

Regional Differences in the Healthcare of Children and Adolescents with Gender Incongruence in Germany

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Abstract

Objective

In recent years, the number of children and adolescents experiencing gender incongruence (GI) and gender dysphoria (GD) has increased within the German healthcare system. The present study assesses healthcare structures, opportunities for referral and clinical confidence regarding treatment of children and adolescents with GI/GD of healthcare professionals, with an emphasis on regional differences between rural/urban areas, eastern/western and northern/southern Germany.

Method

An online survey was answered by $N = 868$ healthcare professionals. Ratings are analyzed using descriptive statistics and group comparisons.

Results

Healthcare professionals rated the healthcare structure for children and adolescents with GI/GD as partially developed. Regarding referral opportunities, 22% stated that they do not know to whom they could refer patients. Clinical confidence was rated as partly secure. However, if gender-affirming medical interventions are not considered, the average clinical confidence increases.

Conclusion

The geographical comparisons indicate no differences in healthcare between eastern/western and northern/southern regions. Nevertheless, healthcare structures in urban areas were rated as more positive as in rural areas. To ensure access to healthcare for children and adolescents with GI/GD and their families, it is essential to expand services, especially in rural areas. Healthcare professionals' clinical confidence should improve to adequately meet the growing demand for care, which could be accomplished by appropriate education and training.

Introduction

In the last decade, the demand for healthcare among children and adolescents with gender incongruence (GI) and gender dysphoria (GD) and their families is growing (1–5). At the same time, healthcare for children and adolescents with GI/GD is insufficiently researched (1, 6–8) and healthcare professionals often report limited knowledge and competence (9, 10).

Gender incongruence describes a discrepancy when the gender identity of a person does not align with the binary sex assigned at birth (11). GI is now classified as “conditions related to sexual health”

(HA60/HA61) in ICD-11 (11). Therefore, it is no longer listed in the chapter “gender identity disorders” (F64), as it has been in the ICD-10 (12). *Gender dysphoria* is referred to, when individuals with GI experience severe psychological distress related to their primary and secondary sexual characteristics (11).

On prevalences regarding children and adolescents with GI/GD, there is only little data available (13). The New Zealand Adolescent Health Survey for instance reported that of 8.166 participating students 1.2% thought of themselves as transgender, while 2.5% were not sure about their gender (14). In the United States, from 81.885 participating students from the 9th and 11th grade 2.7% considered themselves as transgender and gender non-conforming (15). Nevertheless, estimating prevalence rates is complicated, due to differing research methodologies resulting from the use of different inclusion criteria, definitions and instruments (7, 13, 16). Therefore, to date there is no data on representative population samples for children and adolescents with GI/GD (8, 17). In Germany, GI/GD experts and child and adolescent psychiatrists report an increase in children and adolescents with GI/GD seeking healthcare (18, 19). Also, according to the German Central Institute for Statutory Health Insurance Care the prevalence of F64 coded diagnoses increased eightfold in recent years (20).

Children and adolescents with GI/GD are a vulnerable patient group as they face higher rates of coincidental mental health diagnoses compared to cisgender peers (7, 17, 21–23). Internalized disorders such as depression and anxiety disorders most frequently occur (17, 23). The increased rate of coincidental mental disorders can mainly be explained by the considerable body-related gender dysphoric distress (24) and minority stress related to prejudice, stigmatization, and discrimination (25). Also, children and adolescents with GI/GD are more prone to thoughts and acts of self-harm, suicidal thoughts and behavior compared to cisgender peers (4, 22, 23, 26). Considering the increase in prevalence rates, the heightened vulnerability regarding co-occurring psychological symptoms and disorders, it is particularly important that children and adolescents with GI/GD are provided with adequate and appropriate healthcare.

Healthcare for Children and Adolescents with GI/GD

Treatment for children and adolescents with GI/GD does not address a change of gender identity. Considering a non-pathological approach, treatment rather focusses on challenges arising from GI/GD (27). Due to the complexity of developmental trajectories and treatment needs, healthcare for children and adolescents with GI/GD requires an individualized and multidisciplinary approach (1, 6). Care involves a interdisciplinary collaboration between different healthcare professionals, including for instance mental health specialists, endocrinologists, and other medical providers (1, 9, 13, 28, 29). Due to the complex and multidisciplinary requirements, GI/GD related healthcare is often centralized in specialized gender outpatient clinics (13) – for example in Canada, the United States, Netherlands and Austria (6, 30, 31). In Germany, healthcare for children and adolescents with GI/GD is also to some extent centralized in specialized outpatient clinics (32). In 2025 about eight specialized outpatient clinics, which differ greatly in size, were located in Germany; but also, many children and adolescents

with GI/GD in non-specialized outpatient settings by child and adolescent psychiatrists and psychotherapists. The exact extent to which outpatient healthcare professionals outside specialist outpatient clinics contribute to GI/GD health care is unknown. While outpatient clinicians contribute to ongoing support and care, specialized gender outpatient clinics often serve as central points of expertise, providing diagnostic assessments, psychosocial support, and coordination of gender-affirming treatments (33, 34).

Structural Challenges in Healthcare

Although it is internationally common to organize healthcare for children and adolescents with GI/GD in centralized gender outpatient clinics, it also entails disadvantages: they are often not sufficiently distributed and rather located in urban areas (18), leading to differences in care opportunities due to geographical distances. Germany's specialized outpatient clinics are also not distributed evenly, as they are almost only located in western Germany, while there are no specialized outpatient clinics in eastern Germany except Berlin. Also, Germany's specialized gender outpatient clinics are concentrated in urban cities – e.g. in year 2025 in Kiel, Hamburg, Bielefeld, Münster, Aachen, Frankfurt, Ulm, and Berlin. The inadequate distribution of German specialized outpatient clinics for children and adolescents with GI/GD might therefore lead to shortages of healthcare in both eastern Germany and rural areas. The assumption of insufficient psychotherapeutic healthcare for children and adolescents in eastern Germany and rural areas has already been subject of discussion (35–38). After the World War II reunification of eastern and western Germany, the density of psychotherapeutic care remains lower in eastern Germany, which can be explained due to less historically developed care structures and lower training capacities (36, 37). Additionally, psychological psychotherapists and child and adolescent psychotherapists reported less care opportunities for general outpatient care in rural areas (< 100.000 inhabitants) compared to urban areas (36). Structures of interdisciplinary outpatient healthcare networks for children and adolescents are impaired, leading to long waiting times, long travel distances and especially regional healthcare shortages in Germany (37). Even though healthcare for children and adolescents with GI/GD has become more accessible in recent years (39), specialized outpatient clinics are challenged by a high demand for care and guidance (6), causing long waiting times for consultations (8, 19, 40, 41). Thus, due to the limited number of specialized outpatient clinics and following long travel distances, children and adolescents with GI/GD might be financially and practically prevented from accessing them and therefore the needed care (6, 13, 18). Besides geographical challenges, structural issues regarding GI/GD healthcare are also reported, as it lacks structure and consistency (42). Accordingly, German child and adolescent psychiatrists described in qualitative interviews specialized healthcare for children and adolescents with GI/GD as overstrained, leaving the healthcare system under tension (19). In another qualitative study, German GI/GD experts perceive the healthcare capacity for children and adolescents with GI/GD as insufficient, while wishing for improved area-wide care with appropriately trained professionals (18). Overall, these findings from qualitative research suggest that healthcare professionals consider healthcare structures in Germany for children and adolescents with GI/GD to be inadequate (18, 19).

Opportunities for Referral

Furthermore, German healthcare for children and adolescents with GI/GD is challenged by interdisciplinary collaborations between multidisciplinary healthcare professionals due to the need of cooperation and coordination. This interdisciplinary work requires a significant amount of time and effort. However, healthcare professionals often lack knowledge about specialist contacts and opportunities for referral (43). In accordance, German child and adolescent psychiatrists describe in qualitative interviews a lacking network between healthcare professionals and wish for improved networking (19). Also, child and adolescent psychiatrists report difficulties referring to GI/GD specialists, due to working in rural areas and specialized outpatient clinics being unable to cope with rising demands (19). A need for an improved interdisciplinary network and opportunities for referral can therefore be assumed (18, 19, 32).

Clinical Confidence of Healthcare Professionals

Across several professional groups -- child and adolescent psychiatrists (19), psychotherapists and physicians (43) and even GI/GD experts (18) – healthcare professionals describe considerable uncertainty and insufficient knowledge regarding treatment of children and adolescents with GI/GD. Therefore, healthcare professionals might feel overwhelmed by the responsibility of treatment (43). Lacking clinical confidence might result in uncertainty of treatment and lacking treatment routines (6, 43). For instance, German child and adolescent psychiatrists describe challenges with confirming diagnoses and a conflict between the ongoing development of children and adolescents and the irreversibility of some interventions (19). Also, GI/GD child and adolescent experts report concerns about treatment decision making and the medical-ethical dilemma of having treatment concerns, while respecting minors' wishes for self-determination (18). A need for an increase of knowledge and certainty in treatment leading to improved clinical confidence can therefore be assumed.

Research Questions and Hypothesis

Qualitative studies with healthcare professionals show that healthcare for children and adolescents with GI/GD in Germany is severely impaired by the inadequate distribution of specialized outpatient clinics, limited referral opportunities, lack of knowledge and therefore clinical confidence. Thus, fundamental healthcare research is needed, assessing the current healthcare system to identify needs for children and adolescents with GI/GD (8, 18, 19). So far, quantitative research is lacking. Therefore, the present study aims to provide a quantitative overview of the nationwide healthcare situation for children and adolescents with GI/GD in Germany, based on healthcare professionals' assessments. Given the previously outlined challenges, the present study emphasizes geographics as in urbanization and regional differences in Germany and the healthcare professionals' subjective assessments of healthcare structures, referral opportunities and clinical confidence. For the sake of completeness not only regional differences as in eastern/western but also northern/southern Germany are examined.

Given the previously described insufficient psychotherapeutic healthcare for children and adolescents in eastern Germany, it can be assumed that assessments of healthcare professionals indicate discrepancies in healthcare services for children and adolescents with GI/GD in eastern and western Germany. *Research question 1:* Do subjective assessments of healthcare professionals regarding the rating of healthcare structures, opportunities of referral and the perceived clinical confidence for children and adolescents with GI/GD vary between eastern and western Germany? Therefore, it is hypothesized that healthcare professionals in western Germany perceive healthcare structures for children and adolescents with GI/GD as more present than healthcare professionals in eastern Germany (H1a), are more likely to report knowing of referral opportunities for children and adolescents with GI/GD and their families (H1b), and report different levels of perceived clinical confidence in treatment (H1c).

In order to analyze the data in depth, further analyses were conducted to determine whether the subjective assessments of care structures, referral opportunities and clinical confidence vary between northern and southern Germany. *Research question 2:* Do subjective assessments of healthcare professionals regarding the rating of healthcare structures, opportunities of referral and the perceived clinical confidence for children and adolescents with GI/GD vary between northern and southern Germany? Thus, it is hypothesized that healthcare professionals in northern Germany perceive healthcare structures for children and adolescents with GI/GD differently than healthcare professionals in southern Germany (H2a), report different levels of knowing of referral opportunities for children and adolescents with GI/GD and their families (H2b), and different levels of perceived clinical confidence in treatment (H2c).

Furthermore, due to the described deficiency of healthcare in rural areas, it can be assumed that assessments of healthcare professionals indicate discrepancies in healthcare services for children and adolescents with GI/GD in rural and urban areas in Germany. *Research question 3:* Do subjective assessments of healthcare professionals regarding the rating of healthcare structures, opportunities of referral and the perceived clinical confidence for children and adolescents with GI/GD vary between rural and urban areas in Germany? Leading to the hypothesis, that healthcare professionals in urban areas perceive healthcare structures for children and adolescents with GI/GD as more present than healthcare professionals in rural areas in Germany (H3a), are more likely to report knowing of referral opportunities for children and adolescents with GI/GD and their families (H3b), and report different levels of perceived clinical confidence in treatment (H3c).

Method

The present study was part of a cross-sectional online survey and is embedded in the TRANS*EXPERT project funded by the German Research Foundation, which aims to examine perspectives of healthcare professionals throughout Germany.

Sample Recruitment

The recruitment of study participants was conducted between November 2024 and March 2025. Eligible to participate were healthcare professionals specialized in children and adolescents, including licensed pediatricians, child and adolescent psychiatrists, -psychotherapists, and those in training. Excluded from participating were those, who hold other professions than those listed before, who do not maintain active patient contact (intermission > 2 years), and who do not work in Germany. Clinics for pediatric and adolescent medicine and pediatric and adolescent psychiatry ($n = 451$), as well as individual outpatient contacts listed on medical and psychiatric online platforms were approached and encouraged to participate ($n = 2254$). In addition, child and adolescent psychotherapy training institutes in Germany ($n = 224$) were contacted. Also, the Federal Chamber of Psychotherapists in Germany, along with the federal state chambers of psychotherapists, were approached and asked to distribute the link to the online study. Six chambers – located in Schleswig-Holstein, North Rhine-Westphalia, Lower Saxony, Berlin, Hesse and Bavaria – agreed to publish the link either in upcoming newsletters or on their websites. Additionally, the German Professional Association of Pediatric and Adolescent Physicians (BVKJ), provided details about the research project and the access link to its members.

Procedure

The online survey was set up by the questionnaire software “Limesurvey” (version 6.4.2 + 240115). Potential study participants were contacted by email. Participation time was estimated at five to ten minutes.

Ethical Aspects

The Ethics Committee of the Westphalia-Lippe Medical Association reviewed and approved the research project from an ethical perspective (reference number 2023-279-f-S). Informed consent was obtained ahead of participation, while it was voluntary, anonymous and could be discontinued at any time. After completing the questionnaire, participants could enter a separate drawing for one of twenty-five 100€ worth gift cards by providing their email address. The mailing addresses were collected through an independent survey to prevent any link between personal data and individual survey responses.

Survey Instruments

The questionnaire used was developed by the authors (see Appendix in the supplementary file). Operationalizations of the relevant variables are presented in the following.

Regional Equality

Eastern and Western Germany were operationalized by distinguishing between federal states. Participants were asked to indicate the federal state in which they work. The former old federal states that constitute western Germany are Baden-Württemberg, Bavaria, Berlin, Bremen, Hamburg, Hesse, Lower Saxony, North Rhine-Westphalia, Rhineland-Palatinate, Saarland and Schleswig-Holstein. The new

federal states that constitute eastern Germany are Brandenburg, Mecklenburg-Western Pomerania, Saxony, Saxony-Anhalt and Thuringia.

Northern and Southern Germany were operationalized by distinguishing between federal states, which were divided into two groups based on their geographical location as in north and south from the Main River: Schleswig-Holstein, Hamburg, Bremen, Lower Saxony as north and Baden-Württemberg, Bavaria, Hesse and Rhineland-Palatinate as south. Excluded were the new federal states and Berlin to avoid distorting results due to specific East-West differences (e.g., Fritsch et al., 2018; Obschonka et al., 2019).

Rural and Urban Regions

In the survey, participants responded on a 4-point Likert scale regarding the size of their place of work. The degree of urbanization is dichotomized based on population size as in “urban” ($\geq 100,000$ inhabitants) and “rural” ($< 100,000$ inhabitants).

Healthcare Structures

For the subjective assessment of care structures, participating healthcare professionals were asked “How would you rate the care structures for children and adolescents with GI/GD and their families in your area?”. Participants rated how adequate they considered healthcare in their region to be on a 5-point Likert scale. The possible answers ranged from 1 = “not present at all” over 3 = “partially developed” to 5 = “fully and completely present”. Accordingly, high scale values indicate higher levels of care structures.

Opportunity for Referral

To assess the opportunities for referral, participants were asked “Do you know who you can refer children and adolescents with GI/GD and their families to in your area if necessary?”. This dichotomous item was answered with “yes” and “no”.

Clinical Confidence

Clinical Confidence was assessed using seven items, which are added up to an overall score. The healthcare professionals were asked to compare their confidence in treatment aspects of children and adolescents with GI/GD with other areas of their clinical practice, focusing on taking a medical history, making a diagnosis, performing differential diagnostics, guiding a social transition, writing letters of indications for gender affirming hormone therapy and reassignment surgery, as well as guiding transitions. Participants rated how they consider their clinical confidence to be on a 7-point Likert scale. The possible answers ranged from 1 = “not sure at all” to 7 = “absolutely secure”. Accordingly, high scale values indicate higher levels of clinical confidence. The internal consistency of the “clinical confidence” scale is excellent (Cronbach's $\alpha = .93$).

Data Preparation and Statistical Analysis

Data preparation and analysis were performed using the statistical software “Statistical Package for Social Sciences” (SPSS; version 29.0.0.0 (241). During data preparation, of all 1326 assessments, incomplete responses were removed ($n = 458$). Socio-demographic characteristics and descriptive statistics of survey instruments are reported. Group comparisons were performed to compare healthcare professionals’ subjective assessments of healthcare for children and adolescents with GI/GD between eastern and western Germany (research question 1), northern and southern Germany (research question 2) and between rural and urban areas (research question 3). In terms of healthcare structures (H1a, H2a and H3a) and clinical confidence (H1c, H2c and H3c), independent t-tests were calculated, and Pearsons χ^2 tests were used to compare referral opportunities (H1b, H2b and H3b). Since Levene’s test indicated that the assumption of homogeneity of variances was not met for rural and urban areas regarding healthcare structures (H2a) and clinical confidence (H2c), for them t-tests for unequal variances were performed. The significance level was set at 5% ($p < .05$). Since several separate research questions were calculated using different test procedures, the Bonferroni correction was not applied (46).

Results

Sample Characteristics

The sample consists of $N = 868$ participants. Of the healthcare professionals 78.6% ($n = 682$) stated that they identify as female, 18.9% ($n = 164$) as male and 2.5% ($n = 22$) as gender diverse. The respondents age ranges between 24 and 82 years ($M = 44.2$, $SD = 11.5$). The distribution of professions as well as the number of children and adolescents with GI that the healthcare professionals are currently treating and have treated to far is shown in Table 1.

Table 1
Sample Characteristics

Item		<i>n</i>	%
Perceived gender identity	Female	682	78.6
	Male	164	18.9
	Divers	22	2.5
Healthcare profession	Specialist in Child and Adolescent Psychiatry	78	9.0
	Specialist in Pediatrics	115	13.2
	Resident Physician	31	3.6
	Child and Adolescent Psychotherapist	384	44.2
	Psychological Psychotherapist with Additional Qualification in Child and Adolescent Psychotherapy	58	6.7
	Psychological Psychotherapist	53	6.1
	Child and Adolescent Psychological Psychotherapist in Training	149	17.2
Working predominantly in Psychotherapy	Yes	639	73.6
	No	229	26.4
Focus of Therapeutic Approach	Analytical psychotherapy	42	4.8
	Psychodynamic Psychotherapy	109	12.6
	Cognitive behavioral therapy	490	56.5
	Systemic Therapy	20	2.3
	No specific Procedure	7	.8
	Other	21	2.4
	Missing	179	20.6
Number of Children and Adolescents with GI ever treated	None	115	13.2
	1–4	377	43.4
	5–9	186	21.4
	10–19	100	11.5
Note: Percentages are based on the total number of respondents (N = 868).			

Item		<i>n</i>		%	
Number of Children and Adolescents with GI currently in Treatment	≥ 20	90		10.4	
	None	337		38.8	
	1–4	424		48.8	
	5–9	51		5.9	
	10–19	28		3.2	
	≥ 20	28		3.2	
		<i>N</i>	Min	Max	<i>M</i> <i>SD</i>
Age		868	24	82	44.17 11.48
Note: Percentages are based on the total number of respondents (<i>N</i> = 868).					

Descriptive Analysis

Independent Variables

Regional Equality

A total of 88.1% (*n* = 765) of participants are employed in western Germany and 11.9% (*n* = 103) in eastern Germany. The federal state in which most participating healthcare professionals are employed is North Rhine-Westphalia (*n* = 199; 22.9%), while the lowest number of participants are employed in Saarland (*n* = 4; 0.5%). The complete distribution of participants across all federal states is displayed in Fig. 1. A total of 17.3% (*n* = 150) of participants are employed in northern Germany and 39.4% (*n* = 342) in southern Germany. The distribution of participants across northern and southern federal states is displayed in Table 2.

Table 2
Healthcare Professionals by Federal State (Northern and Southern Germany)

Federal States in Germany		Present Study	
		<i>n</i>	%
NORTHERN	Bremen	8	.9
	Hamburg	32	3.7
	Lower Saxony	79	9.1
	Schleswig-Holstein	31	3.6
Total Northern Germany		150	17.3
SOUTHERN	Baden-Württemberg	66	7.6
	Bavaria	196	22.6
	Hesse	53	6.1
	Rhineland-Palatinate	27	3.1
Total Southern Germany		342	39.4

Note

Percentages are based on the number of respondents ($N = 868$).

For a comparison of the distribution of participants and the German wide psychotherapeutic professional group for children and adolescents participating in statutory healthcare, see Table 3 (47). To obtain a reference for the actual healthcare provision, an attempt was made to cross-reference the distribution of child and adolescent psychotherapists participating in statutory healthcare across German federal states with the distribution of participating healthcare professionals, as participants vary substantially between federal states (see Table 3; Kassenärztliche Bundesvereinigung, 2024b). Showing that, although the sample from eastern Germany only makes up about 12% of the total sample, the distribution of participants approximates the actual psychotherapeutic healthcare distribution in Germany. Also, 78.6% of the sample consists of female identifying individuals. However, according the National Association of Statutory Health Insurance Physicians, 77.7% of psychological psychotherapists and 67.2% of medical psychotherapists in Germany identify as female (48). Accordingly, the studies gender ratio is approaching the actual ratio in German of therapeutic healthcare professionals. Consequently, the sample can be considered representative.

Table 3
Healthcare Professionals by Federal State (Eastern and Western Germany)

Federal States in Germany		Present Study		KBV* data	
		<i>n</i> ¹	% ¹	<i>n</i> ²	% ²
WESTERN GERMANY	Baden-Württemberg	66	7.6	988	12
	Bavaria	196	22.6	1437	18
	Berlin	70	8.1	452	6
	Bremen	8	.9	92	1
	Hamburg	32	3.7	228	3
	Hesse	53	6.1	653	8
	Lower Saxony	79	9.1	773	10
	North Rhine-Westphalia	199	22.9	1780	22
	Rhineland-Palatinate	27	3.1	336	4
	Saarland	4	.5	79	1
	Schleswig-Holstein	31	3.6	204	3
Total Western Germany		765	88.1	7022	87.29
EASTERN GERMANY	Brandenburg	16	1.8	204	3
	Mecklenburg-Western Pomerania	13	1.5	120	1
	Saxony	45	5.2	339	4
	Saxony-Anhalt	11	1.3	180	2
	Thuringia	18	2.1	179	2
Total Eastern Germany		103	11.9	1022	12.71
<i>Note:</i> KBV* = Kassenärztliche Bundesvereinigung. <i>n</i>¹ = subgroup sample size. %¹ are based on the total number of respondents of the present paper (<i>N</i> = 868). As 3/4 of the sample mainly works psychotherapeutic, it was referenced to child and adolescent psychotherapists. <i>n</i>² = subgroup KBV sample size. %² are based on the total number of Psychotherapists for children and adolescents provided by the Association of Statutory Health Insurance Physicians. The Association of Statutory Health Insurance Physicians for Westphalia-Lippe and North Rhine were summed up to North Rhine-Westphalia. (47)					

Rural and Urban Regions

In terms of regions, 60.1% ($n = 522$) of participants state that they are employed in an urban region, while 39.9% ($n = 346$) are employed in rural regions.

Dependent Variables

Healthcare Structures

Participating healthcare professionals rate the care structures for children and adolescents with GI/GD and their families in their area as average ($M = 2.59$, $SD = .794$).

Opportunity for Referral

With regard to referral opportunities, 77.8% ($n = 675$) of healthcare professionals stated that they know to whom they can refer children and adolescents with GI/GD and their families, if necessary, while 22.2% ($n = 193$) stated that they do not know.

Clinical Confidence

Healthcare professionals rated their overall perceived clinical confidence in working with children and adolescents with GI/GD as average ($M = 3.65$, $SD = 1.56$). If body-modifying procedures are not considered, the average clinical confidence increases ($M_{\text{without body-modifying variables}} = 4.28$, $SD = 1.6$). The complete and detailed descriptive statistics for the individual items that comprise the total score are shown in Table 4.

Table 4
Detailed Presentation of Perceived Clinical Confidence in Specific Treatment Options for Children and Adolescents with GI/GD

Dimension of Clinical Confidence	[Scale]	Min	Max	Mean	SD
Conducting a clinical history with a focus on GI/GD	[1–7]	1	7	4.72	1.68
Diagnoses in Context of GI	[1–7]	1	7	4.11	1.78
Differential Diagnostics for GI	[1–7]	1	7	4.16	1.8
Guidance through Social Transition	[1–7]	1	7	4.13	1.96
Providing letter of Recommendation Regarding GAHT	[1–7]	1	7	2.80	2.04
Providing a Letter of Recommendation regarding GAS	[1–7]	1	7	2.45	1.92
Guidance During a Medical Transition	[1–7]	1	7	3.17	2.12
Overall Score for Clinical Confidence without GAMI	[1–7]	1	7	4.28	1.6
Overall Score for Clinical Confidence	[1–7]	1	7	3.65	1.6
Note: $N = 868$. GAHT = Gender-affirming hormonal therapy; GAS = Gender-affirming Surgery; GAMI = Gender-affirming medical interventions.					

Regional Equality

Between Eastern and Western Germany (H1a-c)

H1a Healthcare Structures

The t-test revealed no significant difference in perceived care structures between the ratings of healthcare professionals for eastern ($M = 2.52$, $SD = .8$) and western ($M = 2.6$, $SD = .79$) Germany, $t(866) = -.89$, one-tailed $p = .19$, $d = -.09$. Hypothesis H1a was rejected.

H1b Opportunity for Referral

No significant associations were found whether healthcare professionals in western Germany are more likely to report knowing of opportunities for referral for children and adolescents with GI/GD and their families in their area compared to healthcare professionals in eastern Germany (Pearson $\chi^2 (1, N = 868) = .23$, $p = .631$, $\phi = .02$). Hypothesis H1b was rejected.

H1c Clinical Confidence

The t-test revealed no significant difference in clinical confidence between the ratings of healthcare professionals for eastern ($M = 3.7$, $SD = 1.74$) and western ($M = 3.64$, $SD = 1.58$) Germany, $t(866) = .39$, two-tailed $p = .72$, $d = .04$. Hypothesis H1c was rejected.

Between Northern and Southern Germany (H2a-c)

H2a Healthcare Structures

The t-test revealed no significant difference between north ($M = 2.49$, $SD = .78$) and south ($M = 2.63$, $SD = .76$) Germany for the ratings of healthcare structures, $t(490) = -1.94$, two-tailed $p = .05$, $d = -.19$. Hypothesis H2a was rejected.

H2b Opportunity for Referral

No significant differences were found regarding healthcare professionals' opportunity for referral for children and adolescents with GI/GD and their families in the healthcare professionals' area between northern and southern Germany (Pearson $\chi^2(1, N = 492) = 1.46$, $p = .23$, $\phi = -.05$). Hypothesis H2b was rejected.

H2c Clinical Confidence

The t-test revealed no significant differences in overall clinical confidence between northern ($M = 3.73$, $SD = 1.61$) and southern ($M = 3.37$, $SD = 1.15$) Germany for clinical confidence, $t(490) = 2.3$, two-tailed $p = .011$, $d = .23$. Hypothesis H2c was rejected.

Rural-Urban Disparities in Germany (H3a-c)

H3a Healthcare Structures

The t-test revealed a significant difference between rural ($M = 2.7$, $SD = .76$) and urban ($M = 2.42$, $SD = .82$) areas in Germany for perceived healthcare structures, $t(700.16) = -4.98$, one-tailed $p < .001$, $d = .78$. Hypothesis H2a was accepted.

H3b Opportunity for Referral

No significant associations were found whether healthcare professionals in urban areas are more likely to report knowing of opportunities for referral for children and adolescents with GI/GD and their families in their area compared to healthcare professionals in rural areas (Pearson $\chi^2(1, N = 868) = 3.4$, $p = .065$, $\phi = 0.06$). Therefore, hypothesis H2b was rejected.

H3c Clinical Confidence

No significant differences in overall clinical confidence between rural ($M = 3.67$, $SD = 1.65$) and urban ($M = 3.62$, $SD = 1.51$) areas in Germany were found, $t(781.29) = 0.47$, two-tailed $p = .32$, $d = 0.03$. Thus, hypothesis H2c was rejected.

Discussion

The present study provides important insights from healthcare professionals regarding the healthcare situation for children and adolescents with GI/GD in Germany. On average, healthcare professionals rate the healthcare structures for children and adolescents with GI/GD and their families in their area as partially developed. The ratings imply, that healthcare structures are insufficient to ensure consistent high-quality, accessible, and coordinated healthcare. As a consequence there are limited treatment capacities (6), long distances to treatment centers and therefore waiting times (8, 19, 40, 41). These findings are in accordance with qualitative research, whereas healthcare professionals call for an expansion of outpatient care structures, specialized outpatient centers, and specialized and qualified treatment options for children and adolescents with GI/GD (8). In recent years, the demand for GI/GD related healthcare has increased (5, 8, 18–20). With rising prevalences, a greater availability of appropriate care is essential (49). Since children and adolescents with GI/GD represent a very vulnerable patient group (7, 17, 23), it is crucial that healthcare will be fundamentally improved and expanded.

Regarding opportunities for referral, one fifth of all respondents stated that they do not know to whom they could refer children and adolescents with GI/GD and their families in Germany. These findings are similar to those obtained from qualitative interviews with healthcare professionals, in which a lack of specialized facilities and only knowing in some cases to whom to refer patients to are reported (8, 19). In particular, primary care specialists have difficulties to refer patients to specialist centers, especially for letter of recommendation involving gender-affirming medical interventions (19). Nevertheless, healthcare for children and adolescents with GI/GD depends on collaborative and multidisciplinary care (1, 9). Therefore, children and adolescents with GI/GD are relying on a well working healthcare network, while lacking opportunities of referral are concerning. The results indicate that GI/GD-specific healthcare services and professional networking need to expand.

Healthcare professionals rated their clinical confidence in working with children and adolescents with GI/GD on average as partly secure, which is precarious while the demand for specialized healthcare for children and adolescents with GI/GD is rising. In line with the findings, GI/GD experts report concerning previous treatment experiences of patients due to inadequate professional expertise and insufficient knowledge on part of healthcare providers (18). For healthcare professionals confirming a diagnosis poses a major challenge (19). Descriptive statistics show that items regarding guidance during a medical transition, letter of recommendations regarding gender affirming hormone treatment, and gender affirming surgery are below the average of the overall scale mean. If gender-affirming medical interventions are not considered, the average clinical confidence increases (see Table 4). These results indicate, that healthcare professionals feel insecure about medical transitions for adolescents with GI/GD. On average, participants rate their clinical confidence in terms of medical transition as somewhat insecure and very insecure. This might be associated with healthcare professionals being aware of their great responsibility and ethical conflicts (18, 27, 50), resulting from undesirable side effects of hormonal therapies and the irreversibility of medical interventions (19). Increased uncertainty among healthcare professionals also entails a great risk of discrimination for individuals with GI/GD (51, 52). To reduce the

risk of discrimination in the healthcare system and to ensure qualified healthcare, it is important to increase knowledge and therefore clinical confidence.

Regional Equality Between Eastern and Western Germany (H1a-c). Contrary to expectations, no difference in assessments of healthcare structures could be observed among healthcare professionals from eastern and western Germany. Even though there are objective disparities in healthcare structures, due to specialized gender outpatient clinics mostly being geographically in western Germany and less general healthcare regarding children and adolescents, healthcare professionals have a comparable perception of GI/GD healthcare structures in eastern and western Germany. Also, against initial hypotheses, regarding opportunities for referral, no difference for assessments of healthcare professionals from eastern and western Germany could be identified. Since healthcare professionals report healthcare structures in eastern and western Germany as almost equally lacking, it is likely, that there might be no region-specific differences in referral opportunities as well. Also, even though Berlin is considered part of western Germany in the analysis, it is geographically located in eastern Germany. Therefore, it could influence and therefore overestimate assessments of referral opportunities from eastern healthcare professionals. Concerning clinical confidence, no difference could be observed between assessments of healthcare professionals from eastern and western Germany. A possible explanation might be, that clinical confidence is rather perceived as a subjective competence than an aspect of healthcare structures, resulting in no different ratings across federal states. Also, Germany has nationwide standardized professional standards, guidelines and trainings – maybe leading to comparable clinical competence and confidence across regions, regardless of healthcare structures. Overall, no differences could be found in the assessments of healthcare professionals from eastern and western Germany regarding healthcare structures, opportunities for referral and clinical confidence. These results are consistent with the findings of Walendzik and colleagues (38), where no differences in the availability of outpatient psychotherapy between eastern and western Germany were found. This could be explained by healthcare professionals having a comparable perception of healthcare structures in eastern and western Germany, due to a possible adaptation to different healthcare conditions.

Regional Equality Between North and South Germany (H2a-c). As with eastern-western comparisons, no difference in healthcare structures for children and adolescents with GI/GD between northern and southern Germany could be identified, based on the assessments of healthcare professionals. Furthermore, regarding opportunities for referral, no differences were found between northern and southern Germany either. The eastern-western explanations could also apply to the non-existent difference between northern and southern Germany: a similarly perception of healthcare structures and referral opportunities, even though actual healthcare supply might objectively differ. Similarly, no significant difference in the ratings of the healthcare professionals regarding their clinical confidence between northern and southern Germany could be identified. It could be argued, as before, that the perception of clinical confidence does not differ due to nationwide standards and guidelines. All in all, the geographical comparison between northern and southern Germany also indicates, that healthcare professionals do not rate healthcare structures, opportunities for referral, and clinical confidence differently.

Rural-Urban Disparities in Germany (H3a-c). In line with expectations, healthcare professionals in urban areas assess healthcare structures for children and adolescents with GI/GD as significantly more present compared to healthcare professionals in rural areas. This is consistent with outpatient psychotherapy, which is more accessible in urban cities compared to rural areas (38). Differences might be explained due to a higher density of healthcare services for children and adolescents with GI/GD in urban regions as well as the resulting improved accessibility and availability of interdisciplinary teams. Contrary to expectations, no difference for referral opportunities between ratings of healthcare professionals in rural and urban areas could be found, as healthcare professionals may be aware of cross-regional options for patients. Concerning clinical confidence, no difference between ratings of healthcare professionals from rural and urban areas could be detected. Implying, that healthcare professionals feeling partly secure across all regions. As with eastern-western and north-south differences, the explanatory approach, that clinical confidence is rather a subjective perception of competence, could be applied.

Strengths and Limitations

The greatest strength of the present study is its large healthcare professionals' sample which allows valid statements about the current health care situation for children and adolescents with GI/GD. As assessments of healthcare professionals are considered as expert knowledge, findings of the present study provide practical relevance and an increased applicability. Also, the size and the nationwide distribution of the sample from federal states and rural and urban areas, is noteworthy. Especially, since it is to date the largest survey sample in Germany assessing quantitatively the healthcare situation for children and adolescents with GI/GD. This provides a distinct perspective and enables region-based group comparisons. Also, the approximations of the distribution of German child and adolescent psychotherapists and participating healthcare professionals are a clear strength of the study, as they provide a sound cross-section of participants at the federal state level and regarding the gender ratio, making the findings rather applicable. Additionally, the participation of different profession specializations allows a broad assessment. Furthermore, participating healthcare professionals predominantly work psychotherapeutic, especially as psychotherapists, indicating that the present study focuses in particular on psychotherapeutic evaluations. By considering all levels of experience, the findings approximate a realistic healthcare situation.

Nevertheless, the sample also entails limitations, such as a possible selection effect. The willingness to participate might be higher among participants who are more engaged, informed or motivated towards children and adolescents with GI/GD. Therefore, leading to particularly open or especially critical attitudes which might influence ratings. Furthermore, the operationalization of some variables can be criticized. In healthcare research regarding eastern-western comparisons, the approach of new and old federal states is commonly used, where Berlin accounts for analyses as western Germany, even though geographically it is part of eastern Germany (e.g. Fritsch et al., 2018; Obschonka et al., 2019; Walendzik et al., 2013). In the context of healthcare structures and opportunities for referral, this operationalization may have distorted evaluations of healthcare professionals, as eastern German healthcare professionals

might include Berlin in their assessment. Therefore, to enable comparability, it could be helpful to divide federal states according to the regions covered by the Association of Statutory Health Insurance Physicians in future research. Regarding opportunities for referral, it can be criticized that it has been surveyed dichotomously. Thus, the response indicating whether participants know to whom refer children and adolescents with GI/GD does not reveal actual possibilities and capacities available. Accordingly, more detailed variables with multiple facets and items would be useful, for instance waiting times.

Implications for healthcare research and practice

As mentioned before, in existing literature long waiting times for consultations are described as a challenge in healthcare for children and adolescents with GI/GD individuals (8, 19, 41). Even though, no difference between eastern and western Germany in terms of waiting times for initial psychotherapeutic consultations have been reported, differences between rural and urban areas have been (38). As waiting times can be considered as an indicator of inadequate healthcare or undersupply (38), future research should investigate waiting times in healthcare for children and adolescents with GI/GD. Furthermore, the sample was contacted during the national s2k guideline release (34). Therefore, it should be investigated whether healthcare professionals' assessments improve after establishing the guideline.

For practical implications, ratings concerning partially developed healthcare structures and the fact, that 22% of participants do not know to whom to refer children and adolescents with GI/GD and their families, indicate, that healthcare for children and adolescents with GI/GD and professional networks must be improved and expanded in Germany – particularly in rural areas. Accordingly, a decentralized structured network with various professions participating and professional exchange, such as interdisciplinary case discussions seem appropriate (8). Also, healthcare professionals being partly confident in healthcare, emphasizes an urgent need for knowledge and competence to improve. Therefore, a proper educational program for all relevant healthcare professionals is needed as healthcare professionals express a wish for further training and education (18, 19). As another resource of knowledge specialized outpatient clinics could offer guidance and training for other healthcare professionals (13). Generally, training should include educational specialist knowledge, discussions on ethical implications and elements of self-reflection (19). Further topics might be interdisciplinary training and certification courses for gender-affirming medical interventions, training and education in detransition, desistance, as well as for diagnostics in cases of coincident psychological disorders (19). Due to a lack of a national guideline, treating professionals have also been missing guidance up to recently, especially in regard to decisions concerning gender-affirming medical interventions (43). However, with now the German-language guideline for children and adolescents with GI/GD being published (34), it could potentially lead to an improvement in clinical confidence.

Conclusion

Overall, it can be concluded that healthcare professionals rate healthcare structures for children and adolescents with GI/GD as insufficient. One fifth of health care professionals state that they do not know

to whom they can refer children and adolescents with GI/GD and their families. These findings indicate a deficit in healthcare structures in Germany, which in regard to this vulnerable patient group, should improve. Healthcare professionals rate their clinical confidence as partly secure. However, if gender-affirming medical interventions are not considered, the average clinical confidence increases. Clinical confidence therefore has to be improved, especially regarding gender-affirming medical interventions, which might be achieved by the newly published national guideline, appropriate training, and specialized education. Geographical comparisons indicate that east/west and north/south differences can be disregarded, while rural/urban differences should be given greater attention. Only the rated healthcare structures vary significantly in terms of urbanization, in favor for urban areas. All in all, it can be concluded that the nationwide healthcare structures for children and adolescents with GI/GD needs to be expanded in Germany, especially in rural areas.

Abbreviations

GI
Gender Incongruence
GD
Gender Dysphoria
GAHT
Gender-Affirming Hormonal Therapy
GAS
Gender-Affirming Surgery
GAMI
Gender-Affirming Medical Interventions

Declarations

Ethics approval and consent to participate

The Ethics Committee of the Westphalia-Lippe Medical Association reviewed and approved the study (reference number 2023-279-f-S). Informed consent of the participants was obtained ahead of participation and all methods were carried out in accordance with relevant guidelines and regulations.

Consent for publication

Not applicable

Competing Interests

The authors declare that they have no conflict of interest.

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Conflict of Interest:

The authors declare that they have no conflict of interest.

Author Contribution

H.H., A.R., and B.M. conceptualized the study. H.H. and B.M. conducted the survey and performed the data analysis. B.M. prepared the figures and wrote the original draft of the manuscript. H.H., A.R., G.R., and B.M. reviewed and edited the manuscript. All authors read and approved the final manuscript.

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Data Availability

The data will not be available for public access, because individual privacy of participants might be compromised (e.g. for health care professionals of federal states, who can be identified according to federal state, gender, age, etc.)

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Figures

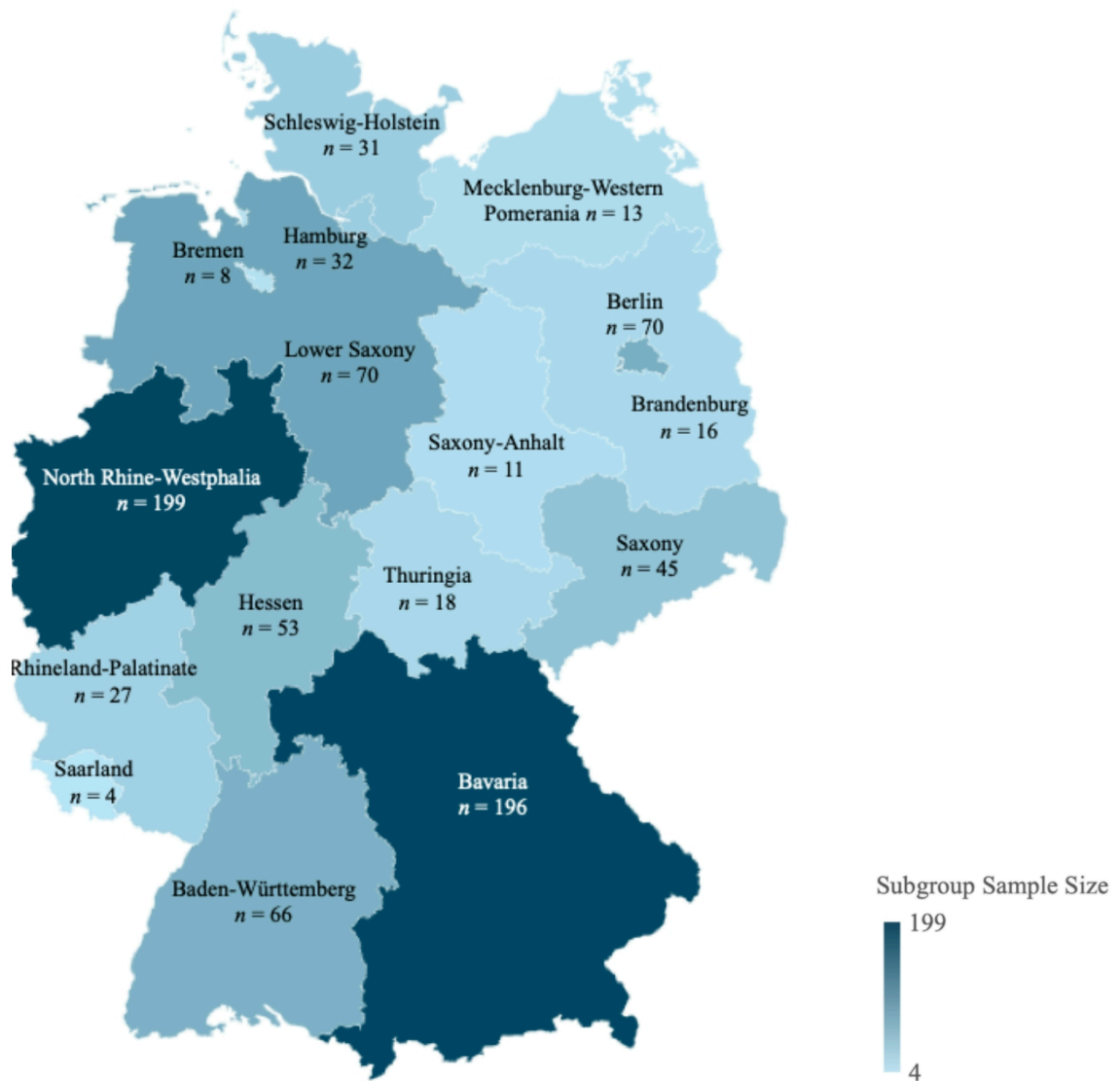


Figure 1

Participating Healthcare Professionals by Federal State. $N = 868$.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [AppendixSurveyInstruments.docx](#)