosocial conditions of the patients, assumed a fundamental role (6,7), where technical skills intersected through a relationship of trust and empathy between

the nurse and the user, considered to date the most perceivable aspect by the assisted, too. The pandemic period subsequently provoked long inevitable waits for users, with an increase in accesses and overcrowding, creating a situation in which the request for services exceeded the ability to provide quality assistance in a reasonable period of time (7,8), leading often to the phenomenon of aggressions on health professionals, which mostly came from users exasperated by the long waits, as highlighted in various studies, leading to a distorted view of reality in patients (9). The experience and the memory of the waiting time spent in overcrowded conditions could lead to a loss of trust of the citizen in the healthcare institution, due to the perceived unsatisfactory level of quality (10). Unfortunately, the evaluation of the quality of services was far from being a consolidated practice despite the fact that there were many questionnaires and structured interviews in the literature to detect the perceived quality. In Italy, compared to the rest of the world, the literature still bordered on few studies, and in particular, there were no studies, to our knowledge, that investigated satisfaction in the triage-acceptance phase. The present study aimed to assess which indicators invalidate in the perception of the quality of care received by the sample, as well as how it varies according to differences in the characteristics of patients and caregivers. In this way, we wanted to analyze if quality perceptions varied from subjects interviewed and also from the waiting time.

## **Patients and methods**

### *Study design*

A multicenter, cross-sectional observational study was conducted with the snowball sampling method. It was decided to carry out the survey using exclusively the online compilation, disseminating, according to the methodology used, the invitation to complete it on the web and on social networks. At the beginning of the present study we wanted to reach at least 1,000 of participants. However, at the end of the data collection, a total of 624 participants were enrolled and no further answers were added.

### *Sample size*

The minimum statistically significant sample size was assessed through the Cochran formula (11). According to the National Institute of Statistics (12) in January 2023 the Italian population amounted to 58,997,201. By fixing 95% as the confidence level and 5% as the confidence interval, the representative sample size of the Italian population is 384.

### *Participants*

All persons who would respond to the online compilation invitation and who had had one or more visits to the ED on Italian territory in the last calendar year were included in the study. It was decided to exclude those under the age of 18 and anyone who had not signed consent to data processing. A link was created through Google forms and disseminated through the social platforms of a scientific society (Triage Training Group) and the University of Turin, Italy. In addition to this, to reach users, some patient and civic associations, numerous health informational sites, cultural associations such as "Cittadinanza Attiva", "Associazione Adelina Graziani" were additionally invite to answer to the on-line questionnaire. The link was also published on the most well-known social platforms, on pages and aggregation groups of individuals suffering or not from a disease. A QR code was published in two local newspapers and on the information boards of some Italian hospitals, in order to allow to numerous individuals to reach the questionnaire. Data collection started on March 1, 2022 and ended on August 31, 2022.

### *The questionnaire*

The first section of the survey tool contained sampling socio-demographic characteristics. In the second part of the questionnaire a brief description of the main motivations relating to ED accesses were investigated. To draft the questionnaire underlying this work, the Perceived Quality Questionnaire (QQP) created by the User Satisfaction Center of the University of Siena (13) was taken as a model, thus constructing ad hoc questions relating to various thematic areas (doctors, nurses, OSS, structure and comfort), in order to monitor the

perceived quality of the health service received during hospitalization through the judgment of patients. The QQP measured the perceived quality of the health service with respect to reception, hospitalization, discharge, within an emergency room and know the needs of patients in their specific requests, in the quality dimensions' knowledge into different extents.

Each participant who voluntary agreed to participate in this study completed an on-line web form.

In the first part of the questionnaire sampling characteristics were collected. Specifically:

- Participant's identity: patient or caregiver who accompanies patient to the ED;
- Gender: female, male or not given answer;
- Age: until 18 years; until 30 years, 31-40 years, 41-50 years, 51-60 years, 61-70 years and over 71 years,
- Part of Italy, where the participant lived at the moment of the enrollment: North, Center, South, including Isles;
- Educational level: none, elementary, lower middle license, professional diploma, higher middle school license, graduate and postgraduate;
- Where the participant lived: urban area (provincial capital city), sub-urban area (near a town or within 10 Km from the provincial capital city), rural area (Small municipalities or in any case more than 10 km away from the city center);
- How many times the participant used the ED as patient or caregiver: 1-2 accesses, 3-5 accesses, 6-10 accesses, 11-20 accesses, 21-30 accesses, more than 30 ones.

In the second part of the questionnaire a brief description with also motivations relating to ED accesses were investigated, specifically:

- What day of the week the participant went to the ED: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday or not given as not remembered;
- What time the participant arrived at the ED: 8-12 a.m., 1-5 p.m., 6-11 p.m., 12p.m. -2 a.m., 3-7 a.m. or not given as not remembered;

- How far was the ED from their homes: less than 5 kilometers (km), 6-20 km, 21-35 Km, mre than 35 km; not given as not remembered;
  - The choice to go to the ED was proposed by: a telephone advice from the family doctor after the visit to the family doctor, the telephone advice of the medical service, following a visit to the doctor, telephone advice of the 118 control panel, ambulance transport 118, following another medical examination, council of nurses or other trusted healthcare professionals, decision of cohabiting family members or in any case related, recommendation by relatives/friends/acquaintances, suggestions by internet, television, radio information, pharmacist, another facility or institution;
  - How long was the stay in the ED in total: less than 1 hour, 2-4 hours, 4-6 hours, 6-8 hours, 8-12 hours, 13-24 hours, more than 24 hours;
  - How the waiting time was considered: adequate and inadequate.
- The willingness to listen to all of the participant concerns during the triage assessment;
  - The understanding that the healthcare professional showed during the triage evaluation;
  - The time dedicated during the triage phase;
  - The information provided at the triage phase;
  - The preparation and competence of the healthcare professional assigned to the triage step;
  - In general, the quality perception of the assistance provided during the triage phase;
  - The functionality of the waiting room with respect to user needs;
  - The cleaning of the waiting rooms;
  - The availability and cleanliness of the toilets in the waiting room;
  - The signs in the access rooms and in the waiting room;
  - The availability of seats in the waiting room;
  - Respect for the spacing within the waiting room;
  - The organization and compliance with separate pathways for Covid-19 positive patients;
  - The quality of assistance provided while waiting.

In the latest part of the questionnaire, the quality level perception was explored by referring to the first phases of the ED staying, specifically, during the welcome, triage and waiting phases. For each item proposes a rating Likert scale was associated which varied from 1, as insufficient level perception to 5 as optimal level perception. -Cronbach was assessed for the total 19 items for =0.975. The items proposed explored the following areas:

- The quality of the path to reach the reception staff once you arrive in the ED;
- The ability of the acceptance of the ED (Triage) to meet the needs of users from an organizational, structural and logistical point of view;
- The way in which his physical examination was performed at the triage, as: general examination, pulse control, temperature;
- The questions proposed about the health problems during the triage assessment;
- The questions proposed referring to difficulties (personal, family, professional, financial, ...) during the triage assessment;

#### *Data analysis*

All the items proposed in the questionnaire administered were presented as categorical variables and then, assessed as frequencies and percentages. All sampling differences in the different parts of the questionnaire between the patient group and the caregiver one were performed thanks to the *chi square* test. Additionally, by referring to quality perceived between patients and caregivers and the waiting time considered as satisfactory or not, differences were also performed thanks to the *ANOVA test*, by also considering perceptions' levels as means  $\pm$  standard deviations. All p-values less than 0.05 were considered as statistically significant.

#### *Ethical concerns*

At the beginning of the questionnaire we inserted an introductory message containing information on the objectives of the study and on the research group.

All participants who disagreed to participate or did not give their consent were excluded from further analysis. We preserved the privacy and anonymity of the healthcare personnel involved in the study: all the data collected were anonymously archived in a computerized database. The file was protected by a password known only to researchers.

The present study was approved by the Ethical Committee of Polyclinic in Bari, Italy, with id number 7217/2022.

## Results

A total of 624 participants agreed to participate in this study, specifically, 390 were patients and 234 were caregivers. Table 1 collected all sampling characteristics differentiating between patients and caregivers.

In the Table 2 all the access characteristics were explained.

In the Table 3, the quality level perception was assessed by referring to the first phases of the ED, like: staying during the welcome, triage and waiting phases. Answers were differentiating according to patient and caregiver answers.

Significant differences were reported for the following items:

- Item no.12 ( $p=0.043$ ): caregivers assessed more insufficiently the waiting room characteristics as with respect to their needs than patients;
- Item no.16 ( $p=0.031$ ): patients considered the seats available at the waiting room as sufficient that caregivers.

## Discussion

The purpose of the present study is to assess which indicators affect the perception of the quality of care received by the sample, as well as how it varies according to differences in the characteristics of patients and caregivers. In this way, we wanted to analyze if quality perceptions varied from subjects interviewed and also from the attendance time in order to reflect on some of the issues that appear most significant,

**Table 1.** Sampling characteristics (n=624).

Sampling characteristics	Patients n=390; 62.5%	Caregivers n=234; 37.5%
<b>Gender</b>		
Female	263(42.1)	173(27.7)
Male	127(20.4)	59(9.5)
Not given	0(0)	2(0.3)
<b>Age</b>		
Until 18 years	0(0)	3(0.8)
Until 30 years	56(15.1)	33(8.9)
Until 40 years	37(10)	22(5.9)
Until 50 years	69(18.6)	39(10.5)
Until 60 years	39(10.6)	28(7.6)
Until 70 years	15(4.1)	10(2.7)
Over 71 years	9(2.4)	10(2.7)
<b>Part of Italy belonged</b>		
North	235(37.7)	125(20)
Center	48(7.7)	23(3.7)
South and Isles	107(17.1)	86(13.8)
<b>Educational level</b>		
None	1(0.2)	2(0.3)
Elementary	15(2.4)	8(1.3)
Lower Middle License	28(4.5)	13(2.1)
Professional diploma	63(10.0)	46(7.4)
Higher Middle School License	136(21.8)	75(12)
Graduate and postgraduate	147(23.6)	90(14.4)
<b>Where the participant lived</b>		
Urban area	158(25.3)	75(12)
Sub-urban area	151(24.2)	93(14.9)
Rural Area	81(13)	66(10.6)
<b>How many times the participant used the ED</b>		
1-2 accesses	86(13.8)	36(5.8)
3-5 accesses	145(23.2)	74(11.9)
6-10 accesses	89(14.3)	64(10.3)
11-20 accesses	47(7.5)	34(5.4)
21-30 accesses	13(2.1)	10(1.6)
More than 30	10(1.6)	16(2.6)

the main outcomes of the research are presented by proposing a summary of what emerged. 390 users and 234 caregivers participated in the study, with a prevalence of the female gender, residing in Northern Italy and with a high level of education. The time spent by users and caregivers was around 2-4 hours. In the literature it has been found an inverse association

**Table 2.** The ED accesses: a brief description.

Accesses to ED characteristics	Patients: n=390; 62.5%	Caregivers: n=234; 37.5%
<b>Day of the week:</b>		
Monday	31(5)	13(2.1)
Tuesday	17(2.7)	11(1.8)
Wednesday	41(6.6)	23(3.7)
Thursday	39(6.2)	30(4.8)
Friday	43(6.9)	20(3.2)
Saturday	47(7.5)	28(4.8)
Sunday	38(6.1)	25(4)
Not remembered	134(21.5)	84(13.5)
<b>Time of the ED access:</b>		
8 – 12 a.m.	82(13.1)	54(8.7)
1-5 p.m.	86(13.6)	52(8.3)
6-11 p.m.	117(18.8)	68(10.9)
12p.m.-2 a.m.	38(6.1)	17(2.7)
3-7 a.m.	17(2.7)	8(1.3)
Not remembered	50(8)	35(5.6)
<b>Distance between the EDs and homes:</b>		
Less than 5 kilometers (km)	166(26.6)	75(12)
6-20 km	179(28.7)	115(18.4)
21-35 Km	35(5.6)	31(5)
More than 35 km	10(1.6)	13(2.1)
Not given	0(0)	0(0)
<b>The decision to go to the ED was proposed by:</b>		
A telephone advice from the family doctor after the visit The family doctor	32(5.1)	12(1.9)
The telephone advice of the medical service	10(1.6)	25(4)
Following a visit to the doctor	16(2.6)	8(1.3)
Telephone advice of the 118 control panel	19(3)	17(2.7)
Ambulance transport 118	6(1)	14(2.2)
Following another medical examination	43(6.9)	48(7.7)
Council of nurses or other trusted healthcare professionals	16(2.6)	6(1)
Decision of cohabiting family members or in any case related	37(5.9)	25(4)
Recommendation by relatives / friends / acquaintances Suggestions by internet, television, radio information Pharmacist	42(6.7)	52(8.3)
Another facility or institution	105(16.8)	0(0)
Other – not specified	67(9.8)	21(3.4)
<b>In total, time spent in the ED:</b>		
Less than 1 hour	16(2.6)	16(2.6)
2-4 hours	72(11.5)	72(11.5)
4-6 hours	51(8.2)	51(8.2)
6-8 hours	41(6.6)	41(6.6)
8-12 hours	19(3)	19(3)
13-24 hours	17(2.7)	17(2.7)
More than 24 hours	18(2.9)	18(2.9)
<b>The waiting time was considered as:</b>		
Adequate	228(36.5)	128(20.5)
Not adequate	162(26)	106(17)

**Table 3.** The quality level perception between patient and caregiver during the triage phase.

Item/Patient or Caregiver	mean±s.d.	C.I.95% Min-Max	F	p-value
<b>Item no.1: Path quality to reach the reception staff</b> Patient Caregiver	3.410±1.148 3.423±1.129	3.296-3.524 3.278-3.568	0.018	0.892
<b>Item no.2: ED meet the needs of users</b> Patient Caregiver	3.200±1.157 3.162±1.175	3.085-3.315 3.011-3.314	0.153	0.696
<b>Item no.3: How performed physical examination</b> Patient Caregiver	3.282±1.211 3.321±1.137	3.161-3.403 3.175-3.467	0.154	0.695
<b>Item no.4: Questions asked on health disease</b> Patient Caregiver	3.421±1.095 3.372±1.105	3.311-3.527 3.230-3.514	0.287	0.592
<b>Item no.5: Questions on difficulties</b> Patient Caregiver	3.105±1.172 3.107±1.176	2.988-3.222 2.955-3.256	0.000	0.986
<b>Item no.6: Willingness to listen</b> Patient Caregiver	3.144±1.236 3.004±1.220	3.021-3.267 2.847-3.161	1.876	0.171
<b>Item no.7: Healthcare ability to understand patient's need</b> Patient Caregiver	3.228±1.226 3.158±1.210	3.106-3.350 3.002-3.314	0.483	0.487
<b>Item no.8: Time dedicated</b> Patient Caregiver	3.205±1.173 3.115±1.172	3.088-3.322 2.965-3.266	0.856	0.355
<b>Item no.9: Information provided</b> Patient Caregiver	3.100±1.612 3.017±1.193	2.984-3.216 2.863-3.171	0.730	0.393
<b>Item no.10: Competences belonged to the personnel</b> Patient Caregiver	3.400±1.151 3.321±1.174	3.283-3.512 3.170-3.472	0.644	0.423
<b>Item no.11: Quality of the assistance provided</b> Patient Caregiver	3.274±1.193 3.205±1.215	3.156-3.393 3.049-3.362	0.486	0.486
<b>Item no.12: Respect of users' needs in the waiting room</b> Patient Caregiver	2.901±1.176 2.705±1.173	2.786-3.020 2.554-2.856	4.128	0.043*
<b>Item no.13: Cleaning of the waiting room</b> Patient Caregiver	3.123±1.073 3.034±1.127	3.016-3.230 2.890-3.180	0.966	0.326
<b>Item no.14: Cleaning of toilets in waiting room</b> Patient Caregiver	3.020±1.090 2.982±1.131	2.912-3.129 2.837-3.123	0.169	0.681
<b>Item no.15: Signs present to indicate waiting room</b> Patient Caregiver	3.187±1.080 3.115±1.088	3.080-3.294 2.975-3.255	0.643	0.423

Table 3 continues

**Table 3.** The quality level perception between patient and caregiver during the triage phase. (*continued*)

Item/Patient or Caregiver	mean±s.d.	C.I.95% Min-Max	F	p-value
<b>Item no.16: Seats availability in waiting room</b> Patient Caregiver	3.049±1.085 2.850±1.146	2.941-3.159 2.703-2.998	4.683	0.031*
<b>Item no.17: Spacing respect in waiting room</b> Patient Caregiver	3.062±1.157 2.880±1.128	2.946-3.177 2.735-3.026	3.655	0.056
<b>Item no.18: Waiting room organization for positive Covid-19 patients</b> Patient Caregiver	3.146±1.188 3.103±1.193	3.028-3.264 2.949-3.256	0.196	0.658
<b>Item no.19: Quality of assistance during the waiting</b> Patient Caregiver	2.972±1.188 2.091±1.204	2.854-3.090 2.751-3.061	0.444	0.505

Abbreviations: s.d.: standard deviation; C.I.: Interval Confidence; Min.: Minimum; Max: Maximum. \*p<0.05 is statistical significant.

between quality perceived and waiting time, as patients who waited for a very short or in any case a very short period positively evaluated their quality levels, compared to those who lower scored their quality perceived levels, as they waited for a long or extremely long period of time (14). Often the prolonged waiting time implied aggressive behavior towards health-care personnel (14,15-17). Furthermore, overcrowding aggravated the rate of medical errors (18), in which the most affected patients were found to be those with high severity with frailty and dementia with a length of stay in the emergency department >4 h. (p=0.001) (19), as well as increased the incidence of serious complications and an increasing in mortality in patients 10 days after hospitalization in which was associated with a poor quality of the service offered (20). In our study, the quality perception level was evaluated by referring to the early phases of the ED, such as the reception, triage and waiting phases before being visited. Statistically significant results emerged for the ED waiting room: caregivers (p=0.043) rated the characteristics of the waiting room more poorly than patients (p=0.031). While they remain almost unchanged to the information that was provided in the triage phase (p=0.008): most of the patients and caregivers interviewed considered information received at the triage phase as insufficient and very insufficient; both preparation and competence of triage nurses were negatively assessed,

(p=0.032). 10.4% of patients assessed as insufficient the preparation and competence of the healthcare professional who carried out the triage phase; the functionality of the waiting rooms was negatively assessed (p=0.032), 8.8% of patients assessed as insufficiently functional the waiting room with respect to their needs and only 6.6% patients considered the waiting room spacing as optimal (p=0.046). The experience and experience of families and patients seem to be influenced by triage, waiting times, environment, as well as interactions with ward staff (21-23). The triage phase is particularly critical of the relationship between the Citizen and the health service, and can be influenced by expectations inherent in the need to receive appropriate care and achieve satisfaction of one's health need (24). The quality perception of the service received was often associated with the severity code attributed during the triage phase and the waiting time. The increasing in emergency room accesses of minor codes could be associated with a generalized lack of trust in local structures and resources, such as the General Practitioner (GP) and the continuity of care (25-29). From an anthropological perspective, the factors that produce the idea of emergency are subjective, and the perception of what is considered urgent almost always collides with the meanings of urgency and emergency ascribed by the health care institution (25). Causes that create overcrowding in the ED include improper



access, such as: non-urgent access that should be handled more appropriately at other territorial facilities (30). Overcrowding generates a negative impact from an economic point of view, with increased health care costs related to hospitalization, undermines the quality of the service provided as the risk one might have is to underestimate an urgent case. However, in our study both patients' and caregivers' perceptions reached at least the middle scores in all the quality perceptions' aspects. Emergency services represent the population's main point of reference for urgent health needs: they guarantee access to care according to criteria of priority and equity, as well as adequate responses to the urgent and unplanned health needs of citizens who attend them in a preordained manner, with different needs and priorities. The problems aroused by a significant relevance of improper accesses can be traced mainly to a dispersion of resources, both economic and professionalized human capital, to the detriment of truly urgent cases, and, in terms of outcomes, to an increase in waiting times that often mutate into feelings of dissatisfaction with the public service offered (31,32). Also in our study, the 16.8% of patients declared to go to EDs after receiving recommendations from their cohabiting family members. The causes of excessive use of emergency rooms include the users' desire for a quick response, the increase in frail patients and, in any case, those patients who need increasingly rapid intervention, as revealed by a Swedish study, the users' awareness that they will find a qualified response with the help of technology in ED, the difficulty of accessing out-of-hospital care pathways quickly (32). Health needs have changed greatly from the past: there is a high prevalence of chronic non-communicable diseases (diabetes, cardiovascular disease, cancer etc.). These diseases need sustained treatment and close follow-up on the ground, and there is often no adequate response from emergency rooms, which were historically created to provide care versus acute care. This creates the phenomenon of crowding, with the occurrence of increased adverse events and reduced user satisfaction, delays in treatment, increased drop-outs, increased sentinel events, and increased litigation (33), incidents of violence (34), reduced staff gratification and user dissatisfaction (35), as showed in the present study in Table 3.

However, on the part of the users a distrust emerged in the territory (especially in minor hospitals and general medicine), the fear of increasing symptoms, the long waits for specialist services. They were also used as a last attempt to find solutions to their state of health, because, again according to their perceptions, the hospital had more means and more specialists for the rapid and precise resolution of the problem. All of this, healthcare personnel, perceived it as a lack of respect for accesses with time-dependent pathology, other times anger and frustration emerged for this incorrect use of the ED, too (36). The 2016 "Osservasalute Survey" described how Italy was laboriously passing from a performance-based logic to one of taking charge of the individual (37). Health needs have changed a lot compared to the past: there was a strong prevalence of non-communicable chronic diseases (diabetes, cardiovascular diseases, tumors, etc.). These pathologies needed long-lasting treatment and accurate follow-up in the area. In Italy, however, territorial assistance was adopted very late and it was still being implemented. To implement this change, three indispensable elements were needed: an integrated network of social and health services, a multidisciplinary team capable of drawing up and applying an individual assistance plan and the case manager. The absence of these elements meant that healthcare organizations became unable to guarantee the necessary treatments for the population, and consequently there was a very high number of accesses to the ED due to decompensation of a condition of equilibrium of the disease itself. In consideration of the changed health needs, in the next future, it will also be necessary to achieve a good quality of territorial assistance in order to avoid overcrowding in the ED, and to guarantee better assistance and care for those who find themselves in an emergency or urgent condition. The study highlighted what are to date the critical issues of overcrowding within the emergency room on the Italian territory, generated mainly by improper admissions without character of real urgency, and looking at the future of a reality that is still underdeveloped in Italy, namely the introduction throughout the national territory of the Family and Community Nurse (IFeC), which could reduce the phenomenon of overcrowding in EDs, thanks to a constant and autonomous presence

in the territory, capable to promote health and give a welfare response, associated to the users' resignation (38). Reducing waiting times or admission rates to the PS, it might be useful to activate new ways of response within all EDs to treat and care for the person with chronic disease in particular, through mixed and personalized strategies (39). Ensuring that all citizens have certain access times to health care services that are appropriate to the clinical problems presented is a priority goal for the National Health Service (NHS), considering that the priority is to meet the care needs of citizens according to the principles of equity of access to services, efficiency, effectiveness, appropriateness, fairness and transparency. The results of the study must be considered taking into account some limitations which mainly concern the choice of electronic disclosure of the questionnaire which may have partially excluded users and/or their companions with a reduced IT background. Furthermore, it is important to consider possible selection bias and recall bias: the results of the study, although involving a large sample distributed in a heterogeneous manner throughout the country, cannot be generalized to the entire Italian population. Finally, possible distortions may be linked to some aspects concerning the possibility of an "obfuscated" and inaccurate memory relating to access to the emergency room, as well as any differences between patients and caregivers could be given by a different experience of the experience and one's own situation, as patients and caregivers were not paired.

In conclusion, the results of our study indicate a degree of user dissatisfaction, specifically found in the triage and waiting phase, which helps to strengthen the motivations for implementing organizational solutions aimed at decreasing waiting times, not just increasing a subjective feeling satisfaction. The results of our study, analyzing the association between waiting time and perception of quality by the user, offer professionals an important element to enhance the adoption of adequate communication strategies that recognize the difficulties and discomfort people experience waiting and healthcare personnel working in an emergency room, especially during the triage phase.

Finally, the results of our study provided the scientific community and professionals working in the ED world with useful elements for understanding how

the population really experienced access to the ED and layed the foundations for any planning of improvement interventions.

**Ethic Committee:** The present study was approved by the Ethical Committee of Polyclinic in Bari, Italy, with id number 7217/2022.

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## References

1. Giorgi G, Lecca LI, Alessio F, et al. COVID-19-Related Mental Health Effects in the Workplace: A Narrative Review. *Int J Environ Res Public Health*. 2020;17(21):7857. doi: 10.3390/ijerph17217857.
2. Gallo M, Panero C, Vaineri M. La segmentazione comportamentale dei pazienti non urgenti in Pronto Soccorso: specificità degli utenti frequent user ed occasionali. *Economia e diritto del terziario, - FrancoAngeli Editore* 2017; 29(3). [Italian].
3. Pearce S, Marchand T, Shannon T, Ganshorn H, Lang E. Emergency department crowding: an overview of reviews describing measures causes, and harms. *Intern Emerg Med*. 2023; 18(4):1137-1158. doi: 10.1007/s11739-023-03239-2.
4. Salway RJ, Valenzuela R, Shoenberger JM, Mallon WK, Viccellio A. Emergency department (ED) overcrowding: evidence-based answers to frequently asked questions. *Revista Médica Clínica Las Condes* 2017; 28(2): 213-219.
5. Maillard Acker C. L'infirmier organisateur de l'accueil aux urgences, un poste en constante évolution [French]. *Soins*. 2018;63(825):30-33. French. doi: 10.1016/j.soins.2018.03.007.
6. Toscana ARS. Pronto Soccorso: Spazi, Processi, Relazioni." *Una Visione Unitaria. Collana Dei Documenti Ars*, 2017. [Italian].
7. Saban M, Dagan E, Drach-Zahavy A. The Relationship Between Mindfulness, Triage Accuracy, and Patient Satisfaction in the Emergency Department: A Moderation-Mediation Model. *J Emerg Nurs*. 2019; 45(6):644-660. doi: 10.1016/j.jen.2019.08.003.

8. Davenport PJ, O'Connor SJ, Szychowski JM, Landry AY, Hernandez SR. The Relationship between Emergency Department Wait Times and Inpatient Satisfaction. *Health Marketing Quarterly* 2017; 34: 97–112. doi: 10.1080/07359683.2017.1307066
9. Ministero della Salute- Direzione Generale della Programmazione Sanitaria. (2021). Linee di indirizzo nazionali per lo sviluppo del piano di gestione del sovraffollamento in pronto soccorso. Available from: [https://www.salute.gov.it/imgs/C\\_17\\_pubblicazioni\\_3143\\_allegato.pdf](https://www.salute.gov.it/imgs/C_17_pubblicazioni_3143_allegato.pdf) Accessed on December 8, 2022.
10. Coluccia A, Ferretti F, Lorini F, Calamai M. Il questionario di qualità percepita (QQP). (The perceived quality questionnaire (QQP)). *Mondo Sanitario* 2002; 10: 14–19. (Italian).
11. Cochran, W.G. *Sampling Techniques*, 2nd Ed., New York: John Wiley and Sons, Inc, 1963.
12. Istituto Nazionale di Statistica (ISTAT). Indicatori demografici. Available from: [Popolazione residente al 1° gennaio \(istat.it\)](http://www.istat.it) Accessed on February 10, 2024. (Italian)
13. Fontova-Almató A, Suñer-Soler R, Juvinyà-Canal D. Factors associated with patients' and companions' satisfaction with a hospital emergency department: A descriptive, cross-sectional study. *Nurs Open*. 2019;6(3):834–841. doi: 10.1002/nop.2.261.
14. D'Ettorre G, Pellicani V, Vullo A. Workplace violence against healthcare workers in Emergency Departments. A case-control study. *Acta Biomed*. 2019; 90(4):621–624. doi: 10.23750/abm.v90i4.7327.
15. D'Ettorre G, Pellicani V, Mazzotta M, Vullo A. Preventing and managing workplace violence against healthcare workers in Emergency Departments. *Acta Biomed*. 2018; 89(4-S):28–36. doi: 10.23750/abm.v89i4-S.7113.
16. Vitale E, Lupo R, Calabrò A, et al. Mapping potential risk factors in developing burnout syndrome between physicians and registered nurses suffering from an aggression in Italian Emergency departments. *Journal of Psychopathology* 2021; 27: 148–155. doi: 10.36148/2284-0249-425
17. Muñoz Del Carpio-Toia A, Begazo Muñoz Del Carpio L, Mayta-Tristan P, Alarcón-Yaquetto DE, Málaga G. Workplace Violence Against Physicians Treating COVID-19 Patients in Peru: A Cross-Sectional Study. *Jt Comm J Qual Patient Saf*. 2021;47(10):637–645. doi: 10.1016/j.jcjq.2021.06.002.
18. Pearce S, Marchand T, Shannon T, Ganshorn H, Lang E. Emergency department crowding: an overview of reviews describing measures causes, and harms. *Intern Emerg Med*. 2023;18(4):1137–1158. doi: 10.1007/s11739-023-03239-2.
19. Solakoglu GA, Aciksari K, Nuhoglu C, Doker KO. Evaluation of factors affecting the length of stay of geriatric patients in the emergency department. *North Clin Istanb*. 2023;10(4):444–450. doi: 10.14744/nci.2023.59319
20. Eidstø A, Ylä-Mattila J, Tuominen J, Huhtala H, Palomäki A, Koivistoinen T. Emergency department crowding increases 10-day mortality for non-critical patients: a retrospective observational study. *Intern Emerg Med*. 2023. doi: 10.1007/s11739-023-03392-8.
21. Peguero-Rodriguez G, Polomeno V, Backman C, Chartrand J, Lalonde M. The Experience of Families Accompanying a Senior to the Emergency Department: A Scoping Review. *J Emerg Nurs*. 2023; 49(4):611–630. doi: 10.1016/j.jen.2023.03.005.
22. Cetin-Sahin D, Ducharme F, McCusker J, et al. Experiences of an Emergency Department Visit Among Older Adults and Their Families: Qualitative Findings From a Mixed-Methods Study. *J Patient Exp*. 2020; 7(3):346–356. doi: 10.1177/2374373519837238
23. Salehi T, Nayeri ND, Mohammadi E, Mardani-Hamooleh M. Exploring patients and family members' experiences of care in the emergency department. *Emerg Nurse*. 2020 Sep 8;28(5):23–27. doi: 10.7748/en.2020.e2008.
24. Vanacore N. L'accoglienza al pronto soccorso per le persone non autosufficienti. *Recenti Prog Med* 2022;113(4): 277–281. doi: 10.1701/3792.37769
25. Bagaglia C, Polcri C. Il problema degli accessi "impropri" in pronto soccorso: un'indagine antropologica. *Scenario* 2017; 34. [Italian].
26. Lupo R, De Mitri O, Merola D, et al. L'accesso improprio in Pronto Soccorso e analisi delle possibili cause: studio osservazionale. *Italian Journal of Emergency Medicine* 2018; 03. doi: 10.23832/ITJEM.2018.032
27. Bonetti M, Melani C. Il ruolo degli accessi impropri in pronto soccorso nella provincia autonoma di Bolzano. *Epicentro Ben ISS*. 2019 Available from: <https://www.epicentro.iss.it/ben/2019/aprile/accessi-impropri-ps-bolzano> Accessed on December 9, 2022.
28. Laskowski-Jones L. E' un'emergenza per loro, Assistenza infermieristica 2016; 46(3): 6. doi: 10.1097/01.NURSE.0000480606.68134.19
29. Williams CA, Haffizulla F. Factors associated with avoidable emergency department visits in broward county, Florida. *Cureus*. 2021;13(6): e15593. doi: 10.7759/cureus.15593.
30. Bianco A, Pileggi C, Angelillo IF. Non-urgent visits to a hospital emergency department in Italy. *Public Health* 2003;117(4):250–5.
31. Bissoni G, Moirano F. Editoriale. I Quaderni di Monitor: elementi di analisi e osservazione del sistema salute. *Maggio* 013;32(II supplemento): 5–8. Available from: [https://www.agenas.gov.it/images/agenas/monitor/quaderno/pdf/13\\_ASSISTENZA\\_H24.pdf](https://www.agenas.gov.it/images/agenas/monitor/quaderno/pdf/13_ASSISTENZA_H24.pdf) Accessed on February 25, 2024.
32. Källberg AS, Berg LM, Skogli S, Bjurbo C, Muntlin Å, Ehrenberg A. Prevalence of frailty and associated factors in older adults seeking care at Swedish emergency departments. *BMC Geriatr*. 2023 Dec 4;23(1):798. doi: 10.1186/s12877-023-04545-2. Perea-Pérez B, Garrote Díaz JM, Hernández Gil Á, Martínez Hernández S, García Martín ÁF, Santiago-Sáez A. Medicina defensiva en los Servicios de Urgencias Hospitalarias [Defensive medicine in hospital emergency services.]. *Rev Esp Salud Publica*. 2021;95:e202106080. Spanish.
33. Aljohani B, Burkholder J, Tran QK, Chen C, Beisenova K, Pourmand A. Workplace violence in the emergency department: a systematic review and meta-analysis. *Public Health*. 2021 Jul;196:186–197. doi:10.1016/j.puhe.2021.02.009.

34. Sonis JD, White BA. Optimizing Patient Experience in the Emergency Department. *Emerg Med Clin North Am.* 2020;38(3):705–713. doi: 10.1016/j.emc.2020.04.008.
35. Vainieri M, Panero C, Coletta L. Waiting times in emergency departments: a resource allocation or an efficiency issue? *BMC Health Serv Res.* 2020; 20(1):549. doi: 10.1186/s12913-020-05417-w.
36. Osservatorio Nazionale sulla Salute nelle Regioni Italiane. Rapporto Osservasalute 2016. Osservatorio sulla Salute. 2017 (consultato il 31 luglio 2022). Available from: <https://osservatoriosullasalute.it/osservasalute/rapporto-osservasalute-2016> Accessed on December 5, 2022.
37. Vitale E. Nursing perception and work effectiveness evaluation relating to a novel nursing role in the Italian scenario: the family nurse. *Medicina Historica* 2023; 7(3):e2023047.
38. Panero C, Nuti S, Marcacci L, Rosselli A. Il quaderno del Pronto Soccorso, Edizioni Polistampa, 2016. [Italian].

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