

STEREOTYPE THREAT EFFECT ON THE PERFORMANCE OF
THE NON-INTENSIVIST PHYSICIANS ASSIGNED IN COVID-19
INTENSIVE CARE UNIT

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INTRODUCTION

Stereotypes and stereotype threat are two important issues that have been studied repeatedly in the psychology literature. Stereotype threat is the thought that a person will be negatively evaluated and judged regarding a negative stereotype that belongs to the group to which he/she belongs (1). Most people are members of a social group associated with at least one negative stereotype. Therefore, many people in society may be the target of stereotype threat. Previous research has shown that the individual performance of people in groups identified with negative stereotypes, who are exposed to stereotype threat, decrease. The stereotype threat may arise when there is an environment in which the skills of the person that may be affected by a stereotype associated with his/her group can be measured, or if this stereotype has become evident (2, 3).

Researchers have shown that different methods can be effective in the emergence of stereotype threat. Steele and Aronson (1) show that even a question about the group membership (e.g. race) can reveal the stereotype threat. Considering the stereotype threat studies, a triple classification can be made for the manipulations used as (a) explicit, (b) partially explicit, and (c) indirect/implicit (4). When it is emphasized that one group is inferior or unsuccessful compared to the other group (e.g. men outperform women on this math test) it is possible to say that this is overt stereotyping manipulation. If the participants are told that there are group differences in the task without specifying the direction of the group difference (e.g. men and women perform differently on this math test), it is possible to classify this as partially explicit stereotyping manipulation. Indirect/implicit stereotyping manipulations emphasize the diagnostic nature of the test (e.g. it is an intelligence test) or ask the participant's group identity before performing.

The mechanism of the stereotype threat is still unclear. Previous studies have shown that many factors (anxiety, negative cognitions, low-performance expectations, physiological arousal, reduced memory capacity, etc.) work together to influence stereotypical threat in some contexts (5). Schmader et al. published an integrated model to explain the mechanism of

stereotype threat (6). This model focused on three interrelated factors: stress stimulation, performance monitoring, and efforts to suppress thought-emotions.

Due to the SARS-CoV-2 (Covid-19) pandemic, there has been a rapid increase in the number of intensive care patients in our country and around the world since March 2020 (7). Due to this rapid increase, the number of intensivists physicians is insufficient, and non-intensivist physicians from various branches are assigned to intensive care units. In social media and newspaper reports, it was stated that non-intensivist physicians have insufficient knowledge and skills in intubation and in the treatment of lung infection, and the public was asked to take precautions (8,9). However, these physicians were expected to treat lung infections and intubate the patients in intensive care units during pandemic. It is unknown to what extent such negative stereotypes, established or already existing, affect the performance of non-intensivist physicians during their appointment to the intensive care units during the pandemic.

As in all other departments, the most basic task expected from doctors in intensive care units is effective basic life support applied for the treatment of cardiopulmonary arrest.

Cardiopulmonary resuscitation (CPR) is a basic life support model that is mandatory taught in medical schools. For this reason, it is expected that all doctors, regardless of their specialties, will be able to perform CPR effectively. The use of manikins is quite common in order to standardize CPR training and performance measurement (10,11).

The aim of this study is to evaluate how non-intensivist physicians assigned to intensive care units during the pandemic are affected by stereotype threat and to investigate the necessary conditions to prevent a possible decrease in performance in these physicians.

MATERIAL AND METHODS

Participants

The participants of our study will consist of Hacettepe University Faculty of Medicine assistants and specialist physicians who did not work in the intensive care units during their medical training but were assigned to the Covid-19 Intensive Care Units during the pandemic. Participants will be invited to study with an announcement text (Appendix 1: Announcement Text). Those who agree to participate will be included in the study.

Method

The study will consist of two parts. One part will have a quantitative design (interview). The other part will be a randomized controlled study design (mannequin study). Participants' ages,

genders, branches, working years and previous cardiopulmonary resuscitation experiences will be recorded (Appendix 2: Data Collection Form).

Part One: Interview

In the first part, an independent psychologist will conduct a semi structured online interview with 15 randomly selected participants about working conditions in Intensive Care Units and negative stereotypes about performants of non-intensivist physicians in Intensive Care Units during the pandemic period (Appendix 3: Interview Questions). Participants participating in the interview will not be included in the mannequin study.

Part Two: Mannequin Study

In the second part, the participants will be randomly divided into two groups. Then, stereotype threat manipulation will be performed on the participants in the experimental group just before they are taken into the testing room. For manipulation, the following sentences will be said to the participants in the experimental group: “Studies have shown that intensive care workers are more successful in cardiopulmonary resuscitation. In this study, we aim to compare the cardiopulmonary resuscitation performance between intensive care units and other branches.”. The other group (Control Group) will not be given any prior information.

All participants will play a standard cardiopulmonary resuscitation simulation scenario under the supervision of an intensivist physician who is blind to the groups. Participants' performance will be measured with a cardiopulmonary resuscitation simulator mannequin (Resusci Anne Simulator®, 'Laerdal Medical'). All performants will be videotaped during simulation. Later, these videotapes will be evaluated and scored separately by two independent resuscitation instructor anesthesiologists who are blinded to groups (Appendix 4: CPR Evaluation Form). The total simulation score will be obtained by adding the objective scores obtained from the simulator's data (Appendix 5: Mannequin Scores) to the average subjective scores of the independent resuscitation instructors.

Analysis of data

Simulation scores will be the dependent variable and stereotype threat will be the independent variable of the study. Age, gender, medical branches, years of employment, previous resuscitation experience and whether they have cardiopulmonary resuscitation certificates will be the other independent variables. Baseline data between groups will be compared using the t-test for continuous variables and the Chi-square test for categorical variables. The Shapiro-

Wilk statistic will be used to determine whether the data of continuous variables show a normal distribution. For the comparison of the two groups, independent sample t-test will be used for variables with normal data distribution; Mann Whitney U test will be used for non-normally distributed variables. The correlation between the simulation scores and the independent variables such as age, number of previous cardiopulmonary resuscitation experiences, etc. will be analyzed by Spearman Analysis. P values less than 0.05 will be considered significant.

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APPENDIX 1: ANNOUNCEMENT TEXT

We are looking for volunteer residents who were previously assigned to intensive care units during Covid-19 pandemic, for a mannequin study titled "Assessment of Cardiopulmonary Resuscitation Skills with Simulation in Intensive Care". Those who want to participate in the study can apply to Dr. Murat Tümer.

APPENDIX 2: DATA COLLECTION FORM

1. Participant Number:
1. Group: Experiment/Control
2. Age:
3. Gender:
4. Medical Branch:
5. Years of employment:
6. Number of CPR experiences:
7. Number of CPRs performed during Covid-19 ICU
8. Working time in Covid-19 ICU
9. Do you have a basic life support training certificate after graduation? Yes/No

APPENDIX 3: INTERVIEW QUESTIONS

1. What is your profession/duty?
2. How long and how often did you work in the intensive care unit during the pandemic?
3. What can you say about your experiences while working in the intensive care unit during the pandemic?
4. Were there any facilitating factors/comforting factors for you in this process? If so, what were these factors?
5. Were there any factors that made it difficult for you / hindered your work / disturbed you during this process? If so, what were these factors?
6. What are your thoughts on doctors who do not have intensive care experience employing in intensive care units in cases such as pandemics/epidemics/disasters?
7. In this pandemic, intensivist doctors and non-intensivist doctors worked together. What would you say about this experience?
8. Intensivist doctors can work in intensive care unit with non-intensivist doctors in cases such as pandemics/epidemics/disasters, as in the current period What needs to be done in order for this process to be carried out in a correct way?
9. Do you think there is a difference between you and an intensivist doctor in terms of success and effectiveness in basic life support and CPR?

APPENDIX 4: CPR EVALUATION FORM

Please rate participants' CPR performance from 1 to 4 based on the questions below.
(1:Minimum, 4: Maximum)

	1	2	3	4
1. Are the chest compressions applied to the correct place?				
2. Are the hands placed correctly?				
3. Is effective compression applied?				
4. Is appropriate compression number per minute applied?				
5. Is 30:2 compression/ventilation synchronization applied?				
6. Is the compression dept appropriate?				

7. Is the rib cage allowed to retract?				
8. Is he/she able to continue chest compressions without a break) (No more than 5 seconds)				
9. Did he/she perform effective mask ventilation?				

APPENDIX 5: MANNEQUIN SCORES

Scores of cardiopulmonary resuscitation simulator mannequin (Resusci Anne Simulator®, 'Laerdal Medical').

	Not Appropriate	Appropriate
Chest compression number per minute (n: 100-120)	0	1
Chest compression depth (n: 5-6 cm)	0	1
Total Score	0	2