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The Role of Gender in Medical Professionals: Analysis of Nurse Practitioners (NP), Physician Assistant (PA), and Medical Doctor (MD)

**Abstract**

Health care professions are constantly changing and evolving to create the most efficient medical administration possible in the United States. There has been a lack of medical doctors (MDs) since the 1960s, therefore, the community established the addition of Nurse Practitioners (NPs) and Physician Assistants (PAs). Both of these professions require additional schooling but in comparison to medical school, it is not as long or expensive. These professionals have similar privileges in health care settings and often treat patients in the same way. The prevalence of stereotypes can influence the perception of these jobs. Historically, there have been more males practicing medicine as a MD than females. Currently, there is a dramatic shift towards the professions of a physician assistant, nurse practitioner, and a medical doctor becoming mostly a female dominated profession. In addition, there are still discrepancies between the salaries of males and females in all professions analyzed. It is worth noting that there is a significant gender pay gap within the medical professions. Nurse Practitioners and Physician assistants are in high demand because according to the Association of American Medical Colleges (AAMC) there will be a shortage of approximately 139,000 physicians by 2033. There has been a dramatic shift of gender in the medical professions of a Physician Assistant (PA), Nurse Practitioner (NP), and

Medical Doctor (MD) throughout the past years from male dominated to a more female dominated.

### **Description of the Education, Roles, and Responsibilities in the Medical Professions**

Constantly changing, the medical field has evolved to become more efficient and educated with excellent expertise in skills learned through years of schooling and training. Knowledge in the medical field is expanding rapidly because of an increase in technological advances in science. In the 1960s, there was a lack of physicians to provide care therefore, the community decided to expand the healthcare field by adding Nurse Practitioners and Physician Assistants. At this time, there was a federal legislation that provided financial support for education in the medical field to help prevent the shortage of primary care physicians. Nurse practitioners and physician assistants have been established since 1965. The first graduating class of physician assistants was in 1967 from Duke University. Each role is dependent on the health care setting and environment. A Nurse practitioner (NP), physician assistant (PA), and medical doctor (MD) are similar from the perspective of a patient who does not clearly understand the differences between their jobs. Besides the job titles, there are major differences in education of medical professionals. When considering these professions, students should show their overall passion for providing care for others. Most importantly, those interested in the medical field want to help make a difference in the world. The growth of the medical professions has allowed for the access to health care to improve. There has been a dramatic shift in the genders of these medical professionals. Roles such as NP and PA were once dominated by men are now mostly female dominated whereas MD still remains male dominated. It was not until 2019 where women outnumbered men in medical schools. The factors that caused the profession of medical

doctors (MD) to consist mostly of males rather than females will be explored including stereotypes.

### **Nurse Practitioner**

In 2019, there were almost 270,000 licensed Nurse Practitioners in the United States (Goodhue and Harris 2019). The role of a nurse practitioner has evolved over time since the creation of this profession in 1965. Instead of only focusing on primary care, the role of the NP has shifted to provide care for a variety of settings and health care environments including hospital based, critical care, and subspecialty fields (Goodhue and Harris 2019). The job of a nurse practitioner consists of diagnosing, treating, and managing illnesses of their patients. Further, nurse practitioners can prescribe medications and order laboratory tests and exams. For Nurse practitioners, a registered nurse program (Master of Science in Nursing) that is around four years is required in addition to a graduate nurse practitioner program which is approximately 18 to 24 months long. There are addition ways to enroll into a program to obtain a Master of Science in Nursing (MSN) if an undergraduate degree is already completed. If the class requirements were completed, applying for a direct admission MSN degree is possible. The 2019 salary of a nurse practitioner is \$115,800 on average or around \$56 an hour (U.S. Bureau of Labor Statistics).

### **Physician Assistant**

In the 1960s, the first physician assistants to be enrolled were ex-military corpsmen who were able to “assist” in medical care after two years of basic medical education (Polansky 2007). Within a decade, over 50 new programs were established that presented over 1,000 graduates (Perry 1977). The role of the physician assistant is dependent on their workplace setting such as

a hospital, a doctor's office, or others. Physician assistants can diagnose illnesses, order laboratory tests, prescribe medications, and performing patient exams. Most importantly, depending on the state, physician assistants may not need to work under direct supervision of a physician. Application to a PA program is similar to a Nurse Practitioner Program because students have the option to complete any bachelor's degree as long as the required classes are completed. The Master of Science in Physician Assistant Studies (MS-PAS) is a program that is normally 27 months in length. Prior to applying to Physician Assistant programs, over 1,000 paid patient contact hours are required for most programs. This varies between each program but is mandatory for the application to be considered. In comparison to a graduate NP program, this essential factor sets a Physician Assistant apart from a Nurse Practitioner. It is only recommended for those considering a nurse practitioner program to have patient contact hours in the field. The median pay in 2019 of physician assistants was around \$112,260 annually or around \$54 per hour (U.S. Bureau of Labor Statistics).

### **Medical Doctor**

To become a medical doctor, four years of post-graduate schooling is required plus years of residency. The career path of a medical doctor is known for its long and strenuous years of schooling before being able to practice independently. Medical schools require the MCAT examination for their application process. The average medical doctor in 2019 earned around \$208,000 (U.S. Bureau of Labor Statistics). Medical doctors need a bachelor's degree then four years of medical school where a student will obtain a doctorate degree. After graduating from medical school, 3-7 years of residency and internship programs are required before being able to practice medicine. As a result of the predicted lack of physicians expected in the future, there are several programs that have an accelerated three-year MD-degree. On top of that the NYU

Grossman School of Medicine is offering full-tuition scholarships even in their accelerated three-year MD school. Because of the amount of time that doctors need for training, there has been an increase in physician assistant and nurse practitioner programs.

### **Privileges in Acute Care Settings and Patterns of Practice**

In the United States, there is a continuous demand of hospital care which is causing a shortage of physicians. By expanding the medical field with the addition of nurse practitioners (NPs) and physician Assistants (PAs), the field of health care is able to respond efficiently to this lack of physicians and most importantly is cost efficient. Administrators are increasingly incorporating physician assistants and nurse practitioners into the medical field because of the “reduced payment for these providers’ services” (Pittman et al 2020). The scope of practice (SOP) laws influence the tasks and restrictions medical providers such as nurses, nurse practitioners and physician assistants follow when providing care to patients. The state scope of practice laws is changing to allow NPs and PAs to provide additional tasks and minimize the restrictions and requirements. Recently, physician assistants have been granted the right to practice without supervision of a medical physician in certain states. These laws vary state by state therefore, the perception of a physician assistant can vary depending on geographic location. For example, in New Jersey, a physician is only allowed to supervise up to 4 physician assistants at one time. However, in Massachusetts there are no restrictions on the physician to physician assistant ratio (AMA 2018). Several states are looking to expand the SOP laws because there is a shift in the health care field to allow NPs and PAs to become more independent.

A new study suggests that nurse practitioners and physician assistants are very similar to MD care in health care settings (Kurtzman and Barnow 2017). Although the study was published

in 2017, the data used was from 2006-2010. There were no significant differences detected in NP or PA care when compared to MD care in 7 out of the 9 outcomes observed (Kurtzman and Barnow 2017). In the other outcomes, nurse practitioners were more likely to be chosen over PAs and MDs. Virginia Hass, a nurse practitioner and a physician assistant, claims that the quality of care provided by NPs is indistinguishable from care provided by PAs (Hass 2016). Despite the fact that nurse practitioners, physician assistants, and medical doctors have different education levels and schooling required, their roles in health care are similar in certain aspects.

### **The Influence of Stereotypes of the Jobs in the Medical Field**

Stereotypes are a way where a certain group is described to have certain characteristics. This creates an inaccurate perception of a group of people by collectively assuming everyone has the same attributes. There have been extreme changes in the lifestyle of Americans over the past 70 years from the generation of Baby Boomers (1946-1964) to Generation Alpha (2010-current). Different generations have varying perceptions of hospitals, doctors, nurses, and other medical concerns. Overall, this influences the likelihood to seek treatment of varying generations. Specifically, baby boomers are unlikely to have interest in medical professionals and lack trust in doctors and nurses. In the 1990s, the big four stereotypes were the ministering angel, the battleaxe, the naughty nurse, and the doctor's handmaiden (Cunningham 1999). Through influences in media, nurses were stereotyped to be females that are mothering "angels". Historically, nurses in film were white females but there have been major developments in the portrayal of nurses in the media. It was not until the 1990s, where the TV shows and movies included males and non-white females as a nurse. By having this false image of a nurse, there is an impact on choice of career and gender of those interested in the profession. Furthermore, there used to be an idea that men who were interested in becoming a nurse were not smart enough to

become a doctor. During this time period, ‘most doctors were males (67.6%) and most nurses were female (88.5%) (as cited in Cunningham 1999). Because of these common stereotypes, people who grew up in this time are more likely to consider all females nurses and all males doctors. However, these stereotypes and expectations between genders are still prevalent.

Sex-role stereotypes were analyzed between a nurse practitioner and a physician in 1987 (Horman et. al 1987). In the study, it was determined that male providers were more likely to be identified as physicians (MD), whereas female providers were more likely to be identified as nurse practitioners (NPs). This study was performed around 20 years after the role of a nurse practitioner was established. At the time, there were only a few characteristics assigned to nurse practitioners so the only information available to identify someone’s profession would be through stereotypes and social groups (Horman et. al 1987). The study was designed to allow nurse practitioners and physicians to decide if the providers in the films shown to them are either a nurse practitioner or physician. There were four episodes that the 49 participants had to watch, two of which were physicians and two were nurse practitioners. The participants were asked if the provider in the film was a MD or a NP. Additionally, the participants were asked if the provider was typical of their profession and if the provider’s behavior was influenced by their sex. The participants who were medical professionals themselves, incorrectly guessed that the female doctor was not a doctor based on her appearance. Gender stereotyping of professionals is prevalent in the results because participants were able to correctly guess that the MD was a male and the NP was a female.

The expectations of professionals being mostly one gender seems to have shifted in society today, however the beliefs patients still hold can change the perception of the provider to the patient. Medical TV shows in the media portray a false perception of workers in the medical

field. Despite all the education and clinical training these medical professionals demonstrate within their skills daily, stereotypes still persist.

### **Representation of Females vs. Males in the Professions Historically and Currently**

An important issue in our society is having diversity in the workforce. Women seem to be dominating the once male dominated professions in the health care field. Currently, the Nurse Practitioner role is dominated by females with the 88% of NPs being women (Bumbuch et al. 2020). Although there is a lack of male NPs, 93.5% of nurse practitioners are satisfied with their profession (Bumbach et al. 2020). More males are needed as nurse practitioners because it will help male patients feel more comfortable. Women are now two-thirds of the population of physician assistants (Smith and Cardell 2016). In 2019, it was the first year that there were more females in medical school than males. Depending on the process of admissions, the counselors will most likely try to keep the ratio of males to females equal in their medical schools because it shows that they are not biased towards one gender over another. By having gender diversity, it is possible to improve patient outcomes, access to care, and patient satisfaction (as cited in Bumbuch et al. 2020).

### **Gender Pay Gap Analysis**

In the United States, a common topic is the wage gap between the genders. Gender has impacted our salaries for years. According to the U.S. Census Bureau, women of all races earned 82 cents for every \$1 earned by men of all races (U.S. Census Bureau 2018). The Equal Pay Act of 1963 prohibited the discrimination of sex from affecting the payment of wages. Most health care organizations do not abide by these laws because there is evidence of an unequal gender wages. Even though women have made progress in the workplace, they are still continuing to

earn less money than males. Multiple studies have found that there is a significant gender wage gap of Nurse Practitioners. Regardless of when they graduated, a male nurse practitioner earned more than the female NP. As the years of experienced in the field, the difference between the pay became significantly wider even after adjusting the differences in demographics and other work characteristics (Greene et al. 2017). Although gender is the main focus, a surprising finding in this specific study was that nonwhite and Hispanic NPs earned more than white NPs (Greene et al. 2017). The racial and ethnic wage earnings should be studied more in future research.

Likewise, in physician assistants, there are salary discrepancies between male and females. After controlling variables of the PAs, it was determined that gender bias and discrimination exist (Coplan et al. 2012). Additionally, male physician assistants earn more than women on average across all specialties including general pediatrics, general surgery, obstetrics/gynecology, and dermatology (Coplan et al. 2012). The data presented is shocking to learn about as a female considering this profession. The unequal wage of males and females is apparent in the profession of a medical doctor (MD). Another study suggests that the lower earnings of women who are married and/or have children is reflective of their reduction in work hours (Sasser 2005). However, the results from this study (Sasser 2005) were observed from 1986 to 1990 and some of the cultural factors have changed. Inequalities of pay of males and females are prevalent in our society despite the fact that there are laws to protect the discrimination of workers.

### **Demand and Growth of the Professions**

The professions of Nurse Practitioners and Physician Assistants is growing exponentially especially since their existence in the 1960s. The shortage of medical professionals is predicted to increase annually, with the shortage of 139,000 physicians by 2033 (AAMC 2020). Increased population growth is causing this shortage because of the predicted surge in population.

Additionally, the age of the population is shifting hence more people will be over 65 years old. The need for medical care for the elderly will be in demand because our human life expectancy is steadily increasing.

Physician assistants are one of the fastest growing professions in the country because the scope of practice is continuously improving in many states (Maynor 2006). Physician assistant programs have grown in size because of the increased interest in the profession. According to the Bureau of Labor Statistics, there were 189,1000 practicing nurse practitioners compared to 118,800 physician assistants in 2019. The difference in median annual wage was around \$3,000 more for physician assistants. The expected job growth is much faster than average for physician assistants. The United States healthcare system needs more professionals to be able to handle the demand of care. During the COVID-19 pandemic, nurses, doctors, and other medical professionals were being recruited for positions that they may not have had prior experience in. The desperation for health care workers has been demonstrated with the current pandemic.

### **Choosing a Profession in the Medical Field**

When considering the medical field as a profession, there are a lot of different positions, specialties, and workplace settings to consider. Most people consider medical school one of the most difficult times in a doctor's life. Since medical school is longer than education for either a physician assistant or a nurse practitioner, students are leaning towards these new professions to graduate sooner to begin working earlier. Nurse practitioners and physician assistants are similar in certain aspects, but it has been determined that a physician assistant will follow more of a diagnostic centered model compared to nurse practitioners who will follow a more patient centered model. Recently, NYU has launched a free full-tuition scholarship for their medical school program in hopes of influencing students' career choices.

Transitioning to a Nurse Practitioner from a Registered Nurse (RN) can be challenging. In a study, participants were asked to measure their own perception of their transition from RN to NP using the 5-point Likert Scale Nurse Practitioner Role Transition Scale (NPRTS) (Barnes 2015). It was determined that NP role transition was a better experience when a formal, structured orientation was required (Barnes 2015). During the transitioning period, it is essential to find guidance and support otherwise education to become a nurse practitioner can become stressful. Another key point that was revealed is that prior RN experience did not have an effect on the shift to NP (Barnes 2015). These stressful but beneficial adjustments in occupations can allow for medical professionals to gain more knowledge and obtain a higher educational degree.

Upon deciding between considering a nurse practitioner, physician assistant, or medical doctor, students should determine how stressful education is for these career options. The programs vary in structure and substance with medical school being the longest (4 years) and covering the most material. One study explains how the health of a student is shaped by their educational programs within a nursing school, physician assistant program, and medical school (Hernandez et. al 2010). It is important to focus on the perceived stress levels that a student feels because it can lead to other mental and physical health effects. Common mental effects of stress are depression, anxiety, restlessness, weight gain, and even lack of motivation. Being under stress for long periods of time can have detrimental long-term consequences on the body. Second year medical students report the highest perceived stress when compared to the first-year doctor of audiology students, the first-year medical students, the first year Bachelor of Science in nursing students, and first year physician assistant students (Hernandez et. al 2010). The effects of stress on mental health are important to consider when deciding what career choices are available.

Another reason why medical school is becoming less feasible is the expensive tuition costs. The average cost for a public resident tuition for a 27-month PA program is around \$50,000 whereas, the average cost of medical school is around \$150,000-250,000. In comparison, NP education is around \$30,000-40,000 currently. Students will most likely be in a tremendous amount of debt after post-graduate education. Within a few years, it is possible to repay all of the loans depending on the job. After completing medical school, students will have to complete time in residency. The average first year resident will most likely make around \$60,000. Years and years will pass before being able to practice independently as a medical doctor, which results in a great time investment into the profession. Male medical doctors were more likely to be married and have children compared to female doctors (Swanson et al. 1998). Many studies have suggested the difficulties of female doctors having children to care for as well. Female doctors tend to have a greater home to work stress compared to a work to home stress because of their differing domestic roles (Swanson et al. 1998). Domestic work at home can include common household chores, caring for children, paying bills, and supporting the family as a whole. Traditionally, the decrease in women who were interested in becoming a doctor was based on the belief that they would have no time to care for their children. As the desperation of doctors increases, there has been more flexibility in the field pertaining to becoming part-time instead of full time. A mother's main priority is her family whereas, a doctor's priority is their patients (Aiken 2006).

### **Personal Interest in the Medical Field**

By having previous medical experience in the field, I have begun to develop the passion for caring for others. I was born with a condition called a Venous Vascular Malformation of my right arm which is from my pinky to my underarm. Since I was six years old, I have had twenty-

one procedures on my malformation with Dr. Rosen at Lenox Hill Hospital in NYC. The procedure is performed under general anesthesia. The form of treatment used is sclerotherapy, where the medical professional injects a sclerosant into the veins causing the veins to shrink. My arm appears to be blue, purple, and green in some spots and is bigger than the other arm. Additionally, I have a few keloids on my arm from the sclerosing agent being injected too close to the surface. My arm hurts daily especially when overusing it because the veins are not flowing properly. Because of the differences in appearance, I usually get comments on my arm from people of all ages. I experienced bullying before when I was younger however, people have begun to accept me for who I am rather than my appearance. Around three years ago, I decided to become a Global Ambassador for the Vascular Birthmarks Foundation. My position is to spread awareness about vascular anomalies including Port Wine Stains, Hemangiomas, and other conditions. Recently, I joined the Council for the Vascular Birthmarks Foundation, composed of twelve members which is a privilege to be a part of.

Considering that I am a patient myself, I feel prepared to become a medical professional in the future. Furthermore, I received my Certified Nursing Assistant License a few years ago but I have not been able to work because of the COVID-19 pandemic. Prior to researching the differences between the professions of physician assistants (PA), nurse practitioners (NP), and medical doctors (MD), I was set on only becoming a physician assistant. After seeing the predicted lack of doctors, I want to consider applying to medical school as well as a physician assistant program. For my postgraduate education planning, I have found one physician assistant school so far that does not require paid direct patient contact care: Seton Hall University. The Hackensack Meridan School of Medicine at Seton Hall University only requires 250 hours in the

field which can be volunteer and/or shadowing. This can be obtainable if I work as a Certified Nursing Assistant after the COVID-19 pandemic has subsided.

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