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Factors other than medical acuity that influence hospitalization: a scoping review protocol

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Keywords:	non-medical acuity, social factors, hospitalization, decision to admit, SOCIAL MEDICINE

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Factors other than medical acuity that influence hospitalization: a scoping review protocol

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Keywords: non-medical acuity, social factors, hospitalization, decision to admit, social medicine

Abstract

Introduction: There is evidence that patients are admitted to the hospital with low-acuity medical issues, though delineation of the underlying factors has not been comprehensively explored. This scoping review will provide an overview of the existing literature regarding factors outside of acute medical illness that influence hospitalization of adults. The review will also seek to provide common language and framework for this phenomenon.

Methods and analysis: The scoping review framework, outlined by Arksey and O'Malley and expanded upon by Levac et al, will be used as the basis for this study. A systematic search of seven databases (PubMed, CINAHL, PsycINFO, EMBASE, Web of Science, Sociological Abstracts, and Social Science Abstracts) will be conducted to identify existing literature followed by a standardized two-phase, two-reviewer process to select relevant papers for inclusion. Relevant details of the work will be extracted, including the terminology used and perspectives included. An assessment of methodologic quality will be performed using a tool designed for mixed methods systematic review. Finally, a conceptual model will be proposed uniting the findings of this review.

Ethics and dissemination:

The scoping review protocol delineates a transparent and rigorous review process, the results of which will be disseminated through peer-reviewed publication and presentation at relevant local or national meetings. The study does not require ethics approval as the data will be accumulated through the review of published, peer-reviewed literature and grey literature.

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3 **Article Summary**

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5 *Strengths and Limitations of this Study*

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- 7
- 8 • This review will establish a baseline understanding of the influence of non-medical acuity
 - 9 on the decision to hospitalize adult patients
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29 **Background**

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31 Despite increased scrutiny of appropriateness of hospital admission, patients with low acuity of

32 medical illness are admitted to the hospital.[1] Severity of illness risk stratification tools do not

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34 always correlate well with risk of hospitalization,[2] particularly when used in marginalized

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38 influenced by a factor other than medical acuity.[4]

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45 Operationalizing the drivers of hospitalization that are not specifically related to medical acuity

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49 nomenclature, using terms such as “non-medical factors”,[4] “deprivation”,[5] “social factors”,

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51 [6] “patient characteristics”,[7] or naming specific factors such as homelessness,[8, 9] food

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53 insecurity,[10] or comorbidity of medical, psychiatric, and social conditions.[11]

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Study Rationale and Objectives

We aim to examine the association of factors other than medical acuity (what we will refer to as “non-medical-acuity” factors) with hospitalization. As part of our analysis, we will map the nomenclature used to define non-medical-acuity, as well as research methodologies used, and outcomes recorded. By doing this, we intend to unite several bodies of work into a framework that uses a common language and conceptual model. The function of this product will be to provide an evidence base for targeted interventions that better serve patient populations, to inform clinicians making admission decisions, and to expose gaps in the knowledge base.

Methods and Analysis

The review will follow a standard framework for scoping reviews as delineated by Arksey and O’Malley[12] and expanded upon by Levac et al [13]. This process is comprised of the following stages: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; (5) collating, summarizing, and reporting the results; and an optional (6) consultation. The six stages are discussed in detail below.

Stage 1: identifying the research questions

Because scoping reviews are intended to synthesize available evidence on a topic, the initial research question may remain broad. Levac et al suggest clarifying the focus of inquiry by identifying the purpose and intended outcome of the study.

For this review, the overarching research question being asked is: What is known about the relationship between non-medical-acuity factors and hospitalization of adults?

The following sub-questions have been identified by study researchers to guide this work:

- Which non-medical-acuity factors have been investigated with respect to impact on hospitalization (and, by default, which have not been investigated)?
- What are the common non-medical-acuity factors associated with hospitalization?
- Whose perspective on non-medical-acuity and hospitalization has been investigated? (patient, physician, nurse, social worker, etc.)
- What type of research on non-medical-acuity factors and hospitalization has been conducted? (epidemiologic, cohort, qualitative/narrative, etc.)

Stage 2: identifying relevant studies

The second stage of the proposed scoping review will identify relevant studies for selection and data extraction. We will conduct comprehensive searches of seven databases (PubMed, CINAHL, PsycINFO, EMBASE, Web of Science, Sociological Abstracts, and Social Science Abstracts). In collaboration with a medical librarian, we have developed a PubMed search strategy (see supplementary file) utilizing medical subject headings (MeSH) and free-text terms that retrieves 5240 results. The PubMed search has been modified to fit the database search requirements for the remaining databases. All searches will be limited to results in English involving adult subjects. No date limits will be applied. As we explore the search question, further iteration of the search may occur and will be captured by the review process. Search results will be imported into Covidence, an online systematic review management program, and duplicates will be removed prior to the selection process.

Stage 3: selecting studies

Arksey and O'Malley suggest that the selection of studies based on inclusion and exclusion criteria may take place *post hoc* after sufficient familiarity with the literature is established.

Levac proposes that the research team should determine study exclusion and inclusion criteria at the outset of the process, with the ability to refine the search strategy and review additional articles for inclusion if warranted.

As recommended, two reviewers will independently select all relevant studies; in cases of disagreement, a third reviewer will provide input. Each of the two reviewers will use a two-level selection process. First, articles will be screened by study title and abstract against the inclusion and exclusion criteria listed below. Then, articles will be read in full to ensure appropriateness for study inclusion.

Inclusion Criteria

For studies to be included, they should meet the following criteria:

- Adult patient population
- Includes hospital admission of any status (observation or inpatient status)
- Includes assessment of some additional factor other than medical acuity, including but not limited to: socioeconomic status, insurance status, barriers to healthcare access, lack of housing, food insecurity, mental health disorder, cognitive difficulties, physical disability or limitation, immigration status, non-English speakers.
- Studies of any design type will be included

Exclusion Criteria

Studies with the following criteria will be excluded:

- Not published in English
- Primarily study inpatient psychiatric hospital admission

The process of study selection will be reported using a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart.[14]

Stage 4: charting the data

Data will be extracted from each selected article using the following fields:

- Characteristics: author(s), journal, year of publication, country of publication, type of publication (journal article, conference abstract, grey literature, etc.)
- Study Design: objective(s), sample size, population, methodology, perspective(s) investigated (patient, family/surrogate, physician, social worker, nurse, etc)
- Characterization of Non-Medical Acuity: individual factor(s) included, terminology used
- Outcome(s)

As suggested by Daudt, et. al,[15] a trial of data extraction will be performed to ensure consistency in data extraction and coding. A sample of the included studies will be reviewed by two team members independently and compared for inter-rater reliability. If necessary, the data extraction template will be modified based on this pilot testing. As the scoping review is intended to be an iterative process, it is possible that additional themes will emerge and pertinent

information will need to be added to the data extraction process. The research team will meet regularly to review progress and to discuss evolution of thematic concepts. Any revisions to the data extraction process will be discussed collectively by all members of the research team.

While not a requirement of scoping reviews, the assessment of methodologic quality is a hallmark of rigorous systematic reviews. We will use the Mixed Methods Appraisal Tool, which has been developed for complex systematic literature reviews such as this that combine qualitative, quantitative, and mixed methods studies.[16, 17]

Stage 5: collating, summarizing, and reporting the results

Relevant studies collected in stage 4 will be summarized in both tabular and narrative formats. Study characteristics (including population studied, methodology used, and outcome identified) will be reported in tabular format while narrative will be used to describe thematic synthesis. A conceptual model will be constructed based on the above analysis. If appropriate for enhanced understanding, additional figures or charts will be constructed to depict information graphically.

Stage 6: consultation

Arksey and O'Malley suggest an optional final stage that includes consultation with stakeholders in order to add value and insight. Currently, we do not plan to formally include this step in the generation of a final product. Because this work has the potential to overlap with many aspects of research and clinical care, we anticipate that additional discussion and consultation will be completed with dissemination of the work at conferences and in publication.

Patient and public involvement

There was no patient or public involvement in the preparation of this protocol.

Discussion

The protocol describes a comprehensive approach that will survey current literature to elucidate existing information and reveal gaps in knowledge regarding the non-medical-acuity contributors to hospitalization. The final review product aims to propose shared nomenclature and a conceptual model that will better equip practitioners, researchers, and policy-makers to improve the quality of health of their populations. This study addresses an urgent need for enhancing understanding and may inform new studies or policy. Understanding the impact of non-medical-acuity factors on hospitalization has potentially broad implications for quality improvement efforts, health care funding models, and population or public health initiatives at local, state, national, and international levels.

Author Contributions

MB led the conceptualization of the work. Both MH and MG contributed to the scope and design of the review as well as inclusion and exclusion criteria. MG prepared the manuscript for publication. MH designed the data extraction template. AM provided feedback on the methodology and crafted the search strategy. All authors contributed to editing and revising the manuscript and give approval for publication of this protocol.

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Conflicts of Interest:

None declared

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Accepted for publication

Supplementary File 1. Search Strategy

((“Patient Admission”[majr] OR “Hospitals/utilization”[majr] OR “Hospital Departments/utilization”[majr] OR “Hospitalization”[majr]) AND (“Socioeconomic Factors”[majr] OR “Social Determinants of Health”[majr] OR “Sociological Factors”[majr] OR “Social Problems”[majr] OR “Social Conditions”[majr] OR “Social Change”[majr] OR “Social Class”[majr] OR “Social Environment”[majr] OR “Health Services Accessibility”[majr] OR “Family Characteristics”[majr] OR “Psychosocial Support Systems”[majr] OR “Food Supply”[majr] OR “Food Assistance”[majr] OR “Malnutrition”[majr] OR “Deficiency Diseases”[majr] OR “Homeless Persons”[majr] OR “Housing”[majr] OR “Poverty”[majr] OR “Working Poor”[majr] OR “Income”[majr] OR “Unemployment”[majr] OR “Employment”[majr] OR “Return to Work”[majr] OR “Health Status”[majr] OR “Stress, Psychological”[majr] OR “Crime Victims”[majr] OR “Social Discrimination”[majr] OR “Vulnerable Populations”[majr] OR “Disabled Persons”[majr] OR “Insurance Coverage”[majr] OR “Medical Indigency”[majr] OR “Medically Uninsured”[majr] OR “Literacy”[majr] OR “Health Literacy”[majr] OR “Educational Status”[majr] OR “Health Risk Behaviors”[majr] OR “Comorbidity”[majr]) AND adult[mh]) OR ((“patient admission”[ti] OR “patient admissions”[ti] OR “hospital utilization”[ti] OR “hospital department”[ti] OR “hospital departments”[ti] OR hospitalization[ti]) AND (“socioeconomic factor”[ti] OR “socioeconomic factors”[ti] OR “social determinants of health”[ti] OR “sociological factor”[ti] OR “sociological factors”[ti] OR “social problem”[ti] OR “social problems”[ti] OR “social condition”[ti] OR “social conditions”[ti] OR “social conditioning”[ti] OR “social change”[ti] OR “social changes”[ti] OR “social class”[ti] OR “social environment”[ti] OR “health services accessibility”[ti] OR “family characteristic”[ti] OR “family characteristics”[ti] OR “psychosocial support systems”[tiab] OR “psychosocial

support"[ti] OR "food supply"[ti] OR "food supplies"[ti] OR "food insecurity"[ti] OR "food
insecurities"[ti] OR "food security"[ti] OR "food assistance"[ti] OR malnutrition[ti] OR
"deficiency diseases"[ti] OR "homeless persons"[ti] OR homeless[ti] OR homelessness[ti] OR
poverty[ti] OR poor[ti] OR "working poor"[ti] OR housing[ti] OR income[ti] OR
unemployment[ti] OR employment[ti] OR "return to work"[ti] OR "health status"[ti] OR
stress[ti] OR "crime victim"[ti] OR "crime victims"[ti] OR (crime[ti] victim[ti]) OR (crime[ti]
victims[ti]) OR discriminat*[ti] OR "vulnerable populations"[ti] OR vulnerabl*[ti] OR
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persons[ti])) OR "insurance coverage"[ti] OR "medical indigency"[ti] OR indigent*[ti] OR
uninsured[ti] OR literacy[ti] OR "health literacy"[ti] OR "educational status"[ti] OR
education*[ti] OR "health risk behaviors"[ti] OR "risky behavior"[ti] OR "risky behaviors"[ti]
OR comorbidity[ti] OR comorbid[ti]) AND 2017:2018[dp]) AND English[la]

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Primary Subject Heading:	Health services research
Secondary Subject Heading:	General practice / Family practice, Emergency medicine, Medical management
Keywords:	non-medical acuity, social factors, hospitalization, decision to admit, SOCIAL MEDICINE

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26 Word Count: 1860

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30 Keywords: non-medical acuity, social factors, hospitalization, decision to admit, social medicine

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Abstract

Introduction: There is evidence that patients are admitted to the hospital with low-acuity medical issues, though delineation of the underlying factors has not been comprehensively explored. This scoping review will provide an overview of the existing literature regarding factors outside of acute medical illness that influence hospitalization of adults. The review will also seek to provide a review of common language and definitions used in the research on this phenomenon.

Methods and analysis: The scoping review framework, outlined by Arksey and O'Malley and expanded upon by Levac et al, will be used as the basis for this study. A systematic search of seven databases (PubMed, CINAHL, PsycINFO, EMBASE, Web of Science, Sociological Abstracts, and Social Science Abstracts) will be conducted to identify existing literature followed by a standardized two-phase, two-reviewer process to select relevant papers for inclusion. Relevant studies will investigate adult non-psychiatric hospital admission plus at least one additional factor unrelated to medical acuity. Details of the work will be extracted, including the terminology used and perspectives included. An assessment of methodologic quality will be performed using a tool designed for mixed methods systematic review.

Ethics and dissemination:

The scoping review protocol delineates a transparent and rigorous review process, the results of which will be disseminated through peer-reviewed publication and presentation at relevant local or national meetings. The study does not require ethics approval as the data will be accumulated through the review of published, peer-reviewed literature and grey literature.

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31 **Background**

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33 Severity of illness risk stratification scores do not always correlate well with risk of

34 hospitalization,[1] particularly when used in marginalized populations[2]. That patients with low

35 acuity of medical illness are admitted to the hospital[3] suggests the risk of hospitalization is not

36 determined solely by acuity of illness. Indeed, in one report, up to 51% of hospitalizations were

37 strongly or moderately influenced by a factor other than medical acuity.[4]

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Study Rationale and Objectives

We aim to examine the association of factors other than medical acuity with hospitalization. As part of our analysis, we will map the nomenclature used to define these factors, as well as research methodologies used, perspectives investigated, and study findings. By doing this, we intend to unite several bodies of work. The function of this product will be to provide a comprehensive review of the evidence base in order to identify any inconsistent use of terminology, to inform clinicians making admission decisions and policymakers or funders who review admission decisions, and to expose gaps in the knowledge.

Methods and Analysis

The review will follow a standard framework for scoping reviews as delineated by Arksey and O’Malley [12] and expanded upon by Levac et al [13]. This process is comprised of the following stages: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; (5) collating, summarizing, and reporting the results; and an optional (6) consultation. The six stages are discussed in detail below.

Stage 1: identifying the research questions

Because scoping reviews are intended to synthesize available evidence on a topic, the initial research question may remain broad. Levac et al suggest clarifying the focus of inquiry by identifying the purpose and intended outcome of the study.

For this review, the overarching research question being asked is: What has been studied about the relationship between factors other than medical acuity and hospitalization of adults?

The following sub-questions have been identified by study researchers to guide this work:

- What terminology is used to define factors other than medical acuity?
- Which factors have been investigated with respect to impact on hospitalization (and, by default, which have not been investigated)?
- Whose perspective on factors other than medical acuity and hospitalization has been investigated? (patient, physician, nurse, social worker, etc.)
- What type of research on factors other than medical acuity and hospitalization has been conducted? (epidemiologic, cohort, qualitative/narrative, etc.)
- What findings have been reported? Are there any factors consistently associated with hospitalization?

Stage 2: identifying relevant studies

The second stage of the proposed scoping review will identify relevant studies for selection and data extraction. We will conduct comprehensive searches of seven databases (PubMed, CINAHL, PsycINFO, EMBASE, Web of Science, Sociological Abstracts, and Social Science Abstracts). In collaboration with a medical librarian, we have developed a PubMed search strategy (see supplementary file) utilizing medical subject headings (MeSH) and free-text terms that retrieves 5240 results. The PubMed search has been modified to fit the database search requirements for the remaining databases. All searches will be limited to results in English involving adult subjects. No date limits will be applied. As we explore the search question,

further iteration of the search may occur and will be captured by the review process. Search results will be imported into Covidence, an online systematic review management program, and duplicates will be removed prior to the selection process.

Stage 3: selecting studies

Arksey and O'Malley suggest that the selection of studies based on inclusion and exclusion criteria may take place *post hoc* after sufficient familiarity with the literature is established. Levac proposes that the research team should determine study exclusion and inclusion criteria at the outset of the process, with the ability to refine the search strategy and review additional articles for inclusion if warranted.

As recommended, two reviewers will independently select all relevant studies; in cases of disagreement, a third reviewer will provide input. A two-level selection process will be used. First, articles will be screened by study title and abstract against the inclusion and exclusion criteria listed below and then read in full to ensure appropriateness for study inclusion.

Inclusion Criteria

For studies to be included, they should meet the following criteria:

- Adult patient population
- Includes hospital admission of any status (observation or inpatient status)
- Includes assessment of some additional factor other than medical acuity, including but not limited to: socioeconomic status, insurance status, barriers to healthcare access, lack

of housing, food insecurity, mental health disorder, cognitive difficulties, physical disability or limitation, immigration status, non-English speakers.

- Empiric studies of any design type
- Published either in peer-reviewed journals or in the “grey” literature (conference proceedings, pre-prints, etc.)

Exclusion Criteria

Studies with the following criteria will be excluded:

- Not published in English
- Primarily study inpatient psychiatric hospital admission
- Commentaries, consensus statements, or other non-empiric reports
-

The process of study selection will be reported using a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart.[14]

Stage 4: charting the data

Data will be extracted from each selected article using a standardized extraction template.

Detailed description of data extraction fields is available in Table 1.

Table 1. Data Extraction Template

Domain/subdomains	Description
Article characteristics	
Author	Who was the first author of this study?
Journal	In what peer-reviewed journal was this study published?
Year	In what year was this study published?
Country	Which country is this article from?

Publication type	Is this a journal article, conference abstract, grey literature?
Study design	
Study design	What was the study design?
Objective	What was the stated study objective?
Population	What population was studied? Reference inclusion/exclusion criteria.
Methodology	What methods were used in the study?
Outcome	What outcome was reported?
Perspective investigated	Was the perspective of the patient, family/surrogate, physician, nurse, social worker, or other individual captured?
Characterization of factor other than medical acuity	
General/collective terminology	What general or collective terminology was used in this study?
General/collective definition	What definition for the general/collective term was given by the authors?
Individual factor terminology	What specific individual factors were investigated?
Individual factor definition	What definition for the specific individual factor was given by the authors?
Findings	
Results	What was the finding or result of the study?

Overarching domains will include article characteristics, study design, characterization of factor other than medical acuity, and findings. Based on initial literature review, we predict that some studies will use collective or general terminology for factors unrelated to medical acuity (for example, “non-medical-acuity”, “social factors”, or “deprivation”) while other studies will use specific, named factors such as homelessness. We will extract terminology used in either category as well as any definitions provided in the study for the terms used.

Team members serving as full-text data extractors will be trained together to ensure collective understanding of extraction data fields. As suggested by Daudt, et. al,[15] a trial of independent data extraction will be performed to ensure consistency in data extraction and coding. A sample

of the included studies will be reviewed by each full-text data extractor independently and compared for inter-rater reliability. If necessary, the data extraction template will be modified based on this pilot testing. As the scoping review is intended to be an iterative process, it is possible that additional themes will emerge and pertinent information will need to be added to the data extraction process. The research team will meet regularly to review progress and to discuss evolution of concepts. Any revisions to the data extraction process will be discussed collectively by all members of the research team.

While not a requirement of scoping reviews, the assessment of methodologic quality is a hallmark of rigorous systematic reviews and will assist with the potential use of any findings that are reported. We will use the Mixed Methods Appraisal Tool, which has been developed for complex systematic literature reviews such as this that combine qualitative, quantitative, and mixed methods studies.[16, 17]

Stage 5: collating, summarizing, and reporting the results

Information extracted in stage 4 will be summarized in tabular format. Quantitative analysis will be performed to produce descriptive statistics summarizing the data contained in domains of study design and characterization of factor other than medical acuity.

Because one of our central questions is how terminology is used in this literature, we will map terms used in each of the categories (collective/general and specific). Two reviewers will independently map terms used in the studies to a list we have created based on preliminary literature review (those referenced in the inclusion criteria: socioeconomic status, insurance

status, barriers to healthcare access, lack of housing, food insecurity, mental health disorder, cognitive difficulties, physical disability or limitation, immigration status, non-English speakers). This list may be expanded for any terms encountered that do not map specifically. Results will be compared and discussed amongst the group until consensus is achieved and may be displayed graphically (if appropriate) or summarized in narrative form.

In addition, we intend to provide narrative summary in answer to the other sub-questions listed in Stage 1 above related to perspectives investigated, type of research performed, and findings. Ideally, we also plan to construct a conceptual model for broader use, though it is possible that findings will not be able to be unified in this manner. Results reported in a final manuscript will follow recommendations included in the PRISMA-ScR checklist. [18]

Stage 6: consultation

Arksey and O'Malley suggest an optional final stage that includes consultation with stakeholders in order to add value and insight. Currently, we do not plan to formally include this step in the generation of a final product. Because this work has the potential to overlap with many aspects of research and clinical care, we anticipate that additional discussion and consultation will be completed with dissemination of the work at conferences and in publication.

Patient and public involvement

There was no patient or public involvement in the preparation of this protocol. We have included extraction of data related to perspectives identified in the literature and plan to incorporate discussion of patient perspective within the literature as a whole.

Discussion

The protocol describes a comprehensive approach that will survey current literature to elucidate existing information and reveal gaps in knowledge regarding the contributors other than medical acuity to hospitalization. The final review product aims to summarize the current field of knowledge with respect to factors investigated, methods designed, findings identified, and nomenclature used. This overview will better equip practitioners and policy-makers to contextualize hospitalization decisions and will provide researchers more complete understanding of the landscape of this field. This study addresses an urgent need for enhancing understanding and may inform new studies or policy. Understanding the impact of these factors on hospitalization has potentially broad implications for quality improvement efforts, health care funding models, and population or public health initiatives at local, state, national, and international levels.

Author Contributions

MB led the conceptualization of the work. Both MH and MG contributed to the scope and design of the review as well as inclusion and exclusion criteria. MG prepared the manuscript for publication. MH designed the data extraction template. AM provided feedback on the methodology and crafted the search strategy. All authors contributed to editing and revising the manuscript and give approval for publication of this protocol.

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Conflicts of Interest:

None declared

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Manuscript to be reviewed

Supplementary File 1. Search Strategy

((“Patient Admission”[majr] OR “Hospitals/utilization”[majr] OR “Hospital
Departments/utilization”[majr] OR “Hospitalization”[majr]) AND (“Socioeconomic
Factors”[majr] OR “Social Determinants of Health”[majr] OR “Sociological Factors”[majr] OR
“Social Problems”[majr] OR “Social Conditions”[majr] OR “Social Change”[majr] OR “Social
Class”[majr] OR “Social Environment”[majr] OR “Health Services Accessibility”[majr] OR
“Family Characteristics”[majr] OR “Psychosocial Support Systems”[majr] OR “Food
Supply”[majr] OR “Food Assistance”[majr] OR “Malnutrition”[majr] OR “Deficiency
Diseases”[majr] OR “Homeless Persons”[majr] OR “Housing”[majr] OR “Poverty”[majr] OR
“Working Poor”[majr] OR “Income”[majr] OR “Unemployment”[majr] OR
“Employment”[majr] OR “Return to Work”[majr] OR “Health Status”[majr] OR “Stress,
Psychological”[majr] OR “Crime Victims”[majr] OR “Social Discrimination”[majr] OR
“Vulnerable Populations”[majr] OR “Disabled Persons”[majr] OR “Insurance Coverage”[majr]
OR “Medical Indigency”[majr] OR “Medically Uninsured”[majr] OR “Literacy”[majr] OR
“Health Literacy”[majr] OR “Educational Status”[majr] OR “Health Risk Behaviors”[majr] OR
“Comorbidity”[majr]) AND adult[mh]) OR ((“patient admission”[ti] OR “patient admissions”[ti]
OR “hospital utilization”[ti] OR “hospital department”[ti] OR “hospital departments”[ti] OR
hospitalization[ti]) AND (“socioeconomic factor”[ti] OR “socioeconomic factors”[ti] OR “social
determinants of health”[ti] OR “sociological factor”[ti] OR “sociological factors”[ti] OR “social
problem”[ti] OR “social problems”[ti] OR “social condition”[ti] OR “social conditions”[ti] OR
“social conditioning”[ti] OR “social change”[ti] OR “social changes”[ti] OR “social class”[ti]
OR “social environment”[ti] OR “health services accessibility”[ti] OR “family characteristic”[ti]
OR “family characteristics”[ti] OR “psychosocial support systems”[tiab] OR “psychosocial

support"[ti] OR "food supply"[ti] OR "food supplies"[ti] OR "food insecurity"[ti] OR "food
insecurities"[ti] OR "food security"[ti] OR "food assistance"[ti] OR malnutrition[ti] OR
"deficiency diseases"[ti] OR "homeless persons"[ti] OR homeless[ti] OR homelessness[ti] OR
poverty[ti] OR poor[ti] OR "working poor"[ti] OR housing[ti] OR income[ti] OR
unemployment[ti] OR employment[ti] OR "return to work"[ti] OR "health status"[ti] OR
stress[ti] OR "crime victim"[ti] OR "crime victims"[ti] OR (crime[ti] victim[ti]) OR (crime[ti]
victims[ti]) OR discriminat*[ti] OR "vulnerable populations"[ti] OR vulnerabl*[ti] OR
vulnerabil*[ti] OR disabled[ti] OR ((disabled[ti] OR disabilit*[ti]) AND (people[ti] or
persons[ti])) OR "insurance coverage"[ti] OR "medical indigency"[ti] OR indigent*[ti] OR
uninsured[ti] OR literacy[ti] OR "health literacy"[ti] OR "educational status"[ti] OR
education*[ti] OR "health risk behaviors"[ti] OR "risky behavior"[ti] OR "risky behaviors"[ti]
OR comorbidity[ti] OR comorbid[ti]) AND 2017:2018[dp]) AND English[la]