Full Title

Language concordance in critical care: A systematic review

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Key Points

Question:

How has language concordance been studied in critical care and critical care recovery?

Findings:

Most studies focused on process measures such as the number of language-concordant encounters, with few evaluating patient-centered clinical outcomes, despite the high stakes nature of critical care.

Meaning:

This is the first aggregation of language concordance studies in critical care which offers insights into high impact intra-hospital processes of care (e.g., delirium assessments, restraint use) and affirms gaps in acknowledging linguistic implications in clinical decision-making.

Abstract

Objective: Language barriers are associated with differences in care delivery processes and outcomes in critical care settings, with differences despite language assistance services. Less is known about outcomes associated with language concordant care. Language concordance is a linguistic match between a patient's preferred language and the language used by their care team. We undertook a systematic review to examine the measurement and impact of language concordant care delivery during critical illness, inclusive of the critical care recovery period after hospitalization.

Data Sources and Study Selection: A systematic review was conducted in PubMed, CINAHL, PsycINFO, Embase and Cochrane of English-language publications from database inception to March 3, 2026. Studies that investigated adults in critical care and post-ICU recovery clinic settings that included measurement of language concordance were included. Study quality was evaluated by the Joanna Briggs Institute Critical Appraisal Checklist.

Data Synthesis: Of 1,682 unique records identified, 11 were eligible for inclusion (128,181 total patients; mean [SD] age, 68.4 [17.9 years]; 72,872 (56.9%) male and 55,082 (43.1%) female). Six studies assessed clinical decision-making. Reported outcomes included code status changes, family conferences, communication complexity, delirium, length of stay, mechanical ventilation, and mortality. Due to significant heterogeneity in study analyses and reported outcomes, data were not pooled for quantitative analysis.

Conclusions: Current evidence suggests that language-concordant care may influence clinically meaningful processes of critical care, warranting interventional studies to guide care delivery recommendations.

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Introduction

Language discordance between patients and clinicians is a recognized barrier to effectively assessing and addressing healthcare needs[1]. Linguistic barriers are associated with adverse clinical outcomes, including delayed clinical decision-making, diminished understanding of prognosis by patients and families, and lower satisfaction among all stakeholders.

To better understand the impact of language in critical care, consistent terminology is essential. Language concordance refers to alignment between a patient's language and the language used by their clinicians. In predominantly English-speaking countries, language discordance is frequently associated with Limited English Proficiency (LEP) commonly defined as a self-reported ability to speak English less than "very well"[2]. Language preference, on the other hand, reflects the language in which the patient prefers to communicate in healthcare settings. Conceptual definitions and relationships are summarized in **Figure 1**. While language preference and LEP are frequently used to describe linguistic differences, they do not fully account for the communication interactions between patients and clinicians.

The implications of language barriers in critical care were amplified during the COVID-19 pandemic, when LEP in Intensive Care Unit (ICU) patients was associated with truncated code status discussions and default endorsements to full code statuses[3]. Similarly, in a pre-pandemic context, LEP was associated with lower likelihoods of changing code status during critical illness and placement of comfort measure orders when dying as well as a higher likelihood of using physical restraints when compared with English proficient patients[4]. Beyond clinical outcomes, these communication challenges may contribute to higher costs for patients with LEP[5].

In critical care, as well as in related perioperative and emergency department settings, systematic reviews have been anchored in linguistic differences and LEP but have not examined language concordance which requires measuring and reporting language spoken by both patients and their clinicians[6-8]. The high acuity environment of the ICU introduces unique stressors that can exacerbate communication needs. Factors such as time pressure, emotional stress, assessments contingent on verbal communication, and prognostic uncertainty create an environment where effective communication is inherently more difficult and more vulnerable to error. Thus, we conducted a systematic review to evaluate language concordant care during critical illness and recovery with the goal of characterizing measures of language concordance and assessing associations with critical care outcomes.

Materials and Methods

Design

This systematic review adheres to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) standards and was conducted following best practice guidelines, including pre-registration (PROSPERO CRD42025101326)[9].

Search Strategy

Searches were conducted in PubMed, CINAHL, PsycINFO, Embase and Cochrane. We also conducted manual searches of reference lists of eligible studies and relevant review articles by employing backward and forward citation searching and searches of relevant journals (e.g., *Journal of Immigrant and Minority Health*). Search terms included terms for hospitalization and language concordance adapted for each database (**Supplemental Table 1**). Date limits for the search were inclusive from database inception to March 3, 2026. Articles were restricted to the English language.

Study Selection and Data Extraction

Studies including adult patients (age ≥18) hospitalized with critical illness that measured language concordance and analyzed language-related outcomes were included. Because most studies utilize patient language preference data to operationalize language concordance, studies measuring language preference were retained if it enabled inference regarding clinician-patient language matching. All primary empirical research, including quantitative, qualitative, and mixed methods study designs were included. Given an anticipated low volume of research literature on language concordance in critical care delivery settings, both qualitative and quantitative studies were included. Studies that did not measure language concordance were excluded. Studies analyzing ambulatory surgery, procedural areas, or other non-ICU care delivery outcomes were excluded, as were literature reviews, guidelines and policies, and studies not published in English.

To minimize the probability of bias, two investigators screened all titles, abstracts, and full texts of studies and resolved disagreements on study eligibilities using consensus discussion with arbitration of a third investigator when needed. Covidence screening software was used for data management[10].

Assessment of Quality

Two investigators independently assessed the methodological quality of each included study. The Joanna Briggs Institute Critical Appraisal Checklists were used for methodological quality assessment. Following independent assessments of quality, discrepancies were discussed between two investigators with resolution by a third investigator when required, yielding a consensus quality rating for each study.

Data Analysis

Data extracted included publication year, study design, date and countries of data collection, participant demographics including languages, language preference data source, measurement of language concordance or language fluency, and outcome measures. Study and cohort characteristics were summarized descriptively. Studies were analyzed using narrative synthesis, including stratified consideration of ICU-only cohorts.

Data regarding code status changes, family meetings, mortality, mechanical ventilation, severity of illness, discharge planning and length of stay were extracted (**Supplemental Table 2**). Due to significant heterogeneity in study analysis and reported outcomes, data were not pooled for quantitative analysis (**Supplemental Table 3**). All data were extracted by two investigators independently; and following discussion, if there were discrepancies, a third investigator adjudicated.

Results

After removal of 55 duplicate studies, 1,568 titles and abstracts were screened, and 168 full-text articles were assessed for eligibility with 11 studies included in our final review. The PRISMA flow diagram is shown in **Figure 2**. The eleven included studies had a total of 128,181 patients (mean[SD] age, 68.4 [17.9 years]; 55,082 [43.1%] female and 72,872 [56.9%] male). Cohort summary statistics and study characteristics are presented in **Supplemental Table 4**.

Study Characteristics

All included studies were conducted in the United States or Australia and were primarily retrospective comparisons of groups and non-comparative after-only quality improvement interventions. Data spanned 2000 to 2026, with three studies representing COVID-19 pandemic care delivery. Most studies were framed with ICU-only cohorts (n=7) with others reporting subgroups of ICU cohorts in combination with non-ICU subgroups (n=4). Across studies, male

patients were more commonly represented than female patients. Sample sizes varied from a single center cohort of 22 participants to administrative records drawn from 23 hospitals and representing more than 126,000 ICU hospitalizations. Similarly, the units of measurement for dependent and independent measures were inconsistent, including nurse-patient dyads, family conferences, 12-hour patient care shifts, and referrals to language services programs. No studies reported language concordance evaluations in post-ICU care delivery settings. Among the included studies, none reported formal pre-registration, though one published a study protocol (**Supplemental Table 5**). Three studies included informed consent. Most studies used real-world data, and two studies used validated outcome measures (Family Satisfaction in the ICU-24, Communication Complexity Score)[11,12].

Study Quality

Quality was assessed using the Joanna Briggs Institute Critical Appraisal Checklists, with 4 studies classified as high quality, and 7 studies classified as low-to-medium quality (**Supplemental Table 6**)[13].

Race, Ethnicity and Language Measurement

Most studies reported race and/or ethnicity, and two studies adjusted for race and/or ethnicity in analysis. This review found substantial variation in the methods used to describe language concordance, including methods in assessing language preference and language proficiency. In the included studies, only two examine differences in critical care patient outcomes according to language concordance categories[14,15]. The most frequently used source for language preference data was patient self-selection recorded in the electronic health record. Most studies (91%, n=10) included Spanish-speakers, and five studies included multiple languages, all of which included Chinese or Mandarin Chinese.

Language proficiency measurement ranged from broad fluency determinations of staff by nurse managers familiar with their team[14], to validated approaches, including using the Qualified Bilingual Staff (QBS) assessment[16] and thresholds of C1 (advanced) or higher scores on the Common European Framework of Reference for Language (CEFR) for Spanish[17]. In another study, language discordance was measured from the perspective of the direct-care clinician, with language discordance measured using staff-reported communication difficulty using a Likert scale[18]. Of note, in one study employing language concordant research interviews examining the impact of language on care delivery, most high acuity patients admitted via the emergency department with LEP (59%) did not have access to a professional interpreter despite clinical complexity and documented LEP[12].

Process and Outcome Measures

Key process and outcome measures represented clinical decision-making, health outcomes, and health system utilization domains (**Table 1**).

1. Clinical Decision-Making

Six studies assessed clinical decision-making. Of these, goals of care discussion, code status changes, and family conferences were the most common measures[16,17,19,20]. In a cohort of patients hospitalized for COVID-19, language concordant clinicians were consulted most often for family engagement, goals of care discussion, and cognitive assessments[16]. Similarly, language concordant palliative care clinicians were consulted most often for goals of care discussion and coping support[17]. In a separate cohort of palliative care clinicians, code status changes occurred more often when palliative care consultations were led by a language concordant team member[19].

When families and clinicians with language concordance met for small group discussions such as family meetings, there was more active listening time, coping support, and more statements of familial support from clinicians compared to family conferences using translators[20].

2. Health Outcomes

Six studies evaluated health outcomes that spanned physical, psychological, and cognitive function and in-hospital survival. Of these, three investigated intra-hospital processes of care specific to delirium assessments, physical restraints, mechanical ventilation, and sedation/analgesia dosing[14,18,21]. When examining language concordance using nurse-patient dyads, language concordance was associated with lower odds of restraint use, and lower rates of agitation and delirium identification[14].

3. Health System Utilization

Six studies evaluated the association between language concordance and health system utilization measures. The most common measures were discharge destination and length of stay[11,15-18]. Quality improvement and process assessments also included interpreter utilization, and days to initial palliative care consultations[12,17].

Population Subgroups

Across included studies, seven examined ICU-only cohorts, while four reported mixed populations that included ICU subgroups alongside non-ICU patients or Rapid Response Team activations. These groups differed in the outcomes assessed, with ICU-only studies focusing on critical care-specific measures of mechanical ventilation, delirium, length of stay, and mortality, (**Supplemental Table 3**) while mixed cohorts emphasized broader communication-related constructs such as family meetings. ICU-only studies, which spanned program evaluation,

quality improvement, and research designs in the United States and Australia, consistently highlighted the role of language concordance in high stakes clinical interactions. Key findings from ICU-only cohorts were that language concordant clinicians were consulted most often for family engagement, goals of care discussion, coping support, and cognitive assessments[16,17]. When language concordance was examined for delirium assessments, there was improved family and caregiver satisfaction with language concordant delirium assessment methods compared with language discordant delirium assessments[11]. In ICU-only cohorts, when asked about difficulty in communicating with patients, there were notable concerns of staff reporting difficulty in communicating with patients[18]. When reviewing electronic health records, language concordance in nurse-patient dyads was associated with lower odds of restraint use, and lower rates of agitation and delirium identification in ICU-only cohorts[14].

Discussion

This is the first systematic review of language concordance in critical care medicine beyond the general description of language barriers. Observational studies suggest associations between language concordance and clinically meaningful outcomes, including delirium assessments, restraint use, and the uptake of comfort care measures. These measures reflect important aspects of care quality, effective communication, and respect for patient autonomy. This review used PRISMA guidelines for methods and reporting; however, substantial heterogeneity across studies precluded meta-analysis. Although research on language concordance in critical care remains limited, the implications are positioned to be hypothesis-generating with an emphasis to date on pragmatic, patient-centered processes such as delirium assessments, restraint use, and comfort care measures represent the potential influence of language concordance on clinical decision-making and patient experiences.

In several studies, language discordance was associated with under-recognition of delirium and greater reliance on physical restraints. Accurate delirium assessment relies on validated tools, such as the Confusion Assessment Method for the ICU, which depend on bidirectional communication between clinicians and patients[22]. Delirium recognition is central to the ABCDEF bundle, which is associated with improved outcomes[23]. Recent studies also suggest that language concordance may improve both satisfaction and diagnostic accuracy of delirium assessments, and language discordance may contribute to higher rates of 'unable to assess' classifications[11,21].

As with the bidirectional communication required for delirium assessments, restraints-related decision-making may be closely tied to the success of verbal de-escalation attempts[24]. When communication is limited, escalation prevention may be reduced, leading to important clinical consequences. Restraint use is associated with adverse outcomes, including pressure injuries, increased delirium, neuromuscular weakness, and post-traumatic stress disorder[25]. Observational data suggest higher rates of restraint use among patients with language discordance, even after adjustment for confounders[26,27], and studies of patient-nurse dyads demonstrate increased likelihood of restraint use in language-discordant encounters[14]. These findings highlight how language discordance may influence critical care processes with downstream implications for patient outcomes.

Effective, bidirectional communication remains equally critical during transitions of care including discharge planning, post-ICU recovery clinics, and follow-up engagement. In COVID-19 cohorts, evidence suggests that language discordance is associated with delayed presentation to care[28], and these disparities appear to persist after hospitalization, with lower rates of post-COVID clinic attendance and reduced engagement with follow-up assessments[29]. Similar

patterns are documented in post-ICU clinic attendance rates[30]. Although these studies did not report language concordance and therefore were not included in this review, they underscore the impact of language barriers and the need for future research examining language concordance in discharge planning and recovery-oriented care.

Because few critical care studies were available, studies from related settings can offer broader perspectives. In perioperative settings, patient-provider language differences have been linked to procedural delays and prolonged hospitalizations[7]. In emergency department settings, use of in-person interpreter services has been associated with prolonged throughput times, and while no consistent association between language and mortality in outcomes post-hospitalization has been demonstrated [31], language concordance is associated with improved care transitions ratings[32]. Within critical care, however, the evidence measuring language concordance remains sparse. Notably, our comprehensive search identified no studies evaluating language concordance in ICU recover or rehabilitation settings. These findings underscore the need for dedicated measurement and reporting of language concordance across the full continuum of critical care, from acute ICU illness through post-ICU recovery.

Limitations

This review was limited to English-language publications, a methodological constraint that is notable given the theme of language disparities. Despite this, we intentionally included study location and language characteristics to better understand the global context of evidence. Despite this approach, all included studies originated from only two countries, the United States and Australia, which further underscores the potential limited international representation of the current literature. Further, the absence of a well-defined epidemiologic framework limits the development of targeted interventions to improve language concordance in critical care. This gap

is reflected by limited study pre-registration, infrequent protocol publication, and inconsistent use of validated outcome measures, with most studies drawing on real-world observational data.

There are also systematic limitations in many of the included studies due to reliance on electronic health record for language identification. In a multi-hospital audit, the sensitivity for identifying patients with a preferred language other than English was 69%, thus approximately 1 in 3 patients were considered misclassified as English-proficient[33]. Other studies have demonstrated even wider variability, with sensitivities ranging from 12-81%[34]. This misclassification likely biases results toward the null by incorrectly classifying patients with LEP as language concordant, potentially diluting the true magnitude of disparities and harm. Furthermore, surveys of ICU nurses suggest that despite policies requiring documentation of medical interpreter use, as many as 35% respondents indicate that they hardly ever document medical interpreter use[35]. These biases and validity threats may affect the magnitude of conclusions in this review.

These limitations highlight a fundamental gap where language concordance is rarely measured and seldom evaluated. These communication vulnerabilities persist across the continuum of critical illness, with no identified studies addressing language concordance in post-ICU recovery settings. Risk of bias varied across studies and included low, medium, and high-risk designs. Selection bias, residual confounding including staffing patterns, illness severity, and race/ethnicity and inconsistent definitions of language concordance further limit causal inference. Nevertheless, higher-quality cohort studies consistently suggested associations between language-concordant dyads and clinically relevant care processes, such as restraint use and delirium assessment, supporting cautious interpretation of potentially important clinical effects and underscoring the need for more rigorous controlled studies.

Future research should move beyond observational designs susceptible to confounding from staffing patterns, institutional culture, illness severity, and other social determinants of health. Evaluations of interventions addressing language discordance within critical care environments are needed beyond program evaluations or quality-improvement frameworks. Future studies should employ structured communication interventions to critically evaluate interrelationships between language and race in healthcare inequities. Development and adoption of standardized common data elements evaluating language concordance and the impact on patient outcomes would strengthen the field by enabling comparison, synthesis, and pooling of observational studies and future clinical trials.

Practice implications of rigorous intervention studies could yield recommendations for language discordance as a high risk characteristic, akin to interruption-free zones in medication administration areas. One near-term, process-level strategy could be intentional scheduling that matches multilingual staff to language-discordant encounters, to leverage language skills in the workforce. Long-range structural strategies could include formally incorporating language proficiency into degree program admissions criteria or community-based hiring practices, to position language as a clinically relevant skill valued in workforce selection. These pathways differ in cost, time range strategy and institutional commitment, and future studies could inform the relevance and prioritization of future strategy adoption.

Conclusion

Emerging evidence links language discordance with clinically meaningful aspects of care delivery, including restraint use and delirium assessment. However, language concordant care delivery remains understudied despite its potential as an important modifiable social determinant of health. Existing studies rarely evaluate inpatient care processes, and no studies evaluate

critical care recovery settings. The current evidence base is comprised of observational study designs poised for hypothesis-generating, helping to define the problem, understand the scope, and identify key outcomes in real-world settings.

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Figure Legend

Language Access is the availability and provision of language services (e.g., interpretation, translation) for effective communication.

Language Proficiency is the ability to communicate effectively in the non-dominant language and is typically classified as basic/intermediate/advanced/fluent with validation through an oral proficiency exam.