PHYSICIAN IMPLEMENTATION OF GENDER-AFFIRMATIVE CARE RECOMMENDATIONS: IMPROVING PATIENT SAFETY AND HEALTHCARE FOR TRANSGENDER AND GENDER DIVERSE YOUTH

by

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ABSTRACT

MEGAN E. MCCOMAS. Physician Implementation of Gender-Affirmative Care Recommendations: Improving Patient Safety and Healthcare for Transgender and Gender Diverse Youth. (Under the direction of DR. VIRGINIA-GIL-RIVAS)

Compared to their cisgender counterparts, transgender, and gender diverse youth (TGDY) disproportionately experience an increased risk for poor patient safety and healthcare disparities. TGDY report poorer mental and physical health and lower rates of utilization of preventive medicine. These health and healthcare disparities may be due to a lack of access to gender-affirming care – an integrative approach to providing developmentally appropriate healthcare and facilitating conversation and exploration of gender identity with patients and their family in a supportive environment. Gender-affirming care is associated with increased healthcare utilization, quality of life, and decreased rates of depression and suicidality among TGDY. In the United States, TGDY report difficulty finding gender-affirming providers as well as trans-specific healthcare. To meet the healthcare needs of TGDY, in 2018, the American Academy of Pediatrics (AAP) issued the policy statement, "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents" to provide clinical practice guidelines for physicians to provide gender-affirming care to youth. However, little is known about physicians' knowledge, agreement, or perceived barriers to implement the AAP recommendations. Further, TGDY in fringe urban areas face unique healthcare challenges and experience greater discrimination and negligence in the healthcare setting, such as receiving delayed medical care. The specific aims of this study were: To assess (1a) pediatrician's knowledge, agreement with, and perceived barriers of the AAP recommendations as well as provision of gender-affirming care (i.e., psychoeducation,

patient interaction, providing care in a safe environment, and referrals) and (1b) if this differs based on practice setting urbanization level; to examine the role of provider characteristics and practice setting in explaining the variability in: (2a) AAP policy knowledge; (2b) agreement with the AAP Policy; and (2c) perceived implementation barriers of the AAP policy; and to examine the role of provider characteristics and practice setting in explaining physician's provision of: (3a) total GAC; (3b) GAC psychoeducation; (3c) GAC patient interaction; (3d) GAC safe environment; and (3e) GAC referrals; when accounting for AAP policy knowledge, agreement, and perceived implementation barriers. In this study, 199 physicians were recruited to participate in an online survey. Findings from this study will inform efforts to improve healthcare safety, accessibility, and equitability for TDGY by informing the future development of a context-tailored, theory-based intervention to promote gender-affirming care in diverse geographical areas.

DEDICATION

I dedicate this dissertation to my clients-- past, present, and future. Thank you for letting me join you in your journey and being the inspiration and motivation behind this research.

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LIST OF ABBREVIATIONS

AAP	American Academy of Pediatrics
DO	Doctor of Osteopathic Medicine
EFA	Exploratory Factor Analysis
GAC	Gender-Affirming Care
GAHT	Gender-Affirming Hormone Therapy
GACM	Gender Affirmative Care Model
GAD	General Anxiety Disorder
GnRHa	Gonadotropin-Releasing Hormone Analogues
LGBTQ+	Lesbian, Gay, Bisexual, Transgender and Queer or Questioning+
MD	Doctor of Medicine
MDD	Major Depressive Disorder
NP	Nurse Practitioner
PA	Physician Assistant
PPCT	Process-Person-Context-Time model
SOC	Standards of Care
TGDY	Transgender and Gender Diverse Youth
WPATH	World Professional Association for Transgender Health

CHAPTER 1: INTRODUCTION

1.1 Statement of Problem

An increasing number of children and adolescents are identifying as transgender, gender diverse, gender expansive, gender non-confirming, or non-binary—meaning that they have a gender identity or expression that is incongruent from their sex assigned at birth (Goldenberg et al., 2019; Kattari, Walls, Speer, & Kattari, 2016). In 2017, the UCLA Williams Institute estimated that 0.7% of individuals aged 13-17 identified as transgender and gender diverse youth [TGDY[1]] (Herman et al., 2017). Since then, recent population-based surveys indicate that between 1.8% and 2.7% of youth aged 13-17 in the United States identify as transgender (Johns et al., 2019; Rider et al., 2018). It is unclear how many youths under 13, identify as transgender, but researchers estimate that it is about the same percentage (Johns et al., 2019; Rider et al., 2018). TGDY are a rapidly growing population that are underserved and marginalized with significant health disparities, especially compared to their cisgender counterparts— those whose gender identity or expression aligns with their sex assigned at birth (Chodzen et al., 2019; Rider et al., 2018). Compared to cisgender youth, TGDY report poorer physical health, higher levels of anxiety, depression, greater prevalence of co-occurring psychiatric disorders, and suicidality (De Vries et al., 2011a; Gridley et al., 2016; Olsen, Forbes, & Belzar, 2011; Rider et al., 2018; Society for Adolescent Health and Medicine, 2013).

[1] In this study and aligned with the American Academy of Pediatrics (AAP), we will use the umbrella term, transgender and gender diverse youth (TGDY) to refer to any individual under 18 years-old whose gender identity or expression is incongruent from their biological sex assigned at birth (Rafferty, 2018). Terminology is constantly expanding within the transgender community (Center of Excellence for Transgender Health, 2016); therefore, we aim to use TGDY as a terminology to capture this broad spectrum of youth who do not identify as cisgender.

Furthermore, TGDY have high rates of depression, anxiety, eating disorders, and suicidality (De Vries et al., 2011a; Gridley et al., 2016; Olson et al., 2011; Rider et al., 2018; Society for Adolescent Health and Medicine, 2013). In a recent quantitative study, 33% of TGDY receiving care at an interdisciplinary gender program met diagnostic criteria for major depressive disorder (MDD), and 48% for general anxiety disorder (GAD) (Chodzen et al., 2019). This is significantly higher than lifetime prevalence rates of MDD and GAD for cisgender youth which is approximately 12.8% and 4.3% respectively (Beesdo, Knappe, & Pine, 2009; Mullen, 2018). Furthermore, TGDY are two to four times more likely to experience substance misuse compared to their cisgender peers (Day et al., 2017).

In addition to mental health disparities, TGDY also experience physical health disparities and are at in increased risk for acquiring sexually transmitted infections and HIV (Fisher et al., 2018). Moreover, TGDY also report poorer overall health (Rider et al., 2018). Currently, literature on TGDYs' physical health is still scant in nature (MacCarthy et al., 2014), however, research with transgender adults have shown that compared to their cisgender adult peers, they experience elevated rates of high blood pressure, asthma, poor physical health, and higher rates of having health issues that kept them from doing their usual activities (Seelman et al., 2017). Healthcare providers, specifically pediatricians, can play an important role in health promotion for TGDY and address the health disparities outlined above.

With growing awareness of the distinct healthcare needs of TGDY, agencies have created policies and guidelines for practitioners (Allen, Coles, & Montano, 2019; American Psychological Association, 2015; Coleman et al., 2012; Hembree et al., 2017;

Rafferty, 2018; Safer & Tangpricha, 2019). Specifically, the American Academy of Pediatrics (AAP) released the policy statement "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents," which recommends pediatric providers follow a gender affirmative care model (GACM) for medical and mental healthcare to reduce experiences of stigma and patient harm among TGDY at the structural level (Rafferty, 2018). To our knowledge, no study has examined factors influencing physician's implementation the AAP policy recommendations and provision of gender-affirming care. The bioecological theory (Bronfenbrenner et al., 1994) can guide efforts to identify factors that may influence the physician's efforts to provide healthcare services to TGDY.

1.2 Bioecological Theory

Bronfenbrenner (1995) furthered the conceptualization of human development in the Bioecological Theory by moving beyond focusing on the individual and theorizing human development as the interaction between the individual and their environment. This framework aimed to understand the complex and bi-directional influence between the individual and their environmental contexts. The final version of the Bioecological Model consisted of systems embedded within each other, (i.e., macrosystems, exosystem, mesosystem, and microsystem) with the individual fixed in the center (Bronfenbrenner & Morris, 2006). Furthermore, in this model, the time and developmental processes that naturally occur are referred to as chronosystems, emphasizing that the relationships and links between and within systems change across the lifespan. In effort to provide guidance on the application of the Bioecological Model to research, Bronfenbrenner developed the process-person-context-time (PPCT) model. More recently, Xia, Li, and

Tudge (2020) expanded on the PPCT model to guide research based on the Bioecological Theory.

1.2.1 Process-Person-Context-Time Model

Process

A fundamental aspect of the PPCT model is *proximal process*, which refers to the reciprocal interactions that occur between the individual and their immediate environment (Tudge et al., 2009). These interactions include activities that are typical within the lives of the individual, and consist of people, objects, or symbols (Bornfenbrenner & Morris, 1998; Bruner et al., 2019; Tudge et al., 2009). These processes influence how an individual makes sense of the world around them and contributes to their identity development. Furthermore, proximal processes vary depending on the environmental context, temporal setting, as well as the characteristics of the individual (Bronfenbrenner & Morris, 1998; Tudge et al., 2009).

Examples of proximal processes as it relates to physicians, are the interactions a physician may have with other healthcare providers, healthcare administration, or education instructors. Moreover, providing patient care is another crucial proximal process that influences physicians' development overtime. Specifically, it is expected that the more interactions and experiences a physician has with TGDY will influence their effort to provide gender-affirming care. In addition to proximal processes, it is also important to consider physician characteristics when examining the implementation of AAP policy guidelines.

Person

According to the PPCT model, there are three key individual characteristics that influence proximal process: force, resource, and demand characteristics (Bronfenbrenner & Morris, 1998). *Force characteristics* are the dispositions of the individual that may influence proximal process, such as one's temperament, motivation, self-efficacy, persistence, or personality. Particularly, a physician's stigmatizing attitudes towards TGDY is an example of a force characteristic that may influence the proximal process in patient care. *Resource characteristics* include the "biological, mental, or experiential resources that individuals bring to proximal processes" (Xia et al., 2020, p. 12). These characteristics are typically not easily visible. For instance, a physician's previous education and training in gender-affirming care will affect the proximal processes and interaction with patients. Finally, *demand characteristics* are those that are immediately apparent (i.e., skin color, gender, age, etc.) and can influence the initial interactions and proximal process (Tudge et al., 2009). For example, a patient may assume a provider is cisgender based on their characteristics and worry that they may not be knowledgeable about gender identity or open to discussing it. As a result, this may influence how much the patient might choose to disclose on their own without the inquiry of the physician.

Context

Development is also influenced by the environmental context of an individual. Specifically, the PPCT model identifies context consisting of four interrelated systems nested within each other with the individual fixed in the center: microsystem, exosystem, macrosystem, and mesosystem (Bronfenbrenner & Morris, 2006; Tudge et al., 2009). The *microsystem* is the context closest in proximity to the individual and includes the activities, roles, and interpersonal relations in which the individual is directly involved.

For physicians, examples of their microsystem include professional organizations (i.e., AAP membership), their medical practice/setting, and their medical practice specialty. The second context is referred to as the *exosystem* and consists of the distal interactions that indirectly impact an individual (i.e., healthcare system, mass media, patient's family environment; Bronfenbrenner & Morris, 2006; Tudge et al., 2009). The third context, called the macrosystem, refers to the all-encompassing aspects of the social ecology that form the cultural backdrop of the developing person (Bronfenbrenner & Morris, 2006; Tudge et al., 2009). This includes societal norms, government systems, economic factors, and cultural norms. For example, the religious beliefs of a provider may impact their provision of gender-affirming care as research indicates that 84% of White Evangelical adults in the U.S. believe that gender is determined by sex at birth (i.e., gender identity cannot be different from sex-assigned at birth) compared to 29% of adults identifying as Atheist/Agnostic (Smith, 2017). Furthermore, 61% of White Evangelicals say that society has gone too far in accepting transgender people, compared to 16% of Atheist/Agnostic (Smith, 2017). Therefore, it is expected that religious beliefs are likely to play a role in physician' provision of gender-affirming care. Lastly, the *mesosystem* refers the interactions between and within the environmental contexts and the microsystem (Bronfenbrenner & Morris, 2006; Tudge et al., 2009).

Time

Finally, the last component of the PPCT model, time, is divided into three subfactors: micro-, meso- and macro- time (Bronfenbrenner & Morris, 2006; Tudge, 2009). *Micro-time* refers to what is occurring during an explicit interaction. *Meso-time* denotes the degree to which the interactions consistently transpire within the individual's

environment. Lastly, *Macro-time* (also referred to as the *chronosystem*) includes the transitions and environmental events that occur during development (Bronfenbrenner & Morris, 2006; Tudge et al., 2009). This includes sociohistorical events such as mass disasters, war, civil rights, and women's movements. For example, in 1979 the World Professional Association for Transgender Health (WPATH), formerly known as the Harry Benjamin International Gender Dysphoria Association, released guidelines for standards of care (SOC) for transgender individuals signifying a historical moment in healthcare (Coleman et al., 2012). Therefore, physicians who attended medical school prior to 1979 and the WPATH SOC may interact with their environment much differently than physicians who attended medical school after 1979.

The PPCT model offers a framework that captures the complex proximal processes between the individual and context over time (Xia, Li, & Tudge, 2020). This more holistic approach is useful for identifying what factors influence physician's efforts to provide healthcare services to TGDY. TGDY are impacted by the interactions they have with healthcare providers overtime and the quality-of-care physicians provide have a significant influence on their health and well-being (Gorin-Lazard et al., 2012; Kattari et al., 2016). As such, guided by the PPCT model, the purpose of this study is to examine physician's implementation of best practices (i.e., gender affirmative care model) of healthcare for TGDY and understand what factors and context influence provision of care. Study findings will allow for the development of context appropriate interventions to increase physician's adherence to the AAP recommendations. Given this, a summary of the basic components of the Gender Affirmative Care Model is provided below.

1.3 Gender Affirmative Care Model

A Gender Affirmative Care Model (GACM) is a broad interdisciplinary approach to provide support to TGDY and their families and has recently been recommended by the AAP for all physicians to implement into their provision of care (Keo-Meier & Ehrensaft, 2018; Rafferty 2018). Within the AAP policy, "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents," their recommendations include four core domains related to direct care: psychoeducation, patient interaction, a safe environment, and referrals.

In this model physicians provide developmentally appropriate care and facilitate conversation and exploration of gender identity with patients and their family in a supportive environment (Rafferty, 2018). Specifically, *psychoeducation* in the GACM involves physicians promoting and conveying the following messages:

- Transgender identities and diverse gender expressions do not constitute a mental disorder;
- Variations in gender identity and expression are normal aspects of human diversity, and binary definitions of gender do not always reflect emerging gender identities;
- Gender identity evolves as an interplay of biology, development, socialization, and culture; and
- If a mental health issue exists, it most often stems from stigma and negative experiences rather than being intrinsic to the child (Rafferty, 2018, p. 4).

Furthermore, psychoeducation in the GACM model is informed by physician education which includes training in social transition, puberty suppression, gender-affirming

hormone treatment, surgical interventions, mental health treatment, or consultation with TGDY's family, school, or other pertinent social contexts (Kimberly et al., 2018). *Patient-interaction* involves routinely assessing and inquiring about gender development during regular office visits or at a minimum during annual physicals. A *safe environment* is characterized by patient-provider interactions that are free of stigma and are supportive. A safe environment also includes clinic settings with gender-neutral bathrooms, posters/flyers related to LGBTQ+ issues and information, staff who have received diversity training in LGBTQ+ concerns and use of patient-asserted name and pronouns in electronic health records, billing systems, notification systems, and clinical research. Lastly, *referrals* include linking patients to family-based therapy and support, and medical affirmation interventions, such as pubertal suppressors, hormone therapy, and surgery.

It is important that all physicians implement gender-affirming care within these four domains throughout childhood and adolescence to promote *gender health* — "freedom to explore and live in the gender that feels most authentic" (Keo-Meier & Ehrensaft, 2018, p. 14), as having a gender affirmative provider is associated with significant decreases in lifetime depression and suicidality (Kattari et al., 2016). Furthermore, gender-affirming care that endorses a developmental perspective could contribute to greater treatment seeking and health service utilization in this group and in return, improve overall health and well-being (De Vries et al., 2011a; Gridley et al., 2016; Paceley et al., 2021; Rafferty, 2018; Rider et al., 2018). Therefore, physicians have the responsibility to consistently provide gender affirming healthcare to their patients, however, what this looks like or consists of depends on the developmental stage of the

patient as patient-provider interactions differ depending on the capacities of the growing individual.

Notably, the AAP statement also provides guidelines for advocacy to promote equitable institutional and governmental policies. While we acknowledge the importance of advocacy and policy guideline recommendations, this study focused on the physician's knowledge, agreement, and perceived barriers implementing the policy recommendations in relation to direct care needs (i.e., provision of gender-affirming care) rather than institutional or governmental policies. We were exclusively interested in direct care for the purpose of this study because it may influence TGDY's decision to seek care and ability to receive appropriate care. Study findings will inform efforts to provide gender-affirming care that is congruent with the AAP policy.

Unfailingly, physicians can offer non-judgmental support and psychoeducation to caregivers and children regarding gender development at all developmental stages. As previously stated, physicians must not pathologize gender development and also communicate and educate parents that gender identity is not always binary. To facilitate these conversations, physicians should routinely assess and inquire about gender. This can most conveniently be conducted during annual physical examinations when other developmental milestones are evaluated. Habitually assessing and discussing gender health normalizes the dialogue, reduces experiences of stigma, and allows for timely gender-affirming medical interventions. In order for this to be effective, it's essential that physicians are knowledgeable of gender identity development.

1.3.1 Gender Identity Development During Childhood and Adolescence

Early in development, between 18 and 24 months, children begin to use gender labels and between the ages of 1 and 2 years old, become aware of physical gender differences (Martin & Ruble, 2009). Between the ages of 2 and 3, children start developing gender stereotypes and can identify stereotypical binary gender differences associated with physical appearance, behaviors, roles, and toys (Martin & Ruble, 2009). These stereotypes and beliefs become the most rigid around 5 to 6 years old, and then become more flexible as children age (Trautner et al. 2005). Research indicates that children as young as 2-years-old communicate feeling that their gender identity does not match their biological sex, and many TGDY express their gender identity between 3-4 years old (Boskey, 2014). Around this same time, children can develop gender dysphoria, which is characterized as experiencing clinically significant distress or impairment in functioning due to the incongruence between their gender identity and biological sex (American Psychiatric Association, 2013). Studies show that gender dysphoria persists from childhood to adulthood for approximately 6-23% of children (Cohen-Kettenis, 2001; Zucker & Bradley, 1995), demonstrating the importance of routinely assessing gender identity development in pediatric care. Pubertal onset varies upon the individual, but typically occurs between 8 and 13 years of age in biological females and 9 and 14 years of age for biological males (National Institute of Health [NIH], 2016). During the onset of puberty, when physical signs are present, pubertal suppression can be initiated for TGDY who express significant gender dysphoria regarding unwanted secondary sexual characteristics such as breast development or penis enlargement (Panagiotakopoulos, 2018).

1.3.2 Puberty Blockers

Pubertal suppression consists of receiving gonadotropin-releasing hormone analogues (GnRHa), which inhibit estrogen and androgen synthesis, therefore putting puberty "on pause" (National Institute of Diabetes and Digestive and Kidney Diseases, 2018; Panagiotakopoulos, 2018). Receiving this medical intervention without delay is critical as it is associated with decreases in behavioral and emotional difficulties, reduction in depressive symptoms, and improvements in general functioning among TGDY (De Vries et al., 2011b). In a qualitative study assessing barriers to gender-affirming care, timing of care and lack of information were identified as a structural barrier for puberty blockers, and TGDY (who have gone through puberty) report that they did not know about the possibility of receiving puberty blockers, and that their physician did not educate them on this treatment option (Puckett et al., 2017).

These examples provide insight into the structural barriers TGDY face when accessing gender-affirming care, specifically puberty blockers. Further, they demonstrate how physicians not informing TGDY of the option of gender-affirming medical interventions leads to inadequate access to this essential resource. Current research has primarily been conducted on TGDY experiences and it is unclear what factors are influencing physicians' knowledge and perceived implantation of gender-affirming care and their perceived barriers for providing such care.

Notably, given that legally TGDY are still minors at the time of pubertal onset, this healthcare decision is done in collaboration with the patient and a parent or guardian. It is the responsibility of physicians to provide developmentally appropriate education on gender-affirming medical interventions and facilitate a discussion regarding the mental

and physical health benefits of puberty blockers, risk factors, and the patient's and family's desires. These conversations are critical, and physicians need to provide education and support to the family, as TGDY must receive parental consent for treatment. Moreover, the medical provider should involve TGDY in the conversation and involvement in medical decision-making as youth express wanting to be consulted and include in these conversations, and receive pertinent information (Coyne, 2006; Coyne, et al., 2014). It is essential to understand the factors that are facilitating or inhibiting having these critical conversations in order to promote gender-affirming care. In addition to discussing puberty blockers, physicians need to be educated on gender-affirming hormone therapy to know when it is developmentally appropriate to initiate discussions with TGDY.

1.3.3 Gender-Affirming Hormone Therapy

The World Professional Association for Transgender Health [WPATH] recommends feminizing/masculinizing hormone therapy[2] (i.e., gender-affirming hormone therapy [GAHT]) for TGDY with persistent and well-documented gender dysphoria (Coleman et al., 2012). Notably, not all TGDY seek GAHT, thus it is up to physicians to discuss with patients and their parents/caregivers what their treatment desires are. Receiving GAHT induces physical changes over the course of two years, that align with the patient's gender identity (Coleman et al., 2012). Although endocrinologists are primarily responsible for administration and management of hormone treatment, WPATH urges primary care providers to be educated in and provide GAHT (Coleman et al., 2012). Conversely, if a physician cannot provide this care, they should still be involved

[2] The administration of exogenous endocrine agents to induce feminizing or masculinizing changes (Coleman et al., 2012).

and collaborate treatment with the endocrinologist and any other provider involved with the TGDY's healthcare.

Guidelines recommend initiating GAHT at 16 years old (Committee on Adolescent Health Care, 2017, reaffirmed 2020). According to the literature, youth develop full healthcare decision-making capacity around the age of 14 years old (Coleman & Rosoff, 2013; Committee of Bioethics, 1995; Harrison, Canadian Paediatric Society, & Bioethics Committee, 2004; Tillett, 2005), however, this is under the age of majority[3] of the United States, and TGDY require the consent of a parent or guardian to begin treatment. This can pose as a potential barrier to access of care for TGDY and physicians can serve as a support system through the decision-making process.

For instance, in a qualitative study examining parent-child dyad decision-making around GAHT, it was found that parents were often hesitant about their child starting GAHT, and the TGDY took on the role of advocating for treatment (Daley et al., 2019). This study also found that in-between first learning about GAHT and initiating treatment, parents and TGDY alike sought information regarding GAHT to inform their decision, with most participants receiving their information online (i.e., YouTube, blogs, etc.)

Physicians can facilitate this information-seeking among TGDY and their families by providing psychoeducation and referrals to family-based therapy and support (Rafferty, 2018). Furthermore, the study found that although GAHT is a medical decision, this decision-making process is within the context of gender identity and physicians need to approach it as such (Daley et al., 2019). Taking this contextually and developmentally appropriate approach will improve TGDY access to healthcare.

[3] The legally defined age at which a person is considered an adult. In the United States, age of majority is state dependent and rages from 18-21.

1.4 Gaps in Policy Implementation

To our knowledge, no study has examined providers' knowledge, agreement with, or perceived barriers for implementing the AAP policy recommendations regarding gender-affirming care. Importantly, studies have also not examined if knowledge, agreement with, and perceived barriers for implementing the AAP recommendations, as well as provision of gender-affirming care differs based on practice setting urbanization. This is important because research has documented differences in the quality of healthcare and barriers to access care between urban and rural populations. For instance, transgender individuals living in rural areas often report being denied healthcare services and not having access to a physician knowledgeable on TGDY healthcare (Johnson, Gibson-Hill, & Beach Ferrara, 2018; Knutson et al., 2017; Knutson et al., 2018; Sinnard et al., 2016). Concerns of healthcare patient safety are heightened for TGDY living in rural areas as they are at an increased risk of experiencing harm and negligent care (Johnson et al., 2018).

Gender-affirming care has been shown to reduce the negative effects of anticipated stigma on healthcare utilization among TGDY with documented health disparities (Goldenberg et al., 2019). This is important as transgender individuals experience stigma at the structural (i.e., societal norms and institutional policies), interpersonal (i.e., verbal harassment, physical violence, and sexual assault), and individual (i.e., internalized transphobia) levels throughout their lifetime (White Hughto et al., 2015). This additional stress from experiences of stigma and discrimination on the basis of their minority status (i.e., identifying as TGDY), is chronic, socially based, and defined as *Minority Stress* (Hendricks & Testa, 2012). Moreover, Minority Stress is the

fundamental cause of adverse health in TGDY (Hendricks & Testa, 2012; White Hughto et al., 2015).

Interestingly, high levels of internalized transphobia significantly predict both MDD and GAD in TGDY (Chodzen et al., 2019). Further, low levels of congruence between gender identity and appearance predict MDD, but not GAD. This further indicates that TGDY face unique challenges and stressors compared to their cisgender peers that negatively impact their mental health and need to be taken into consideration by physicians when providing healthcare. Moreover, research indicates that rates of depression in socially transitioned TGDY (i.e., those who are supported and living openly as their identified gender) do not differ from population averages, and only report slightly higher anxiety symptoms (Olson et al., 2016), suggesting that physician stigma and attitudes toward gender affirming care are important to consider. Furthermore, the AAP recommendation of training on TGDY care is critical for improving healthcare as lack of training may lead to delays in TGDY's ability to access timely healthcare (De Vries et al., 2011).

Provider and practice setting characteristics are also likely to influence physician's knowledge, agreement, and perceived barriers for implementing the AAP policy as well as the delivery of gender-affirming care (GAC). Reducing delay in treatment is essential, as receiving gender-affirming hormones and having a transgender-inclusive provider is associated with significant increases in quality of life, and decreased rates of depression and suicidality (Gorin-Lazard et al., 2012; Kattari et al., 2016). Guided by the bioecological theory and the PPCT model, we developed an exploratory conceptual

model presented in Figure 1. This study aims to generate information that will be used to inform policy and interventions to improve TGDY patient care.

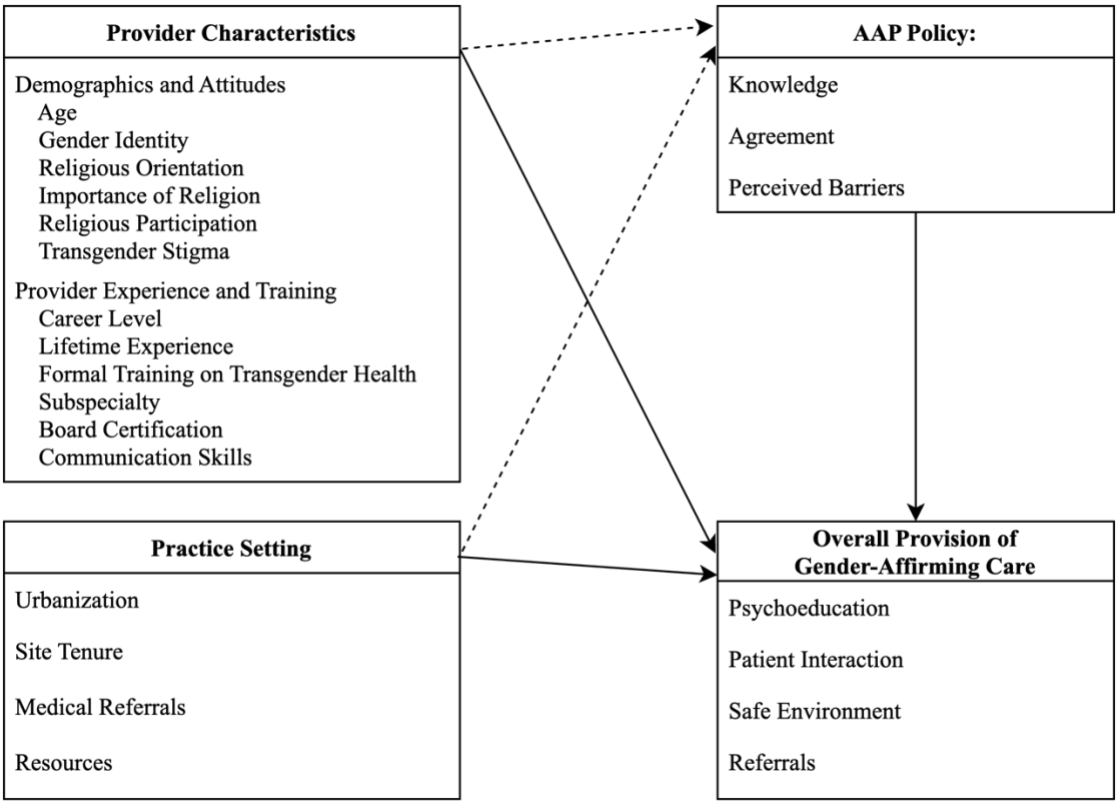

Figure 1. Conceptual Model of Physician's Provision of Gender-Affirming Care. Note. Aim 2 represented by dashed arrows and Aim 3 by solid arrows.

1.5 *Purpose Statement*

This study assessed physician's knowledge, agreement with, and perceived barriers for implementation of the AAP policy statement, "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents." In addition, this study examined if these AAP policy-related factors and provision of gender-affirming care differed by practice setting urbanization. The study also explored if provider characteristics, and practice setting help explain variability in AAP policy-related factors and the provision of GAC. Study findings will inform the development of a culturally and

contextually tailored, theory-based intervention to promote gender-affirming care and improve healthcare safety, accessibility, and equitability for TDGY.

1.6 Research Aims

This study has the following aims to achieve the aforementioned purpose:

Aim One. To assess (1a) physician's knowledge, agreement with, and perceived barriers of the AAP recommendations as well as provision of gender-affirming care (i.e., *psychoeducation, patient interaction, providing care in a safe environment, and referrals*) and (1b) if this differs based on practice setting urbanization level.

Aim Two. To examine the role of provider characteristics and practice setting in explaining the variability in: (2a) AAP policy knowledge; (2b) agreement with the AAP Policy; and (2c) perceived barriers to implementing the AAP policy

Aim Three. To examine the role of provider characteristics and practice setting in explaining physician's provision of: (3a) total GAC; (3b) GAC psychoeducation; (3c) GAC patient interaction; (3d) GAC safe environment; and (3e) GAC referrals; when accounting for AAP policy knowledge, agreement, and perceived implementation barriers.

CHAPTER 2: METHODOLOGY

2.1 Participants

A priori power analysis indicated that a sample size of 95 would be sufficient to detect a significant effect with a power of .85 and an alpha of .05 for all the planned regressions. Eligibility criteria: (1) medical degree (MD), (2) age 18 years or older, (3) provide medical care for patients 17 years old or younger, (4) the patient population they serve must have an average age of 2-years-old or older, (5) able to participate in English, and (6) practice in the United States. There were no exclusion criteria beyond the inclusion criteria. A total of one hundred ninety-nine physicians in the United States completed the questionnaires.

2.2 Procedure

2.2.1 Recruitment

A combination of purposeful and snowball sampling was used to recruit medical providers practicing in the United States. A study advertisement was shared via Atrium Health's Levine Children's Hospital listserv of pediatric providers. This organization consists of more than 40 hospitals and 900 care locations in both urban and rural areas throughout North Carolina and South Carolina and employs over 850 physicians. The PI also received the support of Atrium Health and Atrium Health's Levine Children's Center for Gender Health to recruit for this study. Providers were also recruited through targeted social media posts and cold emails. Providers who complete the survey were given a unique referral code to refer other providers to the study. Providers who successfully referred a provider were entered into a drawing for a $100 gift card.

2.2.2 Procedural Flow

The procedural flow chart (*See figure 2*) details the research study process. The online survey included the measures described below.

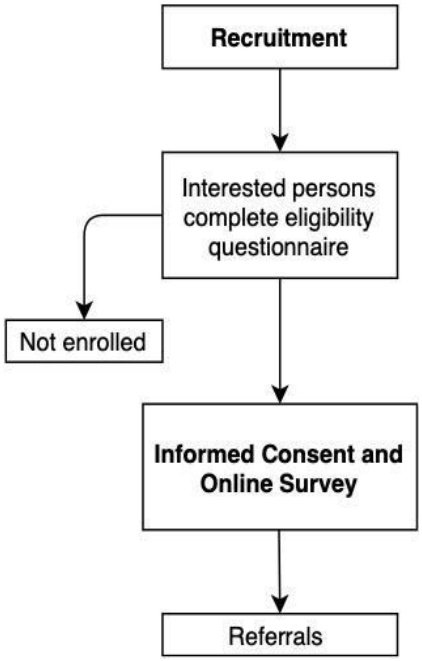

Figure 2. Study flow chart

Eligibility

Interested persons clicked the link provided in the recruitment email/advertisement/post to complete an online screen.

Consent

If eligible, physicians were taken to an electronic informed consent form. All participants were provided with the opportunity to download a copy of the consent form.

Online Questionnaire. Once informed consent was collected; participants completed the study via Qualtrics. Contact information was collected separately to facilitate distribution on incentives and study findings. Upon completion on the questionnaire, participants were entered into a drawing for one of 2- $100 gift cards.

2.3 Materials

All measures were self-reported, completed electronically, and remained unchanged throughout the process of data collection.

Screen

Eligibility Questionnaire. Participants were asked their age, current occupation, if they have a medical degree, ability to read and write in English, patient population,

membership status with the AAP, and geographical location of their current practice to determine eligibility.

Provider Characteristics

Demographics and Attitudes.

Age. Participants self-reported their age.

Gender Identity. Participants self-reported their gender identity via an open-ended question (i.e., "What is your current gender identity?"). Responses were coded into 0 = male, 1 = female. One participant identified as transfem and was coded as female.

Race. Participants self-reported their race and were asked "What is your race? Choose all that apply." Responses were then dichotomously coded for statistical analysis; 0 = White, 1 = Nonwhite due to small sample sizes for participants who identified as Nonwhite.

Religious Orientation. Participants responded to the question "What is your religious background?" Responses were then coded into 0 = religious, 1 = non-religious.

Importance of Religion. Religious importance was assessed utilizing a single item; "How important is religion to you?" Participants rated their level of agreement to the statement from (1) not important to (4) = very important.

Religious Participation. Religious participation was assessed utilizing a single item "How often do you participate in religious activities?" Responses were coded into 0 = don't participate 1 = participate.

Transgender Stigma. Transgender stigma was assessed utilizing a 16-item adapted version of the Rodriguez Madera and colleagues' (2019) scale. The original scale primarily assessed stigma towards biological males, so this study added 4 questions to

expand the scope of the questions. Participants rated their level of agreement to each statement on a Likert scale from strongly disagree (1) to strongly agree (5). A total score was calculated. Higher scores indicate greater levels of transgender stigma. The scale demonstrated strong reliability in this sample ($\alpha = .93$).

Provider Experience and Training.

Career Level. Career level was calculated based on the self-reported year of graduation from medical school. Participants who graduated medical school 10 years or less (i.e., 2011+) were categorized as early career and participants who graduated more than 10 years ago were categorized as senior career level. Responses were coded into 0 = early career, 1 = senior career.

Lifetime Experience Providing Care for Patients Who Identified as Transgender or Gender Diverse. Participants indicated if they have ever provided care for a patient who identifies as transgender or gender diverse. Responses were coded into 0 = never have provided care for TGDY, 1 = have ever provided care for TGDY.

Formal Training on Transgender Health During and After Medical School. Participants indicated if they ever received formal training *during* medical school on transgender health as well as if they ever received training *after* medical school. Both variables were coded into 0 = no, 1 = yes.

Subspecialty. Participants were asked to indicate if they had a subspecialty practice. Responses were then coded so that 0 = Other or No Subspecialty; and 1 = Adolescent Medicine subspecialty.

***Board Certification*.** Participants indicate if they are certified by the American Board of Pediatrics. The variable was coded as 0 = Not board Certified and 1 = Board Certified.

***Communication Skills*.** The adapted Gap-Kalamazoo Communication Skills Assessment Form was used to assess key communication skills for building therapeutic relationships with patients and families (Rider, 2010). The 9-item Likert scale from the self-assessment form to assess communication skills was utilized. Participants responded using a 5-point Likert-type scale, ranging from 1 (*poor*) to 5 (*excellent*). A total score was calculated such that higher scores indicate greater communication skills. The scale demonstrated strong reliability in this sample ($\alpha = .95$).

Practice Setting

Urbanization. Urbanization level was calculated using the CDC '2013 NCHS Urban–Rural Classification Scheme for Counties' (Ingram & Franco, 2014). The unitedstateszipcodes.org search tool was used to identify the U.S. County by using the self-reported zip codes of the participant's medical practice. The county was then searched in the CDC '2013 NCHS Urban–Rural Classification Scheme for Counties' report to determine the type of practice setting. The practice setting information was then recoded into a dichotomous variable- Large central metro and Large Fringe Metro were coded as 1 (Population size > 1 million); all others were coded as 0 (Population size < 1 million).

Site Tenure. Following Indeed Editorial Team's (2021) tenured employee categorization, we dichotomously classified participants as long-tenured employees (those who have worked for their current medical practice for more than five years), and

short-tenured employees (those that have worked for their medical practice for 5 years or less as). Responses were then coded so that 0 = Short Tenured; and 1 = Long Tenured.

Medical Referrals. Access to medical referrals for patients within a 20-mile radius was measured by a single item. The response format was on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate greater access to medical referrals.

Resources. A novel 2-item scale measured providers' access to resources at their current medical practice. The scale captured access to resources providers need to effectively perform their jobs and address the many health-related needs of their patients. The response format was on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). A total score was calculated, such that higher scores indicate greater access to resources. The scale demonstrated strong reliability in this sample ($\alpha = .71$).

AAP Policy

AAP Knowledge. Participant's knowledge of the AAP policy statement was assessed utilizing a novel-scale. Participants rated their level of agreement with four statements on a Likert scale from strongly disagree (1) to strongly agree (5). A total score was calculated, such that higher scores indicate greater knowledge of the AAP policy statement. The scale demonstrated strong reliability in this sample ($\alpha = .87$).

AAP Agreement. Provider's agreement with the AAP policy statement were assessed using a 7-item scale developed for use in this study. Participants rated their agreement with the AAP Policy recommendation on a Likert scale from strongly disagree (1) to strongly agree (5). A total score was calculated. Higher scores indicate greater

agreement with the AAP policy statement. The scale demonstrated strong reliability in this sample (α = .93).

AAP Barriers. Perceived barriers to implementing the AAP policy recommendations were assessed with a novel 6-item scale. Perceived barriers assessed included organizational and practice support, training, resources, and provider's internal desire to implement the recommendations. Participants rated their level of agreement to each statement on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Scores were reversed coded, and a total score was calculated such that higher scores indicate greater perceived barriers. The scale demonstrated strong reliability in this sample (α = .86).

Provision of Gender Affirming Care

A 19-item novel scale was administered to assess physician's agreement with items reflecting their provision of gender affirming care. An Exploratory Factor Analysis (EFA) was conducted on GAC items. Factors were rotated using a Varimax with Kaiser Normalization rotation. The scree plot suggested that the provision of gender affirming care scale had four factors. Items loaded onto the following factors: *psychoeducation, patient interaction, providing care in a safe environment, and referrals*. Participants rated their level of agreement to each statement on a Likert scale from strongly disagree (1) to strongly agree (5). A score was calculated for each factor and a total score was calculated for overall provision of GAC. Higher scores indicate greater perceived provision of gender affirming care. The scale demonstrated strong reliability in this sample (α = .91).

2.4 Data Management

Collaborating Sites

The PI collaborated with Atrium Health, one of the nation's leading healthcare organizations to facilitate participant recruitment. In addition, the PI collaborated with Atrium Health's Levine Children's Center for Gender Health and Teen Health Connection. Although these sites are collaborators, approval from the PIs Institutional Review Board at the University of North Carolina at Charlotte, was obtained.

Data collection and storage

Screening, online consent, and the questionnaire were completed online via Qualtrics and stored on an encrypted database and password protected computer. Participants were asked to recruit individuals meeting study eligibility with varying characteristics, ranges of experiences, or other relevant differences which improved the quality of the data collected.

Confidentiality

To ensure confidentiality, survey data was not linked to personally identifying data. We collected the contact information and other identifiers of the providers and stored and protected the information on an encrypted computer database. The computer laptops containing participant data were encrypted and password protected. Only the PI had access to this computer.

2.5 Statistical Analysis

SPSS Version 23.0 software (IBM Corp, 2017) was used for data management and statistical analyses of quantitative data obtained from the online survey. Using SPSS, descriptive statistics were conducted to identify missing data, out-of-bound values, and

outliers. Invalid responses were identified and removed from analyses. Q-Q plots were assessed to determine normality. Several variables were dichotomized for analyses purposes due to the small subsample size. Pearson's bivariate correlations were conducted to explore the basic linear relationship among variables.

Specific Aim 1 analysis. (1a) To assess physician's knowledge, agreement with, and perceived barriers of the AAP recommendations as well as provision of gender-affirming care (i.e., *psychoeducation, patient interaction, providing care in a safe environment, and referrals*) descriptive analyses (frequencies and percentages) were performed. (1b) To assess if physician's knowledge, agreement with, and perceived barriers to implementing the AAP recommendations, as well as provision of gender-affirming care (i.e., *psychoeducation, patient interaction, providing care in a safe environment, and referrals*), differed by practice setting urbanization level (i.e., large metro; Population size > 1 million vs. other metro; Population size < 1 million), a series of t-tests were performed.

Specific Aim 2 analyses. Three regression analyses were conducted to examine the contribution of provider characteristics and practice setting to (2a) AAP policy knowledge, (2b) agreement with the AAP policy, and (2c) perceived implementation barriers of the AAP policy. Predictor variables included provider characteristics and practice setting variables that were significant at the bivariate level and were entered simultaneously. Regression coefficients and associated *p* values were examined for practical and statistical significance.

Specific Aim 3 analyses. Hierarchical regression analyses were conducted to examine the contribution of provider characteristics, practice setting and AAP policy

knowledge, agreement with and perceived implementation barriers to (3a) the overall provision of gender affirming care as well as each subcomponent: (3b) psychoeducation, (3c) patient interaction, (3d) providing care in a safe environment, and (3e) referrals. For all analyses, provider characteristics, and practice setting variables were entered in step 1, if significant at the bivariate level. In step 2, AAP policy variables (i.e., knowledge, agreement, and perceived barriers) were entered. Regression coefficients were examined to determine statistical and practical significance. The R^2 change from the first to the second step in the models were examined for practical and statistical significance. A total of five hierarchical regressions were initially completed.

CHAPTER 3: RESULTS

3.1 Descriptive findings and preliminary analysis

Of the 210 participants who completed the entire study, eleven cases were identified as having data missing on two or more variables of interest. Those cases were removed from analyses, and the final sample size consisted of 199 participants. Frequency analyses indicated that all variables demonstrated adequate variability; Q-Q plots indicated that the variables were normally distributed.

Provider characteristics are provided in Table 1. A majority of the sample identified as female and White; participants' ages ranged from 27 to 73 years (M = 45.35, SD = 10.97). A majority of the participants identified themselves as religious and over half actively participated in their religion. However, half of the sample indicated that their religion was of minor importance or not at all important to them. A majority of the participants had senior career status, meaning that they graduated from medical school more than 10 years ago, and nearly all had provided care for patients who identify as transgender or gender diverse. Interestingly, most providers did not receive formal training on transgender health in medical school and sought formal training on transgender health after medical school. The most reported subspecialty of participants was adolescent medicine and over half of the sample was board certified by the American Board of Pediatrics.

Practice setting characteristics are provided in Table 2. About half of the participants practiced in a large metro setting (Population size > 1 million). A majority of participants had senior career status and a little over half have been practicing at their site for more than 5 years (i.e., senior site tenure).

Table 1.

Provider Characteristics

Variable		%
Gender identity		
	Male	31.2
	Female[a]	68.8
Race		
	White/non-Hispanic	81.4
	Non-White	18.6
Religious Orientation		
	Religious	80.4
	Not Religious	19.6
Religion Importance		
	Not important	25.1
	Of minor importance	25.6
	Important	29.1
	Very important	20.1
Religious Participation		
	Do not participate	37.7
	Participate	62.3
Career Level		
	Early Career	28.6
	Senior Career	71.4

Lifetime experience providing care for patients who identified as TGD		
	Have *never* provided care	4.0
	Have provided care	96.0
Formal transgender care training *in* medical		
	No	80.4
	Yes	19.6
Formal transgender care training *after* medical school		
	No	29.6
	Yes	70.4
Subspecialty		
	Adolescent Subspecialty	15.1
	Other or No Subspecialty	84.9
AAP Certification		
	No	41.2
	Yes	58.8

Note. N = 199. a. One participant identified as transfem and was coded as female.

Table 2.

Practice Setting

Variable		%
Urbanization		
	Other metro size (Population size < 1 million)	50.3
	Large metro (Population size > 1 million)	49.7
Tenure at Current Site		
	Short tenured (< 5 years)	44.2
	Long tenured (> 5 years)	55.8

Note. $N = 199$.

Means and standard deviations for variables of interest are reported in Table 3. On average, participants rated their communication skills with patients and their families as very good to excellent and reported low levels of transgender stigma. Regarding access to medical referrals, on average, participants reported that they do not have access to referrals within a 20-mile radius of their practice, but on average they reported that they have access to resources that they need to effectively perform their jobs and address the many health-related needs of their patients.

***3.2 Specific Aim 1 Analysis*.**

3.2.1 Aim 1a. Participants were somewhat knowledgeable of the AAP policy, agreed with the policy, and reported low levels of barriers to implementing policy recommendations (see Table3). Overall, participants indicated that they provide high levels of GAC. More specifically, providers indicated that they promote and convey gender-affirming messages through psychoeducation and have positive gender-affirming patient

interactions by routinely assessing and inquiring about gender development. Providers moderately agreed with a statement assessing if they were able to provide GAC in a safe environment and to provide referrals for their patients (see Table 3).

Table 3.

Descriptive Statistics of Study Variables

Variable	*M*	*SD*
Communication Skills	4.35	0.62
Medical Referrals	2.87	1.63
Resources	3.22	1.14
Stigma	1.27	0.55
AAP Policy Knowledge	3.56	1.11
AAP Policy Agreement	4.60	0.71
AAP Policy Barriers	2.12	0.79
Total Provision of GAC	4.02	0.68
GAC Psychoeducation	4.54	0.62
GAC Patient Interactions	3.93	0.88
GAC Environment	3.38	1.06
GAC Referrals	3.75	1.17

Note. $N = 199$. AAP = American Academy of Pediatrics. GAC = Gender Affirming Care. Communication scale: a higher score indicates greater communication skills. Resource scale: a higher score indicates greater access to resources. Higher stigma scores indicate greater levels of transgender stigma. Higher scores for AAP Policy Knowledge and Agreement indicate greater knowledge and agreement towards the policy statement. Higher AAP Barrier scores indicate greater perceived barriers. For all GAC scales, they are measured such that a higher score indicates greater provision of GAC.

3.2.2 Aim 1b. T-tests indicated that providers practicing in large metropolitan settings reported greater AAP policy knowledge ($t(197) = -2.64$, $p < .01$) and less perceived barriers to implementing AAP policy recommendations ($t(197) = 1.98$, $p = .05$) compared to those in other (i.e., smaller) metro areas. In addition, providers in large metropolitan areas were more likely to report overall greater provision of GAC ($t(197) = -3.25$, $p = .001$), higher levels of gender-affirming patient interactions ($t(197) = -2.75$, $p < .01$), higher levels of provision of care in safe and gender-affirming environments ($t(197) = -2.88$, $p < .01$), and greater GAC referrals ($t(197) = -3.96$, $p < .001$) compared to providers working in other (i.e., smaller) metro areas. Urbanization level of the participants' practice setting was not significantly associated with AAP policy agreement or provision of GAC through psychoeducation.

3.3 Specific AIM 2 Analyses.

Zero-order correlations were first conducted to examine association among provider characteristics and practice setting with AAP Policy variables (i.e., AAP policy knowledge, agreement, and perceived barriers; see Table 4). For each regression, predictor variables significant at the bivariate level were included in the model.

Table 4.
Correlations of Provider Characteristics, Practice Setting, and Transgender Stigma with AAP Policy and Provision of GAC Variables

	AAP Knowledge	AAP Agreement	AAP Perceived Barriers	GAC Psychoeducation	GAC Patient Interaction	GAC Safe Environment	GAC Referrals	GAC Total
Age	0.05	-0.13	-0.05	0.03	0.07	-0.04	-0.04	0.02
Gender Identity	0.01	**0.21****	-0.08	0.13	0.02	0.00	-0.04	0.05
Race	0.06	0.10	-0.07	0.10	0.12	0.09	**0.17***	**0.14***
Religious Identity	-0.09	0.14	0.01	0.08	0.04	0.02	0.08	0.06
Religion Importance	0.07	**-0.24****	0.06	**-0.16***	-0.07	-0.08	-0.07	-0.12
Religious Participation	0.04	**-0.21****	0.03	-0.12	-0.12	-0.04	-0.04	-0.11
Communication Skills	**0.37****	0.10	**-0.29****	**0.33****	**0.39****	**0.20****	**0.24****	**0.38****
Career Level	-0.01	-0.13	0.01	0.00	-0.02	-0.11	-0.10	-0.06
Experience	0.12	-0.02	-0.08	0.06	**0.16***	**0.15***	0.00	0.14
Training In	0.03	0.10	-0.09	0.01	-0.01	0.11	0.00	0.04
Training After	**0.35****	0.12	**-0.30****	**0.27****	**0.33****	**0.46****	**0.25****	**0.42****
Subspecialty	**0.42****	0.08	**-0.20****	**0.22****	**0.40****	**0.38****	**0.22****	**0.40****
Board Certification	**0.41****	**0.18***	**-0.26****	0.09	**0.15***	**0.15***	**0.23****	**0.18***
Urbanization	**0.19****	0.07	**-0.14***	0.10	**0.19****	**0.20****	**0.27****	**0.23****
Site Tenure	0.02	**-0.16***	0.02	-0.06	-0.02	0.01	-0.05	-0.03
Medical Referrals	0.10	0.07	-0.08	**0.16***	0.13	0.07	0.14	**0.15***
Resources	-0.01	-0.02	-0.13	-0.05	-0.04	0.05	**0.24****	0.03
Transgender Stigma	**-0.23****	**-0.59****	**0.29****	**-0.59****	**-0.37****	**-0.17***	**-0.24****	**-0.44****

Notes. $N = 199$. * $p < .05$. ** $p < .01$ Experience = Lifetime experience providing care for patients who identified as transgender or gender diverse; Training In = Formal training on transgender health in medical school; Training After = Formal training on transgender health after medical school; Gender Identity is coded 0 = male, 1 = female; Race is coded 0 = White, 1 = Non-white; Religious Identity is coded 0 = religious, 1 = non-religious.

3.3.1 Aim 2a. Several provider characteristics and practice setting variables were significantly associated with AAP policy knowledge at the bivariate level (see Table 4). Regarding provider characteristics, higher levels of self-reported communication skills, receiving formal training in transgender health after completing medical school, having an adolescent medicine subspecialty, and being board certified by the American Board of Pediatrics were significantly associated with greater AAP knowledge. Conversely, higher levels of transgender stigma were negatively associated with greater AAP policy knowledge. Provider's practice setting, specifically practicing in a large metropolitan area, was associated with greater AAP policy knowledge.

A linear regression analysis was conducted to examine factors that help explain the variability in AAP policy knowledge (See Table 5). The overall regression model was statistically significant (R^2 adjusted = 0.43, $F(6, 192) = 25.42$, $p < .001$). Communication skills, having a subspecialty in adolescent medicine, receiving formal training in transgender healthcare after medical school, and being board certified by the American Board of Pediatrics were associated with higher levels of AAP policy knowledge. Urbanization level of the practice setting, and transgender stigma were not significantly associated with AAP policy knowledge.

Table 5.
Regression Analysis: Contribution of Provider and Practice Characteristics to AAP Knowledge

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	0.39	[-0.63, 1.41]		0.52
Communication	0.55**	[0.35, 0.75]	0.30**	0.10
Training After	0.67**	[0.40, 0.94]	0.28**	0.14
Subspecialty Adolescent Medicine	0.55**	[0.17, 0.92]	0.18**	0.19
Board Certification	0.75**	[0.50, 1.01]	0.33**	0.13
Urbanization	0.03	[-0.22, 0.28]	0.02	0.13
Transgender Stigma	-0.17	[-0.40, 0.05]	-0.08	0.11

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$. *b* = unstandardized regression weight. Training After = Formal training on transgender health after medical school.

3.3.2 Aim 2b. Several provider characteristics and practice setting variables were significantly associated with AAP policy agreement at the bivariate level (see Table 4). Regarding provider characteristics, female gender identity and being board certified by the American Board of Pediatrics were significantly associated with greater agreement. Conversely, importance of religion and participation in religious activities were negatively associated with agreement with the AAP policy. Furthermore, higher levels of transgender stigma and long-tenure (i.e., 6 years or more at current site) were negatively associated with AAP policy agreement.

A linear regression analysis was conducted to examine the variability of AAP policy agreement (See Table 6). The overall regression was statistically significant

(R^2adjusted = 0.38, $F(6, 192) = 21.10$, $p < .001$). Being board certified by the American Board of Pediatrics, shorter site tenure, and lower levels of transgender stigma contributed to greater agreement with the AAP policy. Gender identity, importance of religion, and religious participation were not significantly associated with AAP policy agreement.

Table 6.
Regression Analysis: Contribution of Provider Characteristic to AAP Agreement

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	5.41**	[5.11, 5.70]		0.15
Gender Identity	0.17	[-0.00, 0.34]	0.11	0.09
Religion Importance	-0.03	[-0.14, 0.07]	-0.05	0.05
Religion Participation	-0.08	[-0.30, 0.15]	-0.05	0.11
Board Certification	0.24**	[0.80, 0.40]	0.17**	0.08
Site Tenure	-0.16*	[-0.32, -0.01]	-0.12	0.08
Transgender Stigma	-0.67**	[-0.82, -0.52]	-0.52**	0.08

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$.; *b* = unstandardized regression weight. *β* = standardized regression weight.

3.3.3 Aim 2c:

Several provider characteristics and practice setting variables were significantly associated with perceived barriers for implementing the AAP policy at the bivariate level (see Table 4). Regarding provider characteristics, higher levels of self-reported communication skills, receiving formal training in transgender health after completing

medical school, having an adolescent medicine subspecialty, and being board certified by the American Board of Pediatrics were negatively associated with perceived AAP policy implementation barriers. Conversely, higher levels of transgender stigma were associated with greater perceived AAP policy implementation barriers. Regarding characteristics of the practice setting, urbanization level, specifically practicing in a large metropolitan area, was associated with lower perceived barriers implementing the AAP policy.

A regression analysis was conducted to examine factors that help explain the variability of AAP policy implementation barriers (See Table 7). The overall regression was statistically significant (R^2adjusted = 0.24, $F(6, 192) = 11.10$, $p < .001$). Communication skills, formal training in transgender healthcare after medical school, and being board certified by the American Board of Pediatrics contributed to lower levels of perceived barriers for policy implementation. In contrast, increased transgender stigma was associated with higher levels of perceived barriers for implementation. Subspecialty in adolescent medicine and the urbanization level of the practice setting were not significantly associated with AAP policy implementation barriers adjusting for other variables in the model.

Table 7.
Regression Analysis: Contribution of Provider Variables to Perceived AAP Barriers

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	3.10**	[2.76, 4.44]		0.43
Communication Skills	-0.29**	[-0.45, -0.12]	-0.22**	0.08
Training After	-0.45**	[-0.67, -0.23]	-0.26**	0.11
Subspecialty Adolescent Medicine Board Certification	0.05	[-0.36, 0.35]	0.02	0.16
Urbanization	-0.37**	[-0.58, -0.16]	-0.23**	0.11
Transgender Stigma	-0.09	[-0.29, 0.12]	-0.06	0.10
	0.27**	[0.09, 0.46]	0.19**	0.09

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$.; b = unstandardized regression weight. β = standardized regression weight. Training After = Formal training on transgender health after medical school.

3.3.4 Final Conceptual Model of AAP Policy

Figure 3 summarizes the findings of the regression analyses and presents a final conceptual model of the provider characteristics and practice setting variables significantly contributing to AAP policy knowledge, agreement with the policy, and perceived barriers to implementing the AAP Policy among physicians.

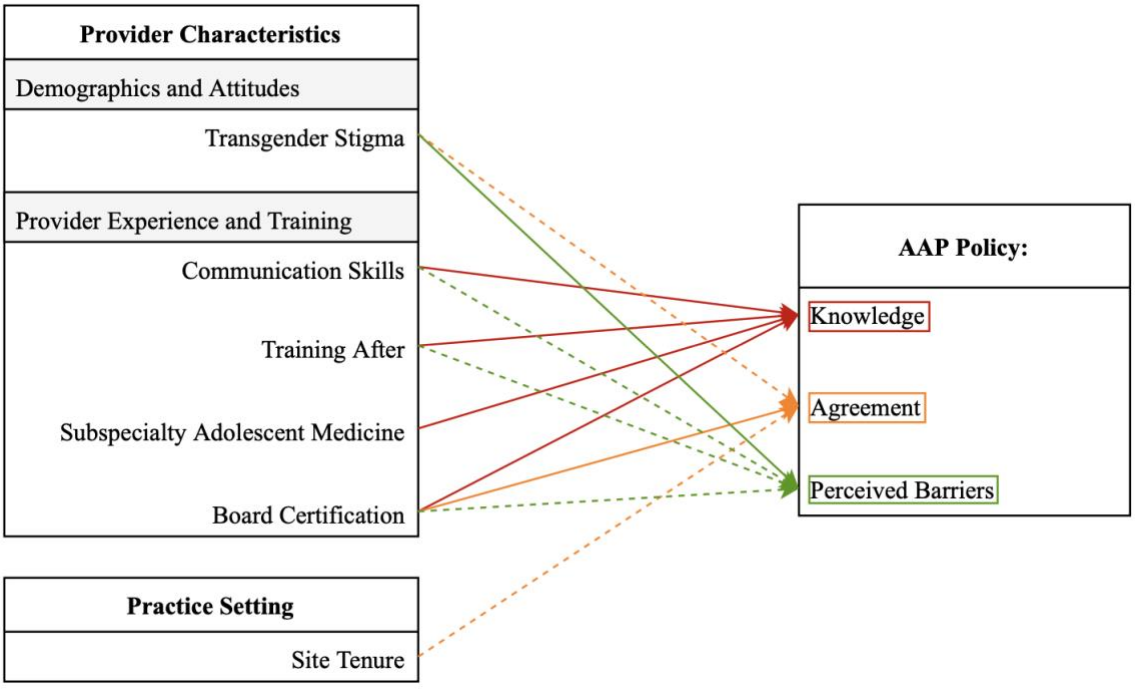

Figure 3. Final Conceptual Model of Physician's AAP Policy Knowledge, Agreement and Perceived Barriers to Policy Implementation. *Note.* Negative associations are represented by dashed arrows and positive associations by solid arrows.
Training After = Formal training on transgender health after medical school.

3.4 AIM 3 Analyses.

Zero-order correlations were conducted to examine association among provider characteristics and practice setting with provision of GAC (see Table 4) and between AAP policy and provision of GAC variables (see Table 8). As seen in Table 8, there was significant overlap between AAP policy variables and GAC variables. We initially moved forward with the proposed hierarchical analyses, but it became apparent that the AAP policy variables were acting as a suppressor. Specifically, the inclusion of AAP policy variables changed the sign of the coefficient for several variables (e.g., communication and AAP board certification) from positive in stage 1 to negative in stage 2. Given the strong association between the AAP Policy variables and the subscales and

total scores of the GAC variables, and in accordance with current recommendations for dealing with suppressor effects (Guinn, 2019), we removed the AAP variables from subsequent analyses. This approach was consistent with our interest in understanding the contribution of provider characteristics and practice setting to the provision of GAC. As such, regression analyses were conducted to examine the contribution of provider characteristics and practice setting to the variability in the (3a) overall provision gender affirming and each of the components of gender affirming care, namely, (3b) psychoeducation, (3c) patient interactions, (3d) provision of care in a safe environment and (3e) referrals. For all analyses, provider characteristics and practice setting variables were entered if they were significantly associated with gender affirming care at the bivariate level.

Table 8.
Correlations Between AAP Policy and Provision of GAC Variables

	AAP Knowledge	AAP Agreement	AAP Perceived Barriers	GAC Psychoeducation	GAC Patient Interaction	GAC Safe Environment	GAC Referrals	GAC Total
AAP Knowledge	-							
AAP Agreement	**0.35****	-						
AAP Perceived Barriers	**-0.64****	**-0.43****	-					
GAC Psychoeducation	**0.47****	**0.58****	**-0.48****	-				
GAC Patient Interaction	**0.67****	**0.38****	**-0.57****	**0.63****	-			
GAC Safe Environment	**0.58****	**0.15***	**-0.56****	**0.34****	**0.57****	-		
GAC Referrals	**0.48****	**0.34****	**-0.57****	**0.44****	**0.57****	**0.48****	-	
GAC Total	**0.70****	**0.46****	**-0.68****	**0.78****	**0.90****	**0.76****	**0.71****	-

Notes. $N = 199$. * $p < .05$. ** $p < .01$

3.4.1 Aim 3a. Several provider characteristics and practice setting variables were significantly associated with overall provision of GAC at the bivariate level (see Table 4). Regarding provider characteristics, non-White race, communication skills, receiving formal training in transgender health after completing medical school, having an adolescent medicine subspecialty, and being board certified by the American Board of Pediatrics were associated with greater overall GAC. Conversely, transgender stigma was negatively associated with total GAC. Regarding characteristics of the practice setting, urbanization level, specifically practicing in a large metropolitan area, and having medical referrals within a 20- mile radius were associated with greater overall provision of GAC.

The results of the regression analysis examining factors that help explain the variability in the overall provision of GAC are presented on Table 9. The overall regression was statistically significant (R^2adjusted = 0.46, $F(8, 190) = 21.87$, $p < .001$). Communication skills, receiving training in transgender health after medical school, and having a subspecialty in adolescent medicine contributed to higher levels of GAC. In contrast transgender stigma was negatively associated with the provision of GAC. Race, AAP board certification, urbanization level, and resources available at the practice did not significantly contribute to overall provision of GAC.

Table 9.
Multiple Regression Analysis: Examining Factors Contributing to Overall GAC

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	2.68**	[2.03, 3.32]		0.33
Race	0.12	[-0.07, 0.31]	0.07	0.10
Communication Skills	0.28**	[0.16, 0.40]	0.25**	0.06
Training After	0.45**	[0.29, 0.61]	0.30**	0.08
Subspecialty Adolescent Medicine	0.34**	[0.12, 0.56]	0.18**	0.11
Board Certification	0.11	[-0.04, 0.27]	0.08	0.08
Urbanization	0.12	[-0.04, 0.27]	0.09	0.08
Resources	0.03	[-0,03, 0.10]	0.06	0.03
Transgender Stigma	-0.40**	[-0.53, -0.26]	-0.32**	0.07

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$. *b* = unstandardized regression weight. β = standardized regression weight. Race is coded 0 = White, 1 = Non-white; Training After = Formal training on transgender health after medical school.

3.4.2 Aim 3b. Several provider characteristics and practice setting variables were significantly associated with the provision of GAC psychoeducation at the bivariate level (see Table 4). Regarding provider characteristics, higher communication skills, receiving formal training in transgender health after completing medical school, and having an adolescent medicine subspecialty were associated with greater provision of GAC psychoeducation. Conversely, greater reported religion importance and higher levels of transgender stigma were negatively associated with provision of GAC psychoeducation. Regarding characteristics of the practice setting, having medical referrals within a 20-mile radius was associated with greater provision of GAC psychoeducation.

A regression analysis was conducted to examine factors that help explain the variability in the provision of GAC psychoeducation (See Table 10). The overall regression was statistically significant (R^2adjusted = 0.43, $F(6, 192) = 25.80$, $p < .001$). Communication skills, receiving training in transgender health after medical school, and having medical referrals within a 20-mile radius were associated with greater provision of GAC psychoeducation. In contrast, transgender stigma was negatively associated with GAC psychoeducation. Religion importance and having a subspecialty in adolescent medicine did not significantly contribute to the provision of GAC psychoeducation.

Table 10.
Multiple Regression Analysis: Examining Factors Contributing to GAC Psychoeducation

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	4.20**	[3.64, 4.77]		0.29
Religion Importance	-0.01	[-0.08, 0.06]	-0.02	0.03
Communication Skills	0.18**	[0.07, 0.29]	0.18**	0.06
Training After	0.22**	[0.07, 0.37]	0.17**	0.08
Subspecialty Adolescent Medicine	0.12	[-0.07, 0.31]	0.07	0.10
Medical Referrals	0.05*	[0.01, 0.09]	0.13*	0.02
Transgender Stigma	-0.58**	[-0.71, -0.45]	-0.51**	0.07

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$. *b* = unstandardized regression weight. *β* = standardized regression weight. Training After = Formal training on transgender health after medical school.

3.4.3 Aim 3c. Several provider characteristics and practice setting variables were significantly associated with the provision of GAC patient interaction at the bivariate level (see Table 4). Regarding provider characteristics, greater communication skills, experience providing care for patients who identified as transgender or gender diverse, receiving formal training in transgender health after completing medical school, having an adolescent medicine subspecialty, and being board certified by the American Board of Pediatrics were associated with greater GAC patient interaction. Conversely, transgender stigma was negatively associated with GAC patient interaction. Regarding characteristics of the practice setting, urbanization level, specifically practicing in a large metropolitan area, was associated with greater GAC patient interaction.

A regression analysis was conducted to examine factors that help explain the variability in the provision of GAC patient interaction (See Table 11). The overall regression was statistically significant (R^2adjusted = 0.37, $F(7, 191) = 17.57$, $p < .001$). Communication skills, lifetime experience providing care for patients who identified as transgender or gender diverse, formal training in transgender health after medical school, and having a subspecialty in adolescent medicine contributed to higher levels of GAC patient interaction. In addition, higher transgender stigma was associated with lower levels of GAC patient interaction. Being board certified by the American Board of Pediatrics and practice setting urbanization level did not significantly predict provision of GAC patient interactions.

Table 11.
Multiple Regression Analysis: Examining Factors Contributing to GAC Patient Interaction

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	1.76**	[0.81, 2.72]		0.48
Communication Skills	0.39**	[0.22, 0.55]	0.27	0.08
Experience	0.51*	[0.01, 1.02]	0.12*	0.26
Training After	0.39**	[0.16, 0.61]	0.20**	0.11
Subspecialty Adolescent Medicine	0.53**	[0.22, 0.84]	0.22**	0.16
Board Certification	0.09	[-0.12, 0.30]	0.05	0.11
Urbanization	0.16	[-0.05, 0.37]	0.09	0.11
Transgender Stigma	-0.39**	[-0.57, -0.20]	-0.24**	0.09

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$.; *b* = unstandardized regression weight. β = standardized regression weight. Experience = Lifetime experience providing care for patients who identified as transgender or gender diverse; Training After = Formal training on transgender health after medical school.

3.4.4 Aim 3d. Several provider characteristics and practice setting variables were significantly associated with the provision of GAC in a safe environment at the bivariate level (see Table 4). Regarding provider characteristics, communication skills, experience providing care for patients who identified as transgender or gender diverse, receiving formal training in transgender health after completing medical school, having an adolescent medicine subspecialty, and being board certified by the American Board of Pediatrics were associated with higher levels of providing a GAC in a safe environment. Conversely, transgender stigma was negatively associated with a providing GAC in a safe environment. Regarding characteristics of the practice setting, urbanization level,

specifically practicing in a large metropolitan area, was associated with greater provision of GAC in a safe environment.

A regression analysis was conducted to examine factors that help explain the variability in the provision of GAC in a safe environment (See Table 12). The overall regression was statistically significant (R^2adjusted = 0.30, $F(7, 191) = 13.19$, $p < .001$). Communication skills, formal training in transgender health after medical school, subspecialty in adolescent medicine contributed to higher levels of provision of GAC in a safe environment. Lifetime experience providing care for patients who identified as transgender or gender diverse, being board certified by the American Board of Pediatrics, urbanization level, and transgender stigma did not significantly predict provision of GAC in a safe environment.

Table 12.
Multiple Regression Analysis: Examining Factors Contributing to GAC Safe Environment

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	1.15	[-0.07, 2.36]		0.61
Communication Skills	0.22*	[0.01, 0.43]	0.13*	0.11
Experience	0.57	[-0.07, 1.21]	0.11	0.33
Training After	0.86**	[0.58, 1.15]	0.37**	0.14
Subspecialty Adolescent Medicine	0.57**	[0.18, 0.96]	0.19**	0.20
Board Certification	0.15	[-0.12, 0.41]	0.07	0.14
Urbanization	0.19	[-0.07, 0.45]	0.09	0.13
Transgender Stigma	-0.11	[-0.35, 0.12]	-0.06	0.12

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$.; *b* = unstandardized regression weight. β = standardized regression weight. Experience = Lifetime experience providing care for patients who identified as transgender or gender diverse; Training After = Formal training on transgender health after medical school.

3.4.5 Aim 3e. Several provider characteristics and practice setting variables were significantly associated with the provision of GAC referrals at the bivariate level (see Table 4). Regarding provider characteristics, non-White race, communication skills, receiving formal training in transgender health after completing medical school, having an adolescent medicine subspecialty, and being board certified by the American Board of Pediatrics were associated with greater provision of GAC referrals. Conversely, higher levels of transgender stigma were negatively associated with GAC referrals. Regarding characteristics of the practice setting, urbanization level, specifically practicing in a large

metropolitan area, and access to resources were associated with greater provision of GAC referrals.

A regression analysis was conducted to examine factors that help explain the variability in the provision of GAC referrals (See Table 13). The overall regression was statistically significant (R^2adjusted = 0.27, $F(8, 190) = 10.04$, $p < .001$). Communication skills, formal training in transgender health after medical school, being board certified by the American Board of Pediatrics, urbanization level, specifically medical practices in a large metropolitan, and increased access to resources contributed to higher levels of GAC referrals. In addition, higher levels of transgender stigma were associated with lower provision of GAC referrals. Race and subspecialty in adolescent medicine did not significantly predict provision of GAC referrals.

Table 13.
Multiple Regression Analysis: Examining Factors Contributing to GAC Referrals

Variable	*b*	95% CI	*β*	S.E.
(Intercept)	1.03	[-0.26, 2.32]		0.66
Race	0.35	[-0.03, 0.73]	0.12	0.19
Communication Skills	0.35**	[0.11, 0.59]	0.19**	0.12
Training After	0.52**	[0.19, 0.84]	0.20**	0.16
Subspecialty Adolescent Medicine	0.01	[-0.44, 0.46]	0.00	0.23
Board Certification	0.39*	[0.08, 0.69]	0.16*	0.16
Urbanization	0.36*	[0.05, 0.67]	0.15*	0.16
Resources	0.26**	[0.13, 0.38]	0.25**	0.06
Transgender Stigma	-0.38**	[-0.65, -0.11]	-0.18**	0.14

Note. $N = 199$. $^{**}p < .01$ $^{*}p < .05$. *b* = unstandardized regression weight. *β* = standardized regression weight. Experience = Lifetime experience providing care for patients who identified as transgender or gender diverse; Training After = Formal training on transgender health after medical school.

3.4.6 Final Conceptual Model of Physician Gender-Affirming Care

Figure 4 summarizes the findings of the regression analyses and presents a final conceptual model of the provider characteristics and practice setting variables contributing to overall Gender-Affirming Care and each subcomponent (i.e., psychoeducation, patient interaction, safe environment, and referrals).

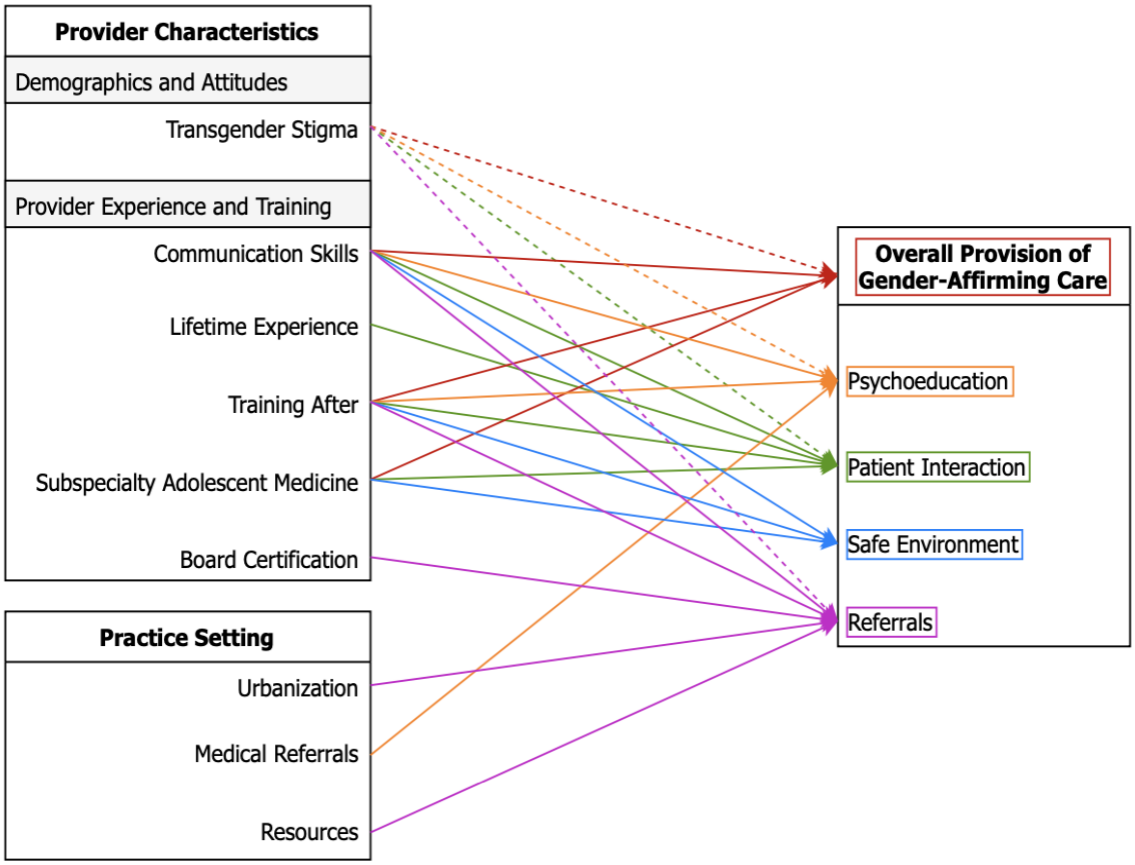

Figure 4. Final Conceptual Model of Physician's Provision of Gender-Affirming Care.

Note. Negative associations are represented by dashed arrows and positive associations by solid arrows. Lifetime Experience = Lifetime experience providing care for patients who identified as transgender or gender diverse; Training After = Formal training on transgender health after medical school.

CHAPTER 4: DISCUSSION

4.1 Discussion of Findings

The purpose of this research was to examine physician's implementation of the American Academy of Pediatrics (AAP) policy best practices (i.e., gender affirmative care model) of healthcare for TGDY and explore what factors and contexts influence provision of gender affirming care (GAC). TGDY are a vulnerable population with unique healthcare needs, and it is crucial for physicians to follow best practices, yet little is known about physicians' implementation of GAC policies (Rafferty 2018; Salas-Humara et al., 2019). Furthermore, the AAP issued clinical practice guidelines for GAC in the policy statement, "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents" in 2018, but to the author's knowledge no study to date has examined physician's knowledge, agreement with, or perceived barriers of implementing policy guidelines. Therefore, this study aimed to test a conceptual model to explore the contribution of provider characteristics and practice setting variables on providers' knowledge, agreement, and perceived barriers for implementing the policy and the provision of GAC.

A majority (96%) of study participants had provided care for TGDY at some point during their career. Previous studies reported that 66.5% of physicians had provided care to transgender youth, 53.6% had provided care for a transgender patient in past 5 years, and only 75.7% of physicians 'ever met a transgender person' (Shires et al., 2018; Vance et al., 2015). Physicians in this study were somewhat knowledgeable of the AAP policy, agreed with the policy, and reported low levels of barriers to implementing the AAP policy recommendations. In addition, participants indicated that they provide high

levels of GAC, with 91% indicating that they provide overall GAC, which contrasts studies that report that 14.3% of physicians are unwilling to provide routine care to transgender patients and that transgender individuals report that a lack of access to providers who are knowledgeable on transgender health is the biggest barrier to receiving health care (Safer et al., 2016; Shires et al., 2018). One explanation for these differing findings is that the publication of the AAP policy along with emerging research suggesting the importance of meeting the healthcare needs of TGDY may have bolstered provider's knowledge and willingness to provide gender affirming care. This offers support for the AAP and healthcare organizations' efforts to educate providers on the policy and best care recommendations. An alternative explanation for the findings, is that our research tapped into a provider network of those who were open to providing GAC and our sample may represent a "GAC friendly" subpopulation of providers. Indeed, on average, participants reported low levels of transgender stigma suggesting that our sample may represent a population that has more positive attitudes toward GAC care.

Our findings also point to differences in AAP policy knowledge, agreement, and perceived barriers for implementation of the policy between providers practicing in large metro areas and those in smaller metro areas. Specifically, providers in larger metro areas reported greater AAP policy knowledge, less perceived barriers to implementing policy recommendations and were more likely to report that they provided GAC, higher levels of gender-affirming patient interactions, higher levels of provision of care in a safe and gender-affirming environment, and greater GAC referrals compared to those working in less urbanized areas (i.e., smaller metro areas with a population size < 1 million). Interestingly, participants' practice setting was not significantly associated with AAP

policy agreement or provision of GAC through psychoeducation. Previous research has documented differences in the provision of transgender healthcare in rural versus urban settings (Johnson et al., 2018; Knutson et al., 2017; Knutson, et al., 2018; Sinnard et al., 2016) but this is the first study to the author's knowledge to examine differences in provision of transgender healthcare between large and smaller metropolitan sizes. These findings support the CDC's goal of increasing our understanding of how urbanization levels, beyond urban vs. rural, may influence healthcare disparities (Ingram & Franco, 2014). These findings suggest that providers practicing in smaller metro areas have unique contextual factors influencing their knowledge of the policy and availability of resources to implement GAC beyond the provision of psychoeducation. Therefore, when developing interventions, researchers should consider the needed resources based on the setting of the provider. Furthermore, when disseminating information of the AAP policy on GAC, the AAP could specifically target providers practicing in smaller metropolitan sites and offer them additional education resources. Easy availability of electronic resources could help bridge the gap between large metropolitan areas and less urbanized regions.

This study also tested an exploratory conceptual model examining the influence of provider characteristics and practice setting on providers' AAP policy knowledge, agreement with the policy, and perceived barriers for implementing policy recommendations. Analyses revealed that provider's communication skills, having a subspecialty in adolescent medicine, receiving formal training in transgender healthcare after medical school, and being board certified by the American Board of Pediatrics were associated with higher levels of AAP policy knowledge. It is possible that providers with

good communication skills are more motivated to seek information that can help improve their interactions with patients and the quality of care they provide. Furthermore, having a subspecialty in medicine may contribute to greater knowledge of the AAP policy, as most gender affirming medical interventions occur during adolescence (van der Grinten et al., 2021). Moreover, participating in continuing medical education (CME) helps providers stay up to date and knowledgeable on the latest policies and best practices in order to provide care effectively and consistently. Furthermore, to maintain certification from the American Board of Pediatrics, providers must participate in CME via the Maintenance of Certification (MOC) program, which requires active engagement in acquiring and applying the most current medical knowledge (AAP, 2022; The American Board of Pediatrics, 2022b). Congruent with the study's findings, interventions aimed at improving AAP knowledge may benefit from increasing provider's communication skills and in turn, their ability to provide GAC. One of the first workshops developed showing the efficacy of communication skills training was "Thriving in a Busy Practice" (Stein & Klein, 1999), and more recently, The Academy of Communication in Healthcare (ACH; 2022) developed a relationship-centered communication skills training workshop which has demonstrated effectiveness in improving self-reported attitudes and behaviors toward communicating with patients (Saslaw et al., 2022). This workshop could be integrated into practice settings as a part of the onboarding process. Such measures would increase physician's communication skills and TGDY quality of healthcare.

Interestingly, the study found that various individual factors contributed to physician's agreement with the AAP policy. Specifically, being certified by the American Board of Pediatrics, shorter site tenure, and lower levels of transgender stigma

contributed to greater agreement with the AAP policy. It is not surprising that holding board certification is related to greater agreement with the policy, as gaining board certification goes beyond a state's licensing requirements and for a provider to maintain certification one of the activities they must participate in is quality improvement (The American Board of Pediatrics, 2022a). The AAP policy statement provides guidelines on how to provide GAC and implementing current policy is a form of quality improvement, aligning with The American Board of Pediatrics. Furthermore, physician's lower levels of transgender stigma contributing to greater AAP policy agreement is not unexpected, as the AAP policy is attempting to decrease structural levels of transgender stigma (White Hughto et al., 2015). We recommend medical schools, professional organizations such as the AAP, and practice settings (e.g., hospital systems and private practices) promote and foster cultural humility throughout trainings and practice to decrease transgender stigma among providers (Chang et al., 2010; Sarkin, 2019; Tervalon et al., 1998). It is imperative to note that cultural humility differs from cultural competency and is not a one-time training for a physician to engage in, or a didactic seminar, but rather a lifelong dynamic learning process of engaging in self-reflection, self-evaluation, interpersonal sensitivity, and addressing the power dynamics between physicians and their patients (Goldenberg et al., 2019; Tervalon et al., 1998). One informal educational tool and resource a practice setting can use to facilitate this process and decrease transgender stigma is the *Cultural Humility & Reducing Stigma and Discrimination | Provider Handbook* (AIDS Education & Training Center Program, 2020). In addition, practice settings should consider requiring trainings directly aimed at reducing transgender stigma. Research on reducing transgender stigma is still relatively nascent, however, a recent study found that cis-men

who engaged in a computer-mediated intergroup contact with a transgender woman reported decreased stigma, but the interaction had no significant impact on stigma levels for cis-women (Boccanfuso et al., 2020). Furthermore, another study found that humanizing TGDY though exposure to a documentary film depicting TGDY and engaging in a perspective-taking task reduced transprejudice (Tompkins et al., 2015). These findings suggest that future interventions aimed at reducing transgender stigma should incorporate exposure to or contact with transgender folx, encourage perspective-taking, and target those with higher levels of transgender stigma. Subsequently, reducing physician's transgender stigma should have a positive impact on AAP policy agreement and provision of GAC. Interestingly, our findings suggest that shorter site tenure contributes to greater agreement with the AAP policy. It is unclear what factors might be influencing this, and additional research is warranted to further understand this relationship.

Furthermore, this study found that communication skills, formal training in transgender healthcare after medical school, and being board certified by the American Board of Pediatrics contributed to lower levels of perceived barriers for policy implementation. Physicians' communication skills have been shown to be associated with a physician's psychosocial beliefs, which may explain why communication skills contributed to lower levels of perceived barriers to implementing the policy recommendations (Levinson & Roter, 1995). In addition, one of the aims of transgender health trainings and board certification is to educate physicians on how to identify and overcome barriers for implementing care (Dubin et al., 2018; The American Board of

Pediatrics, 2022c). These findings suggest that these trainings are potentially effective and contribute to decreased perceived barriers.

As this is the first study to examine factors contributing to AAP policy knowledge, agreement with the AAP policy, and perceived implementation barrier, this study further aimed to understand how provider characteristics and practice setting also contribute to provision of GAC best practices, which is what is recommended in the AAP policy. The study found that greater communication skills, receiving training in transgender health after medical school, and having a subspecialty in adolescent medicine, contributed to higher levels of GAC, while transgender stigma negatively contributed to provision of overall GAC. These findings provide further support for interventions focused on increasing communication skills as well as the provision of transgender healthcare training, which aligns with the recommendations offered in previous research (Eisenberg et al., 2020). In addition to the trainings already previously mentioned, practice settings may wish to require all physicians to participate in trainings by WPATH affiliated partners such as Gender Diversity's (2021) "Health Care Providers' Training" and/or Gender Spectrum's (2019) "Medical Professionals: Foundations of Affirmative Care" training. Furthermore, we recommend practices to conduct quality improvement research to examine the efficacy of such training on GAC.

We also sought to understand the nuances of how provider characteristics and practice setting contribute to specific aspects of GAC to inform the development of future interventions. Results found that communication skills, receiving training in transgender health after medical school, and having medical referrals within a 20-mile radius contributed to greater provision of GAC psychoeducation, while transgender stigma was

related to lower levels of GAC psychoeducation. Furthermore, communication skills, lifetime experience providing care for trans identified patients, receiving training in transgender health after medical school, and having a subspecialty in adolescent medicine contributed to higher levels of GAC patient interaction. In contrast, transgender stigma, contributed to lower levels of GAC patient interaction. Regarding providing care in a GAC safe environment, communication skills, formal training in transgender health after medical school, and having a subspecialty in adolescent medicine contributed to higher levels of GAC in a safe environment. Similarly, communication skills, receiving training in transgender health after medical school and AAP board certification contributed to higher levels of GAC referrals. As previously discussed, the required CME and MOC program to maintain AAP board certification may contribute to greater knowledge of current referral resources, as well as create a professional network for providers to gain support (AAP, 2022; The American Board of Pediatrics, 2022b). Additional research is necessary to understand how AAP board certification contributes to GAC referrals.

Furthermore, medical practices in a large metropolitan were more likely to provide GAC referrals which may reflect increased access to resources. In contrast, transgender stigma contributed to lower levels of GAC referrals which is congruent with prior research that has documented that physician related stigma negatively influences patient referrals for health treatment (Jung et al., 2016; Kim et al., 2018). Our finding indicates the need to further examine and identify the pathways by which provider's transgender stigma influences the provision of referrals.

Taken together, these findings support the use of a Process-Person-Context-Time model (PPCT) model to understand factors that contribute to AAP policy knowledge,

agreement with, and perceived barriers, as well as provision of GAC. Specifically, the model suggests that provider characteristics (i.e., transgender stigma, communication skills, lifetime experience providing care for tans-identified patients, training on transgender healthcare post-medical school, specialization in adolescent medicine, and AAP board certification) and practice setting (i.e., practice setting urbanization, medical referrals, and resources), influence provision of GAC and should be taken into consideration when developing interventions aimed to increase GAC among physicians. These findings are important as they add to the current literature examining physician's GAC for TGDY and can inform the development of future interventions.

4.2 Limitations and Strengths

The findings of this study provide foundational evidence of the contribution of provider characteristics and practice setting on the knowledge of, agreement with, and perceived implantation barriers with the AAP policy and provision of GAC. Although this study furthers our understanding of physicians' provision of GAC, several limitations are worth noting. Firstly, recall biases are possible given the use of self-reported and retrospective assessments of GAC (Althubaiti, 2016). Given this, participants may not be accurately reporting their true provision of GAC. Furthermore, social desirability biases may be contributing to the high reports of GAC (Althubaiti, 2016). It is also possible that physicians who provide care for TGDY and are invested in their care, were more likely to take time out of their busy schedules to participate in a research study regarding transgender healthcare. Therefore, this study may not fully capture the experiences of physicians who are not invested in the provision of GAC for youth. Another limitation of the study was that the sample size consisted of a majority of White and female identified

participants. This does not accurately reflect the population of physicians actively practicing in the United States as, based on demographic data from the Association of American Medical Colleges (AAMC) of active physicians, 56.2% of providers are White and 35.8% are female (AAMC, 2019). Consequently, our findings may not apply to all physicians practicing in the United States, and future research should aim to examine this study in a more representative sample. This study was also conducted with physicians holding a Doctorate in Medicine (MD) and did not include providers who hold other degrees such as Doctor of Osteopathic Medicine (DO), Nurse Practitioner (NP), or Physician Assistants (PA). These providers are also integral to the medical and GAC of youth, and it is important for future research to apply the PPCT model to examine factors that influence GAC within these disciplines.

The present study also has several notable strengths. First, to this author's knowledge, this is the first study to examine AAP policy knowledge, agreement with, and perceived implementation barriers. Furthermore, this study contributes to foundational knowledge on providers' provision of GAC. This is particularly noteworthy, given the current political context, where there has been an increase in legislation criminalizing physicians' provision of GAC to TGDY and often includes enforcement by penalties such as fines, jail time, and/or loss of licensure (Martin et al., 2021; Park et al., 2021; S.B., 2021). Thirdly, this study developed a novel scale assessing the provision of GAC. The preliminary results suggest that the scale shows promise for assessing the provision of GAC. Additional scale development is necessary for determining its validity, reliability, and ability to assess changes over time. Lastly, this study is theory based, and the results can inform the development of context specific interventions for physicians to

improve AAP policy knowledge, reduce barriers, and improve GAC. This in turn would then improve the safety and adequacy of healthcare TGDY receive.

4.3 Future directions

Given the exploratory nature of this project, future research should seek to further understand the relationships between provider characteristics, practice setting, AAP policy variables, and provision of GAC. These studies should include a robust sample size and expand beyond physicians holding medical degrees and include DO, NP, and PAs. Furthermore, we recommend a mixed methods approach to such research, to gain a deeper understanding of providers' experiences. Specifically, it is unclear what providers perceive as the barriers to implementing GAC and conducting focus groups or qualitative interviews can further elucidate specific barriers. Another next step is the development, implementation, and assessment of interventions designed to increase physician's implementation of GAC for TDGY- and consequently the direct impact of these interventions on the services provided to TGDY. As previously mentioned above, interventions should consider consisting of promoting cultural humility, reducing transgender stigma, increasing providers communication skills, and increasing knowledge and awareness of the AAP policy and transgender healthcare best practices. Furthermore, these interventions should be developed in collaboration with medical providers and take into consideration the practice setting and provider characteristics. Taking such an approach will contribute to the development of targeted interventions. Lastly, to help with examining the efficacy of interventions, future research should continue to develop and validate the GAC scale with a wide range of medical providers. Furthermore, future studies should examine if providers' perception of their provision of GAC translates to

the actual provision of care, and how their TGDY patients perceive such care. Validating the GAC scale will assist in the identification of providers who could benefit from targeted interventions. Furthermore, this scale can easily be used by researchers to examine the relationship between provider's perceived GAC implementation and the health outcomes of their patients who identify as TGDY. This research would significantly improve the safety and quality of healthcare TGDY receive.

Specifically, a proposed future project, will be to develop and test a hospital-based intervention targeted towards physicians who do not hold an adolescence subspecialty. The intervention would likely include psychoeducation on transgender healthcare and would take a case-based learning (CBL) approach regarding TGDY and encourage perspective taking to foster cultural humility. Research shows that medical trainees prefer CBL over didactic trainings as it is engaging, simulating, and applicable to real healthcare scenarios (George et al., 2020; Thistlethwaite, et al., 2012). This proposed project is an initial first step and the authors hope that the findings from this study inform the development of additional context-specific-interventions to inform physicians provision of GAC for children and adolescents. To accomplish this endeavor, this dissertation took a unique approach to the dissemination of findings and created a Dissertation Report (See Appendix F) that summarized the study findings in a comprehensive and accessible way. A total of 165 (82.91%) of the participants in the study requested the Dissertation Report. This will significantly further the reach of study findings; hopefully contributing to a greater impact on the provision of GAC. Lastly, a final contribution for the present study was creating an opportunity for physicians to share their experiences providing GAC, as previous research on GAC has been

predominantly conducted with patients and their families (Eisenberg et al., 2020; Kearns et al., 2021). Although not captured by the aims of this study, participants were also given the opportunity to provide feedback/comments regarding the study. A few of the statements shared by participants are included below. These statements emphasized providers' commitment to transgender healthcare and their desire for future interventions and further education.

> *I absolutely love taking care of this population of patients! I have taken care of adults and teens who identify as non-binary, genderqueer, transgender. It is really rewarding yet challenging work. I wish that there was more embedded curriculum in medical school regarding treatment of this group of patients. A lot of what I have learned, I have sought out myself because of my interest in taking care of these patients. (Participant A)*
>
> *I definitely am still learning, but I've found, especially for younger children, the most important thing I can provide are letters of support for school, etc. It's something all pediatricians should know/be prepared to do (Participant B)*
>
> *i welcome more education as an obgyn (Participant C)*
>
> *I think the AAP should require education about gender-diverse and transgender patients as part of MOC. (Participant D)*

4.4 Contributions

In conclusion, the present study was a novel investigation that applied the Process-Person-Context-Time model (PPCT) model to examine physician's implementation of best practices (i.e., gender-affirmative care model) of healthcare for TGDY and what factors and context influence provision of care. The study also points to the importance of providing continuing education programs for physicians and of sharing the policy recommendations on listservs beyond those hosted by the AAP, to reach a larger audience of physicians who provide care for TGDY. Disseminating information about the policy via social media outlets, could help reach a wider audience and increase

discussions and awareness of the importance of gender affirming care for TGD individuals (Castillo et al., 2021; Gagnon et al., 2016). Participants appeared to be genuinely invested in the study and have their experiences and opinions on transgender healthcare captured. This unique insight and perceptions of physician's provision of GAC for patients under 18 is a significant contribution to the field.

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APPENDIX A: Screen

How old are you? _____

What is your current occupation? _____

Have you completed your Medical Degree (MD)?
O Yes
O No

How comfortable do you feel reading in English?	Not at all comfortable	1
	Somewhat comfortable	2
	Comfortable	3
	Very comfortable	4

Do you provide medical care for patients under 18-years old?
O Yes
O No

What is the average age of the patients you serve? (provide your best estimate) _____ years old

Are you a member of the American Academy of Pediatrics (AAP)?
O Yes
O No

What is the zip code of your medical practice? _____ ____ ____ ____ ____

APPENDIX B: Electronic Questionnaire

DEMOGRAPHICS

What was your sex or gender assigned at birth? _____

What is your current gender identity? _____

Preferred Pronouns: _____

What is your current relationship status? Choose one:

O Married
O Divorced
O Separated
O Widowed
O Living together (like married)
O In a relationship (not married)
O Dating / Casual Partner(s)
O Single

What is your race? Choose all that apply:

O Black/African American
O White
O Asian
O Native Hawaiian or Other Pacific Islander
O American Indian or Alaska Native
O Other (please specify): _____

Are you Hispanic/Latinx?

O Yes
O No

What is your sexual orientation?

O Gay / lesbian
O Bisexual
O Straight /heterosexual
O Other (please specify): _____

What is your annual household income?

O Less than $100,000
O $100,000 to $119,999
O $120,000 to $139,999
O $140,000 to $159,999
O $160,000 to $179,999
O $180,000 to $199,999
O $200,000 to $219,999
O $220,000 to $239,999
O $240,000 to $259,999
O $260,000 or more
O Prefer not to answer

What is your religious background?

O Protestant
O Catholic
O Christian
O Jewish

O Muslim
O Not religious
O Other (please specify): ___

How important is religion to you?
O Not important
O Of minor importance
O Important
O Very Important

How often do you participate in religious activities?
O I don't participate
O Weekly
O Sometimes during the month
O Sometime during the year

PROVIDER CHARACTERISTICS

How many years have you been practicing at your current site? _____
Are you board certified by the American Board of Pediatrics?
O Yes
O No

Do you have any subspecialty?
O Yes
If yes: What is your specialty? _____
O No

Where did you go to medical school? _____

What year did you graduate from medical school? _____

Where did you complete your residency training?

Medical school affiliation: _____
City: _____
State: _____
Zip code (if known): _____

Did you receive formal training in medical school on transgender health?
O Yes
O No
If yes: Please elaborate on the training, you received (i.e., was this a workshop, rotation, etc.): _____

Since you have been in practice, have you participated in any training in transgender health?
O Yes
O No
If yes: How many trainings? ____
Please elaborate on the training, you received (i.e., was this a workshop, rotation, etc.):
_____

Have you *ever* provided care for a patient who identifies as transgender or gender diverse?
O Yes
O No
O I don't know

Gap-Kalamazoo Communcation Skills Assessment Form*
Self Assessment

How well do you feel you did the following:

	1 Poor	2 Fair	3 Good	4 Very Good	5 Excellent
A. Builds a Relationship (includes the following): • Greets and shows interest in the patient and patient's family • Uses words that show care and concern throughout the interview • Uses tone, pace, eye contact, and posture that show care and concern • Responds explicitly to patient and family statements about ideas and feelings	○	○	○	○	○
B. Opens the Discussion (includes the following): • Allows patient and family to complete opening statements without interruption • Asks "Is there anything else?" to elicit full set of concerns • Explains and/or negotiates an agenda for the visit	○	○	○	○	○
C. Gathers Information (includes the following): • Addresses patient and family statements using open-ended questions. • Clarifies details as necessary with more specific or "yes/no" questions • Summarizes and gives family opportunity to correct or add information • Transitions effectively to additional questions	○	○	○	○	○
D. Understands the Patient's and Family's Perspective (includes the following): • Asks about life events, circumstances, other people that might affect health • Elicits patient's and family's beliefs, concerns, and expectations about illness and treatment	○	○	○	○	○
E. Shares Information (includes the following): • Assesses patient's and family's understanding of problems and desire for more information • Explains using words that family can understand • Asks if family has any questions	○	○	○	○	○
F. Reaches Agreement (If new/changed plan) (includes the following): • Includes family in choices and decisions to the extent they desire. • Checks for mutual understanding of diagnostic and/or treatment plans • Asks about acceptability of diagnostic and/or treatment plans • Identifies additional resources as appropriate	○	○	○	○	○
G. Provides Closure (includes the following): • Asks if patient and family have questions, concerns or other issues • Summarizes • Clarifies future time when progress will again be discussed • Provides appropriate contact information if interim questions arise • Acknowledges patient and family, and closes interview	○	○	○	○	○

	1 Poor	2 Fair	3 Good	4 Very Good	5 Excellent
H. Demonstrates Empathy (includes the following): • Clinician's demeanor is appropriate to the nature of the conversation • Shows compassion and concern • Identifies/labels/validates patient's and family's emotional responses • Responds appropriately to patient and family's emotional cues	○	○	○	○	○

	1 Poor	2 Fair	3 Good	4 Very Good	5 Excellent
I. Communicates Accurate Information (includes the following): • Accurately conveys the relative seriousness of patient's condition. • Took other participating clinician's input into account. • Clearly conveys expected disease course. • Clearly presents and explains options for future care. • Gives enough clear information to empower decision making.	○	○	○	○	○

What did this clinician do the best at? (Please pick three choices)

- ❑ **Builds a Relationship**
- ❑ **Opens the Discussion**
- ❑ **Gathers Information**
- ❑ **Understands the Patient's and Family's Perspective**
- ❑ **Shares Information**
- ❑ **Reaches Agreement**
- ❑ **Provides Closure**
- ❑ **Demonstrates Empathy**
- ❑ **Communicates Accurate Information**

Why did you choose those particular answers?

What could this clinician improve on? (Please pick three choices)

- ❑ **Builds a Relationship**
- ❑ **Opens the Discussion**
- ❑ **Gathers Information**
- ❑ **Understands the Patient's and Family's Perspective**
- ❑ **Shares Information**
- ❑ **Reaches Agreement**
- ❑ **Provides Closure**
- ❑ **Demonstrates Empathy**
- ❑ **Communicates Accurate Information**

What could they have done better?

Adapted from:** Essential Elements: The Communication Checklist, ©Bayer-Fetzer Group on Physician-Patient Communication in Medical Education, May 2001, and from: The Bayer-Fetzer Conference on Physician-Patient Communication in Medical Education. Essential Elements of Communication in Medical Encounters: The Kalamazoo Consensus Statement. *Academic Medicine* 2001; 76:390-393.Contacts:*** Elizabeth Rider, MSW, MD - elizabeth_rider@hms.harvard.edu (member, Kalamazoo Consensus Statement Group) and Aaron Calhoun, MD - aaron.calhoun@louisville.edu (PERCS Program)

Published in: Rider EA. Interpersonal and communication skills. In: Rider EA, Nawotniak RH, eds. *A Practical Guide to Teaching and Assessing the ACGME Core Competencies.* 2nd Ed. Marblehead, MA: HCPro, Inc.; 2010.

PRACTICE SETTING

How many providers (i.e., MD, NP, PA) are working in your practice? _____

Approximately, what percentage of your patients in the past year have identified as transgender or gender diverse? _____

Of those patients who identify as transgender or gender diverse, approximately, what percentage have health insurance that covers gender affirming care? _____

Approximately, what is the race of your current patients:

__% Black/African American
__% White
__% Asian
__% Native Hawaiian or Other Pacific Islander
__% American Indian or Alaska Native
__% Other (please specify):

Approximately, what is the socioeconomic class of your current patients?
__% Upper Class
__% Upper Middle Class
__% Lower Middle Class
__% Upper Lower Class
__% Lower Class

RESOURCES AVAILABLE
Please rate your level of agreement to each statement:
Rated on a Likert scale from Strongly Disagree (1) to Strongly Agree (5)

1. All medical referrals for my patients are within a 20-mile radius.
2. I have limited resources to address the many health-related needs of my patients*
3. I have access to any resource I need to effectively perform my job.

COVID QUESTIONS
Please rate your level of agreement to each statement:
Rated on a Likert scale from Strongly Disagree (1) to Strongly Agree (5)

1. COVID-19 has impacted my provision of care to patients.
2. COVID-19 has negatively impacted my provision of care to patients.
3. COVID-19 has positively impacted my provision of care to patients.

TRANSGENDER STIGMA (adapted from Rodriguez Madera et al.,2019)
Please rate your level of agreement to each statement:
Rated on a Likert scale from Strongly Disagree (1) to Strongly Agree (5)

1. If I found out that my best friend was changing his/her sex I would not support him/her.
2. Changing one sex is an affront God.
3. Men who act like women should be ashamed of themselves.
4. Women who act like men should be ashamed of themselves.
5. Children should play with toys appropriate to their own sex.
6. Men who see themselves as women have a mental health problem.
7. Women who see themselves as men have a mental health problem
8. Feminine boys should be treated for their problems by a qualified health professional.
9. Masculine girls should be treated for their problems by a qualified health professional.
10. I would discourage my child from having a transgender friend.
11. Sex change operation are morally wrong.
12. Feminine men make me feel uncomfortable.
13. Masculine women make me feel uncomfortable.
14. People are either men or women; there should be no middle point.
15. I would prefer that colleagues did not refer transgender or gender diverse patients to my clinic.
16. I would avoid sharing a practice with a colleague that provide services to transgender and gender diverse patients.

AAP POLICY KNOWLEDGE

How would you define gender-affirming care?

_____

Please rate your level of agreement to each statement:
Rated on a Likert scale from Strongly Disagree (1) to Strongly Agree (5)

1. I can identify gender-affirming care practices.
2. I have heard of the American Academy of Pediatrics' policy statement "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents."
3. I am educated on the American Academy of Pediatrics' policy statement "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents."
4. I can identify the recommendations found in on the American Academy of Pediatrics' policy statement "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents."

AAP POLICY AGREEMENT

Please rate your level of agreement to each statement:
Rated on a Likert scale from Strongly Disagree (1) to Strongly Agree (5)

1. All pediatricians should provide gender-affirming care in a safe-environment.
2. All pediatricians should have family-based therapy and support referrals available for transgender and gender diverse patients.

3. All pediatricians should respect gender identity in electronic health records, billing systems, notification systems, and clinical research.
4. All pediatricians should be educated in transgender and gender diverse youth's emotional and physical health need, as well as, best practices of care.
5. All pediatricians should continue their education of transgender and gender diverse youth's emotional and physical health need, as well as, best practices of care.
6. All pediatricians should advocate, educate, and develop relationships with school districts and community organizations to promote inclusion and acceptance of transgender and gender diverse youth.
7. All pediatricians should advocate for policies and laws to protect transgender and gender diverse youth from discrimination.

AAP POLICY PERCIEVED BARRIERS

Please rate your level of agreement to each statement about the American Academy of Pediatrics' (AAP) policy statement "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents."
:
Rated on a Likert scale from Strongly Disagree (1) to Strongly Agree (5)

1. I feel supported by my larger institution to implement the AAP policy statement.
2. I feel supported by my practice to implement the AAP policy statement.
3. I have the resources to implement the AAP policy statement.
4. I have the training necessary to implement the AAP policy statement.
5. I want to implement the AAP policy statement.
6. I have the time to implement the AAP policy statement.

Open ended question: Is there anything else that prevents you from implementing the AAP policy statement? _____

PROVISION OF GENDER-AFFIRMING CARE

Please rate your level of agreement to each statement:
Rated on a Likert scale from Strongly Disagree (1) to Strongly Agree (5)

Psychoeducation

1. I promote and convey to children and their families the message that identifying as transgender and gender diverse is not a mental illness.
2. I promote and convey to children and their families the message that variations in gender are a part of normal development.
3. I promote and convey to children and their families the message that gender identity evolves as an interplay between biology, development, socialization, and culture.
4. I promote and convey to children and their families the message that if a mental health issue exists, it most often stems from stigma and negative experiences rather than being intrinsic to the child
5. I respect patient-asserted name and pronouns.

6. I respect gender identity in electronic health records, billing systems, notification systems, and clinical research.
7. I explain confidentiality and maintain it with transgender and gender diverse patients.

Patient Interaction

8. I routinely assess and inquire about gender development.
   5a. Approximately, how many times a year do you assess or inquire about gender development per patient? ____
9. I feel comfortable talking with patients about their gender identity.
10. I feel comfortable talking with caregivers about their child's gender identity.
11. I ask about gender development and gender identity during physicals.
12. I interact with transgender and gender diverse patients in a supportive and stigma-free way.
13. I am educated in transgender and gender diverse youth's emotional and physical health needs, as well as best practices of care.
14. I have taken continued education courses related to transgender and gender diverse youth's emotional and physical health need, as well as, best practices of care.

Safe Environment

15. I provide care at a facility that has gender neutral bathrooms for patients.
16. I provide care at a facility that has posters/flyers related to LGBTQ+ issues and information.
17. The staff I work with (i.e., front desk, nurses, etc.) have all gone through diversity training in LGBTQ+ issues.

Referrals

18. I have family-based therapy and support referrals available for transgender and gender diverse patients.
19. I have medical affirmation intervention (i.e., pubertal suppressors, hormone therapy, surgery) referrals available for transgender and gender diverse patients.

OPEN ENDED QUESTION:

Is there anything else that you would like to share with the researcher regarding your experience providing care for transgender and gender-diverse children and adolescents?

_____

APPENDIX C: Contact Information

Would you like to be entered into a drawing for 1 of 2 $100 gift cards?
O Yes
O No

Here is your unique referral link to the survey. Please send this link to any other physicians in your professional networks who might be interested in completing the survey. For each successful referral, you will be entered into another drawing for a $100 gift-card. Would you like to be entered into a drawing for a $100 gift card?
O Yes
O No

We are requesting your contact information in order to reach you if you are chosen as the recipient of the gift card. Information is kept confidential and separate from your responses above.

Email: _____ _____

Lastly, would you like to receive a brief 2-page report of the study findings? If you select yes, we will send the report to your email address listed above at the conclusion of the study.

O Yes
O No

Thank you for completing the survey! We appreciate your time!

APPENDIX D: Consent Form

Consent to Participate

Title of the Project: Physician Experiences Providing Care for Transgender Youth

Principal Investigator: Megan McComas, M.A., The University of North Carolina at Charlotte
Faculty Advisor: Dr. Virginia Gil-Rivas, The University of North Carolina at Charlotte
Study Sponsor: None

You are invited to participate in a research study. Participation in this research study is voluntary. The information provided is to help you decide whether or not to participate. If you have any questions, please ask.

Important Information You Need to Know

- The purpose of this study is to gather information about the experiences of physicians providing care for transgender and gender diverse youth.
- The study will include questions about your background, experiences, and perceptions providing care for transgender and gender diverse youth. You will also be asked to indicate your interest in completing a second study which consists of a brief phone interview to further elaborate on your survey responses.
- To participate in this study, you must be 18 years of age, hold a medical degree (MD), provide medical care for patients 17 years old or younger, be able to read and write in English, and practice in a rural or urban area of the United States.
- If you choose to participate, this survey will require approximately 15-20 minutes of your time.
- Upon completion of this survey, you will be entered into a drawing for one of 20-$100 gift cards.
- The risks associated with this study are likely minimal and may involve mild to moderate emotional reactions.
- Benefits may include having the opportunity to reflect on your experience as a provider serving transgender and gender diverse youth. Further, the information gained from your participation will help us to better understand transgender healthcare as it specifically relates to pediatric care.
- By consenting to participate in this study you are giving us permission to potentially use some of your responses as confidential information on physician experiences providing care to transgender and gender diverse youth. Your name or any identifying information will not be used as part of any report.
- If you choose not to participate, there are no known alternatives.

Please read this form and ask any questions you may have before you decide whether to participate in this research study.

Why are we doing this study?
The purpose of this study is to gather information about the experiences of physicians providing care for transgender and gender diverse youth in urban and rural locations. The study will be used to gain insight into current healthcare practices for pediatric transgender and gender diverse populations.

Why are you being asked to be in this research study?
You are being asked to be in this study because you hold a medical degree (MD), provide medical care for patients 17 years old or younger, be able to read and write in English, are at least 18 years of age, and practice in a rural or urban area of the United States.

What will happen if I take part in this study?
If you choose to participate in this study, you will be asked to answer questions about your background, experiences, and perceptions providing care for transgender and gender diverse youth.

The brief online survey will require 15-20 minutes of your time. We aim to have 200 providers participate in this survey.

Megan McComas, M.A. is the primary researcher who will oversee the project and she has experience conducting similar studies. She will serve as the data manager and conduct data analysis with the support of research assistants. Your name and identifying information will not relate to your responses to the surveys. You will be assigned a study ID number to identify your responses and protect your identity and to keep track of your responses.

If selected, your name and email information will be used to contact you for the phone interview and to enter you in a drawing for one of 2- $100 gift cards for completing the online survey. You will also have the option to refer other physicians with a unique referral code. For each referral who successfully completes the study, you will be entered into another drawing for a $100 gift card. This information will be maintained in a separate file and will not be connected to your responses to the surveys.

The de-identified survey data will be kept secured on a password-protected shared folder on the research lab's Dropbox Drive, which is only accessible by the research team. None of the information obtained from the study will be shared publicly with participants' identifying information. Instead, pseudonyms will be used in any summary of the data that is presented at a professional conference, in an academic publication, or incorporated into programming.

What benefits might I experience?
It is possible that you may find benefit in gaining insight about your experiences and awareness of pediatric care for transgender and gender diverse youth.

What risks might I experience?

The risks associated with this study are likely minimal and may involve mild to moderate emotional reactions.

How will my information be protected?
Any information about your participation, including your identity, will be kept confidential to the extent possible. All information obtained in this study will be held confidential unless disclosure is required by law (e.g., disclosing the intent to harm oneself or someone else, child abuse, elder abuse). Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing. Your participation in this study will be confidential; there will be no identifying information linkable to your survey responses.

We plan to publish the results of this study. To protect your privacy, we will not include any information that could identify you. We will protect the confidentiality of the research data by using only participant ID numbers to keep track of individuals' data stored electronically or pseudonyms in any public reporting of the findings at future professional conferences, in academic publications or in developing programming. All electronic questionnaire survey data will be stored securely in a password-protected shared folder on the research team's Dropbox only accessible by Megan McComas, M.A., and trained study personnel.

How will my information be used after the study is over? Once the study is over your data (in aggregate with others') will be used to inform prevention and intervention efforts in the context of pediatric care for transgender and gender diverse youth. Your data may be used in summaries of the findings at professional conferences, in any manuscripts that are prepared for possible publication in an academic journal, and/or as part of preliminary data for future external grant applications.

Will I be paid for taking part in this study?
If you complete the online survey you will be entered in a drawing for one of 2- $100 gift cards.
If you refer other providers, for each referral who completes the survey you will be entered into a drawing for a $100 gift card.

What are my rights if I take part in this study?
It is up to you to decide to be in this research study. Participating in this study is voluntary. Even if you decide to be part of the study now, you may change your mind and stop at any time. You do not have to answer any questions you do not want to answer. Please contact the investigator, Megan McComas, M.A. (mmccomas@uncc.edu) if you wish to withdraw from the study.

If you choose to withdraw from the study at any time, we will destroy your electronic data immediately. It is possible that your participation will be terminated by the investigators should we discover that you are ineligible to participate (e.g., if you are

under 18 years of age) or if you disclose an intent to harm yourself or someone else; otherwise, your participation will not be terminated without your consent.

Who can answer my questions about this study and my rights as a participant?
For questions about this research, you may contact:

Megan McComas, M.A.
mmccomas@uncc.edu
XXX-XXX-XXXX

If you have questions about your rights as a research participant or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Office of Research Compliance at 704-687-1871 or uncc-irb@uncc.edu.

Study #

Expiration date:

Consent to Participate
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction. I am at least 18 years of age, and by clicking on the button below, I agree to participate in this research project. You are encouraged to print out a screenshot or to create a PDF of this consent page to keep for your records.

YES

By clicking here you are agreeing to participate in this research project

NO

By clicking here you are declining to participate in this research project

APPENDIX E: Letters of Support

TEEN HEALTH CONNECTION

Comprehensive Adolescent Medical and Mental Healthcare

July 2, 2020

Dear Mrs. McComas,

We extend our full support for your Agency for Healthcare Research and Quality Health Services Research Dissertation Program Grant Proposal entitled "Urban vs. Rural Pediatrician Implementation of Care Recommendations: Improving Patient Safety and Healthcare for Transgender and Gender Diverse Youth." This project is important as is will explore pediatrician's knowledge and implementation of the American Academy of Pediatric policy guidelines for providing care for transgender and gender diverse youth. The findings from this study will inform strategies to increase healthcare quality and accessibility within this underserved and vulnerable population. These goals align with our vision to empower all teens to be healthy, safe and successful.

Through our exclusive community collaboration with Atrium Health, Teen Health Connection is an integrated healthcare practice that provides medical and mental healthcare and prevention and health education services for adolescents ages 11 to 26. Our mission is to improve the health of adolescents by providing physical and mental healthcare, education, advocacy, leadership development and research through connections with teens, parents and the community. Our research team works to improve healthcare quality, accessibility, equitability, and patient safety for youth. We are excited at the opportunity to collaborate with you on such an important and innovative topic.

We currently are home to Atrium Health's Levine Children's Center for Gender Health, which is the first gender health clinic of its kind in Charlotte and one of only a handful in the region. We are dedicated to improving the health and healthcare experiences of this underserved population and are excited to support your project. We will work in collaboration with Atrium Health to facilitate recruitment of pediatricians for your study via the pediatric listserv. We will also assist with dissemination of research findings both locally and nationally. We look forward to providing support for your proposed project and believe that the results of this study will be of service to improving the quality of care of transgender and gender diverse youth.

Sincerely,

Libby Safrit, MA, LPA, HS-PA
Executive Director
Teen Health Connection

3541 Randolph Road, Suite 206
Charlotte, North Carolina 28211
Phone: 704-381-TEEN (8336)
Fax: 704-381-8832
teenhealthconnection.org

LIVE UNITED
United Way
United Way of Central Carolinas

Every adolescent empowered to be healthy, safe and successful.

Atrium Health
Levine Children's

July 1, 2020

Dear Mrs. McComas,

I write this letter to offer our support for your Agency for Healthcare Research and Quality Health Services Research Dissertation Program Grant Proposal entitled "Urban vs. Rural Pediatrician Implementation of Care Recommendations: Improving Patient Safety and Healthcare for Transgender and Gender Diverse Youth." The proposed project takes an innovative approach to understanding the implementation of the American Academy of Pediatric guidelines for providing care to transgender and gender diverse youth, a population with significant healthcare disparities. This foundational study will provide information to inform the development of a future intervention and quality improvement research to promote the adherence to the policy recommendations and increase the quality of care and patient safety for transgender and gender diverse youth.

Atrium Health (formerly Carolinas HealthCare System) is a non-profit healthcare organization and a recognized leader in healthcare delivery, quality and innovation, and our foundation rests on providing clinically excellent and compassionate care. Your research highlights important aspects of transgender lives by examining pediatrician's knowledge and implementation of guidelines which contributes to the health and quality of care for our youth. At Atrium Health we strive to eliminate health and healthcare disparities by addressing social determinants of health including discrimination and stigma in healthcare settings. This study aligns with our mission to improve health, elevate hope and advance healing – for all.

We currently have over 850 pediatricians affiliated with Atrium Health and have facility locations in both urban and rural areas of North Carolina and South Carolina. We are happy to facilitate recruitment for your study. In addition, we are dedicated to improving patient safety and healthcare quality for transgender and gender diverse individuals and in 2019, Atrium Health opened the Levine Children's Center for Gender Health, which provides gender-affirming care for youth and young adults. This clinic is housed at Teen Health Connection, another facility of Atrium Health. We will work in collaboration with these healthcare facilities to promote your research and disseminate your study findings. We look forward to supporting your proposed project through our existing connections and vast healthcare system.

Sincerely,

H. Stacy Nicholson, MD, MPH
Sara H. and Howard Bissell Endowed Chair
President, Atrium Health Levine Children's
Professor and Chair, Department of Pediatrics

Shamieka Virella Dixon, MD
Director, Adolescent Medicine
Atrium Health Levine Children's
Assistant Professor, Dept of Peds

PO Box 32861 • Charlotte, NC 28232-2861

APPENDIX F: Dissertation Report

To Download a pdf copy of the dissertation report, please visit the following site: https://drive.google.com/file/d/1K7CI1A7PDbWvdmVvwcMR0cAqPyDkMlnd/view?usp=sharing

PHYSICIAN IMPLEMENTATION OF GENDER-AFFIRMATIVE CARE RECOMMENDATIONS

A Dissertation Report

Megan McComas, M.A.
The University of North Carolina at Charlotte

BACKGROUND

- Compared to their cisgender counterparts, transgender and gender diverse youth (TGDY) experience an increased risk for lowered patient safety and healthcare disparities.
- In the United States, TGDY report difficulty finding gender-affirming providers and trans-specific care which may explain the health disparities.
- To meet the healthcare needs of TGDY, in 2018, the **American Academy of Pediatrics (AAP) issued the policy statement, "Ensuring Comprehensive Care and Support for Transgender and Gender-Diverse Children and Adolescents"** to provide clinical practice guidelines for gender-affirming care (GAC).
- Little is known about physicians' knowledge, agreement, or perceived barriers to implementing the AAP recommendations or provision of GAC.

RESEARCH AIMS

AIM One —
To assess (1a) physician's knowledge, agreement with, and perceived barriers to implementing the AAP recommendations as well as provision of gender-affirming care and (1b) differences in these factors by the urbanization level of their practice setting.

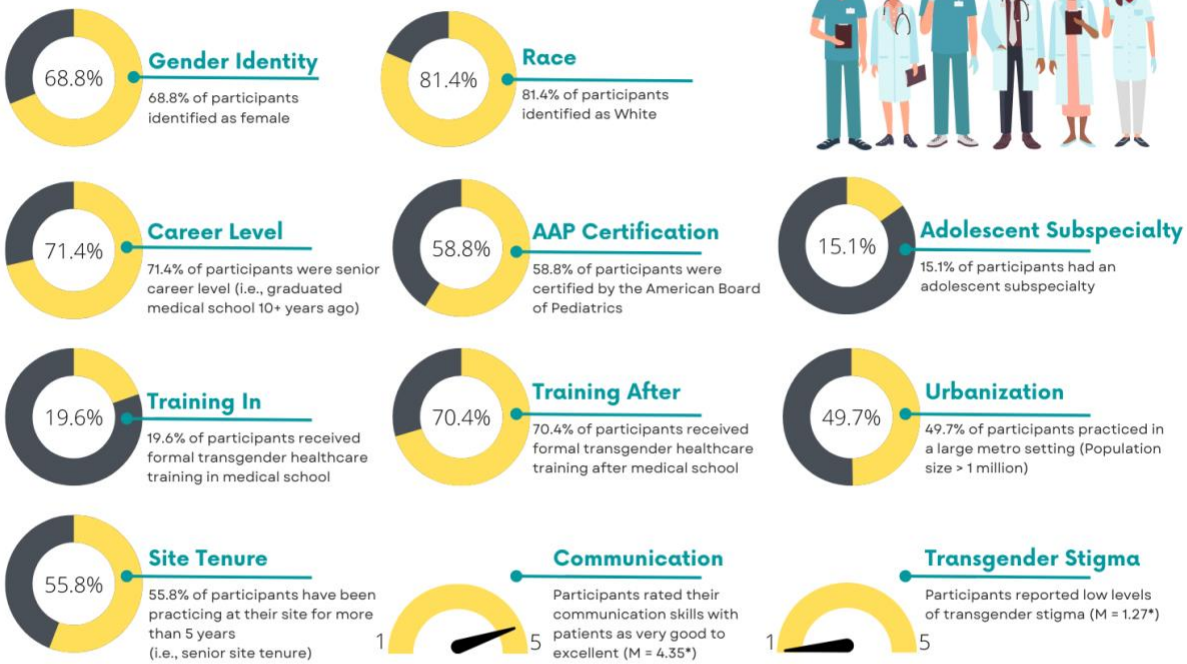
AIM Two —
To examine the role of provider characteristics and practice setting in explaining the variability in: (2a) AAP policy knowledge; (2b) agreement with the AAP Policy; and (2c) perceived barriers to implementing the AAP policy.

AIM Three —
To examine the role of provider characteristics and practice setting in explaining physicians' provision of Gender-Affirming Care.

(See full dissertation for further aims and analysis of GAC subscales; i.e., GAC psychoeducation, patient interaction, safe environment & referrals)

DEMOGRAPHICS

A total of 199 physicians (MDs) providing medical care to patients under 18 years old in the United States, completed an online survey. Participants' age ranged from 27 to 73 years (*M* = 45.35).



RESULTS

AIM One

Physicians :

- Were **somewhat knowledgeable** of the AAP policy
- Generally **agreed** with the AAP policy
- Reported **low levels of barriers** to implementing the AAP policy
- Indicated that they **provide high levels of Gender-Affirming Care**

Physicians practicing in a large metro setting reported :
(compared to those in smaller metro areas)

- **Greater knowledge** of the AAP policy
- **Less perceived barriers** to implementing the AAP policy
- Greater provision of **Gender-Affirming Care**

*based on 5-point Likert-scale

McComas
A Dissertation Report ©2022

AIM Two

AAP Policy Knowledge	Communication skills, having a subspecialty in adolescent medicine, receiving formal training in transgender healthcare after medical school, and being board certified were associated with higher levels of AAP policy knowledge. ⇈
AAP Policy Agreement	Being board certified and shorter site tenure was associated with a greater agreement with the AAP policy. ⇈ Transgender stigma was associated with lower agreement with the AAP policy. ⇊
AAP Policy Percieved Barriers	Communication skills, training in transgender healthcare after medical school, and being board certified contributed to lower levels of perceived barriers to policy implementation. Increased transgender stigma was associated with higher levels of perceived barriers for implementation. ⇈

AIM Three

Overall Gender-Affirming Care (GAC)	Communication skills, receiving training in transgender health after medical school, and having a subspecialty in adolescent medicine were associated with greater overall GAC. ⇈ Transgender stigma was negatively associated with the overall provision of GAC. ⇊

Provider characteristics and practice setting influence the provision of gender-affirming care (GAC) and should be taken into consideration when developing interventions.

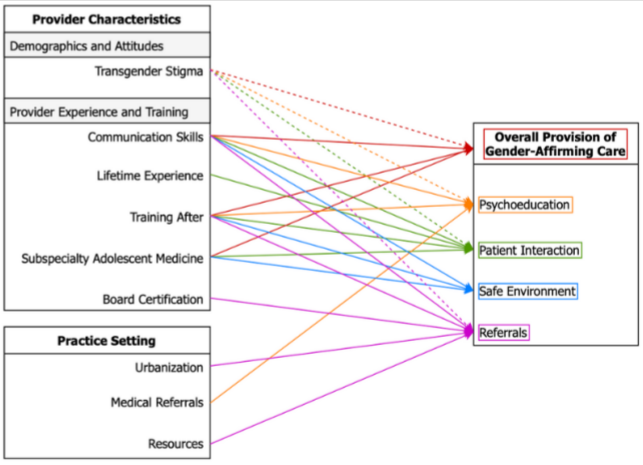


Figure 4. Final Conceptual Model of Physician's Provision of Gender-Affirming Care. *Note.* Dashed arrows represent negative associations and solid arrows represent positive associations. See full dissertation for a complete description of variables and analyses; Lifetime Experience = Lifetime experience providing care for patients who identified as transgender or gender diverse; Training After = Formal training on transgender health after medical school; Medical Referrals = Having medical referrals within a 20-mile radius; Resources = Access to resources providers need to effectively perform their jobs.

FUTURE DIRECTIONS

- Targeted interventions that: (1) Include **psychoeducation on transgender healthcare** & (2) Are aimed at **reducing transgender stigma** and **increasing communication skills.**
- Examine the influence of physician's gender-affirming care on TGDY health outcomes.

Megan McComas, M.A. (she/her)
Megan.E.McComas@gmail.com