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

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07.09.2021

STEREOTYPE THREAT EFFECT ON THE PERFORMANCE OF THE NON-INTENSİVİST PHYSİCİANS ASSİGNED İN COVİD-19 INTENSİVE CARE UNİT

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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 intensivist physicians is insufficient, and non-intensivist physicians from various branches are assigned to ICU. 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 ICU 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 ICU during the pandemic.

As in all other departments, the most basic task expected from doctors in ICU 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 resident doctors assigned to the Covid-19 ICU during the pandemic. Participants will consist of two groups as who did not work in the ICU during their medical training (non-intensivists) and who work in the ICU during their medical training (intensivists). 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. The first part will have a qualitative design (interview). The second part will be a randomized controlled study design (mannequin study). Participants' ages, genders, branches, working years and previous CPR 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 from non-intensivist group about working conditions in ICU and negative stereotypes about performants of non-intensivist physicians in ICU 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, both the intensivist and the non-intensivist groups will be randomly divided into two subgroups as experiment and control. Then, stereotype threat manipulation will be performed on experimental group just before they are taken into the testing room. For manipulation, the following sentences will be said: “Studies have shown that intensive care workers are more successful in CPR. In this study, we aim to compare the CPR performance between ICU and other branches.”. The other group (Control Group) will not be given any prior information.

All participants will play a standard CPR simulation scenario under the supervision of an intensivist physician who is blind to the groups. Participants' performance will be measured with a CPR simulator mannequin (Resusci Anne Simulator®, 'Laerdal Medical'). All performants will be videotaped during simulation. Later, these videotapes will be evaluated and scored separately by three 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 CPR scores will be the dependent variable. Being an intensivist or non-intensivist and stereotype threat will be the independent variables of the study. There will be four groups to be compared: intensivist in the experimental group (1), intensivist in the control group (2), non-intensivist in the experimental group (3), non-intensivist in the control group (4). Age,

gender, years of employment, previous resuscitation experience and CPR certificates will be the control variables. Baseline data between groups will be analyzed by the 2x2 between subject factorial ANCOVA. The data will be checked taking into account two-way factorial ANCOVA assumptions. The correlation between the simulation scores and the control variables such as age, number of previous CPR experiences, etc. will be analyzed by Spearmen Analysis. If the control variables significantly associate with the dependent variables, they will be included to the main analyses, factorial ANCOVA. 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 ICU during Covid-19 pandemic, for a mannequin study titled "Assessment of Cardiopulmonary Resuscitation Skills with Simulation in ICU". 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 recidency:
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. Are the chest compressions applied to the correct place?
    1. Completely wrong place (ex: abdomen)
    2. Correct place - less than 50% of the time
    3. Correct place - more than 50% of the time
    4. Correct place

2. Are the hands placed correctly?
    1. Hands/elbows completely wrong (eg: hands made into fists, elbows bent)
    2. Hand position correct (but wrong angle or hands are not clasped)

3. Too close to the correct position and angle (the heel of the hand is in full contact and does not separate)
4. Completely in the correct position/angle and does not distort

3. Is effective compression applied?
    1- Effective in less than 25% of the time
    2- Effective in 25-50% of the time
    3- Effective in 50-75% of the time
    4- Effective in more than 75% of the time

4. Is appropriate compression number per minute applied?
    1. Too fast or too slow
    2. In correct range less than 50% of the time
    3. In correct range more than 50% of the time
    4. In correct range all the time

5. Is 30:2 compression/ventilation synchronization applied?
    1- Completely wrong
    2- 15/2
    3- Only compression/ or later 30/2
    4- Completely correct

6. Is the compression depth appropriate?
    1. Too deep or too superficial
    2. At the appropriate depth less than 50% of the time
    3. At the appropriate depth more than 50% of the time
    4. At the appropriate depth

7. Is the rib cage allowed to retract?
    1- Not allowed
    2- Allowed more than 50% of the time
    3- Allowed more than 50% of the time
    4- Allowed

8. Is he/she able to continue chest compressions without a break) (No more than 5 seconds)
    1- He/she took a break for more than 5 seconds (out-of-guide application:15/2 or 2/15)
    2- He/she took a break for more than 5 seconds (while 30/2)
    3- He/she didn't take a break (just compression)
    4- He/she took a break for less than 5 seconds (while 30/2)

9. Did he/she perform effective mask ventilation?

    1- Did not perform mask ventilation
    2- Performed mask ventilation carelessly
    3- Performed mask ventilation but failed
    4- Completely correct one-hand mask ventilation/bedside position

APPENDIX 5: MANNEQUIN SCORES

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

1. Chest compression number per minute (n: 100-120)
    1. Too fast or too slow
    2. In correct range less than 50% of the time
    3. In correct range more than 50% of the time
    4. In correct range all the time

2. Chest compression depth (n: 5-6 cm)
    1. Too deep or too superficial
    2. At the appropriate depth less than 50% of the time
    3. At the appropriate depth more than 50% of the time
    4. At the appropriate depth

3. Are the chest compressions applied to the correct place?
    1. Completely wrong place (ex: abdomen)
    2. Correct place - less than 50% of the time
    3. Correct place - more than 50% of the time
    4. Completely correct place