The risk of depressive disorder in the COVID-19 hospitalized patient: nursing evaluation. A narrative review of the literature

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SUMMARY

Background

The COVID-19 pandemic is having a major impact mental health, both for hospitalized and non-hospitalized patients, in post-traumatic stress, anxiety and depression. It is necessary to early identify these symptoms and for this purpose, nurses could play a fundamental role in assessing psychological conditions thanks to validated scales in order to early identify risks in depressive disorder.

Objective

To investigating the risk of depressive disorder in COVID-19 hospitalized patients through nursing interventions.

Materials and methods

The literature search was conducted through CINAHL and EMBASE databases. Inclusion criteria: patients aged 18 years or older, primary experimental and observational studies; English or Italian language. Exclusion criteria: patients not hospitalized during the study; patients who were diagnosed mental disorders since before the COVID-19. Studies included were carried out from March 2020 to May 2022.

Results

Almost half of the hospitalized patients developed depressive symptoms, especially females. Potential risk factors were: hospital stress, adverse events experienced firsthand or by third parties, and panic experience. Age and day-hospitalized length were risk factors, too.

Discussion

COVID-19 hospitalized patients with clinical stability developed depressive disorders, also affecting their quality of life. Early recognition and treatment of depressive symptoms should be a goal in the nursing care.

Key words: COVID-19, depression, diagnostic scale, quality of life, mental health

Introduction

The Coronavirus-19 disease (COVID-19) pandemic had a huge impact on the global health among the general population, especially among hospitalized COVID-19 patients who have had to deal with unprecedented clinical conditions: daily close to contact with isolation, fear of death, mourning, feelings such as guilt and perception of time. Studies on the outcomes of the SARS-CoV-2 virus have highlighted both organic impairment and the possible onset of neurological and/or psychiatric pathologies. The involvement of

the central nervous system by COVID-19 with the massive release of cytokines and inflammatory mediators, which have long been associated with psychiatric disorders, clarifies the higher incidence of the latter in patients recovered from the virus [1]. Salari and colleagues [2] analyzed the results of 17 studies highlighting how in Asia there is a greater prevalence of anxious symptoms and in Europe the depressive and post-traumatic reaction seems to prevail. In the Italian context, Castelli et al. [3] find rates of 20% for post-traumatic stress disorder, 69% for anxiety disorder and 31% for depressive symptoms. Among the causes of these disturbances is the isolation condition that seems specific to COVID-19 patients, closed in their rooms by strict health security measures. Although the topic of isolation during the COVID-19 pandemic has been widely reported in different segments of the general population (especially during lockdown periods) and in patients undergoing quarantine as an impact on mental health [4,5]. A further condition that may have generated depressive disorders concerns time, which seems to have a particular significance for patients hospitalized for COVID-19 as what they experience during hospitalization is a dilated, empty time, without stimuli, a waiting time in whose helmet and protections feed the proliferation of thoughts. The restriction of freedom of movement and social isolation strongly affect psychological well-being and quality of life. Here, as already happened for previous epidemics, the COVID-19 pandemic has had a clear impact on the mental health of some individuals, in terms of post-traumatic stress and anxious and depressive symptoms, with a prevalence in the general population by about 30% for each symptom. Early identification of individuals who are in the early stages of a psychological disorder makes intervention strategies more effective. [6,7]. Personal protective equipment (PPE) altered both manual dexterity and the relationship between colleagues and patients, making recognition difficult and decreasing relationship time in order to guarantee the health worker's safety [8-10], with a need for a "compassionate connection", due to extreme isolation and lack of human contact (also having regard to PPE), [11,12]. After all, the need to connect with others is a basic need and the supportive action, especially of nursing professionals, immediately appeared to be fundamental in the management and prevention of psychophysical complications related to hospitalization time. In this context, the patient-nurse relationship has assumed a dual Objective. intervention and observation, so as to be able to get to know the person better, understand possible intervention strategies and evaluate whether there are signs of improvement/worsening [13]. In hospitalized COVID-19 patients, the depressive issue was acute, it acted negatively on a person's thoughts, behaviors and perceptions [14,15], which were measured daily with high levels of fear, anxiety and agitation and therefore required strong support emotional, which unfortunately nurses found it difficult to adequately guarantee, due to distancing and PPE. However, in a context of hospitalization such as to dedicate little relational time to the patient, it is necessary that the nurse can make use of evaluation scales that allow the professional to monitor the mood of the person being assisted [16]. Some studies have also revealed an association between depression and levels of systemic inflammation: COVID-19 patients with higher levels of systemic inflammation are those at greater risk of suffering from depression and post-traumatic stress syndrome (PTSD), in the months following recovery. These are the results of a research conducted among 42 COVID-19 patients hospitalized at the IRCC San Raffaele Hospital in Milan [17]. Even after recovery, patients affected by COVID-19 showed depressive symptoms to a significantly greater extent than healthy subjects, and show reduced local functional connectivity in the temporo-parietal cortex. The COVID-19 condition could also cause neuropsychiatric symptoms such as depression, anxiety, mental fatigue, sleep disorders and stress-related disorders [18].

It is important to recognize whether a person either suffers from or is at risk of depressive disorder, as it may become a serious health condition, especially if it occurs with a moderate or severe intensity, leading to suicide in the worst cases [16]. The present work aims to focus on the significance of the changes due to the hospitalization, the hospitalization time, of patients hospitalized for COVID-19 infection, with the need to evaluate the depressive risk among hospitalized patients, in order to prevent subsequent misdates, underline the importance of carrying out a narrative review of the literature.

Aim

To investigate the risk of depressive disorder among COVID-19 hospitalized patients, through nursing interventions.

Materials and methods

This study is a systematic review based on Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA). The literature search was conducted using the PIO methodology (Tab. I) [19].

TABLE I. *PIO approach.*

Population	COVID-19 hospitalized patients
Intervention	Efficacy on the administration of psychometric scales to evaluate the degree of depressive syndrome.
Outcome	Prevention of the risk of depressive syndrome

TABLE II. *Research strategy.*

Database	String	Limits	Results
Embase	('coronavirus disease 2019'/exp OR '2019 novel coronavirus disease':ti,ab,kw OR '2019 novel coronavirus epidemic':ti,ab,kw OR '2019 novel coronavirus infection':ti,ab,kw OR '2019-ncov disease':ti,ab,kw OR '2019-ncov infection':ti,ab,kw OR 'covid':ti,ab,kw OR 'covid 19':ti,ab,kw OR 'covid 2019':ti,ab,kw OR 'covid-10':ti,ab,kw OR 'covid-19':ti,ab,kw OR 'covid19':ti,ab,kw OR 'sars coronavirus 2 infection':ti,ab,kw OR 'sars-cov-2 disease':ti,ab,kw OR 'sars-cov-2 infection':ti,ab,kw OR 'sars-cov2 disease':ti,ab,kw OR 'sars-cov2 infection':ti,ab,kw OR 'sarscov2 disease':ti,ab,kw OR 'sarscov2 infection':ti,ab,kw OR 'wuhan coronavirus disease':ti,ab,kw OR 'wuhan coronavirus infection':ti,ab,kw OR 'coronavirus disease 2':ti,ab,kw OR 'coronavirus disease 2010':ti,ab,kw OR 'coronavirus disease 2019':ti,ab,kw OR 'coronavirus disease-19':ti,ab,kw OR 'coronavirus infection 2019':ti,ab,kw OR 'ncov 2019 disease':ti,ab,kw OR 'ncov 2019 infection':ti,ab,kw OR 'novel coronavirus 2019 disease':ti,ab,kw OR 'novel coronavirus 2019 infection':ti,ab,kw OR 'novel coronavirus disease 2019':ti,ab,kw OR 'novel coronavirus infection 2019':ti,ab,kw OR 'novel coronavirus pneumonia':ti,ab,kw OR 'paucisymptomatic coronavirus disease 2019':ti,ab,kw OR 'severe acute respiratory syndrome 2':ti,ab,kw OR 'severe acute respiratory syndrome cov-2 infection':ti,ab,kw OR 'severe acute respiratory syndrome coronavirus 2 infection':ti,ab,kw OR 'severe acute respiratory syndrome coronavirus 2019 infection':ti,ab,kw) AND ('risk assessment'/exp OR 'assessment, safety':ti,ab,kw OR 'risk adjustment':ti,ab,kw OR 'risk analysis':ti,ab,kw OR 'risk assessment':ti,ab,kw OR 'risk evaluation':ti,ab,kw OR 'safety assessment': ti,ab,kw OR 'nursing assessment'/exp OR 'nursing assessment':ti,ab,kw OR 'nursing evaluation':ti,ab OR 'nursing care'/exp OR 'nursing care':ti,ab,kw OR 'evaluation study'/exp OR 'evaluation':ti,ab,kw OR 'evaluation studies':ti,ab,kw OR 'evaluation studies as topic':ti,ab,kw OR 'evaluation study':ti,ab,kw OR 'clinical predictor':ti,ab) AND ('depression'/exp OR 'clinical depression':ti,ab,kw OR 'depression':ti,ab,kw OR 'depressive disease':ti,ab,kw OR 'depressive disorder':ti,ab,kw OR 'depressive episode':ti,ab,kw OR 'depressive illness':ti,ab,kw OR 'depressive state':ti,ab,kw OR 'depressive symptom':ti,ab,kw OR 'depressive syndrome':ti,ab,kw OR 'mental depression':ti,ab,kw) AND (scale*:ti,ab OR 'questionnaire'/exp OR 'questionnaire':ti,ab,kw OR 'questionnaires':ti,ab,kw OR 'surveys and questionnaires':ti,ab,kw OR 'beck depression inventory'/exp OR 'beck depression inventory':ti,ab,kw OR 'beck depression inventory ii':ti,ab,kw OR 'beck depression inventory revised edition':ti,ab,kw OR 'beck depression scale':ti,ab,kw OR 'depression assessment'/exp OR 'depression assessment':ti,ab,kw OR 'zung self rating depression scale'/exp OR 'zsds score':ti,ab,kw OR 'zung self rating depression scale':ti,ab,kw OR 'zung`s self-rating depression scale':ti,ab,kw OR 'rating scale'/exp OR 'rating scale':ti,ab,kw OR 'inventory of depressive symptomatology'/exp OR 'inventory of depression and anxiety symptoms'/exp OR 'covid stress scales'/exp OR '36-item covid stress scales (css)':ti,ab,kw OR 'covid stress scales':ti,ab,kw OR 'covid stress scales (css)':ti,ab,kw OR 'covid-19 stress scales':ti,ab,kw OR score*:ti,ab OR 'hospital anxiety and depression scale'/exp OR 'had scale':ti,ab,kw OR 'had score':ti,ab,kw OR 'hads':ti,ab,kw OR 'hads (hospital anxiety and depression scale)':ti,ab,kw OR 'hospital anxiety depression scale':ti,ab,kw OR 'hospital anxiety depression scale (hads)':ti,ab,kw OR 'hospital anxiety and depression scale':ti,ab,kw OR 'hospital anxiety and depression scale (hads)':ti,ab,kw OR 'hospital anxiety and depression scale (hads-a, hads-d)':ti,ab,kw OR 'hospital anxiety and depression scale (anxiety-subscale: hads-a and depression-subscale: hads-d)':ti,ab,kw OR 'hospital anxiety and depression scale anxiety subscale (hads-a) and depression subscale (hads-d)':ti,ab,kw OR 'hospital anxiety and depression scale sigmond and snaith':ti,ab,kw OR 'hospital anxiety and depression scale test':ti,ab,kw OR 'hospital anxiety and depression scale-depression and anxiety':ti,ab,kw OR 'zigmond and snaith hospital anxiety and depression scale (hads)':ti,ab,kw OR 'zigmond and snaith`s hospital anxiety and depression scale (hads)':ti,ab,kw OR 'hospital anxiety and depression scale (hads-a/d)':ti,ab,kw) AND ('hospital patient'/exp OR 'hospital patient':ti,ab,kw OR 'hospitalised patient':ti,ab,kw OR 'hospitalised patients':ti,ab,kw OR 'hospitalized patient':ti,ab,kw OR 'hospitalized patients':ti,ab,kw OR 'in-hospital patient':ti,ab,kw OR 'in-hospital patients':ti,ab,kw OR 'inpatient':ti,ab,kw OR 'inpatients':ti,ab,kw OR 'patient, hospital':ti,ab,kw OR 'survivor'/exp OR 'survivor':ti,ab,kw OR 'survivors':ti,ab,kw OR 'survival'/exp OR 'survival':ti,ab,kw)	Publication date: March 2020 - May 2022	69
Cinahl	(coronavirus or covid-19 or 2019-ncov) AND (depression or depressive disorder or depressive symptoms or major depressive disorder) AND (scale or test or questionnaire or assessment or measure or inventory or instrument) AND (hospital patients or inpatients or survivors) AND (risk assessment or risk management or risk analysis or risk evaluation or nursing assessment or nursing evaluation or nursing care)	Publication date: March 2020- May 2022	20

Search queries

The bibliographic search was conducted May 5, 2022, with the support of the "Biellese BioMedica Library" in the CINAHL and EMBASE databases.

For the search, the strings shown in Table II were used, arranging key-words: COVID-19, Depression, Nursing, Hospital patients, Scale, Risk assessment, and combining with the Boolean operators AND and OR.

Inclusion and exclusion criteria

Inclusion criteria were:
- patients aged 18 years or over;
- both males and females;
- primary experimental and observational studies;
- studies published both in English and in Italian.
- studies published from March 2020 to May 2022.

Exclusion criteria were:
- secondary studies;
- patients who survived from the COVID-19 and were not hospitalized during the study;
- patients who had a diagnosis of mental disorder before the COVID-19.

Results

Articles were selected according to the procedural statement explained in the Figure 1.
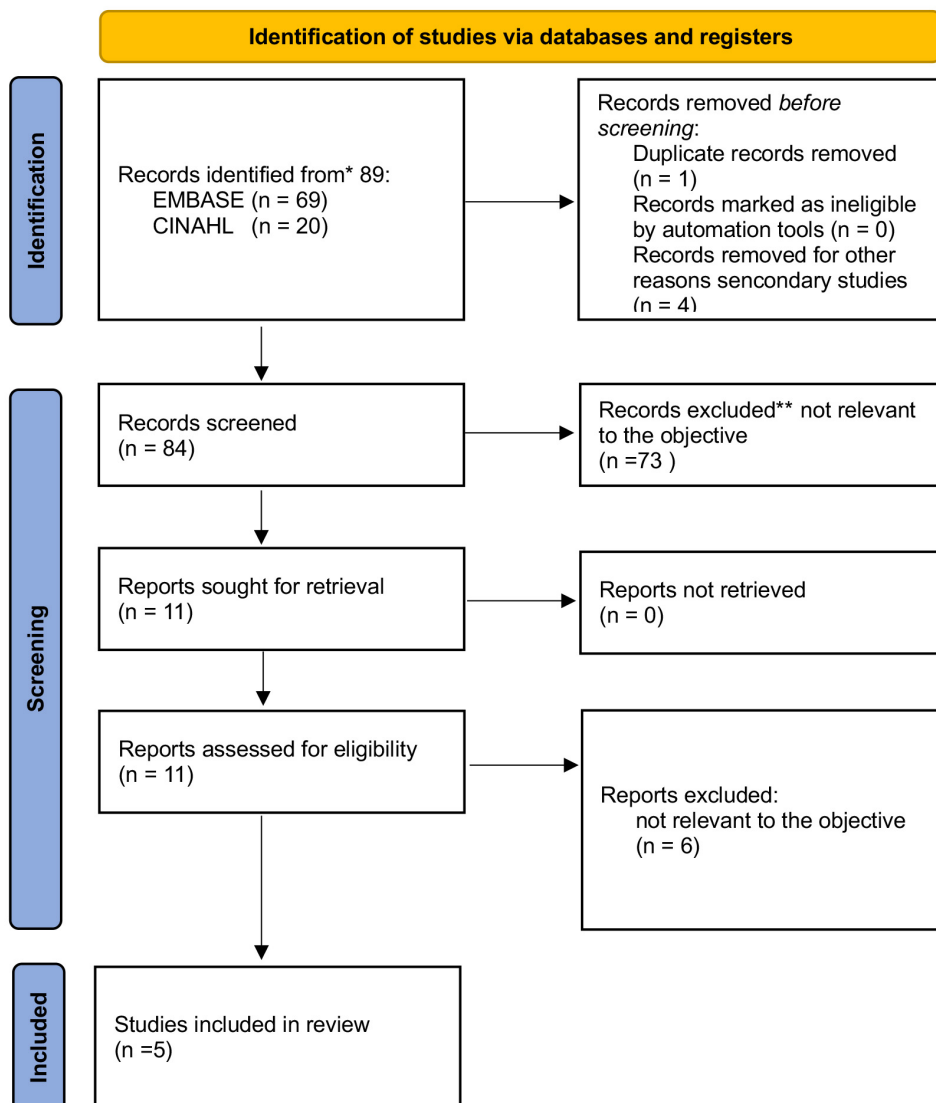
FIGURE 1. *PRISMA flow chart of the literature review entitled: The risk of depressive disorder in the COVID-19 hospitalized patient: nursing evaluation. A narrative review of the literature.*

TABLE III. *Studies included in this review.*

Title, Author(s), publication year	Study design	Objective	Sample	Depression assessment	Results and outcomes
Prevalence of depression and its association with quality of life in clinically stable patients with COVID-19, Ma et al., 2020 China	Trasversal, observational study	To investigate the prevalence of depressive symptoms and the relationship with QoL in clinically stable Covid-19 patients.	770 subjects	PHQ-9	43.1% of participants exhibited depressive symptoms, with the prevalence of mild, moderate, and severe depression being 24.5%, 12.1%, and 6.5%, respectively. Female patients had more depressive symptoms than their male counterparts. Patients with severe infection are more at risk of developing depression. Depression has been found to have a negative impact on QoL.
Prevalence and predictors of posttraumatic stress disorder, depression and anxiety among hospitalized patients with coronavirus disease 2019 in China. Chen et al., 2021 China	Cross-sectional observational study	To investigate anxiety, depression, PTDS among Covid-19 hospitalized patients.	898 subjects.	PHQ-9	21% of patients had depressive symptoms, with a prevalence of moderate, severe, and very severe depression (11.5%, 6.3%, and 3.2%). 77.3% of participants with PTSD had comorbid depression and 8.2% had all three disorders considered in the study. Possible causes were the Covid-19 condition, some drugs used its treatment, and pandemic-related stress. Resilience was a protective factor only for depression. Timely interventions were needed on the symptoms of mental disorder even before on the mental illness itself.
The state of anxiety, depression, and stress in hospitalized patients with confirmed covid-19 infection. Mitra et al., 2021 India	Cross-sectional observational study	Evaluation of the burden of depression, anxiety and stress symptoms.	114 subjects	DASS-21	77.2% of the participants showed a state of depression, of which 19.3% mild, 21.1% moderate, 18.4% severe and 18.4% extremely severe. Several factors have led to such a high prevalence, including hospital stress, adverse events experienced firsthand or by third parties, and panic condition.
The Associated Factors of Anxiety and Depressive Symptoms in COVID-19 Patients Hospitalized in Wuhan, China. Li et al., 2021 China	Cross-sectional observational study	To investigate the prevalence and factors associated with anxiety and depressive disorders.	99 subjects.	HADS	Approximately 50% of the participants showed depressive symptoms, of which 21.2% with a defined borderline score, while 29.3% with a score above the cut-off. Age and length of hospital stay were the most risk factors.
Mood Reactive Disorders among COVID-19 Inpatients: Experience from a Monocentric Cohort. Fiore et al., 2021 Italy	Longitudinal single center cohort study.	To investigate the presence and severity of depression. among hospitalized Covid-19 patients after their discharge.	48 subjects.	BDI-II administration at T0 (after 1 week the admission) and at T1 (after 1 week the discharge).	43.7% reported depressive symptoms at T0. There was no increase in score at T1. One of the main factors determining depression was impaired sleep.

Abbreviations: DASS-21: Depression Anxiety Stress Scale; HADS: Hospital Anxiety Depression Scale; PHQ-9: Patient health Questionnaire-9; QoL: Quality of Life.

Table III included all the articles considered for this review. Specifically, the selected studies were conducted between 2020 and 2021, 3 studies were carried out in China, 1 in India and 1 in Italy; 4 studies were observational and cross-sectional; while the Italian study was a longitudinal single-centre cohort. All participants examined in all the studies included were COVID-19 hospitalized patients, for a total of 1,159.

Ma et al. [21] was a cross-sectional observational study conducted in 2020 among 770 participants admitted to a Chinese hospital. The aim was to investigate the prevalence of depressive symptoms and how they affected the quality of life in the subjects examined: to do this, the PHQ-9 (Patient Health Questionnaire-9 (PHQ-9) was administered online. The results of the study showed that almost half of the sample actually had depressive disorders, particularly at risk patients with severe infection, due to the greater physical discomfort they experienced and the side effects of treatments, and female patients compared to their male counterparts. The presence of depressive symptoms has a negative impact on QoL: early identification, appropriate treatment and adequate follow-up are therefore required to be provided promptly.

The cross-sectional observational study by Chen et al. [22] was conducted in China in 2021 with the aim to investigate different aspects in mental health among 898 COVID-19 hospitalized subjects. Specifically, depression was assessed by online administration of the PHQ-9. 21% of the sample registered depressive symptoms and 77.3% had comorbid depression and PTSD; 8.2% had all three disorders considered in the study. The possible causes were: related to the immune responses that the virus itself causes; the use of certain drugs, such as corticosteroids, which can induce an affective psychosis, or hydroxychloroquine (related to agitation, emotional lability and irritability); or to the stress related to the pandemic, which is greater in hospitalized patients than in unaffected subjects or in healthcare workers precisely due to the need for isolation throughout the healing process. Resilience has been found to be a protective factor only for depressive disorder. In conclusion, it was highlighted that early interventions are needed for the assessment of mental health already in the acute phase: treating the symptoms, such as impaired motor skills or the inability to relax, rather than the mental illness as a whole.

Mitra et al. [23] is a cross-sectional study, carried out in India in 2021, which evaluated the burden of depression, anxiety and stress in 114 hospitalized patients following a diagnosis of COVID-19. The instrument used for the evaluation was the DASS-21. It turned out that 77.2% of the participants developed depressive symptoms due to various factors: those that have mostly led to such a high prevalence are hospital stress, adverse events experienced in the first or third person and situational panic.

The study by Li et al. [24], on the other hand, aimed to investigate the prevalence and factors associated with anxiety and depression in 99 subjects hospitalized with COVID-19 at a hospital in Wuhan, China. The instrument used was the HADS (Hospital Anxiety and Depression Scale) which showed that about half of the participating patients showed depressive symptoms. The study showed that patients between the ages of 46 and 60 and the length of hospital stay are risk factors for depression, which must therefore be evaluated immediately.

Finally, Fiore et al. [25] is an Italian monocentric cohort study, conducted at the Infectious Diseases Unit of the Sassari hospital. The aim of the following study was to investigate the presence and also the severity of depressive symptoms during hospitalization for COVID-19, but also any changes after discharge: from March to May 2020, 48 participants were administered the BDI-II at two different times, i.e. one week after hospitalization (T0) and subsequently one week after discharge (T1). In T0 it emerged that 43.7% of the subjects reported depressive symptoms, while in T1 it was highlighted that there were no increases in the score, rather improvements. The following study concluded that the mood disorders encountered in this period were mostly classified as reactive depression and that one of the main factor determining the sleep impairment.

Discussion

The studies examined a sample of hospitalized COVID-19 patients in a medium-low intensity ward, with the exception of the study by Fiore et al. [25], which also collected information from one of patients admitted to intensive care, or that of Ma et al. [21], in which a part of the sample was affected by severe infection: from the latter it was found that these patients experienced greater physical discomfort and heavier treatments which may have worsened depression, while the Italian study by Fiore et al. [21] did not have significant data from this variant of hospitalization [21,25]. Regardless of the degree of intensity, the various studies examined found that the main risk factors for the development of depressive disorders were, in addition to the virus itself and the use of some drugs, the length of hospital stay, adulthood (46-60 years old), female gender, sleep impairment, and situation-related panic. A protective factor for depression is, on the other hand, resilience [22], which has already been found in previous studies to play a role in the long-term recovery of mental health in patients [26].

The development of depressive disorder has been evaluated on several levels, from mild to severe: in all the

studies examined there was a development in mild or moderate depression in a majority of subjects, which, as it has been shown, could be classified as a reactive depression in most cases and which might be evaluated both during hospitalization and after discharge [25]. A rather significant correlation was found between levels of anxiety and depression, as evidenced by the HADS scale used in the study by Li et al. [24], which indicated that in this type of patient, anxiety and depression symptoms were prone to accompany the one another [24]. The association of generalized anxiety disorder (GAD) and depression during the COVID-19 pandemic has been attributed to the strong connection between restlessness, inability to relax, and impaired motor skills [27]. What has been further highlighted was that not only there was a correlation between anxiety and depression, but that they were often comorbid with PTSD [22]. In fact, GAD, depression and PTSD were consequences of a strong general discomfort that occurred in the acute phase of a trauma, which generated a series of symptoms linked to each other [28]. The COVID-19 pandemic could be considered as a trauma, patients suffering from this disease could develop a network of influential symptoms converging towards multiple interconnected psychiatric diseases. A better choice of intervention for the mental health among these patients is to treat the symptoms that may lead to its development (e.g. impaired motor skills or inability to relax), rather than focusing attention later on the mental illness as a whole (in our case depression) [22].

There has been research which has supported that those quarantined due to an epidemic of infectious diseases, such as the COVID-19, may be at risk of depression, not only in the acute phase but also in the long term, too [29]. Even in the case of this pandemic, the situation remains unchanged: in fact, the perception of personal risk or actual exposure can make the individual more susceptible to developing mental disorders [22]. Finally, depression was associated with lower QoL in COVID-19 patients than in healthy subjects. Therefore, it is necessary to quickly act, through an early identification of depressive symptoms that might be treated and evaluated also with long-term-follow-up [21].

Conclusion

The COVID-19 pandemic had an evident impact on the mental health of the population and on those who, due to the disease, have undergone a period of isolation. The risk that these people may develop mental disorders and, specifically in this thesis, depressive disorders, makes us understand how important it is to recog-

nize early the symptoms and risk factors that can then lead to the development of a real depression. Mental health is just as important as physical health and proper nursing care takes this into account in any type of hospitalization. It would therefore be necessary to establish corporate protocols to ensure that the professional administers the scales to evaluate the mood of the assisted person as soon as he is hospitalized and during hospitalization, so as to implement a whole series of precautions to avoid the development of depressive symptoms or to be able to recognize them as soon as possible: it is clear that if the symptom is treated, it is possible to avoid reaching the actual disease.

A future perspective could be to have greater collaboration between hospital services and community services for better assistance to discharged patients, especially those who have had a positive score for the risk of depressive disorder: this would allow the nurse who works in the community to better monitor, through home follow-up, the changes in mood that these patients may have even in the long term following the trauma suffered by the COVID-19 disease. The goal remains the same: to recognize the symptom early so as to avoid the development of the disease.

Limitations

The limitations encountered on this narrative review are limited access to databases given that the study was self-funded, lack of clarity on titles and abstracts, the period considered during the highest percentage of hospitalizations for COVID-19, English language only, further limitations of this review were the exclusion of non-English language articles and the inclusion of some studies with a small sample size. A further limitation is that the questionnaires, used to verify whether or not depression was present, were self-administered, this due to the high risk of contagion for the healthcare worker if he or she stayed longer in the room during the compilation. Finally, with the exception of the Italian study, all the other studies are cross-sectional and therefore did not investigate the patient's mental health status after discharge.

Ethical consideration
Not applicable.

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