

# Can acutely ill patients predict their outcomes? A scoping review

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## ABSTRACT

**Introduction** The full impact of an acute illness on subsequent health is seldom explicitly discussed with patients. Patients' estimates of their likely prognosis have been explored in chronic care settings and can contribute to the improvement of clinical outcomes and patient satisfaction. This scoping review aimed to identify studies of acutely ill patients' estimates of their outcomes and potential benefits for their care.

**Methods** A search was conducted in PubMed, Embase, Web of Science and Google Scholar, using terms related to prognostication and acute care. After removal of duplicates, all articles were assessed for relevance by six investigator pairs; disagreements were resolved by a third investigator. Risk of bias was assessed according to the Cochrane Handbook for Systematic Reviews of Interventions.

**Results** Our search identified 3265 articles, of which 10 were included. The methods of assessing self-prognostication were very heterogeneous. Patients seem to be able to predict their need for hospital admission in certain settings, but not their length of stay. The severity of their symptoms and the burden of their disease are often overestimated or underestimated by patients. Patients with severe health conditions and their relatives tend to be overoptimistic about the likely outcome.

**Conclusion** The understanding of acutely ill patients of their likely outcomes and benefits of treatment has not been adequately studied and is a major knowledge gap. Limited published literature suggests patients may be able to predict their need for hospital admission. Illness perception may influence help-seeking behaviour, speed of recovery and subsequent quality of life. Knowledge of patients' self-prognosis may enhance communication between patients and their physicians, which improves patient-centred care.

## INTRODUCTION

The full impact of an acute illness, a sudden and rapid deterioration of health caused by an acute disease or worsening of a chronic disease, on subsequent health is seldom explicitly explained or discussed with patients.<sup>1,2</sup> This is despite the suggestion that patients' views concerning their disease severity, disease course and prognosis can influence their expectations, self-management, recovery and might affect how they access care.<sup>3–7</sup>

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Patient prognostication has been widely used in disease-specific settings but has never been investigated in acute care settings. Prognostication by patients in acute settings might improve shared decision-making, as this requires all parties to have a common understanding of the likely outcomes and effectiveness of treatments. It is also probable that a shared understanding of what is likely to happen next will enable patient-centred care and patient satisfaction.

## WHAT THIS STUDY ADDS

⇒ The understanding of acutely ill patients of their likely outcomes and benefits of treatment has not been adequately studied and is a major knowledge gap. An exhaustive review of the literature found only 10 papers that addressed these issues. These papers suggest that patients can predict their need for hospitalisation, but not their outcomes or the likely benefits of treatment.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Future research is necessary to evaluate the value of self-prediction in acute care settings and its use in daily practice. In acute settings or upon admission to hospital, patients can be asked to estimate their chances of survival, future symptom burden and care needs within a future time window. Prior to becoming standard practice, the benefits and hazards of asking acutely ill patients what are their expectations of outcomes must also be examined, as must the optimal timing of these enquiries. The aim of this enquiry is to improve patient-centred care, the shared decision-making process and patient satisfaction.

Prognostication by patients has been explored and found to be useful in palliative care settings.<sup>8</sup> Participation of patients in their care has been shown to improve clinical outcomes, patient satisfaction and cost efficiency in, for example, inflammatory bowel



disease, diabetes and asthma.<sup>9,10</sup> Applying these constructs might also improve the delivery of acute care.

It is possible that acutely ill patients' perceptions of their likely outcome might contribute to and even improve their clinician's estimation of disease severity and prognosis, which would help risk prediction and improve shared decision-making in the ED, acute medical unit (AMU) and other acute care settings. However, if both patient and doctor differ in their understanding of the severity of the patient's illness severity and its likely outcome, this will erode their communication and may impede or prevent the optimal delivery of treatment. Particularly for chronic conditions, poor patient understanding of illness can result in increased ED use.<sup>11</sup>

This scoping review aims to identify reports in the literature of acutely ill patients' estimates of their outcomes, and any potential benefits this may provide for their care.

## METHODS

### Study design

We performed a scoping review on patient predictions of their outcomes of acute admissions. The review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines.

### Eligibility criteria

The search was restricted to studies including a self-assessment by patients upon hospital admission or during their stay in an acute care setting. We excluded studies from acute paediatric, psychiatric and obstetric care settings, as well as studies from palliative care, primary care, outpatients and chronic disease programmes. This was done to minimise heterogeneity and provide a focused overview of patient perceptions of their outcomes in acute care settings.

The included studies had to fulfil the following criteria:

1. A self-assessment by the patient on outcomes, that is, functional status, level of independence, general health, place of living, care needs, death, length of stay, post-discharge disposition or post-discharge quality of life.
2. Comparison of the self-assessment with a comparative measure of risk, such as a score that indicates severity of illness, perceptions by healthcare professionals, and perceptions by relatives or caregivers.
3. The self-assessment was performed during an acute presentation or within 72 hours of using emergency services, ED or AMU.

Only articles written in English with full-text availability were included. Bibliographies of relevant systematic reviews or overview articles identified during the search were reviewed to identify additional relevant studies.

### Information sources and search

PubMed (Medline Ovid), Embase, Web of Science and Google Scholar databases were searched, with the last comprehensive search conducted on 1 February 2022. The search terms used for searching the databases were based on the inclusion criteria 'Patient attitude', 'Expectation', 'Prediction', 'Perception', 'Mortality', 'Survival', 'Disease course', 'Prognosis', 'Daily life', 'Hospitalisation', 'Hospital admission', 'Emergency Department'. The search strategy and queries were developed by a biomedical information specialist (see online supplemental appendix 1 for the complete syntax).

### Study selection

Duplicate articles were manually removed by HM and EMM using EndNote for Windows (Thomas Reuters, V.X9).

Investigators of the Safer@Home Research Consortium worked in pairs using Rayyan QCRI to screen the identified studies based on the title and abstract. The full texts of selected articles were then independently assessed by an investigator, who subsequently worked with a paired investigator to reach a consensus decision on the suitability for inclusion. Where pairs could not agree, a third investigator (MNTK or EMM) acted as arbiter.

### Data collection process, data items and data analysis

The following data were extracted from each article (if available): authors, year and journal of publication, country of origin, study setting, study design, study population, measurement of self-prognosis, comparison measurement, outcome and a summary of the study findings. Data were extracted by all investigators and summarised by one investigator (EMM). The measurement tools used for the prognostication by patients were categorised based on setting of use, type of measurement tool and outcome.

### Risk of bias in individual studies

A structured, evidence-based risk-of-bias tool (ROB) for the topic of this scoping review is not available. The self-prognosis of patients in acute care settings is not frequently evaluated in randomised controlled trials or study designs, which in turn might contribute to systematic/scoping reviews. Cochrane ROB tool was used as a guideline to provide an estimation of the risk of bias.<sup>12</sup> The risk of bias was assessed in the following domains: selection bias, performance bias, detection bias, attrition bias, reporting bias, measurement bias and other possible risks of bias (such as recall bias).

## RESULTS

### Study selection

Our searches provided 3265 articles, of which 178 articles were selected for full-text screening. Following full-text screening, 10 articles were included<sup>13–22</sup> (figure 1). These studies used various measurement instruments to assess prognostication by patients, such as the Patient Reported Health Status Questionnaire, survey questions concerning length of stay (LOS) and survival, the Brief Illness Perception Questionnaire and the Edmonton Symptom Assessment Scale.

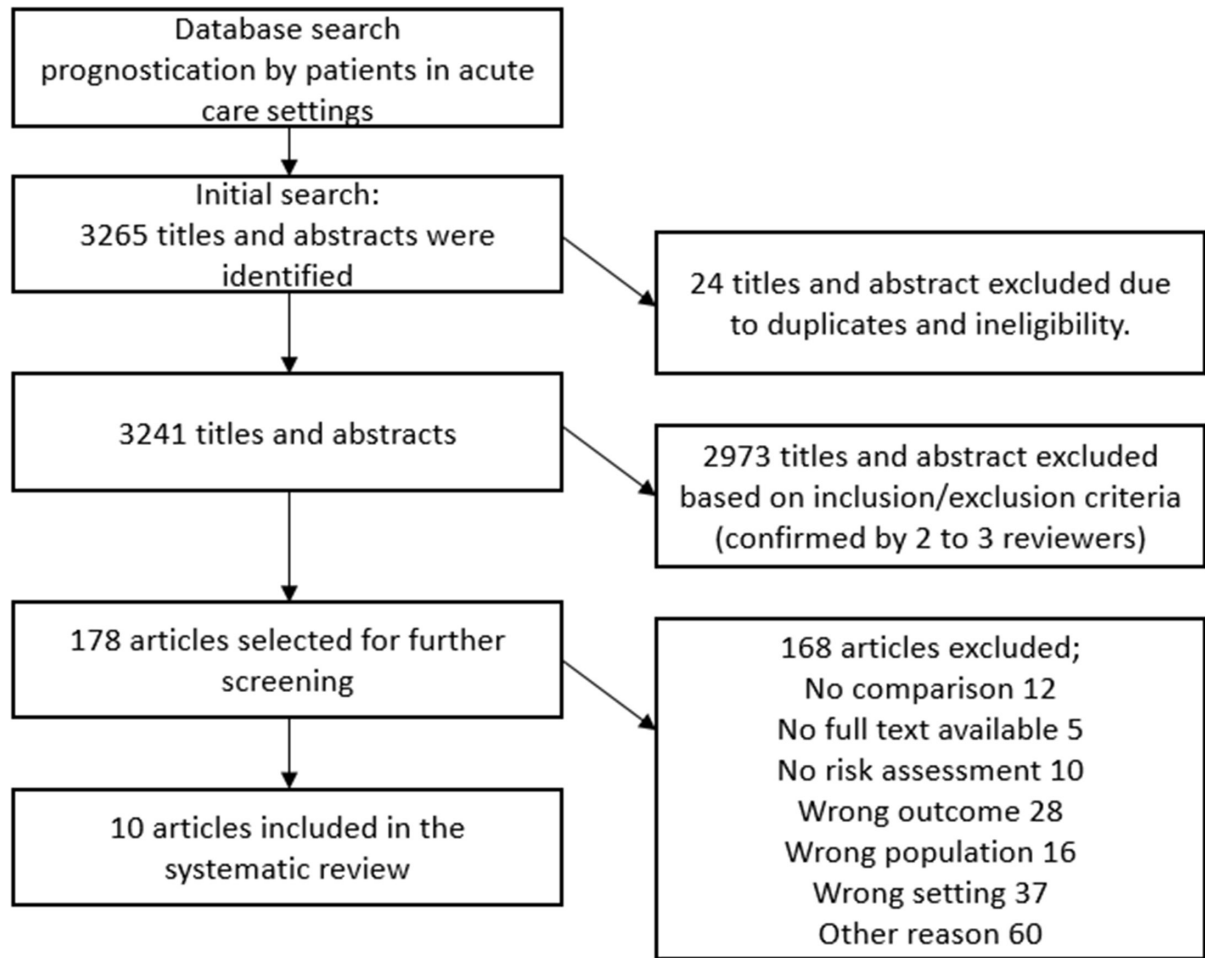
### Study characteristics of included articles

Prognostication by patients in acute care settings is measured in various ways, using various tools. The patients' views were compared with the perspectives of healthcare professionals (such as nurses and physicians) and relatives in five studies. In one study, the patients' prognostications were compared with scores that indicate severity of illness. In four studies, the comparison was with an objective measure of risk. The patient characteristics of the included studies are shown in table 1.

We clustered the studies based on the self-assessment by the patient with previously outlined domains. According to these, three categories were made. LOS became part of the first category: *admission and LOS*. Functional status, level of independence and general health became part of the second category, *general health and severity of illness*. Death and survival became part of the third category, *life expectancy*. The study characteristics of the included studies are shown in table 2.

### Admission and LOS

Dent *et al*<sup>13</sup> investigated the perception of the patient concerning the need for admission and possible in-hospital LOS, comparing this with the perception of the treating ED physician and nurses,



**Figure 1** Flow diagram of included studies.

and the actual admittance and LOS.<sup>13</sup> This was completed within 15 min after initial presentation at the ED. This study shows that patients can predict the need for admission in 64% of the cases; however, LOS was much more difficult to predict (31.6%). Nurses correctly predicted the LOS in 31.3% of cases, which is concordant with the accuracy of their patients. Sadillioglu *et al*<sup>14</sup> showed that patients can also accurately predict their need for admission, with 92.8% sensitivity.<sup>14</sup> Baehni *et al*<sup>15</sup> investigated the perceptions of patients with lower respiratory tract infections concerning outpatient management and compared this with their treating physicians, nurses and the Pneumonia Severity Index. Upon hospital admission, 18.0% of the patients thought that outpatient management was possible, compared with 12.6% of physicians and 15.1% of nurses. At hospital discharge, however, only 11.6% of the patients thought that earlier discharge would have been possible, compared with 31.1% of the physicians and 32.2% of the nurses. Admission was driven by fear of severe infection, even though this fear was not always grounded when based on the Pneumonia Severity Index.<sup>16</sup> Furthermore, Clark *et al*<sup>16</sup> found that patient-reported measurements (such as appetite quality, headache, oedema and fatigue) accounted for 7% of the variance in hospital LOS.<sup>16</sup> These studies show that patients can predict their need for admission; however, the patients seem to have more difficulty with predicting their LOS.

#### General health and severity of illness

Geiger *et al*<sup>17</sup> showed that in trauma patients, the perceived injury severity is not correlated with an Injury Severity Score

and that 68% of the patients overestimate the severity of their injury.<sup>17</sup> Furthermore, the perceived severity of illness contributes to help-seeking behaviour. Patients who do not understand the risks or do not perceive their symptoms as severe will not seek appropriate care.<sup>18–20</sup> Additionally, patients with poor illness comprehension do not recognise early symptoms of deterioration of health and often seek medical attention too late.<sup>20</sup> These studies show that patients often overestimate or underestimate the severity of their injuries or symptoms.

#### Life expectancy

Ford *et al*<sup>21</sup> and Kitakata *et al*<sup>22</sup> investigated the ability of patients to estimate their survival and prognosis. Patients admitted to the intensive care unit (ICU) and their surrogates were asked to predict their survival and severity of illness, and this was compared with the APACHE score and the estimation of healthcare professionals. Patients and their surrogates were optimistic concerning their survival and illness severity; only 37% of the patients who subsequently died thought they would die.<sup>21</sup> Furthermore, patients diagnosed with heart failure were asked to choose which model depicted a typical heart failure trajectory and to estimate what their 2-year survival would be. The Seattle Heart Failure Model-predicted and patient-predicted 2-year survival rates were compared and corresponded to 27.8%, with 41.5% of patients overestimating their survival and 30.7% of patients underestimating their survival. The patients' understanding of their heart failure trajectory was also insufficient; only 46.6% selected the correct model.<sup>22</sup> These studies

**Table 1** Patient characteristics of included studies

Author+year	Country	Population	Patient group	Mean age, years (95% CI)	Gender (F)	Follow-up duration
Admission and length of stay						
Dent <i>et al</i> , 2007 <sup>13</sup>	Australia	N=704	All patients at the ED	63.6 (61.2 to 65.7)	49%	1 day
Sadillioglu <i>et al</i> , 2013 <sup>14</sup>	Turkey	N=857	All hospitalised patients	43.7 (43.6 to 43.8)	51.8%	1 day
Baehni <i>et al</i> , 2010 <sup>15</sup>	Switzerland	N=566	Patients with lower respiratory tract infections	73 (61 to 82)	43.9%	15 days
Clark <i>et al</i> , 1999 <sup>16</sup>	USA	N=2126	All hospitalised patients	50.8 (49.3 to 51.5)	53.7%	5 days
General health and severity of illness						
Geiger <i>et al</i> , 2011 <sup>17</sup>	USA	N=120 (patients <55 years N=81; patients >55 years N=39)	Trauma patients	Patients <55 years 35.3 (33 to 37.6) Patients >55 years 68.8 (63.5 to 72.3)	27%	3 days
Mesas <i>et al</i> , 2018 <sup>18</sup>	Brazil	N=50	Patients with STEMI	59 (56.1 to 61.9)	36%	During hospitalisation
Twibell <i>et al</i> , 2015 <sup>19</sup>	USA	N=158	Inpatients of an acute care unit	69.9 (67.8 to 72)	67.7%	During hospitalisation
Lin <i>et al</i> , 2021 <sup>20</sup>	USA	N=185	Patients hospitalised with heart failure	61.6 (59.7 to 63.5)	49.2	3 days
Life expectancy						
Ford <i>et al</i> , 2009 <sup>21</sup>	USA	N=100 (patients N=33; surrogates N=67)	Critically ill patients on the medical intensive care unit	54.6 (51.2 to 58.0)	38%	During hospital admission
Kitakata <i>et al</i> , 2021 <sup>22</sup>	Japan	N=113	Patients hospitalised with heart failure	73.8 (71.7 to 75.9)	34.5%	Unclear

The patient characteristics of the included studies are clustered within previously outlined domains, based on the domain in which the self-assessments have been made. These domains consist of admission and length of stay, general health and severity of illness, post-discharge disposition and post-discharge quality of life and life expectancy. STEMI, ST-elevation myocardial infarction.

show that patients and their relatives are not able to estimate their survival and prognosis. Communication concerning these important topics is found to be difficult but important.

### Risk of bias

A risk-of-bias assessment was undertaken for all the included studies, with the use of the Cochrane ROB tool as a guideline (table 3). All studies did not use randomisation methods and included patients based on convenience and availability. Most studies have a low risk of performance bias since patients were not subjected to interventions. However, Dent *et al*<sup>13</sup> assessed the chances of being admitted within 15 min after ED arrival, and again after the initial work-up and treatment in ED. Therefore, performance bias cannot be ruled out, while the patients, nurses and physicians were not blinded, and an intervention did take place. Additionally, a low risk of detection bias was found in most studies since patients did not undergo any intervention and blinding was not possible in the research settings of these studies. Dent *et al*<sup>13</sup> and Ford *et al*<sup>21</sup> described interventions which were performed in the ED and ICU, respectively; these interventions might have influenced the perceived health status and chance of health deterioration in the future. Furthermore, attrition bias was found unclear in several studies, where it was not possible to determine if participants had withdrawn and how this affected the results. Baehni *et al*,<sup>15</sup> Clark *et al*<sup>16</sup> and Ford *et al*<sup>21</sup> mentioned withdrawals but did not state the effect on the results. A high risk of detection bias was found in the study performed by Twibell *et al*<sup>19</sup> who reviewed the risk of falling for hospitalised patients and the perceptions of patients and nurses. However, none of the patients fell during their stay and therefore it is difficult to evaluate the results. The risk of measurement bias was deemed low in most studies. Ford *et al*<sup>21</sup> and Geiger *et al*<sup>17</sup> used measurement tools which were not clearly described and/or validated. Therefore, the risk of measurement bias could not be assessed. Lastly, the risk of recall bias was deemed low for the

study performed by Lin *et al*,<sup>20</sup> as patients who were enrolled completed the questionnaire and interview within 3 days after hospital admission. No other risks of bias were found to be of importance for the remaining studies.

### DISCUSSION

This scoping review on the use of prognostication by patients in acute care settings shows that patients' views concerning their health outcomes have not been extensively studied.

Research concerning self-prognostication has been performed in patients with cancer and is of great importance for their advance care planning.<sup>23</sup> Patients and their families seek information about prognosis to aid decision-making in medical, psychological and social domains.<sup>24</sup> However, we are unable to say with certainty that patient prognostication is useful in acute care and there is a need to fill this knowledge gap.

The limited number of studies identified by this study suggests that acutely ill patients may be able to predict their need for hospital admission. However, LOS is more difficult to predict for both patients and their caregivers. Furthermore, patients and their physicians are often in agreement concerning the need for admission to hospital or possible outpatient care. This might be influenced by the shared decision-making process which is already taking place in the ED and the possibility that physicians take the opinion of their patients concerning the need for admission into account.<sup>11</sup>

Patients often overestimate or underestimate their symptom severity and may not comprehend or foresee the burden of their disease. This may affect how often they present to acute care facilities, their need for outpatient treatment and their rehabilitation after hospitalisation.<sup>3 4 11</sup> The patients' estimation of severity of symptoms and consequent use of healthcare facilities is influenced by multiple factors, such as illness comprehension and health literacy.<sup>25</sup> The limited findings of this scoping review suggest that illness comprehension may be an important factor



Table 2 Study characteristics of included studies

Author+year	Study design	Time horizon	Measurement instrument	Risk to/prediction of...	Compared with...	Main outcome	Summary of findings
Admission and LOS							
Dent <i>et al</i> , 2007 <sup>13</sup>	Single-centre observational study	11 July 2004–27 August 2004	Survey asking whether the patient will be admitted and duration	Risk of admission and in-hospital LOS	Views of relatives, nurses and doctors	The chances of admission and LOS perceived by patients and others	64% of admission predictions were correct. Overall, ED doctors were better than all other groups at predicting LOS. ED staff were more likely to underestimate than overestimate LOS.
Sadillioğlu <i>et al</i> , 2013 <sup>14</sup>	Prospective cohort study	Unclear	Survey on the patients' perception of severity of illness	Hospital admission or discharge	Physician opinion concerning severity of medical condition and need for admission	Severity of medical condition	Results showed that despite patients' exaggerated perceptions of severity of their medical condition, more rational decisions were made for the need of hospitalisation.
Baehni <i>et al</i> , 2010 <sup>15</sup>	Multicentre prospective observational study	October 2006–March 2007	Standardised questionnaire, factors necessitating in-hospital treatment based on factors from the literature and expert opinion	Possibility of outpatient treatment as seen by the patient	Perception of healthcare professionals and relatives concerning the possibility to receive outpatient treatment	Possibility of outpatient treatment	Independent of type and severity of respiratory tract infection, the misperceived high severity, expected mortality and morbidity were the predominant reasons why treating physicians, nurses, patients and their relatives unanimously believed that inpatient management was necessary.
Clark <i>et al</i> , 1999 <sup>16</sup>	Prospective observational survey-based study	1 July 1996–30 June 1997 On workdays	Patient-reported health status questionnaire	LOS correlated with questionnaire	Acute Physiology Score (APS) and APACHE II score	Usefulness of PRMs on admission	Correlation between perceived health, APS and LOS compared with each other and mobility, APS and symptoms were significant but weak. 15 questions of our PRM tools were significant predictors for LOS.
General health and severity of illness							
Geiger <i>et al</i> , 2011 <sup>17</sup>	Prospective observational survey-based study	3 months	The perceived severity of injury on a scale	The severity of injury	The Injury Severity Score (ISS)	Perceived severity of injuries compared with ISS	The results of this study show that patients often overestimate the severity of their injury, which was only statistically significant for patients with penetrating injuries.
Mesas <i>et al</i> , 2018 <sup>18</sup>	Longitudinal survey-based study	1 January 2012–31 December 2012	Response to Symptoms Questionnaire	The severity of symptoms	Patient delay time for reperfusion therapy	Differences in reperfusion time, patient delay time and system delay time	Low-perceived severity of symptoms might increase patient delay time.

Continued

Table 2 Continued

Author+year	Study design	Time horizon	Measurement instrument	Risk to/prediction of...	Compared with...	Main outcome	Summary of findings
Twibell <i>et al</i> , 2015 <sup>19</sup>	Prospective correlational study	Unclear	Falling scales; confidence, fear, consequences, intention scale	Risk of falling	The risk of falling judged by nurses using an assessment tool for risk of falling	Influence of patients' engagement in behaviours to prevent falls during admission	There is a distinct mismatch between the risk of falling perceived by patients and nurses. While nurses assessed all the patients of at risk of falling, more than half of the patients did not perceive that they were likely to fall. Surprisingly, none of the patients enrolled fell during hospitalisation.
Lin <i>et al</i> , 2021 <sup>20</sup>	Cross-sectional comparative study	2014–2017	Symptom Management Model	The severity of symptoms	Physician opinion concerning severity of heart failure (HF)	Age differences in symptom perceptions, evaluations and responses for exacerbation of HF	The majority of patients, regardless of age, failed to recognise escalating HF symptoms initially. Patients also interpreted and responded inappropriately to their HF symptoms. Older patients had lower somatic awareness than younger patients, but this did not attribute to better symptom evaluation or response.
Life expectancy							
Ford <i>et al</i> , 2009 <sup>21</sup>	Prospective observational survey-based study	1 February 2006–30 November 2006	Survey including the question, 'I might not survive this hospitalisation', scored on a 5-point Likert scale	Prediction of survival by patients/surrogates	Actual survival and APACHE II score	The chance of survival in critical illness	Patients and surrogates were more optimistic regarding survival than observed survival or APACHE II.
Kitakata <i>et al</i> , 2021 <sup>22</sup>	Cross-sectional observational study	September 2017–December 2018	Prognosis and Treatment Perception Questionnaire (PTPQ)	Death after 2 years	Seattle Heart Failure Model (SHFM)	Correlation between PTPQ and SHFM	There was a low correlation between the PTPQ and the SHFM. Patients' overall prognostic understanding was suboptimal. The communication process requires further improvement for patients to accurately understand their HF prognosis and be involved in making a better informed decision.
The patient characteristics of the included studies are clustered within previously outlined domains, based on the domain in which the self-assessments have been made. These domains consist of admission and LOS, general health and severity of illness, post-discharge disposition and post-discharge quality of life and life expectancy. APACHE II score, Acute Physiology And Chronic Health Evaluation; LOS, length of stay; PRMs, patient-reported measurements.							

in patients' health perception and may affect how often they present to acute care facilities. Different perceptions of illness can cause tension and distrust between physicians and patients, which might be prevented if patients truly understood their diagnosis and treatment plan. This could be determined by using

tools such as patient-reported measurements and the teach-back method.<sup>26–28</sup>

Patients and their family and friends often tend to be overoptimistic about outcomes and survival when there is severe health deterioration. If the chances of survival are deemed low by

Table 3 Risk-of-bias assessment

	Selection bias	Performance bias	Detection bias	Attrition bias	Reporting bias	Measurement bias	Other bias
Dent <i>et al</i> <sup>13</sup>	HR	HR	HR	NC	LR	LR	LR
Sadillioğlu <i>et al</i> <sup>14</sup>	HR	LR	LR	NC	LR	LR	LR
Baehni <i>et al</i> <sup>15</sup>	HR	LR	LR	HR	LR	LR	LR
Clark <i>et al</i> <sup>16</sup>	HR	LR	LR	HR	NC	LR	LR
Geiger <i>et al</i> <sup>17</sup>	HR	LR	LR	NC	LR	NC	LR
Mesas <i>et al</i> <sup>18</sup>	HR	LR	LR	LR	NC	NC	LR
Twibell <i>et al</i> <sup>19</sup>	HR	LR	HR	LR	LR	NC	LR
Lin <i>et al</i> <sup>20</sup>	HR	LR	LR	LR	NC	LR	LR
Ford <i>et al</i> <sup>21</sup>	HR	LR	HR	HR	NC	NC	LR
Kitakata <i>et al</i> <sup>22</sup>	HR	LR	LR	NC	LR	LR	LR

Red defines High risk, Orange risk unclear and green low risk  
HR, high risk of bias; LR, low risk of bias; NC, risk of bias not clear.

physicians and nurses, patients and their relatives tend to abstain from estimating the chances of survival. It is possible that the need for hope and self-preservation in these situations plays an important factor in overestimation and abstaining from prediction.<sup>19</sup> However, for physicians and nurses to provide the right advice and guidance, they need to have an accurate insight into the views of their patients and families.

Discussions concerning prognosis are challenging for everyone involved. Patients, their families and physicians frequently differ concerning prognostic estimates and misunderstanding is common. Patients and their families do not solely rely on information provided by the physician but also incorporate their own beliefs.<sup>29</sup> Open communication concerning these different views is important and can be aided with previously gathered information; it is relatively easy to ask patients two questions about their values and involve them in the shared decision-making process.<sup>25–30</sup> Therefore, we recommend asking about patients' values and perceived illness severity to establish a mutual understanding of the most likely prognosis, outcomes and treatment options.

### Limitations

A limitation of this review is that only limited research regarding patients' prediction of their outcomes in acute care settings is available. Given the heterogeneity of the included studies, the age of some of the included studies and therefore their disputable results, and the lack of a fully fitting risk-of-bias assessment tool, this review provides a descriptive overview of existing literature but is not able to collate empirical evidence to guide decision-making. Therefore, meaningful conclusions about the value of self-prediction on outcomes in acute care are difficult to make.

As mentioned in the Methods section, a structured, evidence-based ROB tool for the topic of this scoping review is not available. Given the relevance of this topic and to accommodate further research, we call for the development of an appropriate ROB tool concerning patient prognostication.

Articles that were not written in English were excluded; therefore, some articles may have been missed. Furthermore, we excluded articles where the views of relatives instead of patients were investigated, especially in the ICU, where patients are not always able to make their wishes and opinions known. In these situations, prognostication by relatives can also be of importance.

### CONCLUSION

This review demonstrates that the understanding of the likely outcomes and benefits of treatment of acutely ill patients has

not been adequately studied and is a major knowledge gap. The limited available studies suggest that patients might be able to accurately predict their need for hospital admission but that they find illness severity and prognosis more difficult to determine, which may influence their health-seeking behaviour, subsequent recovery and restoration of their quality of life. Currently, the benefits and hazards of asking acutely ill patients what their expectations of disease and outcome are, and the optimal timing of these enquiries, are unknown.

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for the search. All authors (EMM, HH, MH, SI, BS, HM, EFC, PWBN, CHN, IW, JK, CPS and MNTK) were responsible for the evaluation and data extraction of the articles. EMM reviewed all the extracted data and made the result tables and figures, and performed the risk-of-bias assessment. EMM drafted the manuscript. All authors (EMM, HH, MH, SI, BS, HM, EFC, PWBN, CHN, IW, JK, CPS and MNTK) critically revised the manuscript for important intellectual content. All authors read and approved the final manuscript. EMM and MNTK act as guarantor.

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## Appendix 1 SEARCH

embase.com	1369	1355
Medline ALL Ovid	658	226
Web of Science (SCI-EXPANDED & SSCI)	1271	865
Google Scholar	200	161
<b>TOTAL</b>	<b>3498</b>	<b>2607</b>

**embase.com 1369**

((('expectation'/mj OR 'prediction'/mj OR 'prediction and forecasting'/mj) AND (Patient/mj OR 'patient attitude'/mj)) OR (((patients OR patient-s OR patient) NEXT/1 (expectation\* OR prediction\* OR perception\* OR forecasting\*)) OR (patients NEAR/3 (expectations-of OR predictions-of OR perceptions-of)):ab,ti) AND ('mortality'/exp OR 'survival'/exp OR 'disease course'/de OR 'adverse outcome'/de OR 'quality of life'/de OR 'disease severity'/exp OR prognosis/de OR 'daily life activity'/exp OR (mortalit\* OR survival\* OR prognos\* OR (life NEAR/3 expect\*) OR disease-course OR adverse OR (quality NEAR/3 life) OR ((disease OR illness\*) NEAR/3 (sever\* OR perception\* OR critical\*)) OR (daily NEAR/3 (life OR living) NEAR/6 activit\*)):ab,ti) AND ('hospitalization'/exp OR 'hospital admission'/exp OR 'emergency ward'/exp OR 'intensive care'/de OR 'intensive care unit'/exp OR 'ambulatory care'/de OR (hospitali\* OR admission\* OR (emergency NEAR/3 (ward\* OR department\* OR unit\*))) OR 'intensive care' OR icu OR ambulator\*)):ab,ti)

**Medline ALL Ovid 658**

(((((patients OR patient-s OR patient) ADJ (expectation\* OR prediction\* OR perception\* OR forecasting\*)) OR (patients ADJ3 (expectations-of OR predictions-of OR perceptions-of)):ab,ti.) AND (Mortality/ OR Survival/ OR Disease Progression/ OR Quality of Life/ OR Severity of Illness Index/ OR Prognosis/ OR Activities of Daily Living/ OR (mortalit\* OR survival\* OR prognos\* OR (life ADJ3 expect\*) OR disease-course OR adverse OR (quality ADJ3 life) OR ((disease OR illness\*) ADJ3 (sever\* OR perception\* OR critical\*)) OR (daily ADJ3 (life OR living) ADJ6 activit\*)):ab,ti.) AND (Hospitalization/ OR Patient Admission/ OR Emergency Service, Hospital/ OR Critical Care/ OR exp Intensive Care Units/ OR Ambulatory Care/ OR (hospitali\* OR admission\* OR (emergency ADJ3 (ward\* OR department\* OR unit\*))) OR intensive care OR icu OR ambulator\*)):ab,ti.)

**Web of Science (SCI-EXPANDED & SSCI) 1271**

TS=((((patients OR patient-s OR patient) NEAR/1 (expectation\* OR prediction\* OR perception\* OR forecasting\*)) OR (patients NEAR/2 (expectations-of OR predictions-of OR perceptions-of)))) AND (((mortalit\* OR survival\* OR prognos\* OR (life NEAR/2 expect\*) OR disease-course OR adverse OR (quality NEAR/2 life) OR ((disease OR illness\*) NEAR/2 (sever\* OR perception\* OR critical\*)) OR (daily NEAR/2 (life OR living) NEAR/5 activit\*))) AND ((hospitali\* OR admission\* OR (emergency NEAR/2 (ward\* OR department\* OR unit\*))) OR "intensive care" OR icu OR ambulator\*)))

**Google Scholar**

"patient expectations|predictions|perception"|"expectations|predictions|perceptions of patients" mortality|survival|prognosis|"disease course|severity"|"quality\*life" hospitalization|admission|"emergency ward|department|unit"|"intensive care"|icu|ambulator