



Impact of nosocomial infection on self-esteem, in patients of the traumatology-orthopedics department (kenitra), Morocco

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Abstract

Nosocomial infections (NI) represent a major public health problem throughout the world. They can have direct repercussions on the physical and psychological health of patients. The aim of our work is to assess the impact of nosocomial infection on the self-esteem (SE) of patients hospitalized in the traumatology-orthopedics department (kenitra). The instrument used to quantify this is the Rosenberg Self-Esteem Scale. The results of this study show that the average age is 47.78 ± 2.550 years (balanced sex ratio). Surgical site infection is the most common with a rate of more than 50%. Indeed, 66.2% (n=43) of patients developed low self-esteem, including women who are the most vulnerable. However, other determining factors have been raised favoring this ES-IN binding, such as the level of hygiene, comorbidity, hospitalization, sex, age and site of infection. Healthcare leaders should amplify efforts by implementing rigorous protocols for infection prevention and programs to educate the public about the risks of hospital-acquired infections and the preventive measures they can take.

Keywords: nosocomial infection - self-esteem - risk factor - infection site - traumatology - kenitra

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1. Introduction

Nosocomial infections are one of the most serious problems facing modern medicine [1]. Nosocomial infections are generally defined as infections contracted during an act carried out during hospitalization (surgery, puncture, placement of a venous catheter, etc.), a nosocomial infection is often impossible to determine its cause [2]. Six to seven percent of hospitalized patients are carriers of a nosocomial infection and 40% of nosocomial infections are of urinary origin, in particular on catheterized patients [3]. Eighty percent to ninety percent of these infections are associated with an invasive procedure performed on the urinary tree, mainly the placement of a bladder catheter [3]. The remaining 10 to 20% of urinary tract infections emerge from more specialized urological maneuvers. Worldwide, more than 1.4 million people suffer from hospital-acquired infections, and the risk of contracting them is two (02) to twenty (20) times higher in developing countries than in developed countries [4]. According to the WHO (2003), a study carried out on 55 hospitals in 14 countries showed that an average of 8.7% of hospitalized patients contracted a nosocomial infection [5].

This prevalence varies according to the country and according to their degree of standard of living. Indeed, in high-income countries, the prevalence of IN varies from 3.5% to 12%, while in low- and middle-income countries, the prevalence of IN varies from 5.7% to 19.1%. [6]. Healthcare-associated infections have effects on the psychological well-being of patients [7]. The progress of intensive medicine allows the survival of patients seriously affected in their health. However, the survival conditions of these patients, especially after a prolonged stay in intensive care (IC), are sometimes difficult. Medium- and long-term physical and psychological damage are specific to the events experienced [8]. Self-esteem is an essential dimension of identity, it refers to all the positive or negative feelings, attitudes and judgments that a subject has about himself [9]. It is composed of three pillars: self-confidence, self-vision and self-love (narcissism) [10].

This study explores, on the one hand, the psychological impact of nosocomial infection on the quality of life of patients, on the other hand, analyzes the links between self-esteem and certain determining factors.

2. Population and methods

2.1. Study environment

This research is conducted at the regional hospital El Idrissi (Kenitra), it serves an estimated population of 1,901,301 inhabitants. Its litter capacity is 416 beds spread over 25 departments comprising 12 medical specialties, 11 surgical specialties and 04 medico-technical specialties. The Traumatology-Orthopedics department represents the places of the present study providing accommodation for hospitalized persons, and which ensures, through its staff, the declaration of IN.

2.2. Study population

The target population of the study corresponds to all patients hospitalized in the traumatology-orthopedics department between September 2020 and March 2022 (N=723 patients). The study is conducted on 65 patients who contracted a nosocomial infection.

2.3. Measuring tool

The Rosenberg Self-Esteem Scale is a self-assessment of ten items. Simply add the scores for question 1, 2, 4, 6 and 7 and use a reverse score for questions 3, 5, 8, 9 and 10 (Table 1). The total of 40 points is used to establish a typical self-esteem profile. The interpretation of the results is identical for a man or a woman. Responses are scored on a four-point scale. Totally disagree 1/Somewhat disagree 2/Somewhat agree 3/Totally agree 4.

- Score below 25: very low self-esteem;
- Score between 25 and 31: low self-esteem;
- Score between 31 and 34: average self-esteem;
- Score between 34 and 39: high self-esteem; Score above 39: very high self-esteem.

Advantages: Quick test, less intrusive, easier access, Individual or collective. Disadvantages: individual, family or institutional reluctance, monitoring of each student is impossible from start to finish. The instrument is very reliable and the high degree of temporal stability indicates very good fidelity.

2.4. Statistical analysis

Data entered and filtered on Excel then transferred to SPSS. Two types of variables were used: Qualitative variables expressed in frequencies and quantitative variables expressed in mean standard deviation. Joint analyzes applied as one-way analysis of variance (ANOVA) were used; chi2 test of file, Pearson correlation at 5% error

3. Results

3.1. Sociodemographic and clinical characteristics

The survey covered 65 patients. The average age is 47.78 ± 2.550 years, with a minimum of 18 years and a maximum of 92 years and a median of 43 years. The trend of the distribution is symmetrical (asymmetry coefficient= 0.47 and kurtosis = 0.86). The mean age in females is 43.06 ± 3.8 years and in males is 52.09 ± 3.3 years ($F=3.23$; $p<0.05$). In addition, 66.15% of patients come from urban areas, of which 74.42% are male and among those who come from rural areas, 90.90% are female [odds ratio=29.09; 95% CI: 5.83; 145.08; yule coefficient=0.93]. However, 60% of patients suffer from a risk factor interfering with nosocomial infection, either hypertension, diabetes or both (comorbidity).

The rate of patients who suffer from a comorbidity in women is 54.60% while in men this rate is 64.71% [Odds ratio=0.66; 95% CI: 0.24-1.79]. In addition, the breakdown by location of healthcare-associated infections shows three sites: operative (50.77%), pulmonary (27.69%) and urinary (21.54%). In fact, among patients who contracted an infection of the surgical site (n=33), 69.69% were female, whereas for those who contracted the infection of the pulmonary tract, more than 55% were male and 100% of the patients contracting a urinary tract infection are male. The chi2 test shows a strong link between sex and the site of infection (chi2=19.25; $p<0.000$). Regarding hospitalization, although the chi2 test did not show a significant link between sex and hospitalization (chi2=0.46; $p<0.49$), the rate of hospitalized women is 38.71% against 47.06% for men [odds ratio=0.71; 95% CI: 0.26-1.91] (table 1).

3.2. Study of self-esteem in patients

The Rosenberg test showed fairly high reliability (Cronbach's Alpha=0.71) and fairly high internal consistency between all the questions ($p<0.000$) and the total score, except for item 10 (I sometimes think I'm good for nothing). Indeed, the average score is 29.18 ± 0.533 , with a minimum of 18 and a maximum of 39 and a median of 29. The distribution was shown to be Gaussian (asymmetry coefficient=-0.199 and kurtosis=-0.169) and a coefficient of variation of $=4.30/29.18$ (14.74%) heterogeneity. The distribution of the patients according to the degree of self-esteem shows that no patient presents a high self-esteem against 66.2% (n=43) of the patients developed a low self-esteem while 33.8% (n=22) showed moderate self-esteem. This last category can over time convert to either first class (low self-esteem) or third class (high self-esteem), so it requires clear monitoring. Moreover, the chi-square test shows a significant link between the degree of ES and gender (chi2= 3.36; $p<0.05$). However, the rate of patients with low self-esteem in females is 77.42% while in males, this rate is 55.88% (figure 1). The attributable risk, between the two sexes, is 21.54% in favor of women [odds ratio=2.71 and confidence interval: 0.92-7.98]. The Fisher test by ANOVA shows a very significant difference between the mean age in patients with low ES and moderate ES (Fisher=6.87; $p<0.011$). Indeed, the mean age in patients with low ES is 43.21 ± 16.785 years (min=19 years; max=85) versus 56.73 ± 24.452 years in patients with moderate ES.

3.3. Determining factors

Table (2) presents the results of the chi-square test between the ES categories and the sociodemographic and clinical variables. Moreover, a significant link associates the ES categories and the hygienic level of the patients. The rate of patients with a low level of ES in patients with poor hygiene levels is 52.5% compared to 88% in people with average hygiene levels [Attributable risk=-35.5%; odds ratio=0.15, 95% CI: 0.04-0.58]. Concerning hospitalization, the chi2 test shows a significant link with SE (chi2=8.55; $p<0.003$) with a rate of patients with low SE among hospitalized patients is 46.43% against 81.08% in non-hospitalized illnesses [Attributable risk=-34.65%; odds ratio=0.2, 95% CI: 0.07-0.61]. However, the chi2 test shows a significant link between the site of infection and ES (chi2=7.52; $p<0.023$). is 72.72%, while in those with an infection of the pulmonary site is 77.78% and for the category of patients who have contracted a urinary tract infection the rate is 35.71%.

Table 1: Demographic and clinical characteristics of patients

Variable	Modality	Women	Man	total	
Age	Mean ±SD (min ; max)	43,06±3,80 (19 ; 90)	52,09±3,30 (18 ; 92)		Fisher =3,23 (p<0,05)*
residence	Rural	20	2	22	Khi2=24,89 (p<0,000) ***
	Urban	11	32	43	
comorbidity	Yes	17	22	39	Khi2=6,14 (p<0,189)
	No	14	12	26	
Infection site	Operating site	23	10	33	Khi2=19,25 (p<0,000)***
	respiratory tract	8	10	18	
	urinary tract	0	14	14	
Hospitalization	Yes	12	16	28	Khi2=0,46 (p<0,49)
	No	19	18	37	

* Significant difference; ** very significant difference; *** very highly significant difference, min=minimum; max=maximum

Table 2. Chi-square test between ES categories and socio-demographic and clinical variables

variables	modality	class ES			total	Khi2 (p value)
		low	moderate	trong		
Hygiene level	bad	21	19	0	40	8,66 (p<0,003)**
	average	22	3	0	25	
Consumerism tobacco	Yes	24	7	0	31	3,36 (p<0,067)
	No	19	15	0	34	
hospitalization	Yes	13	15	0	28	8,55 (p<0,003)**
	No	30	7	0	37	
Infection	Operative	24	9	0	33	7,52 (p<0,023)*
	Pulmonary	14	4	0	18	
	Urinary	5	9	0	14	
comorbidity	Diabetes	11	4	0	15	11,36 (p<0,023)*
	Hypertension	11	13	0	24	
	Nothing to report	21	5	0	26	
residence	Rural	17	5	0	22	1,84 (p<0,17)
	Urban	26	17	0	43	
gender	women	24	7	0	31	3,36 (p<0,05)*
	man	19	15	0	34	
Total		43	22	0	65	

* : Significant difference ** : very significant difference

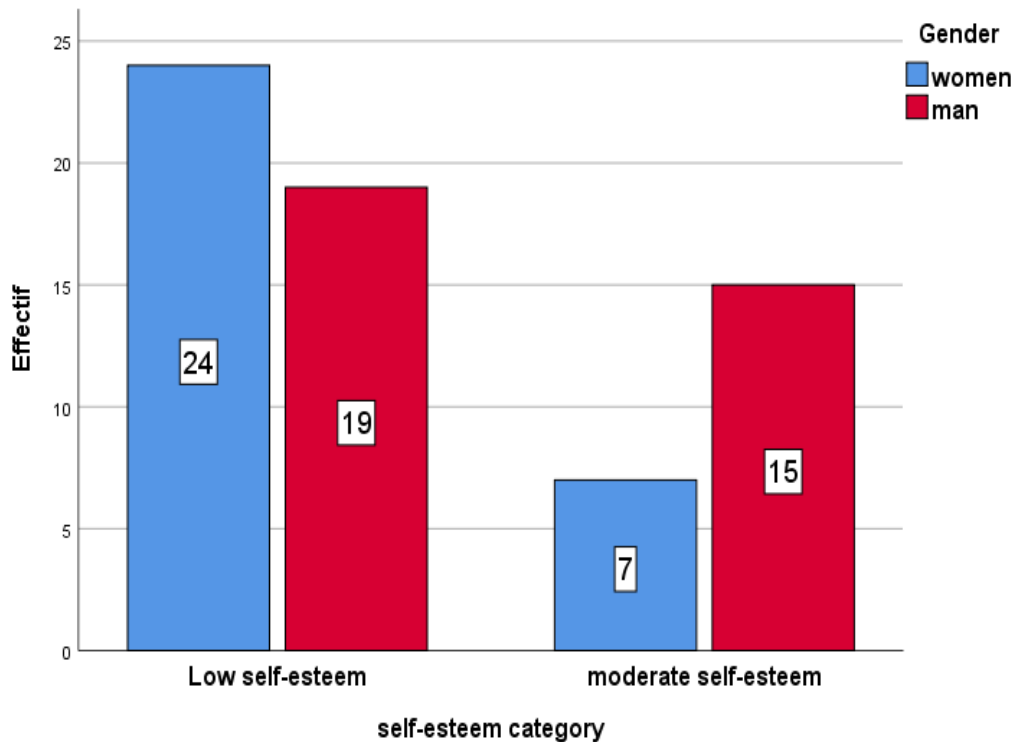


Figure 1: Distribution of patients according to gender and degree of self-esteem

In addition, more than 75% of diabetic patients and more than 46% of patients with hypertension had low self-esteem. However, the tobacco consumption and resident environment variables do not show a significant link with SE.

4. Discussion

Few studies have prospectively assessed the psychological impact of these infections. Self-esteem is among the psychological concepts that refer to the overall positive or negative judgment that a person has of himself [11]. Findings on the attributes of self-esteem reveal that they are relatively stable, however, they are not static. They adapt and evolve according to the events of life [12]. The objective of this work is to assess the link between NI and the psychological behavior of patients, the attitude of patients towards isolation measures and to identify areas for improvement. According to its global report on the fight against infectious diseases, the WHO published in (2022) that 7% of hospitalized patients in high-income countries and 15% of hospitalized patients in low- and middle-income countries contract at least one nosocomial infection during their hospitalization and on average, One in 10 affected patients succumbs to this infection. In Europe, the incidence of NIs is 5.5 and 9.9% of hospital admissions [13]. In the United States, in 2005, this incidence reaches 9.2% of hospitalized patients [14]. In Morocco, the prevalence of nosocomial infections was 6.7% [15,16]. In our study, infections of the surgical site are the most abundant with a rate of more than 50%. This result is much higher than those described by [17] where this rate ranged from 6.8% to 26% with predominance in general surgery of surgical sites in sub-Saharan Africa. In our sample, NIs affect patients at risk, especially those with chronic diseases such as diabetes,

hypertension. These results are compliant to those found by [18-21]. Patients with hospital-acquired infections can feel helpless and vulnerable, which can impact their self-esteem and confidence [22]. Patients may also feel stigmatized because of their infection, which can have long-term effects on their psychological well-being. Studies have shown that the level of anxiety and depression in patients in contact isolation is quite high [23]. J. Q. Purnell and B. L. Andersen showed the role of psychic and spiritual balance by showing the meaning and purpose in life may help in psychological adjustment following the acute stages of the disease and subsequent treatment [24]. Among our relevant findings, 46.43% of hospitalized patients have a possible low ES, which is related to an extension of the length of hospitalization. A very significant association between the degree of hygiene and NI was noted in our study, over 60%. Other factors may be the primary cause of NIs such as the use of medical devices [25] and cleanliness of the hospital environment.

5. Conclusions

The analysis of the concept of self-esteem guided by the Rosenberg test allowed a subjective assessment of the mental health of patients with nosocomial infections. Self-esteem is thus quite stable and its improvement if we manage to do so would be relatively lasting over time and could protect the patients concerned over the long term. In the end, special attention should be paid to people with low self-esteem and that treatments aimed at improving self-esteem should be developed.

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