

# INPLASY PROTOCOL

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**Support:** None.

**Review Stage at time of this submission:** The review has not yet started.

**Conflicts of interest:**  
None declared.

## INTRODUCTION

**Review question / Objective:** 1. What are the effects of acute stress on objective performance indexes in health professionals? 2. Do these effects differ according to type of stressor? 3. Are these effects the same in simulated and in real life stressors? 4. Are motor and cognitive effects of stress similar?

## Effects of acute stress on performance in health professionals: A systematic review

Kula, Y<sup>1</sup>; Wacht, O<sup>2</sup>; Iversen, Z<sup>3</sup>; Gidron, Y<sup>4</sup>.

**Review question / Objective:** 1. What are the effects of acute stress on objective performance indexes in health professionals? 2. Do these effects differ according to type of stressor? 3. Are these effects the same in simulated and in real life stressors? 4. Are motor and cognitive effects of stress similar?

**Condition being studied:** Performance of health care professional during situations of acute psychological or environmental stress, provided that they are simulated conditions or real life, provided that the stressor is related to a medical task and that the measured performance is part of the task.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 November 2022 and was last updated on 18 January 2023 (registration number INPLASY2022110081).

**Rationale:** The effects of acute stress on various aspects of performance (such as memory) are described in the literature. However, It is not clear what effects acute stress has on performance in the "real world". In the current review, we aim to study the effects of acute stress on the performance of health care professionals.

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## METHODS

### Search strategy:

Concept 1 #1 doctor\* OR nurs\* OR EMS OR "emergency medical service\*" OR "medical student\*" OR resident\* OR intern\* OR paramedic\* OR "EMT" OR "paramedic student\*" OR physician\* OR "pre-hospital emergency service\*" OR surgeon\* OR aneshe\* OR anaeshe\* OR cardiologist\* OR "emergency medicine" AND  
Concept #2 "acute stress\*" OR "simulated stress" OR "acute event\*" OR "critical event\*" OR "acute psychological stress\*" OR "acute physiological stress\*" OR "acute mental stress\*" OR "acute noise" OR "acute heat" OR "cold stress" OR "acute environmental stress\*" OR "high stress" OR "severe stress" OR "higher stress" OR "external stress" OR "socio emotional stress\*" OR "socioemotional stress\*" OR "mental overload" OR "cognitive overload" OR "time pressure" OR "intraoperative stress\*" OR "intra-operative stress\*" OR "high fidelity simulat\*" OR "acute occupational stress" OR "acute crisis" AND  
Concept #3 – perform\* OR skill\* OR "clinical reasoning" OR "cognitive process\*" OR "working memory" OR "short term memory" OR "Cognitive flexibility" OR attention OR "problem solving" OR "solving problem\*" OR "drug calculation" OR "decision making" OR "clinical competence" OR error\* OR mistake\* OR "drug administration" OR "surgical competence" OR "chest compression rate" OR "ventilation rate" OR resuscitation OR "dose calculation"

APA

Psychinfo

PubMed

Cocharne clinal data base

Web of science

Scoups

the search will be handllled beetween 1/12/2022 and 30/8/2023.

Language: English publication date: 2010- to Present.

**Participant or population:** Inclusion criteria:Doctors, nurses, ems (emergency medical services) and students in thoseFields (medical students, residents, paramedics, etc), working in madical emrgency settings.Exclusion criteria: other/ non healthcare professions.

**Intervention:** Inclusion criteria: Acute stress while the emergency is occurring.The stressor can be psychological or physiological as long as it is acute such as Acute occupational stress,or Acute Environmental Stress (eg, Heat, Noise) .Exclusion criteria: stress reaction measured after the emrgency occused. mesasuring only chronic and not acute stress.

**Comparator:** Controls will be those exposed to mild or no stress conditions.

**Study designs to be included:** Inclusion criteria: any experimental design, the stressor and measured performance are related to the emergency situation. Exclusion criteria: measure of performance is not relevant to medical situations. Study designs: experimental and quasi-experimental.

**Eligibility criteria:** None.

**Information sources:** Electronic databases: PubMed; CINAHL; PsycINFO; Web of Science; Scopus; Gray literature: ProQuest Dissertation and Theses.

**Main outcome(s):** Objective measure of performance (by electronic measure) or by an external observer using quantitative measures (e.g yes no number of correct actions performed).

**Data management:** The data will be managed using the Mendeley software. We will use the PRISMA guidelines to increase standardization.

**Quality assessment / Risk of bias analysis:** We will use JBI - critical appraisal checklist

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for assessing risk of bias and methodological quality of studies: Design, statistical description, risk of biases.

**Strategy of data synthesis:** Duplication removal will be done using the software and manually. Synthesis of the studies will be done by the Covidence software. We will present % of studies with significant effects on performance and will calculate effect sizes per each study.

**Subgroup analysis:** These will be done according to stressor type and medical staff type.

**Sensitivity analysis:** Not relevant.

**Language restriction:** The review will only include publications in English.

**Country(ies) involved:** The study will be carried out in Israel.

**Keywords:** Systematic review. Health professionals, Acute stress, Performance, Emergency situations.

**Dissemination plans:** Journals of Stress and psychology, Applied psychology, Medical Education.

**Contributions of each author:**

**Author 1 - Yosef Kula -** Planning the research concept, building the search strategy , performing the search, analyse the data and drafting the manuscript.

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**Author 3 - Zeev Iversen -** Drafting the manuscript.

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**Author 4 - Yori Gidron -** Planning the research concept, building the search strategy , performing the search, analyse the data and drafting the manuscript.

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