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# All Else Being Equal: Examining Treatment Bias and Stereotypes Based on Patient Ethnicity and Socioeconomic Status With In-Hospital Cardiac Arrest Clinical Vignettes<sup>☆</sup>

Jens Agerström, PhD, Professor<sup>a,\*</sup>, Cecilia Andréll, RN, PhD<sup>b</sup>, Anders Bremer, RN, PhD, Associate professor<sup>c</sup>, Anna Strömberg, RN, PhD, Professor<sup>d</sup>, Kristofer Årestedt, RN, PhD, Professor<sup>c,e</sup>, Johan Israelsson, RN, PhD<sup>c,f</sup>

<sup>a</sup> Department of Psychology, Faculty of Health and Life Sciences, Linnaeus University, Kalmar, Växjö 391 3232, Sweden

<sup>b</sup> Department of Clinical Sciences Lund, Anesthesiology and Intensive Care, Center for Cardiac Arrest, Faculty of Medicine, Lund University, Lund, Sweden

<sup>c</sup> Department of Health and Caring Sciences, Faculty of Health and Life Sciences, Linnaeus University, Kalmar, Växjö, Sweden

<sup>d</sup> Department of Health, Medicine and Caring Sciences and Department of Cardiology, Linköping University, Linköping, Sweden

<sup>e</sup> Department of Research, Region Kalmar County, Kalmar, Sweden

<sup>f</sup> Department of Internal Medicine, Division of Cardiology, Kalmar County Hospital, Kalmar, Sweden

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## ABSTRACT

**Background:** Research on ethnic and socioeconomic treatment differences following in-hospital cardiac arrest (IHCA) largely draws on register data. Due to the correlational nature of such data, it cannot be concluded whether detected differences reflect treatment bias/discrimination – whereby otherwise identical patients are treated differently solely due to sociodemographic factors. To be able to establish discrimination, experimental research is needed.

**Objective:** The primary aim of this experimental study was to examine whether simulated IHCA patients receive different treatment recommendations based on ethnicity and socioeconomic status (SES), holding all other factors (e.g., health status) constant. Another aim was to examine health care professionals' (HCP) stereotypical beliefs about these groups.

**Methods:** HCP ( $N = 235$ ) working in acute care made anonymous treatment recommendations while reading IHCA clinical vignettes wherein the patient's ethnicity (Swedish vs. Middle Eastern) and SES had been manipulated. Afterwards they estimated to what extent hospital staff associate these patient groups with certain traits (stereotypes).

**Results:** No significant differences in treatment recommendations for Swedish versus Middle Eastern or high versus low SES patients were found. Reported stereotypes about Middle Eastern patients were uniformly negative. SES-related stereotypes, however, were mixed. High SES patients were believed to be more competent (e.g., respected), but less warm (e.g., friendly) than low SES patients.

**Conclusions:** Swedish HCP do not seem to discriminate against patients with Middle Eastern or low SES backgrounds when recommending treatment for simulated IHCA cases, despite the existence of negative stereotypes about these groups. Implications for health care equality and quality are discussed.

## Introduction

Treating patients equally without the consideration of

sociodemographic factors (e.g., ethnicity, gender) is a quality-of-care indicator.<sup>1</sup> Equal care is also a legal right in many countries. For example, the Swedish Health and Medical Services Act stipulates that

**Abbreviations:** CA, cardiac arrest; CPR, cardiopulmonary resuscitation; HCP, health care professionals; IHCA, in-hospital cardiac arrest; SES, socioeconomic status; OHCA, out-of-hospital cardiac arrest.

<sup>☆</sup> Treatment Bias in Simulated IHCA Cases

\* Corresponding author.

E-mail address: [jens.agerstrom@lnu.se](mailto:jens.agerstrom@lnu.se) (J. Agerström).

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good care should be given to the entire population on equal terms.<sup>2</sup>

Health inequalities and treatment disparities have attracted a growing interest in many medical domains, including research on sudden cardiac arrest (CA). Patient race/ethnicity and socioeconomic status (SES) are two extensively researched sociodemographic factors in conjunction with CA. Research conducted in North America has shown that White (vs. Black patients) not only have a higher probability of surviving a sudden cardiac arrest, but are also treated more favorably, both outside (out-of-hospital cardiac arrest = OHCA) and inside (in-hospital cardiac arrest = IHCA) the hospital.<sup>3–5</sup> Research conducted in both North America and Scandinavia has found that in OHCA settings, patients with high SES are more likely to receive bystander cardiopulmonary resuscitation (CPR) and to survive the OHCA than patients with low SES.<sup>6–9</sup> Patients with high SES also fare better in IHCA settings. A recent Swedish study showed that patients with high education and income are less likely to receive delayed CPR by hospital staff and have a greater probability of surviving the IHCA.<sup>10</sup>

The research literature on group disparities in CA almost exclusively consists of register studies. The primary strength of such studies lies in the use of ecologically valid real-life data. A major limitation stems from the fact that such findings are correlational, not causal. This remains to be an issue even when controlling for numerous potential confounders, because one single unobserved variable could make the association between the group factor and differences in CA treatment and outcome spurious. Hence, one cannot conclusively determine if uncovered CA differences are strictly, and solely due to the group factor being investigated (e.g., race/ethnicity), or some other sociodemographic factor (e.g., SES) that is associated with both the group factor and CA treatment/outcome. In relation to this, few studies on racial/ethnic CA differences in CA treatment have been able to statistically adjust for SES, particularly on the individual (patient) level. Conversely, few studies on SES differences seem to have adjusted for race/ethnicity.

Another type of confounding factor concerns structural differences. It has been shown that racial/ethnic differences in OHCA survival can be, for example, partly attributed to the environment in which the arrest occurs, such as whether the arrest is witnessed or not.<sup>4</sup> Although such structural differences certainly should not be ignored, they cannot be taken to reflect *discriminatory treatment* whereby otherwise identical cases have been treated differently solely due to the group factor (e.g., race/ethnicity). Even when studying CA in hospital settings (IHCA) where potentially important confounders, such as bystander CPR and the proximity of emergency medical services, are removed from the equation, it is difficult to control for all potential confounding variables that might explain group differences in treatment and survival. Comorbidity illustrates this problem well. Even in studies where substantial comorbidity data are available, they may not fully capture group differences in overall health status which could influence treatment and survival.<sup>10</sup> In the context of race/ethnicity and SES, this problem is particularly pertinent because racial/ethnic and SES differences in health are well established in the research literature.<sup>11</sup>

Why is it important to identify the causes of group differences in CA treatment and survival? The answer is that different causes require different interventions to combat group inequalities and health disparities. Inequalities caused by group differences in health status may be addressed by, for example, health education, more equal distribution of resources, and reduced poverty. Inequalities driven by structural differences (e.g., the proximity of EMS) require changes in infrastructure and health care resources and priorities. Inequalities caused by treatment bias (discrimination) suggest that medical staff should be subjected to diversity training, which, for example, could be targeted at uncovering implicit biases and stereotypes.<sup>12</sup>

To be able to examine whether actual discriminatory treatment has occurred, experimental studies are needed. We could not identify any experimental study probing for discriminatory treatment in conjunction with IHCA. Since many register studies have found racial/ethnic (e.g., Chan et al.)<sup>3</sup> and SES (e.g., Agerström et al.)<sup>10</sup> differences in treatment

and outcome which could reflect discrimination, probing for discrimination based on these background factors seem particularly important.

To this end, the experimental clinical vignette approach is appropriate, whereby HCP provide treatment recommendations for patient cases which differ only regarding the sociodemographic background (e.g., ethnicity) of the patient. This method has many strengths, the most outstanding one being high internal validity. It allows for identification of drivers of treatment disparities through an experimental manipulation of variables, isolating group characteristics of interest while eliminating the possibility that group differences in treatment are caused by some other factor (e.g., comorbidity) than the group factor itself.<sup>13</sup> The technique also comes with a set of inherent limitations (see<sup>13</sup> for an overview). One limitation is that the treatment provided in relation to the (often few) very specific scenarios may not generalize beyond those scenarios. Relatedly, because the vignettes need to be manipulated to enable an experimental approach, they are per definition not real, even if authentic looking. Another limitation is that the clinical vignette format tends to be static, failing to capture the dynamics of the patient-caregiver interaction (although in conjunction with CA the interaction is limited due to the patient being unconscious). A final limitation is that the research participants are aware that their behaviors are being studied (cf. data from register studies) which may produce socially desirable responses when the study concerns sensitive matters, although this can be minimized if the specific purpose of the study is concealed. Despite its limitations, the experimental clinical vignette technique can allow for establishing cause and effect, which is necessary when the study purpose is to examine treatment bias (discrimination).

The primary aim of this experimental vignette study was to examine whether medical staff treat simulated IHCA patients differently (discriminate) based on ethnicity and SES. Regarding ethnicity, we focus on patients of Middle Eastern (vs. native Swedish) descent which constitute one of the largest ethnic minority groups in Sweden. As mentioned above, it has been suggested that stereotypes could contribute to discriminatory medical treatment.<sup>12</sup> Hence, a secondary aim was to examine whether medical staff hold stereotypical beliefs about patients from different ethnic and SES groups.

## Method

### Experimental design

The experiment used a 2 (ethnicity; Swedish vs. Middle Eastern) by 2 (SES; high vs. low) by 2 clinical vignette (A vs. B) between-subjects design where participants were randomized into experimental condition. Participants hence received only one clinical vignette in which the background information about the patient was experimentally manipulated.

The patient's name contained the ethnicity signal. Common names were used (Ali, Mohammed) that have been empirically confirmed to be Middle Eastern-sounding<sup>14</sup> and common Swedish-sounding names (Erik, Johan) according to Statistics Sweden's name register.<sup>15</sup>

SES refers to the social standing or class of an individual or social group.<sup>16</sup> Following previous work,<sup>10</sup> occupation was used as a SES proxy. High SES patients either worked as a Chief Executive Officer or were a retired airline captain. Low SES patients either worked as a cleaner or were a retired truckdriver.

Two indicators of each ethnicity and SES level were used, respectively, for generalizability reason. Each participant was exposed to one ethnicity (Middle Eastern or Swedish) and one SES (high vs. low) signal.

### Clinical vignettes

Two clinical vignettes were used. They depicted different IHCA scenarios where, for example, the patients were of different ages (working age; age 60 vs. retired age; 88) and had different medical histories. These variables were not experimentally manipulated, rather

we used two different vignettes for generalizability reasons. Importantly, ethnicity and SES were systematically manipulated such that for each vignette, the only differences concerned the patient's name and occupation. All other information in the vignette was held constant.

The clinical vignettes contained a series of unfolding events surrounding an IHCA. They started with the onset of symptoms (e.g., diffuse abdominal and chest symptoms), followed by the CA event itself, and ended with post resuscitation care. Participants provided treatment recommendations by selecting one of several treatment options differing in level of care in conjunction with each event. Each participant made a total of six treatment recommendations that were similar for the two vignettes. In the following order, they were asked about which hospital ward/unit the patient should be placed (prior to the CA), how long cardiopulmonary resuscitation efforts would be justified (during the CA), whether the patient should be moved to another ward/unit with higher intensity care (post-CA), whether angiography and targeted temperature management should be performed (two separate questions), whether a do-not-resuscitate order (DNR) would be appropriate if the patient had another CA. For the first three questions, participants chose among three different treatment options differing in level of care. For example, in response to the question about how long continued treatment would be justified, the following options were available: (1) No further treatment is justified due to poor prognosis (2) Treatment should be terminated early in consultation with a physician on call (3) Treatment should continue for at least 20 min, including drug therapy and advanced respiratory treatment. For the last three questions, they responded to treatment options by indicating their level of agreement (e.g., 4 = "completely agree", 3 = "partly agree", 2; "partly disagree", 1 = "completely disagree") with the suggested treatment (e.g., "The patient should undergo coronary angiography"). Treatment recommendation scores were coded such that higher scores reflect higher levels of care. They were merged to a single treatment index score (possible range: 0–15; Cronbach's  $\alpha = 0.72$ ).

The clinical vignettes were constructed by researchers and hospital staff with extensive experience in treating IHCA. They were crafted to be realistic and relatively difficult to allow for variability in treatment recommendations. The materials (see Supplementary Materials) were pretested to ascertain that the clinical vignettes were perceived as realistic yet relatively difficult in terms of treatment recommendations.

### *Stereotype measure*

The stereotype measure asked participants to report how they think the following patient groups are typically perceived by hospital staff in Sweden: Swedish people, Middle Eastern people, highly educated people, lowly educated people. These ratings concerned warmth and competence, which constitute two fundamental dimensions of stereotype content.<sup>17</sup> Competence items were "respected" and "competent", whereas warmth items were "friendly", and "empathetic". Ratings were made using a slider ranging from 0 to 100 with "not at all" and "extremely much" as anchors. The reason for measuring culturally shared, rather than personally endorsed, stereotypes was to minimize socially desirable ratings.<sup>17</sup>

### *Manipulation checks*

Last in the materials, participants were asked about the patient's name and occupation, respectively. Multiple-choice lists were used consisting of eleven options each (including "I do not remember"). The lists included names of various ethnic origins and numerous occupations, respectively. Participants passed the manipulation check if they chose a name and occupation that matched the ethnicity and level of SES that they had been assigned to. Participants could not go back to the clinical vignettes to look for this information. In total, 213 (89.5 %) participants passed the SES manipulation check and 214 (89.9 %) passed the ethnicity manipulation check.

### *Participants*

To be included in the study, participants had to be either physicians or registered nurses working in hospital wards where IHCA are commonplace. The wards from which the participants were sampled were predetermined by the researchers and examples of wards were cardiology, anesthesia, and intensive care units. In total, 1092 hospital staff from five Swedish hospitals (large or medium sized) were asked for participation in the study via email, of which 267 (24.4 %) accepted participation. Nine participants provided no occupational information or selected "other occupation" without clarification. These participants were excluded. An additional 20 participants withdrew from the study early in the clinical vignette phase, yielding a final sample of 238 participants (92 physicians; 38 % female, and 146 registered nurses; 77 % female). Mean age was 44.3 years ( $SD = 10.8$ ) and mean number of years in the profession was 17.5 ( $SD = 10.7$ ).

### *Procedure*

Hospital staff from wards and units where IHCA are commonplace received an email from the head of the unit/ward. It asked for participation in an online simulation study on the quality of treatment in conjunction with CA. An online link to the study was provided in the email. If the hospital staff chose to click on the study link, they were taken to the Qualtrics platform (Qualtrics, Provo, UT) where they received further information. In short, they learned that they would randomly receive a fictive clinical vignette which may differ from vignettes that other participants receive regarding medical and other background variables (part 1). They were also informed that they would be asked to estimate how certain patient groups are typically perceived by hospital staff (part 2). Additionally, participants learned that once they moved on to the next page they could not go back to previous pages, that participation was voluntary and could be terminated at any point without providing reasons for this. All participants gave informed consent electronically before participating in the study. Participation was anonymous. The Swedish Ethical Review Authority decided that the current research is exempt from ethical review (No. 2021-05009).

### *Statistical analysis*

Power analysis: The statistical software G\* Power was used to perform a priori power analyses. The analyses were based on our primary research aim. Applying conventional a priori power levels (Cohen, 1988), 128 participants would be needed to be able to detect a medium sized difference (Cohen's  $d = 0.5$ ,  $1-\beta = 0.8$ ,  $\alpha = 0.05$ , two-tailed) between two independent means ( $t$ -test). The current sample size, including only those participants who passed the manipulation checks ( $n = 214$  for ethnicity and  $n = 213$  for SES), yielded 95 % a priori power ( $\alpha = 0.05$ , two-tailed) to detect medium effects ( $d = 0.5$ ).

Main analysis: All descriptive statistics and inferential tests were performed using SPSS Statistics (version 26 for Windows; IBM Corp., Armonk, NY, USA).

## **Results**

### *Treatment recommendations*

The treatment recommendations scores were approximately normally distributed. Hence, we report the results from parametric statistical tests. Sensitivity analyses conducted with non-parametric tests yield highly similar results. Descriptive statistics for the treatment recommendation index are presented in Table 1.

To test for differences in treatment recommendations for patients with a Swedish versus Middle Eastern background, an independent samples  $t$ -test was performed with the treatment index score as the dependent variable. In this analysis, only participants who passed the

**Table 1**  
Descriptive statistics for treatment recommendations as a function of patient background.

Patient	Treatment index		
	N	M	SD
Swedish	102	9.61	3.34
Middle Eastern	112	9.31	3.59
High SES	100	9.05	3.66
Low SES	113	9.79	3.54

Note: A higher mean score (M) indicates more intensive care.

ethnicity manipulation check were included. The results showed that Swedish patients were not recommended significantly different treatment compared to Middle Eastern patients,  $t(212) = 0.62, p = 0.54$ , Cohen's  $d = 0.09$ .

An independent samples  $t$ -test was also performed to examine differences based on patient SES. Only participants who passed the SES manipulation check were subjected to this analysis. The results showed that patients with high SES did not receive significantly different treatment than patients with low SES,  $t(211) = 1.50, p = 0.14$ , Cohen's  $d = 0.14$ .

An exploratory analysis of the combinations of SES and ethnicity on treatment recommendations was also conducted. In this analysis only participants ( $n = 195$ ) who passed both manipulation checks were included. In addition, Clinical vignette (A vs. B) was included as a factor to analyze potential moderation of the impact of patient SES and ethnicity. A multifactorial between-subjects ANOVA with SES, Ethnicity and Clinical vignette as the independent factors, showed a non-significant  $SES \times Ethnicity$  interaction effect,  $F(1, 187) = 2.99, p = 0.09$ . The main effect of clinical vignette was highly significant,  $F(1, 187) = 130.92, p < 0.001$ , meaning that the vignette depicting a 60-year-old patient ( $M = 11.58, SD = 1.88$ ) yielded substantially higher (level of care) treatment recommendation scores than the vignette depicting an 88-year-old patient ( $M = 7.17, SD = 3.26$ ). Note that the vignette main effect cannot be confidently attributed to the age of the patient, because the two case vignettes also differed in many other respects, such as the patient's prognosis. More importantly, clinical vignette did not significantly interact with SES or Ethnicity ( $ps = 0.18$  and  $0.72$ , respectively).

Stereotypical beliefs

The stereotype ratings approximated a normal distribution. Descriptive statistics are reported in Table 2.

Ethnicity

Paired samples  $t$ -tests revealed that Swedish patients were perceived to be significantly more respected and competent (Competence dimension) than Middle Eastern patients,  $t(228) = 11.36, p < 0.001$ , Cohen's  $d = 0.75$ . Swedish patients were also perceived to be significantly friendlier and more empathetic (Warmth dimension) than Middle Eastern patients,  $t(228) = 7.29, p < 0.001$ , Cohen's  $d = 0.48$ .

**Table 2**  
Descriptive statistics for stereotype ratings for the different patient groups.

Patient group	Competence		Warmth	
	M	SD	M	SD
Swedish	60.47	15.70	60.04	16.44
Middle Eastern	46.14	17.58	50.98	18.34
High SES	71.33	15.74	57.61	17.15
Low SES	47.41	16.87	61.24	17.11

Note: A higher mean score (M) indicates more competence or warmth.

SES

Highly educated patients were perceived to be significantly more respected and competent than lowly educated patients (Competence dimension),  $t(228) = 17.30, p < 0.001$ , Cohen's  $d = 1.14$ . Conversely, lowly educated patients were perceived to be significantly friendlier and more empathetic than highly educated patients (Warmth dimension),  $t(228) = -3.29, p < 0.01$ , Cohen's  $d = 0.22$ .

Discussion

This is to our best knowledge the first randomized experimental study examining whether patients with CA are at risk of being treated differently based on ethnicity and socioeconomic status, using clinical vignettes. Overall, the findings suggest that ethnic minority and low SES patients are not discriminated against when hospital staff make treatment recommendations in conjunction with simulated IHCA cases.

The absence of discrimination against Middle Eastern patients is congruent with the results of a recently published IHCA register study on ethnic differences in Sweden,<sup>18</sup> which suggest that Middle Eastern minority patients seem to be treated equally to Nordic patients (Sweden, Denmark, Finland, Iceland, and Norway). Together these two studies suggest that ethnic discrimination is not an outstanding issue in conjunction with IHCA treatment in Sweden, at least with respect to the Middle Eastern patients which constitutes one of the largest minority groups in Sweden. This finding is particularly interesting given the current finding that Swedish hospital staff nevertheless seem to harbor uniformly negative stereotypes about this group. Although previous research suggests that ethnic stereotypes have consequences for behavior in other contexts, such as the labor market,<sup>19</sup> they do not seem to translate into discriminatory IHCA treatment in Sweden.

We also find no evidence of discriminatory treatment recommendations based on patient SES. Compared to ethnicity, the SES stereotypes revealed a mixed picture in terms of valence. On the one hand, low SES patients were believed to be less competent and commanded less respect than high SES patients. On the other hand, they were seen as more friendly and empathic. This ambivalent stereotype content is more positive than what has typically been found in the US where low SES groups (e.g., poor and homeless people) are perceived negatively on both warmth and competence, facing some of the most severe prejudices in society.<sup>20</sup> The higher warmth may have compensated for the lower competence, contributing to the equal treatment found in the present study. More probably, considering the results for ethnicity where equal treatment was recommended despite the uniformly negative stereotypes about Middle Eastern patients, the hospital staff may have set their stereotypes aside when making treatment recommendations for patients of different SES as well. After all, cardiopulmonary resuscitation could constitute one of the most standardized treatments provided within hospital care. According to European guidelines,<sup>21</sup> evidence-based algorithms for advanced life support are probably widely used and regular training of team performance most likely provided at Swedish hospitals.<sup>22</sup> The more resuscitation practices are standardized, the less room there should be for discriminating stereotypes to exert an influence.

This absence of SES based discrimination is inconsistent with a recently published Swedish register study,<sup>10</sup> showing that IHCA patients with low SES receive inferior treatment compared to patients with high SES when it comes to prophylactic heart rhythm monitoring and subsequent CPR response times. Possibly, the treatment differences found in the Swedish Register of Cardiopulmonary Resuscitation (SRCR) may be caused by unobserved variables that correlate with SES and which might justify different treatment from a medical perspective. Alternatively, they do in fact reflect discrimination that we were unable to detect in the current experimental study using simulated cases.

The current research contributes to the extant literature on socio-economic and ethnic disparities in health care by rigorously probing for treatment differences while keeping all other factors constant except for



ethnicity and SES, which were experimentally manipulated. Hence, this means that any group differences uncovered would constitute direct discrimination, which contrasts with other research designs that cannot conclusively demonstrate this, such as interviews, survey studies, or even register studies. Relatedly, regarding research on health care discrimination, it seems to be more common to study perceived discrimination than actual discrimination. While perceived discrimination is certainly important to study, because it may explain why certain groups are less likely to seek medical care in the first place,<sup>23</sup> people's perceptions may not necessarily be calibrated with reality and hence reflect actual discrimination whereby otherwise identical patients are treated differently solely due to their social group. Only experimental studies can establish the existence of direct discrimination.

Promisingly, the current experiment finds no evidence of ethnicity or SES based discrimination, which has implications for an equality in health care perspective. The finding adheres to the Swedish Health and Medical Services Act, which stipulates that good care should be given to the entire population on equal terms.<sup>2</sup> In addition, it offers a more positive picture than many other register studies<sup>3–10</sup> suggesting pervasive group differences in cardiac arrest treatment and outcome, which could (but do not have to) reflect discrimination. However, more experimental studies are needed to examine the existence of discrimination in other health care contexts, cultures, and in relation to other legally protected group factors (e.g., sexual orientation). Additionally, although we find no evidence of discrimination, the finding that Swedish HCP seem to harbor negative ethnic, and ambivalent SES related stereotypes may still call for diversity training because such stereotypes may influence medical practice negatively in other contexts than that examined in the current study.<sup>12</sup>

### Limitations

Inherent general limitations with the experimental clinical vignette method (covered in detail in the Introduction), also apply to the current study. More specific limitations of the current study follow below. Unlike the real IHCA cases reported in the SRCR, the current treatment recommendations were not made under time pressure. Time pressure is one factor which makes people more susceptible to bias.<sup>24</sup> Furthermore, the hospital staff knew they were participating in a study. While they did not know that the study specifically probed for discrimination, they knew that it was about health care quality. Hence, the hospital staff may have been highly conscious of their decision making and made extra careful decisions. Additionally, their treatment recommendations were not constrained by limited hospital resources (e.g., availability of certain wards) which is a reality for most hospitals. As a result, the hospital staff could be more generous than in real life, for example when it comes to ward placement. Because limited resources increase prejudice and discrimination,<sup>25</sup> the more generous setting in the current study may have introduced a more conservative test of discrimination. However, one should note that our treatment recommendation index measure showed sufficient variability and no signs of ceiling effects, which one might expect had the treatment recommendations been overly generous.

The current research was conducted in Sweden which is regarded to be at the forefront of equality.<sup>26</sup> Results may not generalize to other countries, especially countries that score higher on the inequality index. The current study should therefore be replicated in other parts of the world and in other cultures (e.g., North America) where ethnic and SES differences in IHCA treatment and survival have been reported, and where even more negative stereotypes, particularly about SES, exist.

We cannot rule out that participant selection have influenced our results. It is possible that the participants in the current study constitute a select group to whom health care quality is highly important. Hence, they may have consisted of the most professional medical staff who are less likely to discriminate among patients based on irrelevant factors such as ethnicity and SES. The current study was conducted between June and November 2022. Although the corona virus pandemic had

subsided, the work situation was still highly strained in Swedish hospitals during this period, which may have prevented more hospital staff from participating in the study. Although the sample size was relatively large in the context of an experimental clinical vignette study, showing high levels of a priori statistical power (95 %) to detect medium-sized treatment differences, satisfactory a priori power (80 %) to detect small effects (e.g.,  $d = 0.2$ ) would require almost 800 participants. Hence, the current experiment cannot confidently rule out the existence of a small discrimination effect.

Another limitation may be that the manipulation of ethnicity and SES consisted of written text (name and occupation). It is possible that visual cues would have constituted more salient and hence powerful manipulations. For example, the photo of a homeless person may have been a stronger signal of SES. However, in the current study context, manipulating visual cues that differ regarding SES only would be a more challenging undertaking than written text. Finally, the vignettes contained only male patients. Whether the results generalize to female patients is a topic for future research.

### Conclusion

The findings of this experimental study suggests that Swedish IHCA hospital staff are not influenced by patient ethnicity and SES when making treatment recommendations, despite the existence of clear stereotypical beliefs pertaining to these group factors. The absence of discriminatory treatment recommendations is promising from a health care equality perspective whereby good care should be given to the entire population on equal terms. Moreover, it is a clear quality-of-care indicator. After all, there is no reason why IHCA treatment should differ according to the patient's ethnicity and SES 'when all else is equal'.

### Study approval

This research has been conducted according to the principles of Helsinki. The Swedish Ethical Review Authority decided (No. 2021-05009) that the current research is exempt from ethical review as it is not covered by the regulations in Swedish Ethical Review Act. When the research is assessed to be of a kind that does not require ethics approval, the principal investigator can ask the authority for an advisory opinion. The advisory opinion stated that the authority has no ethical objections to the research project.

### Declaration of Competing Interest

None declared.

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### Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.hrtlng.2023.09.011.

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