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Evaluation of Implicit and Explicit Gender Beliefs on Occupation Domain Titles of a Nurse and a Doctor. The Stereotypes of Male and Female Jobs.

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Abstract

The goal of this research is to measure and compare the implicit and explicit gender beliefs in occupation domain titles of a nurse and a doctor. Even though the stereotypes of masculine and feminine jobs still occur in diverse occupation domains, the focus of this study was purely on the health care domains. The online survey was designed on Qualtrics to measure both the implicit and explicit gender beliefs. In order to measure the implicit beliefs, the Implicit Association Test (IAT) was generated and applied. IAT estimates the stereotypes and beliefs of people which may not be able or not be willing to declare. The explicit beliefs were measured by using a Likert-type rating scale and the proportion rate of the doctors and nurses as males or females worldwide. The results which were observed from IAT were later compared to the explicit beliefs. The IAT results have shown that there are indeed stereotypical implicit gender differences in nurse and doctor occupations. In the meanwhile, the results regarding the explicit beliefs measured with the Likert scale suggested that explicitly individuals tend to attach the feminine character traits to a nurse occupation and the masculine attributes to a doctor occupation. Furthermore, the proportion rate imposed that there is an explicitly formed gender gap in the spread of nurses and doctors as females and males. The aim of this research was not to only find out if gender bias exists in occupation domains such as a doctor and nurse, but also to provide clear recommendations and conclusions towards this subject to add value for further research.

Keywords: Implicit beliefs, Explicit beliefs, IAT, Gender beliefs, Nurse, Doctor

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Introduction

Sex differences nowadays is a seriously debated topic, which includes many diverse sub-topics about gender biases in various fields. In society, it is accepted behavior to consciously or unconsciously form an impression of another human being and their skills based on their gender. Implicit bias occurs when individuals unconsciously hold approaches towards others or associate specific stereotypes with them (Ajzen & Dasgupta, 2015). In the meanwhile, explicit beliefs represent the conscious part of human thinking (Wojnowicz et al., 2009). It shows the behavior and specific approach which an individual chooses to display in the real world. In this research, the terms "beliefs" and "stereotypes" are going to be used equivalently.

The implicit and explicit beliefs especially appear in the different job domain sectors. Commonly, the implicit and explicit stereotypes are consciously or unconsciously created towards job titles in particular occupation domains where the implicit beliefs tend to connect specific gender-neutral job titles to men while other jobs such as elementary school teachers are often associated with females. A gender-neutral job title does not directly specify or imply genders, such as firefighters or lawyers. Gender-neutral job titles are ordinarily used in contexts where the gender of the person is questionable and it is not clear if a specific occupation title belongs to a male or a female (Bose & Rossi, 1983). Since gender-specific titles that specify the gender of an individual representing the job do not exist for every job title and it is not ensuring equal status for both males and females, gender bias occurs when you let individuals imply the specific occupation title to a gender. Due to different proportions of females and males working in diverse job fields, individuals tend to label jobs feminine where the majority of the workforce are women vice versa. In this study, I am going to investigate if the presence of the stereotypical gender beliefs on occupation domain titles exists. The study will be designed to compare both implicit and explicit beliefs for two occupations: nurse and doctor.

It is important and socially relevant to investigate the implicit beliefs because it may be particularly convenient in understanding why someone who expresses gender-neutral explicit stereotypes would still react more positively to a person of one sex or the other in a specific job. Furthermore, raising people's awareness of the data can move society and stereotypical thinking towards equity. This might be useful not only to reduce the gender bias in the occupational domain, but also to increase the knowledge that both men and women deserve the same rights, resources, opportunities, and protections (Sainsbury, 1996). Women are authorized to live a life full of freedom, dignity and be able to make free choices. In the meanwhile, men should not be called feminine if they choose professions that are highly connected with feminine traits.

Furthermore, the study of Regner et al. (2019) suggests that bias training should be made mandatory in the companies where gender discrimination exists to reduce the implicit stereotypes which affect the recruitment process while associating the masculine jobs with men and feminine professions with females. In the same paper, Regner proposes that a "habit-breaking intervention", such as the ones which would help reduce the implicit beliefs towards gender inequality, might help to simplify gender disparity at various institutions. In these interventions, members are taught about their implicit biases and gain experiences and conscious actions to oppose them.

While studies by Major et al. (1981) have focused on social factors and different perspectives on androgyny and how it evaluates masculine and feminine personality character, this research is going to be based on the specific professions and how the perspective of individuals changes towards each of occupation. I have chosen a health sector domain, and explicitly health workers, since the proportion of women and men working in these fields changed significantly in the previous year's thus I aim to investigate whatever gender bias and stereotypical thinking towards these two occupations changed or still exists. Since the previous literature focused on different occupation titles (such as engineer, accountant, and elementary school teacher), my goal is to find out whether the health sector domain is developing. In the last months, the health sector was more crucial than ever before and the demand for health care workers has increased significantly, thus testing whether individuals hold implicit and explicit gender-stereotypical thinking towards these job titles is important. While the health workforce is essential and occupied by a large number of patients, it is necessary to investigate if the stereotypical beliefs towards the gender of nurses and doctors still exist.

This research brings a new perspective on how humans unconsciously let their implicit beliefs affect their behavior and mindset. The aim of this study is not only to indicate that gender bias in the title of occupation domains exist but also to find out how different factors such as character traits or the gender proportion rate of the nurse and doctor job titles influences both the implicit and explicit gender stereotypes.

Thus the research question forms as following:

"To what extent do people associate doctor and nurse jobs either with males or females according to both implicit and explicit beliefs?"

Literature review

In this study, both chosen professions (nurse and doctor) are gender-neutral professions. It means that the occupation title itself does not specify or imply gender. I chose these particular professions since the proportions of the males and females workforce in both occupations differ significantly. According to the World Health Organization (WHO) statistics, there were almost 90% of females working in a nursing personnel department globally between 2013 and 2018 (Boniol et al., 2019). Even though the women's share of employment in the health share sector was on average 67% in the 104 countries in 2019, the systematic differences occur in gender distribution by occupation across different health sectors. This means that male workers form the majority of physicians, dentists, and pharmacists in the workforce, while females take the majority of the nursing workforce. There were on average 60% of male physicians worldwide in 2019, while females formed 79% of the nursing workforce. These differences allow us to investigate whether individuals have stereotypical thinking towards these specific job titles. The proportion rate might have an impact on how people attach male and female gender to a specific occupation based on its distribution. For example, people explicitly might state that the nurse occupation is equally associated with both males and females, while implicitly the assumptions might state that it is a feminine job since the majority of the workforce in the nursing section are females. This leads to a fact that specific occupations eventually are associated with either males or females. As a result, men tend to hold more male stereotyped beliefs (Rudman & Phelan, 2010). In the meanwhile, women are connected with stereotypically feminine traits which allow people to assume that for example a nurse's job is a feminine job and thus the female gender is attached to the job title. This empirical phenomenon can be explained through the character traits prism of both males and females.

In the previous studies, it was already tested if the specific job titles associate more with males or females. The research of White & White has tested if the occupations titles of an engineer, accountant, and elementary school teacher are presented more as masculine or feminine jobs and if the implicit and explicit gender stereotypes occur (White & White, 2006). The studies indicated that both engineer and accountant professions are associated with males, while the occupation of an elementary school teacher is attached to the female gender. These implicit occupational gender stereotypes may contribute to the fact that what an individual feels about somebody else performing a job versus what they actually think is different.

In order to explain how and why implicit beliefs and stereotypical thinking form, I am going to take a deeper knowledge into different characteristic traits of both males and females (Levinson & Young,

2010). There are female-linked attributes such as kindness, femininity, and aesthetics (Koivula, 2001). In the meanwhile, men are associated with instrumental character traits such as danger, speed, power, agency, and masculinity. It leads to gender bias in various occupation domains and provides results that show that the professions attached to the male gender are usually more masculine and powerful. In a study by Bailey et al. (2020), it is summarized that implicit postures of women in high power positions also affect how individuals adjust the specific occupation to a gender. It means not only the character traits but also the physical posture and body language affect how humans form their beliefs and approaches. In the research about androgyny, it was argued that both males and females, regardless of gender, were described as exceptionally instrumental as masculine people and as deeply expressive as feminine individuals (Major et al., 1981). Vander et al. (2016) in the paper about implicit and explicit gender beliefs in spatial ability argued that there occurs an equal stereotyping in boys and girls. Such stereotypical beliefs and perceptions towards gender character traits and skills could explain observed sex differences and implicit bias reasoning in occupation domains and why they are divided into masculine and feminine categories.

Hypotheses for the research question form as following:

H1: *Nurse occupation is implicitly associated more with females than males and a doctor profession is associated more with males than females.*

H2: *The implicit beliefs show stronger gender stereotypes associations towards nurse and doctor occupations than the explicit beliefs.*

H3: *The explicit character traits beliefs about females and males are accordingly associated with nurses and doctors.*

The Impact of Character Traits Differences

Natural evolution has happened not only to physical changes of human beings but also to character traits. The purpose of this research is to find out hidden and invisible threads between character differences between genders and how it affects the occupations of a nurse and a doctor. The differences between gender characteristics have been clear and obvious since the periodical evolution of human beings. It is biologically proven that there are elemental inborn differences between the males and females which results in the main character differences between the two genders. Males and females share different character traits, strengths, weaknesses, and authentical character attributes. Even though every possible characteristic exists within both men and women, specific character habits appear more frequently and reflect stronger to a specific gender more than the other. The studies about character strengths and well-being, and its differences between genders, have proven that both men and women significantly differ in the specific characteristics (Brdar et al., 2011).

Five main character strengths for females were kindness, love, integrity, gratitude. In the meanwhile, the highest-weighted strength for males was hope, humor, integrity, gratitude, and curiosity. In the same research, the life-satisfaction of both men and women was measured. According to the results, the women forecast their life satisfaction based on the level of gratitude, zest, hope, and appreciation of both beauty and love. Meantime, the life satisfaction of men is predicted by the factors of creativity, perspective, fairness, and humor.

Those particular findings can be compared to the specific characteristics of both occupations of a nurse and a doctor, and how it correlates in between. The Journal of Interprofessional Care published the article in 1995, where the typical stereotypes and stereotype changes in the occupational fields of doctors and nurses are discussed (Carpenter, 1995). The paper has presented the data about the specific character traits and stereotypes that are held by the students in the healthcare sector. The results have shown that the specific attributes are divided in between both occupations of the nurse and doctors. It has proven that there are authentic stereotypes and auto stereotypes (which represent the stereotypes of a specific job title) in both fields. The seven words which represent the occupation of a nurse were as follows: caring, dedicated, altruistic, kind, emphatic, compassionate, committed, trusting. Respectively, the character traits and the key qualitative rates of a doctor were as follows: confident, decisive, endurant, focused, unbiased, humane, conscientious.

The character differences do not only describe the main characteristics of males and females but also refer to the leisure time, hobbies, and interests of two genders, which is long-term reflect in the choice in the specific career field (Bittman & Wajcman, 2000). While having the same amount to spend on leisure time, women tend to multitask in their leisure time and while having a specific job, also focus to be not only a career figure but also a family provider and career. This habit may also reflect in the career choice as a nurse, which reflects all different character traits which are required for this specific occupation: caring, commitment, etc. The relationship and correlation can be found between the career choice and the character traits which dominate the most. The differences in the character traits might help to explain which traits are associated with which occupation and how the explicit beliefs form.

Proportion Rate of Nurses and Doctors Worldwide

Today it is more and more socially accepted that both males and females can work in both nurses' and doctors' occupation sectors without needing to prove that particular job requires a specific gender. It has not always been like that.

Particularly for the nurse occupation, history has proven that it took a long and significant way to reach a time that a male could legally be called a nurse. Since the females were seen as the initial caregivers and caretakers of the family and the local community, it consistently evolved into the fact that women became the nurses who provided the care to the ones who were the most in need (Staggers, 2002). Since the nursing profession is one of the oldest in history, it has changed and evaluated significantly during the decades. The image of the nursing occupation changed fundamentally in the forty years gap between the Civil War and the start of the twentieth century. During this time the nurse profession advanced from being seen as a regular profession to being a very respected and conscientious occupation.

In the meanwhile, while the nurse profession was evolving into an honorable profession for females, the males were facing the problem which is called sexism. It is one of the not many professions in which males were the ones facing sexism problems. It was a long way and took more than five decades, but by 1955 the Army Nurse Corps of the United States had delegated its first male officer as a nurse and that was a turning point in the nurse field. Since 1960, the nursing profession has become much more gender-inclusive. However, the different interpretations of history disregard the fact that most of the nurses were men up until the 19th century. During many wars, the nurses were mostly men in the military departments and they were the ones who took the initial care of the victims of war. Generally, the nurse occupation was not seen as a women's job and this perception has changed over the years.

The paper ¨Are you man enough to be a nurse?¨ investigated the impact of contradictory features of sexism and role coherence on the apprehension of males and females in the nursing field and advertisements (Clow, 2014). The research revealed that even though sexism germs towards the nurse occupation are constantly decreasing, society still does not fully merge the specific occupations with both genders in the equal approach. It suggests that it is essential to point out the discrimination, sexism, and preconception in the occupations where the balance between women and men working differs significantly. Both males and females are entitled to have the freedom to choose and reach the career opportunities in the field which they feel passionate about. The selection procedure should not have any selection points based on gender, but only on the talent, knowledge, and the ethic in the work environment. There is a way to change this by increasing the number of male workers in the nursing field. This would create a more gender-neutral field, where males could feel comfortable choosing the profession of the nurse and the field itself would decrease the shortage of nurses. The findings from the research by Cowl have revealed that highlighting the gender of males in the nurse occupation guides not only to the reduction of the current gender stereotypes in the nurse field. It also

harms the incompatibility between two genders in the nurse occupation. The correct way to stress out the fact that males have all the freedom and ability to take an important role in the nurse field is by not reducing the impact of the female's role in the same field. The nurse field does not have to be dominated only by masculine power nor does it have to contain only female workers. The findings have shown that representing both male and female nurses in public advertisements reveals the best results. It shows the best effect in the changes of numbers of males and females showing interest in recruiting for the nurse occupation. (O´Lynn, 2004; Sullivan, 2000). The public presentations of both males and females figures in the advertisements which promote the nurse occupation work specifically efficient for the young adults. Both genders tend to recruit for the job which represents both males and females in the job advertisements and not only one of them.

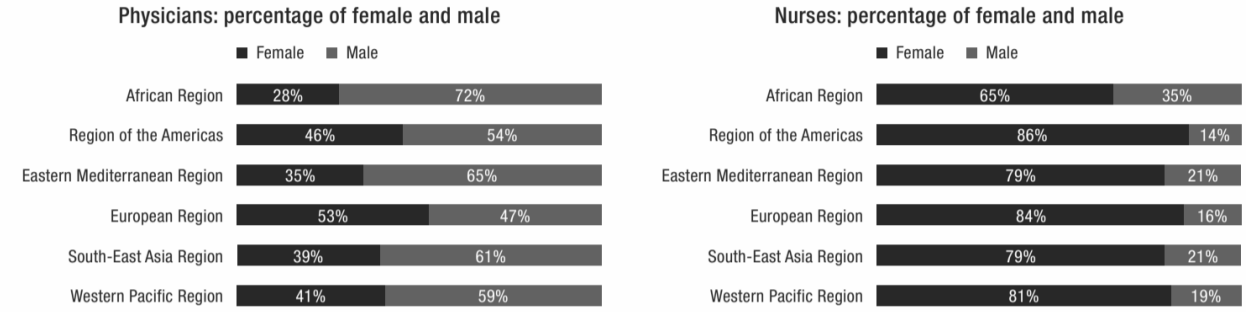
Nowadays, the nurse profession is seen as a meaningful job. It allows working towards specific goals and each day is designated to make a difference in many people's lives. Since it is difficult to find many more professions that make a really important difference in the world, men hesitate less and less to choose the nurse occupation. The fading sexism in the nurse fields let men feel more and more comfortable while making a significant life decision on which profession to choose. The nurse profession does not seem like a shameful and wrong choice. Furthermore, the demand for male nurses nowadays is increasing, since many boys and men themselves feel more comfortable while interacting with the same gender nurses. As long as the gender gap in nursing keeps reducing, the pattern might fade away and more males might choose the nurse occupation even though society still tends to attach this occupation to the gender of females. This psychological factor might reduce the speed at which the gender gap disappears since males might avoid choosing the nurse profession to avoid the societally accepted stereotypes.

In the meanwhile, the doctor profession has started back in the 3rd millennium BCE and has changed significantly since the beginning of its history. Doctors have diverse expertise in different types of medicine. Since the medical field is very broad, doctors are not strictly related to one gender. Different from a nurse profession, a doctor is very diverse and can be adapted to both genders based on different factors. While male doctors focus more on the physical examination and the technical part of the medical practice while treating the patient, female doctors spend more time on implementing psychological knowledge and counseling and using preventive care (Klea, 2009). Even though women often are seen as the assistants of males, this is not the case in today's society. Since there are significant differences in the way the females and males doctors behave in their practice style, both genders fill in the important gap in the medical field.

Statistics

According to the World Health Organization, gender equity in the health workforce has changed in the last years (Boniol et al., 2019). Analysis of the 104 countries worldwide has revealed important changes in the last two decades. Firstly, the depiction of women in the health sector occupations where the income is the highest has been increasing steadily since 2000. Within its 234 million health care workers, women comprise around 67% of this specific workforce sector., which the majority of it is in the nursing and midwifery field. Meanwhile, in most countries, males health care workers dominate in the fields of physicians, dentists, and pharmacists. The Female picture in the healthcare sector is increasing constantly, especially in the highly paid health care occupations. There was 78 percent of female nurses worldwide in 2019. (see Figure 1)

Figure 1. Distribution of physicians and nurses by gender



Source. Data from NHWA for 91 countries for physician data and 61 countries for nursing data.

Important Factors

Furthermore, implicit and explicit beliefs do form depending on many inner and outer factors. While the particular character traits and the proportion rate of both occupations play an important role, the direct implicit beliefs may also occur due to the history of both nurse and doctor associations and how the name itself has developed during the years. The word ¨nurse¨ has originally formed from the Latin word ¨nutrire¨ which means to suckle (Oxford, 2003). The word has developed from the wet-nurse. In the late 16th century it has obtained the new clear meaning, which refers to a person who takes care of the fragile and infirm people. Since the original Latin name means to nurture, to take care, and to suckle, it is also closely correlated with feminine attributes and human nature. Women are the ones who process motherhood, have the natural instincts to take care of, and, finally, have biological abilities to suckle the infants.

In the meanwhile, the name ¨doctor¨ has formed from the Latin word which spells in the same way and represents the academic title which means the process of teaching (Cambridge, 2003). At the same time, the doctor also refers to someone easy to be taught, since it appears in the root of the word ¨docile¨. Since a field of a doctor has a great diversity of branches, the name doctor itself is close

upon equally related to both females and males. The diverse research has shown that patients do not have strong preferences in the gender of their doctor unless it is related either to a specific field in the medicine or the age of the patient (Waseem, 2005). Adults do not have strong preferences according to gender (60% prefer male doctors, while 40% prefer female doctors). Contrarily, the research exposed that children prefer female physicians for their care (79%). In the meanwhile, in specific fields (such as gynecologists and obstetrics) 48% of patients tend to prefer a female doctor rather than a male (Makam, 2010). It represents that different medicine fields are greeted differently based on who is taking the care: a male or a female patient. Furthermore, the selection of gender is also based on the treated condition. The prevalence of the medical condition among males and females matter for the selection of a doctor's preference. Patients tend to choose the gender of a doctor based on diverse important factors: religious beliefs, previous experience, issues of personal modesty, embarrassing conditions (Wynn, 2020).

Methodology

Research Design

The research contains the comparison between the implicit and explicit gender beliefs in the domain fields of the nurse and doctor. It has an experimental design. The data was gathered from the information gained by proceeding with the online survey on Qualtrics. The experimental design includes the independent variables which are presented in Appendix A and B. The participants were assigned to perform the Implicit Association Test first and the explicit questionnaire after to avoid the risk that explicit beliefs will affect the implicit ones.

Participants

The survey takers were provided with a free choice of consent to participate in the survey. On the introductory page, they could have chosen to agree or disagree to follow the further questionnaire. The demographic information test was presented next, which included sex, age, ethnicity, the current country of residence, and the level of education obtained.

Apparatus

The participants of the survey were able to take the survey on a personal computer or laptop. The mobile device was not permitted to be used due to Implicit Association Test, which requires the keyboard. The survey collected the specific characteristics of the participants: gender, age, ethnicity, the country of the current residence and the highest education obtained. Following, the Implicit

Association Test was presented. To avoid the risk that explicit beliefs would affect the implicit beliefs of the participants, the IAT test was presented first. On the introductory page, it was explained that the IAT test needs to be filled in as fast as possible while making as least mistakes as possible.

Materials

To test the hypothesis that implicit gender bias occurs while people consciously or unconsciously attach the male gender to a doctor's occupation while the nurse job title is associated with females, I am going to collect my data.

Implicit Beliefs

The paper will consist of an implicit measure for which I am going to use the Implicit Association Test (IAT). The Implicit Association Test is a famous method to gather data from people and teach individuals about their unconscious biases, especially the ones on diversity and inclusion (Greenwald et al., 1998). The studies will consist of the measurement of the stereotypes and beliefs that individuals may be unwilling or unable to admit as the truth. The argument behind the Implicit Association Test is that it is a tool to make individuals aware of their specific implicit beliefs that they may not be willing or may not be able to report (Carpenter et al., 2019). In this study, people may believe that both occupations and job positions are equally associated with both males and females genders, while the automatic associations might reveal that they associate specific jobs with men more than they do with women and vice versa. By studying two different associations, the participants will be asked to complete one IAT. The test will consist of synonyms that are mostly related to the nurse and doctor occupation. The specific synonyms for both occupations were selected from the Oxford Dictionary of Synonyms and Antonyms. The specific synonyms for the nurse were selected as follows: registered nurse, nurse practitioner, nursey, practical nurse, general nurse (see Table 1). In the meanwhile, the synonyms for the occupation of a doctor were chosen as follows: medic, general practitioner, family doctor, physician, surgeon. Furthermore, the IAT test will consist of different pairs of both males' and females' names (five per gender), which were chosen from the data list of the most popular names in the registered baby center in the United Kingdom in 1995 (Baby Center UK). The names, which were chosen, have been matched on purpose, so the females' and male's names have a similar way of pronunciation and spelling. The specific year was chosen as the average representative birth year of the participants of the study. The chosen names are as follows for females: Olivia, Christina, Jessica, Kayla, Brianna; for males: Oliver, Christian, James, Tyler, Brandon. This experimental design will provide the results which will help to better determine and explain the implicit beliefs.

Table 1. Targets and attributes used for the Implicit Association Test

Targets

Doctor	**Nurse**
Medic	Registered Nurse
General Practitioner	Nurse Practitioner
Family Doctor	Nursey
Physician	Practical Nurse
Surgeon	General Nurse

Attributes

Male	**Female**
Oliver	Olivia
Christian	Christina
James	Jessica
Tyler	Kayla
Brandon	Bryana

Explicit Stereotypes

An explicit measure will take place where the participants have to share their opinion about how feminine or masculine both nurse and doctor occupations are. In order to do that, the Likert-type rating scale is going to be set up. Likert-scale is a psychometric response scale in which participants will be able to specify their level of agreement to a statement that ranges from one extreme belief to another. In this case, the beliefs range in a 5-point Likert format scale (1=very masculine, 2=more masculine than feminine, 3=neutral, 4=more feminine than masculine, 5=very feminine).

Furthermore, to measure the beliefs if doctor or nurse occupations are feminine or masculine jobs explicitly, the participants will be asked to report their estimate of the specific character traits, which are mostly related to each specific occupation depending on the particular character traits and associations. To measure the character traits, the participants will be asked to answer who is more likely to hold the particular character trait: a woman or a man, and a nurse or a doctor. To make a more reliable conclusion, the comparison will take place for both males/females and doctors/nurses. In case, for example, the participant chooses that care is a more feminine character trait and also chooses that caring is a more important skill to a nurse than to a doctor, we can analyze how the specific character traits are related to a specific occupation and its dominant gender.

The specific character traits and attributes were selected from previous studies which were particularly focused on the characteristics of a doctor and a nurse (Carpenter, 1995). The seven words which represent the occupation of a nurse were chosen as follows: caring, dedicated, altruistic, kind, emphatic, compassionate, committed, trusting. Respectively, the character traits and the key qualitative rates of a doctor were chosen as follows: confident, decisive, endurant, focused, unbiased, humane, conscientious. Firstly, the participants will be presented with a 5-type Likert scale, where each of the fourteen character traits has to be attached to a specific gender (1=very feminine, 2=feminine, 3=neutral, 4=masculine, 5=very masculine). Second, the same character traits need to be rated according to how essential each of the traits is to a nurse and doctor occupations (1=definitely more important to a nurse, 2=more important to a nurse, 3=equally important, 4=more important to a doctor, 5=definitely more important to a doctor).

Finally, the research will be extended in order to study how these implicit and explicit stereotypes relate to another outcome of interest. The participants will be asked to report their estimate of the proportion of men/women in each occupation (nurse and doctor) worldwide in 2019 by using a slider scale. The participants will be asked to report an estimated point on a scale from 1-to-100 of the proportion of a man and a woman in each of the two occupations. Since explicit stereotypes arise from both personality traits and the proportion of the occupation, this way will help to evaluate which of the two explanations (characteristic traits vs proportion rate) better explain implicit and explicit beliefs.

Procedure

Recruitment

In designing this study, I was aware that getting the right amount of respondents will be more challenging since the possibility to fill in the survey was only available on the laptop or stationary computer. The notion of the survey was to have a particular number of participants to make valid conclusions about how the implicit and explicit beliefs occur in the field of the occupation domains of a nurse and a doctor. The goal was to collect pure data of 100 participants who fill in the survey from the beginning till the end without skipping any important step.

Information Consent

The survey has begun with an introductory page where the purpose and the goal of the questionnaire were explained. The respondents were presented with the information that the goal of the survey is to understand the implicit and explicit gender beliefs on occupation domains of a nurse and a doctor. Furthermore, they got to know that the information which is relevant to this behavioral economic topic

will be presented and the questions will be asked to research the field. The duration of the survey was a maximum of 15 minutes. The privacy and the complete confidentiality of the filled-in answers were guaranteed. Moreover, the participants were acknowledged that the participation in the study is purely voluntary and that they are aware of the fact that the termination of the participation in the study can proceed at any time for any reason. The additional note was added to the introductory page where the additional information is added to inform the participants that the survey will be only displayed on a laptop or desktop computer because some of the features of the survey are not compatible with use on a mobile device. The survey has firstly introduced the specific questions for the demographic information (including gender, age, ethnicity, the country of current residence and the highest education obtained). Subsequently, the Implicit Association Test was introduced, followed by the measurements for the explicit stereotypes.

Implicit Association Test

The chosen tool to analyze the collected data for the Implicit Association Test was the iatgen which provides an access to quickly score the results of IAT (Carpenter et al., 2019). The data was gathered from Qualtrics in a legacy export CSV format. The clean data and IAT scores, which were defined by Greenwald, Nosek, and Banaji (2003), were observed and the D-score was computed for each respondent of the survey. It is calculated as the mean difference which is divided by the SD, which stands for standard deviation. The observed data was assorted by the speed factors. The individuals, whose trials exceeded a certain duration (the timeout pause more than 10,000ms) were eliminated due to the drop trial with excessive time. Furthermore, the participants with an excessive number of fast trials were dropped. By default, the results were eliminated if over 10% of trials were less than 300ms (Greenwald et al, 2003). The difference in timing provides the index for the strength of the respective implicit association.

Every part of the survey was briefly explained and was easy to be filled in. Starting with the Implicit Association Test, there was a preparatory table presented, which had the information to briefly explain how the test works. The option to use mobile devices was blocked due to the Implicit Association Test. The test required the keyboard where the specific buttons of ¨E¨ and ¨I¨ were mandatory. Additionally, the participants were encouraged to fill in the survey as fast as possible, since the speed was taken into account while observing the results of the test. The participants were asked to decide and choose which of the presented words are associated with the Nurse or Doctor occupations. Furthermore, the four different groups and the items which belong to each other were presented. The category of males names included the following names: Oliver, Christian, James, Tyler, Brandon. Respectively, the females' names were represented as following: Olivia, Christina, Jessica, Kayla, Brianna. The two

categories of nurse and doctor occupations have displayed the corresponding synonyms for each profession. The doctor's occupation has consisted of five synonyms: Medic, Family Doctor, General Practitioner, Physician, Surgeon. Accordingly, the nurse occupation has contained five synonyms as following: General Nurse, Nurse Practitioner, Nursery, Practical Nurse, and Registered Nurse. The Implicit Association Test has consisted of seven parts, where the instructions have changed for each one.

The Implicit Association Test itself has a design that ensures that the results are not biased. The participants are presented with the target groups in block one and in the same reversed targets in block 5, which ensures that the speed is not impacted by which pairing (nurses and females or nurses and males) was presented first. The order of pairing is counterbalanced across individuals who participate in the survey. Furthermore, the position (left/right) of targets and attributes is counterbalanced across individuals to make sure the results are not influenced by the fact if the participant is left- or right-handed.

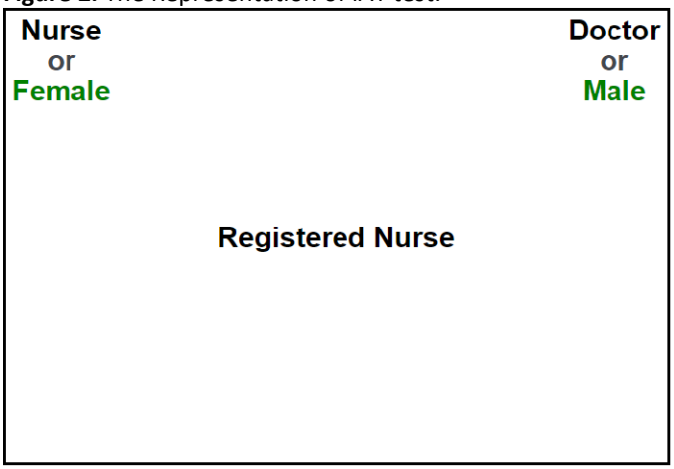
The survey takers had to categorize the correct synonyms of the occupations and the names of males/females into a specific category as fast as possible by pressing either the right ¨I¨ or left ¨E¨ key on the computer keyboard. Primarily, the survey takers were represented with the synonyms of doctors' and nurses' occupations and asked to assign the specific synonym of the job title to a correct occupation. One of the trials has represented the ¨Nurse¨ in the left upper corner and ¨Doctor¨ in the right upper corner. The space in between both objects was filled in with words that represented either the nurse or doctors' professions. The respondents had to make a quick choice and press either the ¨E¨ key if the selected object is associated with the ¨Nurse¨ occupation presented in the left upper screen, or key ¨I¨ if the object related to the ¨Doctor¨ profession. For example, if the object ¨General Practitioner¨ has appeared, the respondents had to press the key ¨I¨ as briskly as possible, because it represents the synonym of the doctor´s profession. If the survey taker has responded correctly and attached the specific object to a particular category, the next object has appeared in the middle of the screen and the test has continued. In case of the wrong answer, the error sign has shown up in the middle of the screen. It has flared on the screen for 400ms and after that, the survey taker could continue to the following randomized ten tasks.

Analogously, the same procedure was represented for the two attributes of ¨Female¨ and ¨Male¨. One of the trials has represented the ¨Female¨ attribute on the left top corner of the screen and the ¨Male¨ attribute on the right top corner of the screen. In the middle of the screen, there were five names of females and five names of males presented one by one in a randomized order. The names had to be correctly attached to a specific category of gender. Assuming that the name ¨Christian¨ has appeared

in the middle of the screen, the survey respondent had to press the key ¨I¨ as fast as possible thus the name would be attached to the attribute of ¨Male¨. Equivalently as in the first part, the incorrect answer has led to the ¨Error¨ sign in the middle of the screen. The sign has appeared for 400ms and the respondents could have continued to the following twenty trials.

Following, in the third part the four categories which before were presented separately, have appeared together now (see Figure 2). Each word, no matter if it is a title or the name, was able to be fit in only one of the four categories. Respondents of the survey were asked to classify the synonyms for the doctor occupation and the males' names with one key, and the synonyms for the nurse occupation and the female names with another one. In one of the randomized trials, the ¨Nurse¨ and ¨Female¨ has appeared in the left top corner and the ¨Doctor¨ and ¨Male¨ in the right top corner. The randomized occupation title or the name for a female/male has appeared in the middle of the page and the respondents were asked to attach it to the correct side of the screen. In this part of the Implicit Association test respondents had to choose between twenty randomized trials. For example, if the word ¨Registered Nurse¨ has appeared in the middle of the screen, the key ¨E¨ had to be pressed to avoid the ¨Error¨ sign and be able to continue the test.

Figure 2. The Representation of IAT test.



Block four had the same design as block three. It has one more time presented the occupation ¨Nurse¨ and the attribute ¨Female¨ in the left corner of the screen, and the word ¨Doctor¨ and the attribute ¨Male¨ in the opposite corner. The task has remained the same and the respondents were asked to go as fast as possible without making mistakes. In case of the incorrect answer, the error could have been corrected by hitting the opposite key on the keyboard.

The fifth part has had a similar presentation pattern as task one, only the categories from before have switched sides. Now the concept ¨Doctor¨ has appeared in the left upper corner and the name ¨Nurse¨ has appeared in the right upper corner. This time if the occupation title ¨General Practitioner¨ has

shown up, the key ¨E¨ has to be pressed. In each of the seven steps, the respondents were reminded to get used to the new configuration and try to press the correct keys as quickly as possible.

Thereafter, the sixth and seventh steps were the reversed samples of tasks three and four. There the nurses should be categorized with the male names, while the doctors with the female ones. This time the occupation ¨Nurse¨ and the attribute ¨Male¨ has appeared in the left upper corner and the occupation ¨Doctor¨ and the attribute ¨Female¨ on the opposite corner. Shortly, the four categories have been combined again, but in a new configuration.

Explicit Measurement

The questionnaire for the explicit stereotypes has followed right after the Implicit Association Test. The questionnaire was designed to measure the explicit beliefs towards the genders and nurse/doctor occupations. The associations between the character traits and the proportion rate towards the occupations/genders were covered in the questionnaire (see Appendix B). The questionnaire began with the 5-point Likert scale, where the participants had to rate how masculine or feminine both nurses' and doctor´s occupations are (very masculine-to-very feminine). Further, the 7-point Likert scale was presented to measure how the character traits are related to the genders of males and females. The fourteen different character traits were presented and the participants had to rate them in a 7-type Likert scale from the strongly feminine-to-strongly masculine. The same character traits were represented again to test the explicit beliefs towards the occupations of a nurse and a doctor and how the character traits are related to both professions. The participants had to attach each character trait to one out of seven bullet points (from definitely more important to nurse-to-definitely more important to doctor). The explicit measures were finished with the slider scale where the survey respondents had to forecast the proportion rate of how many doctors were males and how many nurses were females according to the worldwide data in 2019.

Research Analysis

Implicit Association Test Score

In order to get the results from the Implicit Association Test, we must calculate the d-score. The d-score is computed by observing the data from the four different blocks of the test: blocks three, four, six, and seven. The average duration time difference of each participant between these blocks is calculated. The diverse results are divided by the pooled standard deviation. After the two different d-scores are observed, the average of both is calculated. The positive d-score represents that doctors are associated with males and nurses are associated with females. The occasion of the negative d-value

shows that doctors are connected with females, while the nurse occupation is correlated with males. The value of a d-score can fluctuate between -2 and +2. If the result is zero, the association between the concept (doctor/nurse) and attribute (male/female) is not detected. This means people equally associate males with nurses and doctors and females with nurses and doctors.

Explicit Score

The collected data from the explicit measurement will be analyzed by using the scoring algorithm and t-test. The means and correlation ratios of both implicit and explicit tests will be compared right after collecting the data to test the hypothesis of the research. The results of the Implicit Association Test and the explicit questionnaire will be analyzed and the correct conclusions will be drawn regarding the main question based on the analysis. The results will be compared with the assumptions based on the job proportion rate and the correct conclusion will be drawn to explain both implicit and explicit beliefs.

Results

Participants

The survey was filled in by 132 respondents. Three of them were still in progress which was not taken into the final count. Furthermore, not all the participants filled in all the steps till the end. The final number of the respondents, which filled in the survey from the very beginning till the very end without skipping any steps were exactly 109. In the survey sample, there were 52 males (n=52) and 57 females (n=57). The data was collected from the different age range participants. The age order was fluctuating between 18 and 64 years old. Only two participants did not fit in the scale from 18 to 64 years old. One of the respondents was younger than 18 years old and one was older than 85 years old. The mean age was 25-34 (M=2.96). The ethnicity of the participants was indicated as follows: 83.5% White, 7.3% Other, 4.6% Asian, 1.8% Black or African American, 1.8% Native Hawaiian or Pacific Islander, and 0.9% American Indian or Alaska Native. The reported education of the survey respondents was as follows: 0.9% less than High School, 7.4% High School Graduate, 9.3% College, 61.1% Bachelor Degree, 18.5% Master Degree and 2.8% Professional Doctorate Degree. The current residence place of the survey participants has covered 20 out of 196 countries in the world. Most of the participants during the time of the survey were residing in the Netherlands (n=60) and Lithuania (n=21).

Implicit Stereotypes

The Implicit Association Test was designed to analyze the first hypothesis which states that nurse occupation is implicitly associated more with females than males and a doctor profession is associated

more with males than females according to the implicit beliefs. The observed data from IAT is presented in Table 2. The represented data shows the outcomes of the test which was filled in by 109 participants. The results of two participants were eliminated due to excessive speed. The time-out rate (see Table 2) represents the proportion of trials that were dropped due to excessive duration. The error rate is equal to 0.0743 and it calculates the proportion of trials in which the erroneous response occurred. A Mean D-score of the IAT is 0.4593, whereas the D-score SD is equal to 0.4048. A t-test was implemented for the IAT to detect significant implicit bias (where D-score differs from 0). The outcomes show that there is a significant difference between the D-score of the test (M=.4593; SD=.4048) and zero (M=0; SD=0) conditions; t(99)=11.3467, p=0.0001¨. The Cohen's d, which is equal to 1.1347, shows that the effect size of the analysis is higher than the Cohen´s d convention for a large effect where d=.80 (Cohen, 1988). Cohen's d is the measure that is equal to the differences between two means divided by the pooled standard deviation. Since Cohen suggests that any d which is larger than >.8 represents the large effect size, we can state that there is an effect between the gender and job occupation titles of a nurse and a doctor. This means that the participants were faster while they proceeded with the association between the nurse occupation and female gender, and the doctor occupation and male gender. The speed was slower while performing the association between a nurse occupation and a male gender, and a doctor occupation and female gender.

The IAT results show the association towards the way people attach the specific gender to a doctor´s and nurse´s profession. The first hypothesis which states that nurse occupation is implicitly associated more with females than males and a doctor profession is associated more with males than females according to the implicit beliefs is supported. The Implicit Association Test indicates the results, which prove that the two occupations of the nurse and doctor are gender-stereotyped.

Table 2. *Results Implicit Association Test*

Number of participants	109
Time out rate	.0053
Participants dropped due to excessive speed	2
Error rate	.0743
D-score Mean	.4593
D-score SD	.4048
t-test	11.3467
df	99
p-value	<0.00001 (p<0.05)
Cohen´s d	1.1347

Explicit Stereotypes

Participants rated the doctors and nurse's profession in a 5-point Likert rating scale from very 1 = very masculine, 3 = neutral, 5 = very feminine (see Table 3). For each domain, the mean score and the standard deviation were calculated. The doctor was rated with a minor deviation to a masculine profession side (M=2.68). In the meanwhile, the occupation of a nurse was rated as a very feminine profession (M=3.93). Based on the two different means, it is obvious that the nurse occupation is seen as a more feminine one. To find if the mean difference is statistically significant, a test of significance was performed. The mean of doctor minus nurse equals -1.2500 and with the 95% confidence interval, this difference fluctuates between -1,4310 to -1.0690. The intermediate values which were used in the calculations are as follows: t = 13.6082, df = 216, standard error of difference = 0.092. T-value measures the size of the difference relative to the variation in the sample data. The df stands for degrees of freedom and is the number of values in the final calculation of a statistic that are free to vary. Standard error measures the accuracy with which a sample distribution represents a sample size by using standard deviation. As a result, the two-tailed P-value is less than 0.0001, which by conventional criteria means that the difference between the two means presented in Table 3 is considered to be extremely significant.

Table 3. Explicit stereotypes. The gender comparison between Doctor and Nurse occupations

Occupation	Mean	SD
Doctor	2.68	0.61
Nurse	3.93	0.74

Note. The higher mean represents the more feminine occupation in a 5-point Likert scale, where 1=very masculine, 3=neutral, 5=very feminine.

Explicit vs Implicit Stereotypes

The second hypothesis states that the Implicit Association Test shows stronger gender stereotypes associations towards nurse and doctor occupations than the explicit questionnaire. To support or deny this hypothesis, the significance difference from the neutral value of the Implicit Association Test was compared. The neutral value for IAT is 0. The result of the IAT for this specific test about a nurse and doctor occupation was Cohens' d= 1.1347, which according to the effect size of the analysis is higher than the Cohen´s d convention for a large effect where d=.80. In the meanwhile, the explicit test results have shown that the mean values of the way the participants rate doctor and nurse occupations as masculine or feminine were extremely significant. Cohen's d effect size for the explicit stereotypes was determined by calculating the mean difference between two groups (doctor and nurse) and divided by the pool standard deviation. The results showed that Cohen's d for the explicit stereotypes is equal to 1.8433. In conclusion, the second hypothesis is rejected, since the Implicit Association Test shows a

direct association between a nurse occupation and females, and a doctor occupation and males. In the meanwhile, the explicit questionnaire results where the participants had to rate both professions towards a specific gender, showed that Cohen's d represents a large effect size, thus people rate the nurse occupation much more as a feminine one than a doctor. As a result, the second hypothesis is rejected, since both implicit and explicit beliefs were significantly different from the neutral values.

Explicit Character Traits

The second part of the explicit test has measured the explicit stereotypes of specific character traits towards both male and female genders. The results were proceeded in a 5-point Likert scale (1 = very feminine, 3 = neutral, 5 = very masculine). The fourteen character traits were ranked by the participants and the results are presented in Table 4. For each of the characteristics, the mean ranking score and standard deviation measure were compared. The character traits Caring (M=2.12), Emphatic (2.28), Compassionate (M=2.29) were voted as the most feminine characteristics. In the meanwhile, Humane (M=2.89), Committed (M=3.03), and Conscientious (M=3.04) were rated as the most neutral character traits. The most masculine personality aspects are rated as following: Endurant (M=3.62), Decisive (M=3.51), and Confident (M=3.46).

The third part of the explicit rating scale included the identical fourteen character traits as used for the gender rating system. This time the character traits had to be rated according to the 5-point Likert scale, where each trait had to be assigned to an occupation of a nurse or a doctor, depending on how essential the trait is to a specific occupation. (1 = definitely more important to a nurse, 3 = equally important, 5 = definitely more important to a doctor). The results, which include the mean scores and the standard deviation of the ratings, are presented in Table 4 and it is compared to the explicit character stereotypes towards gender. The stereotyped beliefs revealed that the most essential character traits for a nurse occupation are Caring (M=1.96), Compassionate (M=2.28), Emphatic (M=2.29). The top three character traits ranked as equally important to both nurse and doctor professions are Trusting (M=3.00), Humane (M=3.05), and Conscientious (M=3.29). The personality attributes, which are ranked as the most significant to a doctor are as follows: Decisive (M=3.92), Focused (M=3.89), Confident (M=3.88).

Table 4. Explicit stereotypes. The comparison between character traits towards gender and the importance of the character traits for a nurse/doctor occupation

	The comparison towards gender		The comparison towards a nurse/doctor occupation	
Character trait	Mean	SD	Mean	SD
Caring	2.12	0.52	1.96	0.93
Emphatic	2.28	0.68	2.29	0.91
Compassionate	2.29	0.82	2.28	1.01
Kind	2.41	0.62	2.42	0.76
Altruistic	2.56	0.67	2.39	0.90
Trusting	2.65	0.80	3.00	0.77
Humane	2.89	0.71	3.05	0.70
Committed	3.03	0.84	3.31	0.88
Conscientious	3.04	0.73	3.29	0.78
Unbiased	3.23	0.66	3.40	0.65
Focused	3.34	0.90	3.89	0.84
Confident	3.46	0.64	3.88	0.78
Decisive	3.51	0.80	3.92	0.74
Endurant	3.62	0.87	3.85	1.07

Note. Table Mean scores on the left are ranked from the most feminine to the most masculine. The higher Mean represents the more masculine character trait. The Mean scores of the right side are ranked from "definitely more important to a nurse" to "definitely more important to a doctor". The higher Mean represents the higher importance of a character trait to a doctor's occupation.

A t-test was used to answer the third hypothesis question and test whether the explicit character traits beliefs about females and males are accordingly associated with nurses and doctors. The goal of a t-test is to analyze whether the test scores differ significantly if the comparison between the means of two different sets of data is made. In this study, a comparison was made between the character traits and the genders versus occupations of a doctor and a nurse. The goal was to compare whether the specific character traits significantly differ between males and females vs doctor and nurse. The two-tailed P-value is equal to p=.4428. The test showed that by the conventional criteria, the differences in means of the comparison the average score for genders (M=2.8879, SD=0.5057) and the average score for occupations of a nurse and a doctor (M=3.0664, SD=0.6922) are not significant. The mean of Group One (gender) and Group Two (occupation) is equal to -0.1786. The 95% confidence interval of this difference is from -0.6495 to 0.2924. This means that equality of variances may be assumed. This represents that for the main analysis, both genders and occupation comparison can be treated as one group. The results of the test for measuring the differences between the means of the character traits towards gender and doctor/nurse occupation represent that the null-hypothesis cannot be rejected and is accepted because the results are not significant. The average means of all groups are considered to be equal.

The Proportion of Nurses and Doctors Worldwide

The fourth and last part of the explicit stereotypes test included the explicit beliefs of the proportion rate of doctor and nurse occupations worldwide in 2019. There was no control value and hypothesis stated for this test. The participants were asked to use a scale from 1 to 100 to answer the question of what percentage of doctors were males and what percentage of nurses were females worldwide in 2019. The ratings were compared to real-world data from the World Health Organization in 2019 which is presented in Table 5. The survey participants' answers revealed that the mean proportion rate of nurses as females is 76.81%, leaving the residual part for males (23.19%). In the meanwhile, the mean proportion rate for doctors as males is 62.97%, with the remaining part being females (37.03%). The difference between the proportion rates represents that participants assume that there is a greater gender gap in a nurse occupation than a doctor's one. Based on the explicit beliefs, the participants have stated a thoroughly accurate proportion rate for both occupations.

Table 5. Explicit stereotypes. The objective and reported proportion rates of doctors and nurses as males and females

	WHO data (2019)	Current Study	
Occupation	Mean	Mean	SD
Doctor	59.67	62.97	9.34
Nurse	79.00	76.81	12.41

Note 1. The doctor's occupation Mean score is related to the male gender. The nurse occupation Mean score is related to the female gender.
Note 2. WHO data includes the distribution of physicians and nurses by gender. The specific title occupation for a doctor is "physician". In the current studies, the doctor is not defined in any specific field.

Summary of Hypotheses and Results

The summary of the hypotheses and results is presented in Table 6.

Table 6. The Overview of Hypotheses

Hypotheses	**Results**
H1: *Nurse occupation is implicitly associated more with females than males and a doctor profession is associated more with males than females according to the implicit beliefs.*	Supported
H2: *The Implicit Association Test shows stronger gender stereotypes associations towards nurse and doctor occupations than the explicit questionnaire.*	Not supported
H3: *The explicit character traits beliefs about females and males are accordingly associated with nurses and doctors.*	Supported

Discussion and Conclusion

This study investigates whether implicit and explicit gender beliefs appear in the two health care sectors: a doctor and a nurse. The Implicit Association Test helps to measure how quickly participants sort various words which appear on the computer screen together. The sorting speed reflects how tightly people associate two concepts: the quicker the response time, the stronger the association. The results received from the Implicit Association Test and the explicit questionnaires help to answer the research question: *"To what extent do people associate doctor and nurse jobs either with males or females according to both implicit and explicit beliefs?"*

The results of the study helped to interpret the first hypothesis, which indicated that nurse occupation is associated more with females than males and a doctor profession is associated more with males than females according to the implicit beliefs. The data analysis has shown that the results of the Implicit Association Test reveal the implicit gender stereotypes in the nurse and doctor professions. The survey participants have filled the blocks where nurses were associated with females, and doctors with males quicker than the blocks where the nurse occupation was associated with males and the doctor profession with females. The results also show that the participants took more time to fill in the incompatible clocks where they had to categorize the doctor synonyms with females names and the nurse synonyms with male names.

In this research, the second hypothesis analyzes if the Implicit Association Test shows stronger gender stereotypes associations towards nurse and doctor occupations than the explicit questionnaire. After analyzing it, the hypothesis can be rejected. The deviation usually occurs due to the different representations of the stereotypes. The implicit beliefs are the fragment of previous behavior and experiences which has a relation to the representation in cognition (Ren, 2019). In the meanwhile, the explicit beliefs represent the conscious level of thinking and show the self-reported stereotypes (Long-Crowell, 2013). The implicit beliefs showed that the nurse occupation is positively correlated with the females while the doctor profession is associated with males. In the meanwhile, the explicit questionnaire results revealed that there is a significant difference between the way people rank nurse and doctor occupations on the scale from very feminine – to – very masculine. The nurse occupation was ranked more feminine than a doctor's one. The results speak for themselves that both implicitly and explicitly individuals choose to see a nurse occupation as a more feminine one, while the doctor occupation is seeing slightly more masculine.

The third hypothesis analyzes if the explicit character traits beliefs about females and males are accordingly associated with nurses and doctors. The study results represent that there is no significant

difference in how people attach the specific character traits to males/females and doctors/nurses. As a result, the hypothesis can be accepted. This gives an overview, that based on the explicit beliefs, people tend to attach identical character traits and analogous characteristics to both the female gender and a nurse profession. On the contrary, the character traits which represent the male figure, are comparable to the attributes which are correlated with the doctor's occupation. The explicit character traits test indicated that the same characteristics are attached to both females and nurses, while a doctor and a man also share comparable character traits.

There should be important explanatory factors that influence the implicit and explicit gender beliefs towards the nurse and doctor occupations. Thereby additionally to an explicit test about the character traits, the study also has measured the explicit beliefs towards the proportion rate of doctors and nurses worldwide. It was done to find the reasoning and the relation to why people tend to implicitly attach the specific gender to a distinct occupation. The results of the proportion rate have shown that there indeed exists a considerable gender gap between the doctors and nurses which might influence both implicit and explicit beliefs. The results of the survey participants did not differ from the World Health Organization data (Boniol et al., 2019). The outcome displays that people have an accurate overview of which gender surpasses a specific occupation or its field. The explicit proportion rate for the nurse occupation was much higher than for a doctor. Furthermore, the proportion rate might have a direct or indirect relationship with the fact that the specific occupation is seen as more feminine or masculine. In this study, the results have stated that a nurse occupation is seen as much more feminine than masculine. In the meanwhile, the doctor's occupation is seen approximately equally even. The aforementioned factors might influence how people implicitly and explicitly for the beliefs towards the gender distribution in the nurse and doctor fields.

In conclusion, it is not either black or white, bad or good that nurses are still to this day associated with females. Nurses represent the care, motherhood, and other important characteristics that empower women. Eventually, genders should not restrict themselves to the specific character traits and be afraid to be mistakenly assumed as too manly or too feminine just because they choose a career where specific character traits are enlightened much more. On the other hand, gender stereotypes must fade away since males bring valuable and irreplaceable qualities to the nurses' department while females have strong and different attributes in the doctor field. The doctor occupation does not have as strong gender stereotypes as a nurse one. It means that the doctor occupation is seen as more gender-neutral and if gender equality grows rapidly in this occupation, both males and females will have the rights and freedom to choose their path and feel good in their own skin.

Limitations and Recommendations

This research contains specific limitations. First of all, the study was based on the implicit test and explicit questionnaire. There was no scientific procedure such as an experiment included, where people's behavior and beliefs could be researched in the natural environment. The questionnaire was briefly explained in a detailed presentation session where the participants were introduced to the topic of the research. This way the participants could have already carried the preliminary stereotypes towards the answers and the individuals were aware we compare gender and specific occupations. The external validity of the research could be increased by providing as natural a setting as possible to avoid the preliminary viewpoints. Furthermore, the self-reported answers are a strong limitation point, since it is based on consensual stereotypes (Rosellini et al., 2017). The participants might choose the more socially acceptable answer rather than being honest.

Another shortcoming of this study is that even though the Implicit Association Test helps to measure the implicit beliefs of human beings, it cannot predict the bias of how people implicitly build specific stereotypes (Morgan, 2015). The Implicit Association Test was applied once and it had predicted the gender-based stereotypes according to a specific occupation. However, if the test was implied more than one time, it would have a stronger validity (Cunningham et al., 2004). More than the test itself, the actual behavior and actions of the individuals provide more significant results.

Furthermore, another important limitation is the specifically chosen names that were chosen in the Implicit Association Test. The males' and females' names were chosen to be as similar to each other and have a comparable spelling way. This might have confused the participants and let them make mistakes while attaching the correct gender to the correct occupation.

Moreover, the proportion rates of doctors and nurses by gender significantly differ in each of the continents. While the mean score is calculated worldwide, it does not project the identical situation in different countries (Boniol et al., 2019). This shows that individuals living in Europe can have different explicit gender beliefs from the rest of the world towards the proportion rate in the health sector. This happens due to the different distribution of males and females in the doctor and nurse fields. The positive aspect of having a different proportion rate is that it represents how gender stereotypes and gender equality fluctuate and changes in different countries and continents during the years.

This study provided a foundation for future researchers in similar fields. The present research has identified the fact that the gender stereotypes and specific implicit and explicit beliefs towards nurse and doctor occupations exist, which means there is room for discussion. The relevant factors which

influence those beliefs are changing with years, history, and human development. Future researchers might analyze and delve into the adequate and efficient strategies and the ways how to attract males and females into occupations that are monopolized by the specific gender. The focus should be based on the broader view, where more occupations are included in the research. Future research should compare the alteration in gender stereotypes towards the specific occupations and their progress over the years.

Even though the aforementioned limitations must be taken into account while making specific conclusions about the implicit and explicit gender beliefs in a health care sector (especially a nurse and doctor occupations), the research results represent a broader perspective of how individuals' beliefs work. The study shows that even though people loudly advertise that gender equality should exist in all different domains, both implicit and explicit beliefs display different points of view. Both the implicit and explicit beliefs show that individuals link nurse occupation more with females, while the association is found between a doctor occupation and males.

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Appendix A

Demographic Information

What sex were you assigned at birth, on your original birth certificate?

- ○ Male
- ○ Female

What is your age range?

- ○ Under 18
- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84
- ○ 85 or older

What is your ethnicity?

- ○ White
- ○ Black or African American
- ○ American Indian or Alaska Native
- ○ Asian
- ○ Native Hawaiian or Pacific Islander
- ○ Other

In which country do you currently reside?

Afghanistan

What is your highest level of education obtained?

- ○ Less Than High School
- ○ High School Graduate
- ○ Some College
- ○ Bachelor Degree
- ○ Master Degree
- ○ Professional Doctorate Degree
- ○ Do Not Know

Appendix B

Explicit Measurement Design

In your opinion, is the doctor and the nurse profession more masculine or feminine?

	very masculine	more masculine than feminine	neutral	more feminine than masculine	very feminine
Doctor	○	○	○	○	○
Nurse	○	○	○	○	○

Please rate how feminine/masculine each character trait is on a scale presented below.

	strongly feminine	feminine	neutral	masculine	very masculine
Caring	○	○	○	○	○
Confident	○	○	○	○	○
Endurant	○	○	○	○	○
Decisive	○	○	○	○	○
KInd	○	○	○	○	○
Altruistic	○	○	○	○	○
Focused	○	○	○	○	○

Please rate how feminine/masculine each character trait is on a scale presented below.

	very feminine	feminine	neutral	masculine	very masculine
Emphatic	○	○	○	○	○
Compassionate	○	○	○	○	○
Commited	○	○	○	○	○
Trusting	○	○	○	○	○
Unbiased	○	○	○	○	○
Humane	○	○	○	○	○
Conscientious	○	○	○	○	○

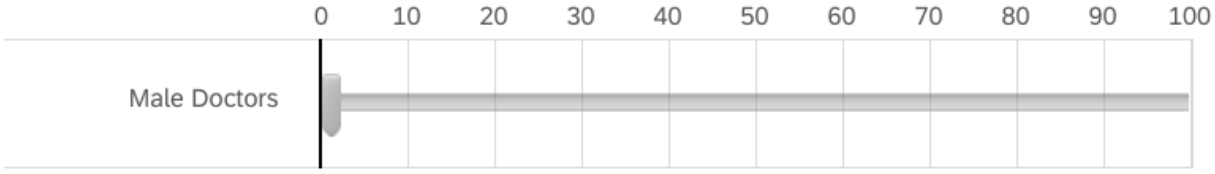
Please rate the importance of each character trait in terms of a nurse/doctor professions.

	definitely more important to nurse	slightly more important to nurse	equally important	slightly more important to doctor	definitely more important to doctor
Caring	○	○	○	○	○
Confident	○	○	○	○	○
Endurant	○	○	○	○	○
Decisive	○	○	○	○	○
KInd	○	○	○	○	○
Altruistic	○	○	○	○	○
Focused	○	○	○	○	○

Please rate the importance of each character trait in terms of a nurse/doctor professions.

	definitely more important to nurse	slightly more important to nurse	equally important	slightly more important to doctor	definitely more important to doctor
Emphatic	○	○	○	○	○
Compassionate	○	○	○	○	○
Commited	○	○	○	○	○
Trusting	○	○	○	○	○
Unbiased	○	○	○	○	○
Humane	○	○	○	○	○
Conscientious	○	○	○	○	○

What percentage of doctors were males in 2019 worldwide?



What percentage of nurses were females in 2019 worldwide?