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Cover Page Footnote

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Abstract

Human papillomavirus (HPV) is the most common sexually transmitted infection among sexually active individuals. Those infected are at risk for developing cancer of the genitals, cervix, anus, or throat. While the vaccine is safe and effective, as of 2020 only 58.6% of adolescents in the United States were up to date on HPV vaccinations. Endorsing Christian nationalist values is one of the top predictors of vaccine hesitancy in the U.S. The HPV vaccine is especially contentious among Christian nationalists due to its relation to sexual health. The influence of purity culture has created a culture of fear regarding sex and a focus on preserving feminine honor. Mothers of adolescent girls in this group show a strong belief that the vaccine will promote promiscuity, despite several studies suggesting otherwise. Programs to increase vaccine uptake rates must consider this group and its beliefs to increase HPV vaccination coverage.

Vaccine hesitancy, defined by the World Health Organization (WHO) as a “delay in acceptance or refusal of vaccination despite availability of vaccination services,” is a significant ongoing public health issue (Rosso et al., 2019, p. 1954). The WHO has named vaccine hesitancy as one of the top threats to global health (Hudson & Montelpare, 2021). While this is an international issue, this paper explores the unique cultural and historical factors that contribute to vaccine hesitancy in the United States. Recent research has shown that the two strongest predictors of vaccine hesitancy in the United States are being Black and holding Christian nationalist values (Whitehead & Perry, 2020). While there is some overlap between these groups, the reasons for their hesitancy are vastly different. For Black Americans, as well as other people of color, doubt about vaccines is often the result of discrimination faced in medical settings as well as intergenerational trauma stemming from centuries of unethical medical experimentation (Bazargan et al., 2021; Jamison et al., 2019). While Christian nationalist values also predict a lack of trust in science and institu-

tions, this is more due to religious moral concerns, as well as conspiracy theories and beliefs about individual liberty (Whitehead & Perry, 2020).

The Human Papillomavirus Vaccine

One vaccine that is often the subject of scrutiny is the human papillomavirus (HPV) immunization. HPV is the most common sexually transmitted infection among sexually active individuals. Those infected are at risk for developing cancer of the genitals, cervix, anus, or throat. Almost every sexually active person who does not receive the HPV vaccine will be infected at some point, putting them at risk for these cancers (Centers for Disease Control and Prevention [CDC], November 2021). Physicians recommend that the first dose of the vaccine be administered between the ages of 11 and 12, but it may be given as early as age nine. A second dose is then administered six months to a year after the first dose. Those who are vaccinated after the age of 15 require three doses. Possible side effects include injection site pain, nausea, headaches, or dizziness. Physicians agree that the potentially life saving benefits of the HPV vaccine outweigh any possible risks (CDC, July 2021). While the vaccine is safe and effective, as of 2020 only 54.5% of adolescents in the United States were up to date on HPV vaccinations (National Cancer Institute, 2022). As the HPV vaccine involves reproductive health, there are many reasons why it may be particularly contentious for the groups mentioned above. Black Americans, especially Black women, have been the targets of sterilization campaigns and gynecological experimentation, making a vaccine of this nature difficult to trust (Washington, 2008). Those who hold Christian nationalist values may have moral concerns, such as the belief that this vaccine may promote promiscuity (Birmingham et al., 2019). As the first dose of the HPV vaccine is ideally administered between the ages of 11 and 12, this decision whether or not to vaccinate is largely up to parents (CDC, November 2021). Depending on the parents' beliefs, they may decide that this vaccine may cause their child more harm than good, leading to unsatisfactory rates of HPV vaccination.

General Reasons for Vaccine Hesitancy

Vaccination programs have been a major protector of public health, eradicating dangerous diseases such as polio and smallpox (Olson et al., 2020). Despite the effectiveness of vaccines, a significant number of individuals in the United States have concerns over their safety (Salmon et al., 2015). These concerns are especially pronounced among parents. CDC survey data shows that more than a third of children between the ages of 19 and 35 months were not on track in terms of recommended vaccinations (Olson et al., 2020). A different survey revealed that a quarter of parents reported significant concerns over vaccinating their children (Olson et al., 2020). One recent consequence of vaccine hesitancy is the reemergence of poliovirus in the United States. While the polio vaccine brought an end to the virus in the U.S., in 2022 an unvaccinated individual had a case of polio with paralysis. This was a case of vaccine-derived polio, originating from the weakened form of the disease contained in the oral polio vaccine. While the weakened virus is typically harmless, in rare cases

it can circulate in unvaccinated communities and regain the strength to cause illness. (World Health Organization [WHO], 2022).

The topic of vaccination has become especially salient during recent years due to the COVID-19 pandemic. The introduction of the COVID vaccine was subject to great scrutiny across the country. Despite being approved by the Food and Drug Administration, many Americans are still suspicious of the potentially life-saving vaccine. As of March 2023, only 69.4% of the population has completed the primary vaccine series (CDC, 2023). While the focus on vaccine hesitancy has shifted from childhood vaccinations to the COVID-19 vaccine, policy changes are still needed to encourage parents to vaccinate their children.

Black Americans

While many factors contribute to vaccine hesitancy in the United States, a recent study found that identifying as Black was the strongest predictor of anti-vaccine attitudes (Whitehead & Perry, 2020). The ongoing discrimination and history of scientific racism has embedded a mistrust in medical institutions in much of the Black community. One prominent example of racism in medicine is the Tuskegee Syphilis Study, a longitudinal study wherein doctors examine the long term effects of untreated syphilis using poor, Black participants. When the study began, there was no known treatment for syphilis. However, when penicillin was found to treat the disease, researchers did not inform or treat participants, instead allowing the disease to progress (Washington, 2008). While Tuskegee is frequently brought up as an explanation for medical mistrust, the issue runs far deeper than just one horrific incident. Unethical medical “treatment” and experimentation on Black people dates back to the eighteenth century (Washington, 2008). Current American issues of systemic racism and anti-Black violence simply reinforce what centuries of abuse has taught the community. As previously mentioned, the HPV vaccine may be particularly troubling due to its relation to sexual health. A history of experimental gynecological surgeries, stereotypes of promiscuity, and forced sterilization gives Black Americans good reason to have doubts about medical institutions.

A History of Medical Racism

The ongoing pattern of medical racism in America dates back the emergence of the slave trade in the seventeenth century. As the economy of the American South became increasingly reliant on the labor of enslaved people, evidence of medical neglect, experimentation, and abuse emerged. Early narratives from American physicians tasked with treating enslaved individuals repeatedly described them as mistrustful and noncompliant, an issue that is still evident in healthcare today (Washington, 2008). Other stereotypes, such as Black people having greater immunity to pain also lived on for centuries. One study found that nearly half of a sample of medical students and residents believed at least one false statement regarding the biological differences between white and Black patients. These statements included items such as “Blacks’

nerve endings are less sensitive than whites” and “Blacks’ skin is thicker than whites” (Hoffman et al., 2016, p. 4298). Many enslaved people were accused of malingering, leading to the regular “prescription” of whipping. Those who were deemed ill received minimal or experimental care.

Medical experiments performed on enslaved people were common as they could not object to the often painful and dangerous procedures. Dr. J. Marion Sims, who is hailed as the “father of gynecology,” perfected many treatments by operating on enslaved women without anesthesia. Similarly, Dr. François Marie Prévost honed the cesarean section by operating on enslaved women who could not refuse this “care.” Several other doctors carried out these types of procedures, many of which failed. When they were successful, the white population could benefit from the knowledge that was gained at the expense of Black women (Washington, 2008). As the medical field evolved in the United States, African Americans still bore the brunt of experimental medical testing and medical education. To train physicians in anatomy, grave robbers often illegally obtained bodies for dissection. Poor, Black Americans were the primary victims of this grave robbery. The corpses of African Americans were considered “clinical material” for doctors in training (Washington, 2008, p. 105). Black Americans were eventually allowed to seek treatment in charity wards, but they were frequently expected to turn themselves over to medical researchers as compensation for the care they received. The treatments they received were also commonly part of training new physicians. This reinforced the dehumanization of Black people in the medical field and in the nation at large.

Eugenics was a pseudoscientific movement that furthered the dehumanization of Black Americans. The eugenics movement suggested that by choosing parents with desirable genetic traits, future generations could be born healthier and physically superior. These “desirable” traits included health, intelligence, wealth, and whiteness. The term “racial hygiene” became ubiquitous among eugenicists. This seemingly scientific ideology provided the basis for the continuity of medical racism in the area of reproduction (Washington, 2008). Margaret Sanger, an activist often hailed as a pioneer of women’s rights, contributed to the efforts to decrease the birth rates of Black Americans. She pushed for widely available birth control among people of color, which aided her in creating “family planning centers” in Black communities. Sanger and other eugenicists demonized Black women, especially mothers, portraying them as hypersexual and incompetent. These racist portrayals played into Black women being highly overrepresented among sterilized women in the U.S. In 1983, African Americans made up only 12% of the U.S. population but 43% of women sterilized as a part of federally funded programs were Black (Washington, 2008). Many Black women were sterilized against their will while they were under anesthesia for medical procedures, leading this involuntary sterilization to be nicknamed the “Mississippi appendectomy.” With the history of Black women’s reproductive health so fraught with medical racism, it is completely logical that Black women today would hesitate to trust the HPV vaccine.

These attempts at decreasing Black birth rates have not stopped but simply evolved. Beginning in the 1990s, thousands of Black women were pressured into accepting the contraceptive implant Norplant (Roberts, 1997). Norplant consists of six silicone capsules that are implanted in the arm and gradually release a form of hormonal birth control. The advantages of this form of contraception is that there is no need to remember to take a pill and it can prevent pregnancy for up to five years. However, policymakers quickly came to see it as a means to control the birth rates of those who relied on welfare and the “inner-city poor” (Roberts, 1997). Welfare and race are closely linked in the American consciousness, so when policymakers discussed those on welfare, the implication was that they meant Black Americans. There were monetary incentives for low income women and teenagers to get Norplant, but many wanted to stop its usage due to side effects. However, many found that they could not afford removal or that they could not find a doctor trained in removal. This led many Black Americans to see Norplant as a racist attempt to forcefully curb Black birth rates, with some even comparing it to an attempted genocide (Roberts, 1997).

Long-Term Impacts of Medical Racism

The legacy of scientific racism impacts patient outcomes to this day. Patients’ distrust of medical providers and healthcare institutions can decrease their commitment to treatment plans, which can negatively affect patient outcomes. A 2021 study explored this issue using data pulled from The Survey of California Adults on Serious Illness and End-of-Life. The total sample used 2,328 adults. 35% identified as non-Hispanic White, 28% as non-Hispanic Black, and 27% as hispanic (Bazargan et al., 2021). Researchers collected information on demographics and socioeconomic characteristics such as age, sex, education, and household income. Participants were also asked to rate their health on a scale from poor to excellent. They were then asked if they had a primary care provider. Researchers measure perceived healthcare provider discrimination using a ten item questionnaire. Questions were pulled from other instruments relating to perceived discrimination and included items such as “Have you ever felt judged or treated differently by a health care provider because of your income?” (Bazargan et al., 2021). Medical mistrust was measured by asking participants “In general, how much do you trust your health care providers to act in your best interest?” Participants rated their agreement on a scale from one to three.

Analysis of the data showed that racial background was significantly associated with medical mistrust, with Black and Hispanic participants having 73% higher odds of reporting mistrust. Perceived discrimination from healthcare providers was also correlated with greater medical mistrust. Discrimination due to race increased the odds of medical mistrust by 25%. There was a similar effect for discrimination based on income and insurance, or the lack thereof. The results of this study indicate a need to address discrimination in healthcare and the biases that healthcare providers may hold in order to increase institutional trust. Increasing trust would increase the likelihood of patients staying committed to their treatment plans and trusting physician recommendations, therefore increasing vaccination rates.

Being a racial minority is also associated with lower institutional trust, another factor that plays into vaccine uptake. A 2014 study hypothesized that there would be significant differences in institutional trust between racial groups even after controlling for demographics, access, healthcare utilization, and previous healthcare experiences (Schwei et al., 2014). Trust was defined as the patient's belief that those caring for them have their best interests in mind. It is related to patients' willingness to enter healthcare institutions and to engage with providers. Lower levels of trust can lead to individuals switching physicians more frequently, reduced reliance on doctors' judgment, and decreased satisfaction with care overall. Higher trust can improve perceived mental and physical health, decrease emergency room visits, and increase vaccine uptake (Schwei et al., 2014).

To investigate the relationship between race and institutional trust, Schwei and colleagues conducted a cross-sectional survey of adults shopping at 12 different Chicago supermarkets in diverse neighborhoods. A total of 596 participants were recruited, made up of equal proportions of African Americans, Mexican-Hispanics, and whites. Participants completed a questionnaire consisting of 235 items regarding demographics, healthcare access, healthcare usage, perceived discrimination, interpersonal trust, institutional trust, and previous negative experiences with healthcare. Researchers measured institutional trust using the Health-Related Trust Measure (HTM), a cross-cultural measure containing questions related to discrimination in healthcare, equity, hidden agendas, insurance, negative perceptions of physicians, and positive perceptions of physicians, rated from never true to always true (Schwei et al., 2014). Analysis revealed that being white and older was significantly associated with higher levels of institutional trust. As other studies found, having a previous negative experience with healthcare was associated with lower trust (Bazargan et al., 2021). The main hypothesis was supported by the results, with institutional trust being significantly lower in minority groups than in whites. This difference in trust is likely a contributing factor in healthcare disparities among racial groups (Schwei et al., 2014). If an individual does not believe that their provider has their best interests in mind, they will be less inclined to follow their medical advice. Specifically, they may not trust vaccine recommendations, leading to lower vaccine uptake among minority groups, especially Black Americans.

Institutional Trust Among Black Americans

Marlow and colleagues delved into the relationship between institutional trust and parents' acceptance of the HPV vaccine for their children. The study's participants were 684 mothers with at least one daughter aged 8 to 14. This age range reflects those most likely to be recommended for the HPV vaccine (Marlow et al., 2007)). Participants were recruited from 10 schools in different parts of England. Rural, suburban, and inner-city schools were all included in the study to ensure a diverse sample. The mothers filled out several questionnaires which had been previously developed for other studies. These scales measured the mothers' views on the importance of vaccinations, general trust in doctors and government, trust in their own doctor, general

vaccine concerns, and previous experience of vaccinating children. The scale regarding general trust in doctors and the government reflects institutional trust. After filling out the questionnaires, the mothers then read a brief write-up of information about HPV, including details about its link to certain cancers and information about the HPV vaccine. Finally, participants were asked to rate their agreement with the statement “If your daughter were invited to have the HPV vaccination, would you agree to her having it sometime soon?” (Marlow et al., 2007). Analysis of the data revealed that respondents with greater trust in doctors and the government were more likely to state that they would accept HPV vaccination for their daughter. The results of this study suggest that institutional trust is a key factor in parents’ decision whether or not to have their child vaccinated for HPV. If Black Americans have less institutional trust, this would explain some of their reasoning for vaccine hesitancy (Schwei et al., 2014).

Christian Nationalism

The 2020 American Religious Landscape Survey revealed that 70% of Americans identify as Christians (PRRI, 2021). According to Whitehead and Perry, the majority of this group embraces Christian nationalist beliefs to some extent (Whitehead & Perry, 2020). Christian nationalist ideology merges the Christian and American identity, meaning that being a Christian is a requirement of being a good American. Its supporters assert that Christianity should be promoted and protected by the state (Christians Against Christian Nationalism, n.d.). Christian nationalist ideologies are most prevalent among White Evangelical Protestants, 81% of whom agree that the United States should be a Christian nation (Smith et al., 2022).

Christian nationalism is deeply intertwined with American identity, making it a unique factor in the reasons behind vaccine hesitancy in the United States. Adherence to this ideology is one of the strongest predictors of general anti-vaccine attitudes (Whitehead & Perry, 2020). Religion is a significant determinant in individuals’ trust in medical interventions such as vaccines. Thirty-nine percent of Americans agree with the statement “Whenever science and religion conflict, religion is always right.” This percentage is especially startling when compared to those of other nations: only 13% of Australians, 7% of Swedes and 5% of the Dutch agree with the same statement (Baker et al., 2020). Americans are also much more likely to embrace creationism and reject evolution compared to other nationalities (Baker et al., 2020). This skepticism can result in mistrust of physicians who recommend the vaccines and the pharmacological companies that produce them. Additionally, Christian nationalists have recently embraced Donald Trump’s anti-vaccine rhetoric. This group prioritizes individual liberty over protecting the vulnerable. Parents in this group also believe in their ultimate authority over the decision whether or not to vaccinate their children (Whitehead & Perry, 2020).

One concern many Christian nationalists have regarding the HPV vaccine in particular is the belief that a vaccine relating to sexual health would lead to adolescent promiscuity. This is especially prevalent among the parents of daughters. A significant

element in many American Christian communities is purity culture. From a young age, youth are told that sexual activity is reserved exclusively for those in a heterosexual marriage. Sexual purity is portrayed as a precious gift to be protected and saved for one's future spouse. Those who do not protect their purity are subject to extreme shaming. They are viewed as soiled and tainted (Gish, 2018). To encourage sexual purity, Christian communities host purity balls, give out purity rings, and have teens sign purity pledges where they vow to abstain from premarital sex. While both boys and girls are fed this message, the standards of purity are especially strict for young women. The ideals of purity culture are heavily based on the ideals of white femininity (Gish, 2018).

This rhetoric also amplifies the harm of premarital sexual activity, both physical and emotional. Teens are warned of the emotional damage of casual sex through personal stories of those who regretted their sexual activity. Stories of unplanned pregnancies and sexually transmitted infections are used as scare tactics. Some communities even portray their purity teachings as public health campaigns. However, there is no conclusive evidence that sexual purity teachings have any significant impact on teen pregnancy or STI rates (Gish, 2018).

Purity Culture & The HPV Vaccine

Despite the medical importance of the HPV vaccine, many religious parents hesitate to vaccinate their children for reasons relating to purity culture. Some believe that having their adolescents vaccinated will encourage them to engage in sexual activity. Foster and colleagues (2021) investigated this belief by examining the beliefs of 258 women aged 30–45. Seventy-two percent of this sample had at least one child. While both parents can hold purity beliefs, previous research has shown mothers to be highly involved in decision making related to their children's health. The study focused on the idea of feminine honor, or the belief that women must be modest and chaste. For this reason, only mothers of daughters were asked questions regarding their decision whether or not to vaccinate. Researchers hypothesized that endorsement of feminine honor would be associated with mothers' decreased support for vaccinating their daughters for HPV and that the effect would be mediated by the belief that the HPV vaccine would promote promiscuity.

To evaluate the hypothesis, researchers had participants fill out several questionnaires to evaluate their attitudes. The Honor Ideology for Womanhood Scale (HIW) measures the extent to which participants endorse the idea of feminine honor. They rated their agreement on a scale from one to seven with statements such as "A respectable woman never wants to be known as sexually permissive" (Foster et al., 2021, p. 219). Mothers then responded to the Vaccination Rejection for Daughters-Mothers Scale (VRD-Mothers). This scale evaluated their attitudes towards vaccinating their daughter(s) for HPV. Finally, the Sexual promiscuity Message Scale (SPM) revealed the extent to which mothers believed that having their daughter(s) vaccinated for HPV would send the message that having sex with multiple partners is permissi-

ble. The scale conceptualizes the idea that the HPV vaccine promotes promiscuity (Foster et al., 2021). Analysis of the data revealed that feminine honor endorsement significantly predicted HPV vaccination support. Those who scored higher on the Honor Ideology for Womanhood Scale were less likely to support vaccinating their daughter(s). This relationship was mediated by the belief that the vaccine would promote promiscuity. The feminine honor belief measured in this study reflects the expectations purity culture holds for young women. The results of this research show that purity culture can have a significant impact on the decision whether or not to vaccinate girls for HPV.

The HPV Vaccine and Sexual Activity

Despite the strong belief in a connection between the HPV vaccine and promiscuity, recent research has been inconsistent with this belief. In 2015, Smith and colleagues investigated the connection between publicly funded HPV vaccination programs in Canada and signs of sexual activity in adolescent girls. As in the United States, some parents believe that the vaccine will give adolescents a false sense of security against the risks associated with sexual activity. The sample was a population based cohort of all girls eligible for Ontario's grade eight vaccination program in the first two years it was offered. Of the total sample of 260,493 girls, 49.4% were eligible for publicly funded vaccination while the rest were not (Smith et al., 2015). Researchers collected data on indicators of sexual activity such as pregnancy and sexually transmitted infections other than HPV. The estimated risk difference (RD) and relative risk (RR) attributable to vaccination were then calculated based on the data collected. Results showed no statistically significant increase in risk of indicators of sexual activity related to vaccination. There was also no evidence that publicly funded HPV vaccination programs had any impact on clinical indicators of sexual activity (Smith et al., 2015).

A similar study was conducted in the United States to evaluate the impact of state-mandated programs to increase HPV vaccine uptake on adolescent sexual behavior. Multiple states have passed legislation relating to HPV vaccination such as requiring schools to educate students about the vaccine, subsidizing vaccine costs and incentivizing insurance companies to cover the vaccine, and mandating HPV vaccination. Cook and colleagues (2018) collected information on adolescent sexual activity Youth Risk Behavior Surveillance System (YRBSS). They focused on information from students in 25 states without HPV legislation and those from 16 states with HPV legislation. The specific questions included asking students whether they had engaged in sexual intercourse in the past three months and if they had, whether they had used a condom. Researchers also inquired about the number of sexual partners participants had. They compared data on sexual behavior from before and after HPV legislation and compared it to the change in states with no legislation. Results showed that there was no difference in sexual behaviors between states with and without legislation relating to HPV vaccine uptake. These findings reinforce the results of Smith and colleagues' 2015 Canadian study. They also indicated that the connection between the HPV vaccine and sexual behavior is not as serious as many parents believe. Despite

these findings, this parental belief persists, indicating that Christian nationalist parents are a vital population to focus on when educating people on the HPV vaccine.

Another aspect of the HPV vaccine that Christian nationalists take issue with is its status as a medical intervention relating to sexual health. Many evangelical Christians in particular see God as the “Great Physician” and the “Birth Controller” (Joyce, 2009, p. 134). The idea of a person, especially a woman, attempting to exert control over their sexual and reproductive health is a direct insult to God’s divine plan. Many conservative Protestant writers argue that a woman’s body is not her own. This has resulted in members of such communities rejecting certain aspects of modern medicine, especially birth control and vaccines. Members of some conservative Christian communities equate hormonal birth control with abortion, which is viewed as a grievous sin in these communities. The HPV vaccine may also be seen as “spiritually unsafe,” making parents extremely hesitant to approve of the vaccination (Joyce, 2009). Addressing the concerns of this community will require patience and culturally sensitive interventions.

Research has suggested that another element of vaccine hesitancy among Christian Nationalists is the lack of knowledge regarding the vaccine and what it protects against. Birmingham and colleagues investigated this by comparing responses from young adults from two colleges, one Christian university and one non-religious university. They predicted that stronger religious commitment would be associated with lower knowledge and greater misperceptions relating to HPV and the HPV vaccine. This knowledge gap along with any misperceptions would be connected to lower adherence to HPV vaccination recommendations. Participants completed an online survey addressing HPV and HPV vaccine knowledge and adherence. Religious attitudes were assessed using the Religious Commitment Inventory-10. Results showed that high religious commitment was significantly associated with lower knowledge of the disease and its vaccine, as well as its contributions to cancer and the prevalence of the disease among men and women. Additionally, if these individuals believe that abstinence will protect them from the risks of STIs, they have no reason to seek out information on these risks and how to prevent them. These findings indicate that this knowledge gap must be addressed in order to increase HPV vaccination uptake among those who endorse Christian nationalist values. The effects of purity culture are also evident, with the focus on absolute purity causing young adults to ignore information related to sexual safety.

Addressing Vaccine Hesitancy

One promising method for addressing vaccine hesitancy is motivational interviewing. This counseling technique aims to help an individual find their own motivation to change rather than telling them to change. It is an empirically developed method that was initially developed to address alcoholism (Reno et al., 2018). The main principles of motivational interviewing are asking open ended questions, engaging in reflective listening, affirming the person’s desire and ability to change, and summarizing. Asking

open ended questions allows an individual to reflect on their own beliefs and come to their own conclusions instead of feeling limited by the interviewer. This could mean asking a parent why they feel that the HPV vaccine could be harmful or what they believe the consequences may be. This helps make the person feel like their opinions are important. Reflective listening shows that the interviewer cares about the interviewees perspective, which can make the interviewee less defensive. It is also a deviation from the typical lecturing regarding vaccinations, which is not typically successful. Affirming the person's desire and ability to change helps the interviewee feel more competent in making the decision. It also minimizes the pressure on them that might be present in a more typical persuasive conversation. Finally, summarizing helps the interviewee put everything together. It shows them how their choice could impact them and how to carry out their decision (Grant, 2021).

While motivational interviewing is a relatively novel technique, it has already resulted in some success in addressing vaccine hesitancy. One study investigated the effectiveness of using motivational interviewing as a tool for discussing the HPV vaccine with vaccine hesitant parents. The study used a sample of eight health clinics in Colorado that all served at least 500 adolescent patients and offered the HPV vaccine in the clinic (Reno et al., 2018). Researchers worked with the Motivational Interviewing Network of Trainers to develop a motivational interviewing approach specifically for addressing the HPV vaccine. Clinic providers were then trained in this approach. During the course of the study, providers filled out surveys and participated in focus groups to indicate whether they used the motivational interviewing techniques, how useful the techniques were, and their perceived self-efficacy when discussing the vaccine with parents.

Analysis of surveys and feedback groups indicated that the motivational interviewing techniques were deemed useful or very useful for addressing parental HPV vaccine ambivalence by 88% of providers (Reno et al., 2018). A significant percentage of providers increased their ratings of self efficacy regarding discussing vaccines after learning these techniques. Focus group discussions revealed that all providers intended to continue using motivational interviewing techniques when discussing the HPV vaccine. While these results are promising, several providers stated that there was not always time to use MI and that the techniques were more difficult to utilize when working with new patients (Reno et al., 2018). Implementing motivational interviewing on a large scale will require a significant amount of money and time. Funding to support training programs in hospitals and medical schools could be an important first step to creating a generation of medical professionals who are more effective when suggesting childhood vaccinations. This technique could be very effective for addressing HPV vaccine hesitancy in both Black Americans and Christian nationalists.

As much of the vaccine hesitancy among Black Americans involves systemic discrimination and dehumanization, increasing uptake will require systemic change. One necessary step is to address discrimination and bias in healthcare. Doing so could improve institutional trust and increase vaccine uptake. A study carried out by the

National Academy of Medicine concluded that discrimination and unsatisfactory care in medical settings is largely due to implicit racial bias (Williams & Cooper, 2019). Data from a large volunteer sample indicated that approximately 70% of doctors had an implicit preference for white patients over Black patients. This prejudice can manifest in more biased patient treatment, including less patient-centered dialogue and lower patient perceptions of respect from providers. One group of researchers utilized techniques rooted in social-cognition to create an intervention to combat implicit bias in healthcare workers. This intervention framework aimed to increase internal motivation to fight bias, improve providers' understanding of the psychological mechanisms of bias, enhance providers' confidence in their ability to interact with dissimilar patients, increase perspective taking, and improve the ability to build partnerships with patients (Burgess et al., 2007). The researchers conclude that such a framework could be integrated into provider training in order to address some of the racial inequities in healthcare. Like motivational interviewing, such an intervention will require time and funding to be implemented. It could be developed into an online or in-person training course that could be required during schooling or through individual healthcare providers. Addressing implicit bias in providers has the potential to decrease discrimination and increase institutional trust, two major steps towards increasing HPV vaccine uptake among Black Americans.

Another pathway to reducing racial inequities in healthcare is to diversify healthcare workers themselves. Having staff that reflects the racial diversity of the community they serve can greatly improve patient care outcomes. Research has shown that when patients have a provider of the same race, communication is improved and patient adherence to physician recommendations increases (Williams & Cooper, 2019). Institutional support is necessary to increase people of color in the medical field. This can include funding for scholarships and loan repayment programs for low income students as well as institutional resources to support diversity. Patients of color may be more inclined to trust someone with the same background as them, making them more likely to accept the provider's vaccination recommendations.

Conclusion

The hesitancy and apprehension surrounding administration of the HPV vaccine poses an immense risk to public health in the United States. While different communities—most notably the Christian nationalists and groups of Black Americans—have different rationales for their denial of the vaccine, all hesitancies create a problem within the sphere of national health. Vaccine hesitancy within these groups is more than just a distrust of vaccines and medical technology; it is a manifestation of a lack of institutional trust, lack of knowledge, and an amalgamation of deeply-held cultural beliefs. To combat this hesitancy and positively affect national health as a whole, increased education on the importance and evidence behind HPV vaccines is necessary. Though specific rationales behind vaccine hesitancy vary by community, motivational interviewing is a promising technique for addressing this problem in both Christian nationalists and Black Americans. It has the potential to improve pro-

vider efficacy when recommending vaccines. Addressing structural inequalities in the American healthcare system is another important step that is necessary for improving institutional trust in Black Americans. Through addressing these hesitancies in all communities, increased HPV vaccine administration will aid in decreasing national STI and cancer rates, and will provide an overall health benefit.

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