**Measuring post-discharge socioeconomic and quality of life outcomes in trauma patients: A systematic review**

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**Objectives:**

The aim is to systematically assess the current knowledge on post-discharge socio-economic and quality of life (QoL) outcomes in trauma patients. The research will address the question: *What are the post-discharge socioeconomic and QoL outcomes in trauma patients?* Formative research conducted in the form of a scoping review shows that there are a range of different outcomes with a variety of different tools that have been included in published and grey literature. Therefore, in order to summarise and analyse these outcomes it would be important to focus on key outcomes of interest and the most commonly used to tools to measure them. Additionally, preliminary analysis of the qualitative research in urban India have highlighted return to work, social support, participation, and quality-of-life as outcomes relevant to the context.

**Methods:**

*Design*

This systematic review will follow the Preferred Reporting Items for Systemic Reviews and Meta-Analyses (PRISMA) guidelines. It will also be registered at PROSPERO.

*Eligibility Criteria*

The studies will include studies using quantitative and mixed-methods approaches to analyse highlighted return to work, social support, participation, and quality-of-life outcomes in major trauma patients. Major trauma would be defined as patients who require admission in a health facility due to trauma. The tools that would be used are given in Table 1.

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| Outcome | Tool |
| Return-to-work | Back to any work (Yes/No)  Sickness leave or Time off |
| Social Support | Support from family, friends, and neighbors (Yes/No);  Multidimensional Scale of Perceived Social Support (MSPSS) |
| Participation | Craig Hospital Assessment and Reporting Technique (CHART)  Utrecht Scale for Evaluation of Rehabilitation-Participation (USER-Participation) |
| Quality of Life | Short-Form (SF-36/12/6)  Euro Quality of Life (EuroQol: EQ-6D/5D/3D) |

*Table 1: Outcome and tools to be used in the systematic review*

The review will include peer-reviewed published literature. This may include randomized controlled trials (RCT), case control, cohort, cross-sectional, intervention, and observational studies to gain an overview of the post-discharge socioeconomic and quality of life outcomes in trauma patients. The studies must be of post-discharge adult trauma patients (above 18 years of age), participants from any racial, ethnic, cultural or religious groups in any location or resource-setting. The studies must describe and analyze the outcomes within one year of discharge. Studies with mixed pediatric and adult populations—unless the studies provide disaggregated results for adults—will not be included. For feasibility, any studies that are not full-text and in English will be excluded. Moreover, only studies published in the last 10 years will be included to ensure current relevance.

*Information sources*

Relevant studies will be identified searching MEDLINE, EMBASE, and the Cochrane Library. The search strategy for each database will be developed in collaboration with the Search Group at the Karolinska Institutet University Library using the keywords developed in consultation with the authors.

*Data management*

The search results into the Rayyan QCRI, an online systematic review management software, for the selection process and removing duplicates. A back-up will be maintained on Microsoft Excel at each stage of selection, extraction and review.

*Selection process*

The selection process of the studies for inclusion in the review will be conducted in two stages. First, the titles and the abstracts of the studies identified in the database searches will be independently screened by SD and AF based on the eligibility criteria. A deliberately inclusive approach will be used for this stage to reduce the risk of missing potentially relevant studies. In case of conflicts about excluding an article, they will be discussed mutually and a consensus will be arrived at. In the second stage, full-texts will be independently screened by SD and AF. Any disagreements will be discussed and resolved by MGW. Additionally, quality monitoring of the screening process will be done by MGW by randomly selecting 10% of the total articles for review.

*Data Extraction*

Data will be extracted from the included studies independently by SD and AFW. In case of conflicts it will be resolved by MGW. Also, for quality monitoring, 10% of the studies will randomly selected and reviewed by NR. The reviewers will use a standardized data extraction form that will include characteristics of the study populations such as size, sex, age, socio-economic status, occupation, education, type of injury, length of stay in the hospital, mechanism of injury and period of follow-up after discharge. It will record the study design, sampling, location and setting of the study, exclusion and inclusion criteria.

The definition, unit of measure, outcomes estimates (e.g. hazard ratios, odds ratios, relative risks, incidence rates or survival percentages), and associated uncertainty measures (e.g. standard deviations, standard errors, confidence intervals) and type of statistical analysis for the specific socio-economic outcomes will extracted. If data are missing, or unclear, SD and AF will contact the corresponding author by email. If there is no response after 10 days a follow-up email will be sent to all the authors of the paper. If there is no response after 10 days, the authors will consult and come to consensus about the data extraction from the study or excluding the study.

*Risk of bias in individual studies*

SD and AF will independently assess the quality (risk of bias, validity) in each of the included studies. It will be done using the Cochrane Collaboration’s tool for assessment of risk of bias for randomized studies and Grading of Recommendations Assessment, Development and Evaluation for non-randomized and observational studies. The software Review Manager (Version 5.3) will be used for the quality assessment.

*Data synthesis*

Studies analyzing outcomes will be summarized. Heterogeneity in terms of study design, study population, outcomes, and data analysis is expected. Sub-grouping will be done based on study design, age, study setting (high, middle, low income or resource), type of outcome, mechanism of injury, injury severity, length of hospital stay, and period of follow-up.

Only study results with appropriate homogeneity will be combined for meta-analysis. I2 will be used to assess statistical heterogeneity and to guide the choice of either fixed or random effects model. If there are three or more of studies for data-pooling and meta-analysis then a funnel plot will be used to assess bias and the sensitivity analysis. However, if data-pooling and meta-analysis are not possible, the possible sources of bias in all the studies will be discussed in the narrative synthesis. This will be a limitation that will be considered when drawing conclusions.

**Ethical Considerations and Dissemination**

The systematic review doesn’t require ethics approval. For dissemination, we will present the protocol and the findings to other key trauma stakeholders, conference, and peer-reviewed publications.