

ORIGINAL RESEARCH

Family Physicians' Attitudes and Scope of Practice Regarding Care for Transgender and Gender Diverse Patients in North Carolina: A Survey Study

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BACKGROUND

Transgender and gender diverse (TGD) persons face significant health disparities. We aimed to explore the scope of family physicians' TGD care and physician factors related to the provision of TGD health care in North Carolina.

METHODS

Family physicians in North Carolina were invited to complete an observational survey from January 2024 to September 2024, exploring their training, beliefs, and practices related to care for TGD patients. Descriptive statistics characterized the responses, and bivariate analyses explored potential factors associated with whether physicians offered primary care or gender-affirming care (GAC) to TGD patients. Sub-analysis of data compared responses across regions of the state.

RESULTS

Of the 181 attending family physicians who completed the survey, 66.9% reported participating in some type of training in TGD patient care. Overall, 82.9% of respondents reported providing primary care to TGD patients, and 47.5% reported that they provided GAC to TGD patients. The most commonly reported barrier to providing any care to TGD patients was insufficient training. Bivariate analyses revealed additional physician, clinic, and training factors that may be associated with whether family physicians provide primary care or GAC to TGD patients.

LIMITATIONS

The present study is limited by a small sample size, with high likelihood of selection bias.

CONCLUSIONS

This study provides an initial snapshot into family medicine physician practices with regard to primary care and GAC for TGD patients. Our findings highlight the need for an increased focus on training, both mandatory and optional. We also identified key opportunities for targeted outreach, such as residency programs.

Introduction

Transgender and gender diverse (TGD) persons face significant social,¹⁻³ economic,^{2,3} and health disparities.²⁻⁵ The 2022 U.S. Transgender Survey identified heightened health care concerns (e.g., avoidance of doctors due to fear of mistreatment) and negative health care experiences related to gender identity.⁶ Crucially, gender affirmation through transitioning, use of hormone therapy, and/or use of surgery was associated with higher life satisfaction among respondents.⁶

Compared to the rest of the United States, North Carolina was recently estimated to have the highest rate of transgender adults aged 18 and older at 0.87% and a moderately high rate of transgender youth aged 13–17 at 1.27%.⁷ At the same time, the 2022 U.S. Transgender Survey listed North Carolina among the top ten states that TGD persons have left due to laws targeting transgender persons.⁶ Among the many proposed anti-trans bills in North Carolina in the past few years, a ban on initiating gender-affirming care for minors (including puberty-delaying medication, hormone therapy, and surgery) was passed into law.⁸

Political and other types of structural discrimination create barriers to health care for TGD patients.^{4,9} Negative health care experiences,^{2,3,5} physician bias,⁹⁻¹¹ lack of adequate medical training,^{9,12,13} and inconsistency in applying medical protocols^{10,14} have been identified as some of the physician-related barriers to care within the health care system. While health care experiences of TGD persons in the southern US have been examined,^{2,4,5} only a few small studies in this region have focused on physician factors.^{10,14} Family physicians are critical providers of TGD care due to their unique position in primary care, seeing patients across the lifespan (childhood through puberty, to adulthood and older age) with a lens oriented to family dynamics and comprehensive care.^{15,16}

This study aimed to explore the factors that characterize family physicians who provide primary care (including chronic disease management and age-/organ-appropriate preventive screens) and/or gender-affirming care (GAC, primarily the use of medications to align natal sex characteristics with one's gender identity) to TGD patients. We specifically sought to describe family

physicians' scope of practice and training experiences. Further, we aimed to identify personal and practice characteristics associated with the provision of TGD care among family physicians in North Carolina.

Methods

Study Development

The study was informed by a focus group of 7 individuals who either work closely with and/or personally identify as members of the TGD community in Southeastern North Carolina. Focus group activities were reviewed by the Novant Health Institutional Review Board (IRB) and deemed to be considered quality improvement and thus exempt. Focus group activities were completed in May 2022. The group offered suggestions about research project design and survey content. Informed consent was not collected from focus group participants, as these activities were not considered human subjects research by the Novant Health IRB.

Study Design and Survey

Using input from the focus group, the study team developed an observational study conducted via Qualtrics. The survey incorporated questions about physician practice for TGD patients generated by advisory group input and the authors' clinical experience. The survey tool was also informed by the recommendation of Veale and colleagues¹⁷ to broaden TGD gender affirmation research to include sexuality, fertility/reproductive needs, routine health care, and non-medical health needs. Authors utilized the National Institute on Minority Health and Health Disparities Research Framework¹⁸ to ensure the project design touched upon multiple levels and domains of influence through specific survey questions.

The survey assessed several key physician characteristics, including demographics (e.g., age, race, political affiliation), scope of practice (primary care and/or GAC for TGD patients, reasons for not providing this care, perceived barriers to care for TGD patients), types of training in care for TGD patients, and clinic characteristics (e.g., payor types accepted, methods of advertising TGD care). Zip codes of residence and practice were included in the survey to allow for county-level comparisons across the state, using both US Department of Agriculture Rural-Urban Continuum codes¹⁹ and NC Medicaid Managed Care region designations.²⁰ In analyses regarding Medicaid Managed Care regions, region 6 was used as the area of reference due to the high concentration of health risk factors and worse health outcomes in this area, particularly in the counties just inland to the coast.²¹ The 3 key outcome variables of interest were categorical and included: participation in TGD training ("Have you participated in any type of education or training in TGD patient care?"), providing TGD primary care ("Do you personally provide primary care [including chronic disease

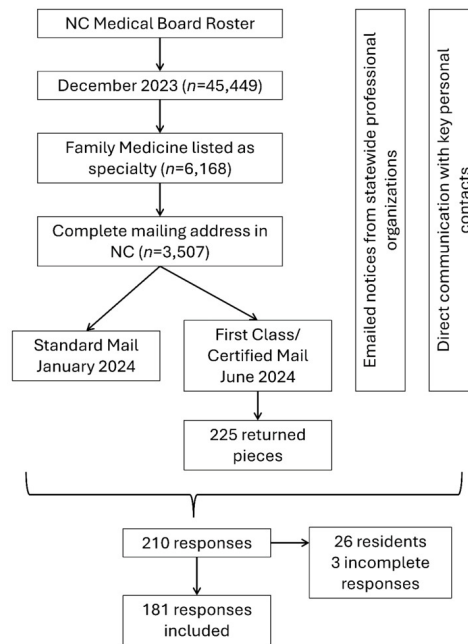


Figure 1. Participant Recruitment

Figure note. The flowchart documents key methods of participant recruitment and the resulting responses.

management and/or age- and organ-appropriate preventive screens] to TGD patients?”), and providing GAC to TGD patients (“Do you personally provide gender-affirming care to TGD patients?”). A full copy of the survey with all questions is available in Appendix A.

Participants and Survey Administration

Any licensed family physician who practices in North Carolina and who also completed residency training (i.e., attending) or family medicine resident in North Carolina who was in their third year of residency training (nearing completion of training) was eligible to participate. The study was open from January 21, 2024, through September 30, 2024. The survey link and QR code were distributed via mailed postcard advertisements in two separate mailings a few months apart to family physicians listed on the North Carolina Medical Board roster, via emailed notices from statewide professional organizations (the North Carolina Academy of Family Physicians and the North Carolina Medical Society), and by direct communication with authors’ personal contacts across the state (see [Figure 1](#)). This study was evaluated and determined exempt by the University of North Carolina at Chapel Hill (#23-0105) and Novant Health IRBs (#22-2185). Participants indicated consent electronically through the survey tool; a waiver of written consent was provided by both IRBs given the online nature of the study.

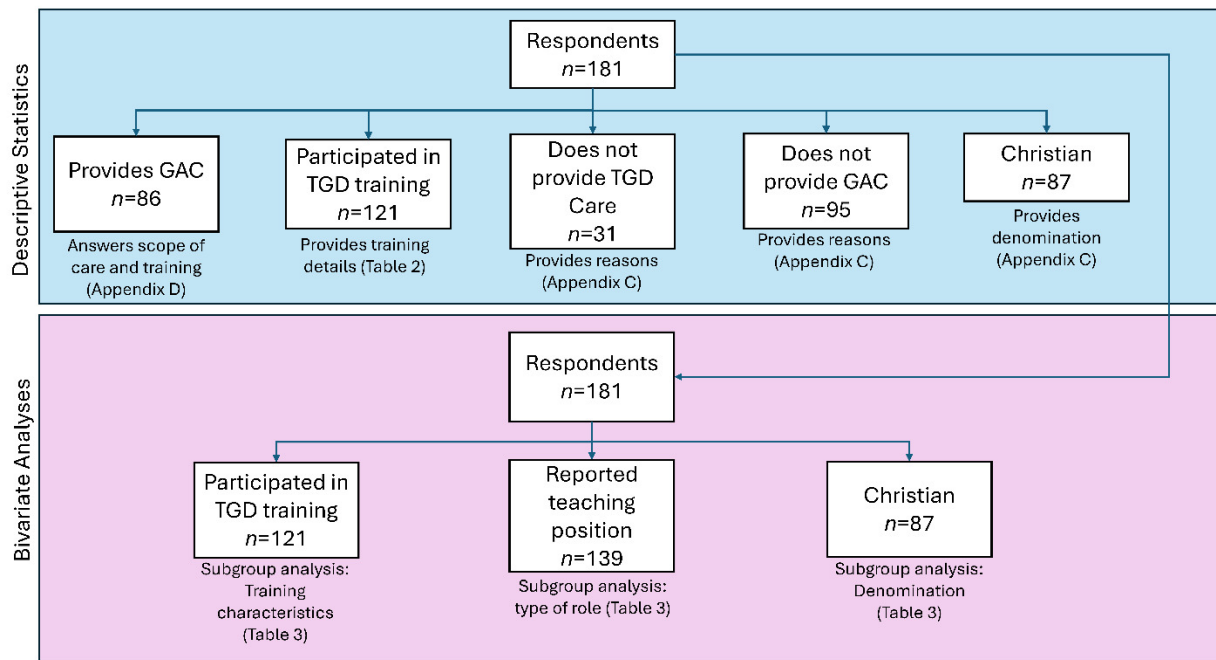


Figure 2. Participant Inclusion

Figure note. This flowchart shows the inclusion of responses in descriptive statistics and bivariate analyses. Appendices C and D can be found in the Appendix section.

Partway through the study, bots accessed the study for gift card money. Thus, the electronic survey was closed for a 2.5-week period halfway through the study to address and remove bot-generated responses. Upon reopening the survey, participants were asked to email the research team to obtain the survey link and complete a newly implemented CAPTCHA.

Analysis

All statistics were conducted in R 4.2.1.²² Descriptive studies first utilized counts, means, and standard deviations to assess demographics and overall physician beliefs about and care practices for TGD patients; [Figure 2](#) shows the subgroupings used for various analyses. Each of the 3 key outcomes—TGD training, TGD primary care, and GAC—were first assessed descriptively.

Next, bivariate analyses assessed factors associated with providing primary care and GAC to TGD patients. For continuous and ordinal variables, logistic regression was used to estimate associations with the provision of care and accompanying odds ratios. The association of categorical variables with the provision of care was assessed using Chi square analyses, or Fisher's exact test if any cell had counts less than 5.²³ If any cell was 0, a Haldane-Ascombe correction was applied.^{24,25} Odds ratios for categorical variables were calculated using the epitools package in R,²⁶ with unconditional maximum likelihood estimation for Chi square tests and conditional maximum likelihood estimation for Fisher's exact tests.²⁷ For questions in

which multiple responses could be selected, each response option was analyzed separately as a dichotomous variable (response selected/not selected). For each bivariate analysis, results were reported in the form of odds ratios, with 95% confidence intervals.

To control the false discovery rate given the large number of analyses, the Benjamini-Hochberg procedure was applied.²⁷ For the Benjamini-Hochberg procedure, each family of tests was defined as all independent variables tested against a single dependent variable (Appendix B). Benjamini-Hochberg critical values were calculated with a false discovery rate of 5% ($Q = .05$), aligned with the alpha selected for this study. Pairwise deletion was used to manage missing data in bivariate analyses.

Results

Participants and Key Outcomes

Out of an estimated 3282 successfully mailed advertisements, 207 physicians completed the survey, making for a response rate of 6.4% ([Figure 1](#)). Of the 207 participants who completed the survey, 181 (87.4%) were attendings and 26 (12.6%) were third-year residents. Due to the low response rate from residents, only attendings were retained for the final sample. Sample characteristics are described in [Table 1](#).

TGD Scope of Care

Out of 181 attendings who completed the survey, 150 (82.9%) provided primary care to TGD patients, and 86 (47.5%) provided GAC ([Table 1](#)). Among the 31 physicians who reported they did not provide primary care to TGD patients, the most frequently reported reason was not having TGD patients ($n = 10$; 32.3%). Among the 95 physicians who did not provide GAC, the most frequently reported reason was insufficient training ($n = 50$; 52.6%). Further reasons for not providing care to TGD patients are described in Appendix C. Among the 96 physicians who offered GAC, 76 (88.4%) offered gender-affirming hormone therapy, and 63 (73.3%) offered other medications that influenced hormones (e.g., progesterone, androgen blockers). Additional details regarding GAC providers' scope of practice are available in Appendix D.

TGD Care Training Experiences

Out of 181 physicians, 121 (66.9%) reported having participated in training related to caring for TGD populations. The types of training cited varied widely, but most physicians reported that their training occurred after residency and that it was optional ([Table 2](#)). The training modalities most frequently reported by physicians included continuing medical education (CME) conferences that included a session on transgender health, training during residency, and independent study.

Table 1. Participant Demographics and the Provision of Transgender and Gender Diverse (TGD) Primary Care and Gender-Affirming Care (GAC)

–		Outcome 1: Provides TGD Primary Care		Outcome 2: Provides GAC		–
Variables		No (n = 31)	Yes (n = 150)	No (n = 95)	Yes (n = 86)	Total (N = 181)
Demographics		n (%)	n (%)	n (%)	n (%)	n (%)
What medical degree did you obtain?		–	–	–	–	–
	MD	27 (87.10)	129 (86.00)	79 (83.16)	77 (89.53)	156 (86.19)
	Other (DO, MBBS)	4 (12.90)	21 (14.00)	16 (16.84)	9 (10.47)	25 (13.81)
Choose your age group:		–	–	–	–	–
	29 or under	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
	30-35	7 (22.58)	28 (18.67)	18 (18.95)	17 (19.77)	35 (19.34)
	36-45	10 (32.26)	61 (40.67)	34 (35.79)	37 (43.02)	71 (39.23)
	46-55	3 (9.68)	34 (22.67)	20 (21.05)	17 (19.77)	37 (20.44)
	56-65	3 (9.68)	21 (14.00)	14 (14.74)	10 (11.63)	24 (13.26)
	66-75	5 (16.13)	6 (4.00)	6 (6.32)	5 (5.81)	11 (6.08)
	76+	2 (6.45)	0 (0.00)	2 (2.11)	0 (0.00)	2 (1.10)
	Prefer not to answer	1 (3.23)	0 (0.00)	1 (1.05)	0 (0.00)	1 (0.55)
Which of the following describes your race/ethnicity?		–	–	–	–	–
	Asian	4 (12.90)	12 (8.00)	8 (8.42)	8 (9.30)	16 (8.84)
	Black	1 (3.23)	11 (7.33)	8 (8.42)	4 (4.65)	12 (6.63)
	Hispanic/Latino	1 (3.23)	3 (2.00)	4 (4.21)	0 (0.00)	4 (2.21)
	White	17 (54.84)	118 (78.67)	65 (68.42)	70 (81.40)	135 (74.59)
	Other or Biracial	4 (12.90)	5 (3.33)	5 (5.26)	4 (4.65)	9 (4.97)
	No response	4 (12.90)	1 (0.67)	5 (5.26)	0 (0.00)	5 (2.76)
Which of the following describes your current gender identity?		–	–	–	–	–
	Cisgender man	19 (61.29)	55 (36.67)	49 (51.58)	25 (29.07)	74 (40.88)
	Cisgender woman	9 (29.03)	92 (61.33)	42 (44.21)	59 (68.60)	101 (55.80)
	Transgender or gender diverse (all categories)	0 (0.00)	2 (1.33)	0 (0.00)	2 (2.33)	2 (1.10)
	No response	3 (9.68)	1 (0.67)	4 (4.21)	0 (0.00)	4 (2.21)
Which of the following describes your sexual orientation?		–	–	–	–	–
	Straight/heterosexual	27 (87.10)	127 (84.67)	84 (88.42)	70 (81.40)	154 (85.08)
	LGB+	1 (3.23)	22 (14.67)	7 (7.37)	16 (18.60)	23 (12.71)
	No response	3 (9.68)	1 (0.67)	4 (4.21)	0 (0.00)	4 (2.21)
How would you describe yourself politically?		–	–	–	–	–
	Extremely conservative	1	0 (0.00)	1	0 (0.00)	1

–		Outcome 1: Provides TGD Primary Care		Outcome 2: Provides GAC		–
		(3.23)		(1.05)		(0.55)
	Conservative	5 (16.13)	11 (7.33)	12 (12.63)	4 (4.65)	16 (8.84)
	Leaning conservative	1 (3.23)	8 (5.33)	9 (9.47)	0 (0.00)	9 (4.97)
	Moderate	6 (19.35)	17 (11.33)	18 (18.95)	5 (5.81)	23 (12.71)
	Leaning liberal	5 (16.13)	19 (12.67)	13 (13.68)	11 (12.79)	24 (13.26)
	Liberal	7 (22.58)	65 (43.33)	27 (28.42)	45 (52.33)	72 (39.78)
	Extremely liberal	4 (12.90)	26 (17.33)	10 (10.53)	20 (23.26)	30 (16.57)
	No response	2 (6.45)	4 (2.67)	5 (5.26)	1 (1.16)	6 (3.31)
Outcomes		–	–	–	–	–
Have you participated in any type of education or training in TGD patient care?		–	–	–	–	–
	Yes	18 (58.06)	103 (68.67)	54 (56.84)	67 (77.91)	121 (66.85)
	No	10 (32.26)	30 (20.00)	31 (32.63)	9 (10.47)	40 (22.10)
	No, but I plan to	3 (9.68)	17 (11.33)	10 (10.53)	10 (11.63)	20 (11.05)
Do you personally provide primary care (including chronic disease management and/or age- and organ-appropriate preventive screens) to TGD patients?		–	–	–	–	–
	Yes	0 (0.00)	150 (100.00)	66 (69.47)	84 (97.67)	150 (82.87)
	No, but I would like to in the future	8 (25.81)	0 (0.00)	7 (7.37)	1 (1.16)	8 (4.42)
	No, but I refer them to someone who can	9 (29.03)	0 (0.00)	8 (8.42)	1 (1.16)	9 (4.97)
	No, and I have no interest in it	4 (12.90)	0 (0.00)	4 (4.21)	0 (0.00)	4 (2.21)
	I have no TGD patients	10 (32.26)	0 (0.00)	10 (10.53)	0 (0.00)	10 (5.52)
Do you personally provide gender-affirming care to TGD patients?		–	–	–	–	–
	Yes	2 (6.45)	84 (56.00)	0 (0.00)	86 (100.00)	86 (47.51)
	No, but I would like to in the future	4 (12.90)	17 (11.33)	21 (22.11)	0 (0.00)	21 (11.60)
	No, but I refer them to someone who can	10 (32.26)	38 (25.33)	48 (50.53)	0 (0.00)	48 (26.52)
	No, and I have no interest in it	7 (22.58)	10 (6.67)	17 (17.89)	0 (0.00)	17 (9.39)
	I have no TGD patients	8 (25.81)	1 (0.67)	9 (9.47)	0 (0.00)	9 (4.97)

Factors Associated with TGD Scope of Care

TGD primary care. Physicians who identified as cisgender women were more likely than those who identified as cisgender men to provide TGD primary care ([Table 3](#)). Higher comfort levels in providing either TGD primary care or GAC and more positive beliefs about the appropriateness of family physicians providing TGD or GAC were each associated with a greater likelihood of providing primary care to TGD patients. Physicians who reported that their practice communicated or marketed TGD care via word

Table 2. Experiences of Participants Who Received Training in Transgender and Gender Diverse (TGD) Care

-		Outcome 1: Provides TGD Primary Care		Outcome 2: Provides GAC		-
Variable		No (n = 31)	Yes (n = 150)	No (n = 95)	Yes (n = 86)	Total (n = 121)
Categorical variables		n (%)	n (%)	n (%)	n (%)	n (%)
When did the training occur? (Select all that apply.)		-	-	-	-	-
	Before medical school	0 (0.00)	2 (1.94)	0 (0.00)	2 (2.99)	2 (1.65)
	During medical school	2 (11.11)	16 (15.53)	6 (11.11)	12 (17.91)	18 (14.88)
	During residency	8 (44.44)	44 (42.72)	20 (37.04)	32 (47.76)	52 (42.98)
	After residency	11 (61.11)	83 (80.58)	39 (72.22)	55 (82.09)	94 (77.69)
The training was:		-	-	-	-	-
	Optional	9 (50.00)	76 (73.79)	34 (62.96)	51 (76.12)	85 (70.25)
	Required	9 (50.00)	27 (26.21)	20 (37.04)	16 (23.88)	36 (29.75)
The training took place through: (Select all that apply)		-	-	-	-	-
	A continuing medical education (CME) conference solely focused on transgender health	2 (11.11)	20 (19.42)	7 (12.96)	15 (22.39)	22 (18.18)
	A Gender Clinic (rotation, or visiting educational arrangement)	1 (5.56)	20 (19.42)	6 (11.11)	15 (22.39)	21 (17.36)
	Independent Study	2 (11.11)	47 (45.63)	10 (18.52)	39 (58.21)	49 (40.50)
	Residency Training	9 (50.00)	37 (35.92)	20 (37.04)	26 (38.81)	46 (38.02)
	WPATH Course or WPATH mentorship	1 (5.56)	6 (5.83)	2 (3.70)	5 (7.46)	7 (5.79)
	A CME conference that offered a session on transgender health	3 (16.67)	51 (49.51)	21 (38.89)	33 (49.25)	54 (44.63)
	Fellowship training	1 (5.56)	0 (0.00)	1 (1.85)	0 (0.00)	1 (0.83)
	Other	5 (27.78)	13 (12.62)	10 (18.52)	8 (11.94)	18 (14.88)
Continuous variables		M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
The total hours of training were approximately:		8.33 (18.12)	16.69 (27.78)	9.89 (18.60)	19.93 (31.15)	15.4 (26.7)

of mouth were more likely to provide TGD primary care; those who reported they were not sure how their practice marketed TGD care were less likely to provide TGD primary care.

Having participated with any type of training related to TGD patient care was not associated with providing TGD primary care. However, among the 121 physicians who reported participating in some type of training related to TGD care, those who reported that they completed a training via independent study or CME conferences that offered a session on transgender health were more likely to offer TGD primary care. Five variables were significantly associated with the provision of TGD care in bivariate analyses, but not after implementing the Benjamini-Hochberg correction: educator role (e.g., core faculty, adjunct), whether practice locations have made efforts

Table 3. Bivariate Associations Among Family Physicians for Providing Primary Care and Gender-Affirming Care (GAC) for Transgender and Gender Diverse (TGD) Patients (N = 181)

-		Outcome 1: Provides Primary Care to TGD Patients		Outcome 2: Provides Gender-Affirming Care to TGD Patients	
Variable		Analysis	OR [95% CI]	Analysis	OR [95% CI]
What medical degree did you obtain? (REF: Other [DO or MB BS])		FE	-	χ^2	-
	MD	-	0.91 [0.27, 3.00]	-	1.73 [0.72, 4.16]
What is your age group? (DIR: Increasing age)		LR	0.77 [0.56, 1.06]	LR	0.87 [0.68, 1.12]
Which of the following best describes you? (REF: White)		FE	-	FE	-
	Asian	-	0.44 [0.13, 1.62]	-	0.93 [0.33, 2.62]
	Black	-	1.58 [0.24, 35.56]	-	0.47 [0.13, 1.75]
	Hispanic/Latino	-	0.44 [0.05, 11.81]	-	0.23 [0.01, 1.85]
	Other or Biracial	-	0.18 [0.05, 0.79]	-	0.74 [0.18, 2.89]
Which of the following best describes you? (REF: Cisgender man, or man who is not transgender)		FE	*	FE	*
	Cisgender woman, or woman who is not transgender	-	3.53 [1.49, 8.35]	-	2.75 [1.48, 5.14]
	Transgender or gender diverse (all categories)	-	0.69 [0.05, 21.06]	-	3.85 [0.29, 115.86]
What are your pronouns? (REF: He/Him)		FE	*	FE	*
	She/her	-	4.09 [1.68, 9.98]	-	2.81 [1.50, 5.25]
	They/them	-	0.36 [0.01, 14.24]	-	1.90 [0.05, 75.39]
Which of the following best describes your sexual identity? (REF: Straight/heterosexual)		FE	-	χ^2	-
	LGB+	-	4.65 [0.76, 98.65]	-	2.74 [1.07, 7.04]
How spiritual do you consider yourself to be? (DIR: Increasing spirituality)		LR	0.79 [0.55, 1.12]	LR	0.68 [0.51, 0.89]*
How would you describe yourself politically? (DIR: Increasing conservatism)		LR	0.77 [0.59, 0.99]	LR	0.57 [0.43, 0.72]*
Do you have at least one acquaintance, peer, colleague, friend, or family member who identifies as TGD (not including patients)? (REF: No)		χ^2	-	χ^2	-
	Yes	-	1.23 [0.52, 2.90]	-	1.57 [0.80, 3.16]
What is your present religion, if any? (REF: Christian)		χ^2	-	χ^2	-
	Agnostic/Atheist/Nothing in particular	-	1.26 [0.51, 3.11]	-	2.12 [1.11, 4.05]
	Other religion or multiple religion	-	0.38 [0.14, 1.07]	-	1.06 [0.42, 2.66]

-		Outcome 1: Provides Primary Care to TGD Patients		Outcome 2: Provides Gender-Affirming Care to TGD Patients	
If you selected "Christian," what denomination do you identify with? ^a (REF: Protestant)		FE	-	FE	-
	Roman Catholic	-	0.58 [0.09, 4.74]	-	0.91 [0.24, 3.43]
	Baptist	-	0.30 [0.06, 1.39]	-	0.20 [0.03, 1.10]
	Other	-	0.77 [0.17, 4.08]	-	0.55 [0.19, 1.62]
Rurality of county of residence (DIR: Increasing rurality)		LR	1.17 [0.85, 1.61]	LR	1.14 [0.93, 1.39]
Managed Medicaid region of residence (REF: region 6)		FE	-	FE	-
	1	-	0.86 [0.03, 8.14]	-	0.75 [0.10, 4.41]
	2	-	1.32 [0.05, 12.58]	-	0.21 [0.03, 1.25]
	3	-	0.76 [0.03, 8.04]	-	0.30 [0.04, 1.84]
	4	-	0.77 [0.03, 6.86]	-	0.36 [0.05, 2.01]
	5	-	0.47 [0.02, 4.73]	-	0.28 [0.03, 2.38]
What is your comfort level in providing primary care to TGD patients? (DIR: Increasing comfort)		LR	1.31 [1.08, 1.60]*	LR	1.78 [1.43, 2.30]*
What is your comfort level in providing GAC to TGD patients? (DIR: Increasing comfort)		LR	1.24 [1.06, 1.44]*	LR	1.90 [1.60, 2.32]*
What is your belief about family physicians providing primary care to TGD patients? (DIR: Increasing appropriateness)		LR	1.51 [1.24, 1.88]*	LR	1.60 [1.25, 2.20]*
What is your belief about family physicians providing GAC to TGD patients? (DIR: Increasing appropriateness)		LR	1.27 [1.09, 1.48]*	LR	1.99 [1.62, 2.52]*
What is your current employment status? (REF: Employment by a hospital/hospital-owned medical group)		FE	-	FE	-
	Employment by a governmental organization	-	0.95 [0.23, 4.40]	-	1.44 [0.46, 4.50]
	Employment by a non-hospital, non-governmental, non-profit organization	-	7.65 [1.15, 165.27]	-	2.61 [1.10, 6.20]
	Employment by a physician-owned group	-	3.83 [0.51, 85.24]	-	1.44 [0.49, 4.23]
	Practice owner/partner/associate or independent contractor	-	1.09 [0.24, 5.00]	-	1.36 [0.61, 3.03]
	Other	-	0.35 [0.07, 1.94]	-	0.58 [0.08, 3.00]
In the past 3 years, which of the following have you been involved with in medical education/teaching/precepting? (REF: None)		FE	-	FE	-
	Both medical students and residents	-	1.75 [0.69, 4.43]	-	2.07 [0.98, 4.37]

-		Outcome 1: Provides Primary Care to TGD Patients		Outcome 2: Provides Gender-Affirming Care to TGD Patients	
	Medical students	-	1.95 [0.51, 7.53]	-	1.35 [0.52, 3.47]
	Residents	-	0.29 [0.04, 1.86]	-	0.87 [0.11, 5.27]
If yes to any of the above, what best describes your educator/teaching/precepting role? ^b (REF: Core faculty)		FE	-	χ^2	-
	Adjunct faculty	-	0.15 [0.03, 0.70]	-	0.45 [0.17, 1.22]
	Community-based preceptor	-	0.42 [0.09, 1.72]	-	0.40 [0.17, 0.92]
	Other	-	1.15 [0.12, 31.74]	-	1.35 [0.40, 4.62]
How many years has it been since you completed family medicine residency (even if you later completed a fellowship or additional training)? (DIR: Increasing time since residency)		LR	0.91 [0.77, 1.09]	LR	0.96 [0.84, 1.10]
Are there TGD patients at your practice site? (REF: No/Not Sure)		FE	29.87 [7.94, 134.17]*	FE	15.95 [2.57, 338.49]*
Do you or any of your practice forms/electronic health record (EHR) explicitly ask patients for their gender identity? (REF: No/Not Sure)		χ^2	2.13 [0.81, 5.67]	χ^2	2.13 [0.87, 5.21]
Do you or any of your practice forms/EHR explicitly ask patients for their pronouns? (REF: No/Not Sure)		χ^2	2.97 [1.34, 6.59]*	χ^2	2.89 [1.44, 5.78]*
Have you or any of your practice locations made any efforts to be more inclusive toward TGD patients (such as language on forms, restroom adjustments, staff training, etc.)? (REF: No/Not Sure)		χ^2	2.64 [1.15, 6.03]	χ^2	4.35 [1.93, 9.78]*
How is TGD care in your practice communicated and/or marketed to patients and the community?		-	-	-	-
	It is known by word of mouth in the community/region (REF: Not Selected)	FE	18.72 [4.45, 113.89]*	χ^2	6.48 [3.39, 12.38]*
	It is readily and widely advertised to the community (REF: Not Selected)	FE	3.56 [0.55, 76.49]	χ^2	2.92 [0.94, 8.66]
	Our advertising materials make note of non-discriminatory practice and treatment of patients. (REF: Not Selected)	χ^2	2.35 [0.95, 5.80]	χ^2	2.29 [1.24, 4.24]*
	There is no mention of TGD care in our advertising materials (REF: Not Selected)	χ^2	0.59 [0.25, 1.38]	χ^2	0.33 [0.16, 0.71]*
	Not Sure (REF: Not Selected)	χ^2	0.23 [0.10, 0.55]*	χ^2	0.32 [0.14, 0.76]*
What is your practice size? (DIR: Increasing practice size)		LR	1.19 [0.91, 1.58]	LR	1.23 [1.00, 1.51]
What is your primary practice's position regarding Medicaid? (DIR: Increasing acceptance)		LR	0.69 [0.32, 1.25]	LR	0.55 [0.35, 0.84]*
What is your primary practice's position regarding Medicare? (DIR: Increasing acceptance)		LR	0.77 [0.35, 1.42]	LR	0.64 [0.39, 1.00]
What is your primary practice's position regarding self-pay? (DIR: Increasing acceptance)		LR	0.41 [0.03, 1.51]	LR	0.80 [0.35, 1.74]
Rurality of county of primary practice (DIR: Increasing rurality)		LR	1.00 [0.72, 1.39]	LR	0.92 [0.73, 1.16]

-		Outcome 1: Provides Primary Care to TGD Patients		Outcome 2: Provides Gender-Affirming Care to TGD Patients	
Managed Medicaid region of practice (REF: 6)		FE	-	FE	-
1		-	0.84 [0.03, 9.31]	-	0.18 [0.01, 1.74]
2		-	1.64 [0.06, 17.90]	-	0.10 [0.004, 0.79]
3		-	1.33 [0.05, 12.83]	-	0.18 [0.01, 1.36]
4		-	0.53 [0.02, 3.98]	-	0.13 [0.01, 0.99]
5		-	0.62 [0.02, 7.12]	-	0.32 [0.01, 3.18]
Have you participated in any type of education or training in TGD patient care? (REF: No)		χ^2	1.58 [0.72, 3.50]	χ^2	2.68 [1.40, 5.14]*
When did the training occur? ^c		-	-	-	-
	Before medical school (REF: Not Selected)	FE	0.36 [0.03, 10.90]	FE	1.65 [0.13, 49.04]
	During medical school (REF: Not Selected)	FE	1.47 [0.32, 0.74]	χ^2	1.75 [0.61, 5.01]
	During residency (REF: Not Selected)	χ^2	0.93 [0.34, 2.56]	χ^2	1.55 [0.75, 3.23]
	After residency (REF: Not Selected)	χ^2	2.64 [0.91, 7.67]	χ^2	1.76 [0.74, 4.18]
The training was: ^c (REF: Optional)		χ^2	-	χ^2	-
	Mandatory	-	0.36 [0.13, 0.99]	-	0.53 [0.24, 1.17]
The total hours of training were approximately: ^c		LR	1.03 [0.99, 1.08]	LR	1.02 [1.00, 1.05]
The training took place through: ^c		-	-	-	-
	A CME conference solely focused on transgender health (REF: Not Selected)	FE	1.92 [0.44, 12.57]	χ^2	1.94 [0.73, 5.16]
	A Gender Clinic (rotation, or visiting educational arrangement) (REF: Not Selected)	FE	4.06 [0.59, 88.54]	χ^2	2.31 [0.83, 6.43]
	Independent Study (REF: Not Selected)	FE	6.63 [1.46, 42.30]*	χ^2	6.13 [2.64, 14.21]*
	Residency Training (REF: Not Selected)	χ^2	0.56 [0.20, 1.54]	χ^2	1.08 [0.51, 2.26]
	WPATH Course or WPATH mentorship (REF: Not Selected)	FE	1.05 [0.14, 25.20]	FE	2.08 [0.41, 15.34]
	A CME conference that offered a session on transgender health (REF: Not Selected)	FE	4.85 [1.33, 20.74]*	χ^2	1.53 [0.74, 3.16]
	Fellowship training (REF: Not Selected)	FE	0.17 [0.004, 6.72]	FE	0.79 [0.02, 31.01]
	Other (REF: Not Selected)	χ^2	0.38 [0.11, 1.64]	χ^2	0.60 [0.22, 1.64]

		Outcome 1: Provides Primary Care to TGD Patients		Outcome 2: Provides Gender-Affirming Care to TGD Patients	
	-		1.23]		

Table note. *significant following Benjamini-Hochberg procedure. χ^2 = Chi Square test; FE = Fisher's exact test; LR = logistic regression.

^aAnalyses conducted using only participants who indicated they had been involved with teaching in the last three years (n = 139). ^bAnalyses conducted using only participants who identified as Christian (n = 87).

^cAnalyses conducted using only participants who indicated they had participated in training (n = 121).

to be more inclusive to TGD patients, physician self-reported political alignment, participation in optional rather than mandatory TGD care trainings, and physician race.

Gender-Affirming Care (GAC). Among physicians, cisgender women were more likely than cisgender men to report providing GAC ([Table 3](#)). Physicians who described themselves as more liberal or less spiritual were more likely to provide GAC. Providers who reported their clinics explicitly asked patients for their pronouns or had made efforts to be more inclusive to TGD patients were more likely to provide GAC. Physicians who reported that their clinic marketed TGD care via word of mouth or in advertising materials that made note of non-discriminatory practice were more likely to offer GAC; those who reported that there was no mention of TGD care in advertising materials or that they were not sure how TGD care was communicated were less likely to provide GAC. Of note, physicians who reported that their practices do not restrict patients with Medicaid were less likely to provide GAC compared to those whose practices limited patients with Medicaid.

Physicians who had participated in education or training in TGD patient care were more likely to provide GAC than those who had not. Further, among the 121 physicians who had participated in training around TGD care, those who completed training via independent study were more likely to provide GAC. Three variables were significantly associated with the provision of GAC in bivariate analyses, but not after application of the Benjamini-Hochberg correction: physician sexual orientation, practice size, and the advertisement of practice TGD care readily and widely to the community.

Discussion

This study provides initial insight into the current state of family physician practice around TGD care, including scope of practice, experiences of training, and factors associated with physician provision of TGD care. The findings suggest that training in TGD care is a central element in providing primary care and GAC for TGD patients. Further, the data highlight physician, clinic, and training characteristics associated with providing TGD care, which may inform future interventions to engage more family physicians in this practice.

The present study established that most family physicians who have TGD patients in North Carolina are willing to offer primary care to TGD patients, in line with research from other geographic regions in the United States.¹¹ While it is encouraging that most family physicians are willing to provide primary care to TGD patients, increasing the number of clinicians who offer routine care to all patients is essential to ensuring equitable access. Roughly half of all survey participants reported providing GAC to TGD patients. Yet, a recent study found that only 29% of graduating family medicine residents plan to continue GAC in their future careers,²⁸ highlighting a need for increased support for GAC practice.

Prior research has established that rates of GAC offerings increase when sufficient support and training are available.²⁹ In the present study, participating in any type of education or training in TGD patient care was associated with higher rates of providing GAC. Further, insufficient training was cited as the most common barrier for providing GAC and the second most common barrier for providing TGD primary care.

In this study, physicians who completed training via independent study were more likely to provide TGD primary care and GAC, while those who completed training at a CME conference with a session on TGD health were more likely to provide TGD primary care. Self-directed learning is associated with greater training effectiveness in medical education,³⁰ and thus, providing greater access to self-directed trainings may increase rates of TGD care. Alternately, physicians who are motivated to provide TGD care may be more likely to seek out dedicated training. Among family physicians who did not provide GAC in the present study, 15.0% reported that providing care for TGD patients was against their personal beliefs. Previous research has found that exposure to transgender individuals is associated with physician willingness to provide routine primary care to TGD individuals,¹¹ and intergroup contact is effective at promoting more tolerant attitudes toward LGBTQ patients.³¹ Thus, training curricula that include experiential learning and intergroup contact may address physician attitudes.

Physicians in practices where Medicaid patients were not restricted were less likely to provide GAC, which underscores concerns about access issues for patients without private insurance who are seeking GAC.³² While not significant after accounting for the Benjamini-Hochberg procedure, participants who offer GAC trended toward being more likely to work at larger clinics where there may be more appointment availability. Larger clinics may also have access to more training opportunities. Future research with larger samples should confirm if clinic size is related to the provision of GAC.

Limitations

The present study was limited by a small sample size, which hinders the robustness of statistical conclusions that can be drawn from bivariate analyses. There is a possibility of selection bias by which participants most interested in the topic of TGD care may have been more likely to respond to the survey postcards, particularly after the influx of bot responses and subsequent requirement for participants to email the investigators for the survey link. A second mailing aimed to reduce potential bias by reaching more family physicians across the state, but the concurrent use of personal contacts to advertise the survey likely further skewed participation by location or institution. Together, the small sample size and potential selection bias limits the generalizability of findings. Future research will be needed to confirm if the results in this study remain robust in other samples. Further, recent policy changes regarding care of TGD patient populations may impact physician behavior, and future research is needed to assess care in a rapidly changing political landscape. Ultimately, the incidence of North Carolina family physicians offering TGD primary care in the present study was similar to previous research,¹¹ and the present findings are best positioned to offer an initial picture of family physicians most interested in TGD care.

Conclusions

This study provides insight into the state of TGD care in North Carolina, including scope of practice, training, and factors associated with family physicians' provision of TGD care. Training may be a key opportunity to increase access to TGD care in family medicine, with the aim of reducing health disparities for TGD patients across the state and beyond.

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Data from this study were briefly summarized at the Symposium for Health Equity Research in Southeastern North Carolina in Wilmington, NC (March 2025), as well as the GLMA's Annual Conference on LGBTQ+ Health in Minneapolis, MN (October 2025).

Declaration of Interests

The authors have no interests to declare.

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SUPPLEMENTARY MATERIALS

Appendix A. Full Survey Items and Survey Flow

Download: https://ncmedicaljournal.com/article/162212-family-physicians-attitudes-and-scope-of-practice-regarding-care-for-transgender-and-gender-diverse-patients-in-north-carolina-a-survey-study/attachment/346494.pdf?auth_token=Ecl8l9zPj7oUI7xQaHWE

Appendix B. Results from Benjamini-Hochberg Procedure

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Appendix C. Descriptive Statistics of Sample

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Appendix D. Descriptive Statistics for Physicians Who Offer Gender-Affirming Care (GAC) to Transgender/Gender Diverse (TGD) Patients

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