

Sexual Function, Gender Congruence, and Well-Being Before Vaginoplasty: A Mixed-Methods Pilot Study of Trans Women on Gender-Affirming Hormone Therapy

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Abstract

Background

Gender-affirming hormone therapy (GAHT) is associated with changes in sexual desire, arousal, orgasm, and mood. The pre-vaginoplasty phase is clinically important but remains under-characterized with respect to how sexual changes, gender congruence, and well-being co-occur.

Objectives

We examined whether gender congruence was associated with sexual function, whether sexual function and intimacy-specific narrative salience related to the wish for vaginoplasty, and whether well-being/resources were associated with depressive symptoms independently of surgical wish.

Methods

In this convergent mixed-methods pilot study, 30 German-speaking pre-vaginoplasty trans women on medically prescribed GAHT completed the Gender Congruence and Life Satisfaction Scale (GCLS-38), a pre-operative four-domain Female Sexual Function Index composite (FSFI-mod-4: desire, arousal, orgasm, satisfaction), PHQ-9, SF-12v2, and structured free-text prompts. Quantitative regression-style, variance-based, and Bayesian models were integrated with human-coded qualitative themes. A narrative congruence index captured intimacy-specific meanings not represented by standardized scales.

Results

Zero-order correlations between GCLS-38 and FSFI-mod-4 domains were small and imprecise (r approximately .20-.34). Adding narrative congruence increased explained variance in sexual function (coarse full-sample index: $R^2 = .325$, $\Delta R^2 = .20$; fine-index sensitivity: $R^2 = .455$, $\Delta R^2 = .33$). Narrative salience was positively associated with surgical wish in the fine-index model and attenuated in full-sample robustness checks. Well-being/resources were strongly associated with fewer depressive symptoms (PHQ-9 model $R^2 = .575$) but showed no meaningful association with surgical wish.

Conclusions

The findings support a cautious two-path account: an intimacy-proximal congruence/sexuality pathway relevant to surgical motivation and a well-being/resources pathway related to mood. These exploratory data warrant longitudinal confirmation and support phase-sensitive pre-operative counseling that normalizes heterogeneous sexual trajectories without treating coping as a substitute for anatomy-linked surgical goals. For global LGBTQ+ health readers, the model offers transferable clinical propositions

rather than prevalence estimates: it separates low-cost, culturally adaptable counseling practices from respect for surgical autonomy across diverse health-system contexts.

Introduction

Clinical context

Gender-affirming hormone therapy (GAHT) is a central component of medical transition for many trans women and is associated with changes in sexual desire, arousal, orgasmic experience, and psychological functioning (Coleman et al., 2022; Defreyne et al., 2020; Ristori et al., 2020; van de Grift et al., 2017). The period before vaginoplasty can be clinically complex: patients are adapting to hormone-related bodily and sexual changes while refining expectations about genital gender-affirming surgery, intimate relationships, and future sexual scripts. A clearer account of how gender congruence, sexual function, and well-being intersect during this period can inform pre-operative counseling and shared decision-making.

The study is positioned at the intersection of mental health, sexual health, gender-affirming care, and clinical service development. Although recruitment occurred in German-speaking contexts, the clinical questions are not jurisdiction-specific. In many regions, trans women navigate GAHT-related sexual change, intimacy, and decisions about genital gender-affirming surgery under markedly different legal, cultural, economic, and health-system conditions. We therefore frame the study's global reach as transferability rather than generalizability: the data cannot estimate global prevalence or treatment effects, but they can generate clinically useful propositions about how to ask about sexuality, congruence, mood, and surgical wish in ways that are adaptable across settings.

Gender congruence and sexual function

Gender congruence refers to the degree to which a person experiences alignment between gender identity, the body, and social or relational life. The Gender Congruence and Life Satisfaction Scale (GCLS) was developed as a multidimensional measure of outcomes relevant to gender-affirming healthcare, including psychological functioning, genitalia, chest, secondary sex characteristics, social recognition, physical and emotional intimacy, and life satisfaction (Jones et al., 2019). In pre-operative sexual contexts, however, a global score may not fully capture whether residual anatomy-linked cues become salient during intimacy.

Sexual function under GAHT is heterogeneous. Changes in spontaneous desire, arousal dynamics, orgasmic latency or intensity, and partnered versus solitary sexual activity may occur, and standard sexual-function instruments were not designed specifically for pre-vaginoplasty trans women (Barcelos et al., 2024; Rosen et al., 2000; Ristori et al., 2020; Syed & Honig, 2021). A modified FSFI can improve content fit by excluding vaginal lubrication and pain domains that are not applicable before vaginoplasty, but it remains an adaptation rather than a fully validated trans-specific pre-operative instrument. Interpretation therefore benefits from qualitative context.

Well-being/resources and surgical wish

Trans people often face minority stress, stigma, and healthcare barriers that increase vulnerability to depressive symptoms (Bockting et al., 2013; Hendricks & Testa, 2012). Social support, community connectedness, and peer-based resources are consistently discussed as protective factors in the transgender health literature (Budge et al., 2013; Puckett et al., 2019). Clinically, however, resources that support mood should not be conflated with identity-proximal motivations for surgery. A patient may have strong coping resources and still experience a persistent, anatomy-linked wish for vaginoplasty.

Prior work suggests that sexual experiences and body satisfaction can relate to desire for gender-confirming interventions, but pre-operative, mixed-methods evidence remains limited (Nikkelen & Kreukels, 2018). For this reason, we distinguish an identity- and intimacy-proximal pathway, expected to relate to sexual function and surgical wish, from a well-being/resources pathway, expected to relate primarily to depressive symptoms. This distinction reduces the risk of pathologizing surgical motivation and helps clinicians target supportive interventions appropriately.

Study aims and hypotheses

This exploratory, hypothesis-generating pilot study examined three questions. First, is higher gender congruence associated with better sexual function when intimacy-specific narrative content is considered alongside standardized congruence scores? Second, do sexual function and narrative salience relate to the intrinsic wish for vaginoplasty? Third, are well-being/resources associated with fewer depressive symptoms without meaningfully predicting surgical wish?

We expected that narrative congruence would add explanatory value beyond global congruence (H1), that intimacy-specific incongruence and sexual function would show small but clinically interpretable associations with surgical wish (H2), and that well-being/resources would relate to depressive symptoms but not to surgical wish (H3). Because this was a small cross-sectional pilot, all estimates are interpreted with emphasis on effect size, uncertainty, and convergence across quantitative and qualitative strands rather than dichotomous significance testing.

Methods

Design

We used a convergent mixed-methods design with parallel quantitative and qualitative strands and planned integration during interpretation (Creswell & Plano Clark, 2021; Fetters et al., 2013). The quantitative strand estimated associations among congruence, sexual function, depressive symptoms, and surgical wish. The qualitative strand captured participant-described meanings of sexual change, intimacy, bodily congruence, and coping during GAHT. The report follows the logic of STROBE for

observational data and GRAMMS principles for mixed-methods reporting (O'Cathain et al., 2008; von Elm et al., 2007).

Recruitment and participants

Participants were recruited between December 2023 and February 2024 via trans-specific online channels, social networks, forums, and LGBTQ+ organizations in German-speaking countries. Participation was anonymous and voluntary. Inclusion criteria were: self-identification as a trans woman or transfeminine person assigned male at birth, age at least 18 years, at least 6 months of medically prescribed GAHT, no prior genital gender-affirming surgery, and sufficient German literacy. Exclusion criteria were acute psychiatric crisis, intersex variation with a primary medical indication, or hormone treatment outside a gender-affirming context.

Thirty participants completed the survey. Mean age was 36.7 years. Mean GAHT duration was 28.7 months, with a reported range of 6 to 125 months. All participants were pre-vaginoplasty.

Ethics and data protection

All procedures complied with the Declaration of Helsinki and applicable data-protection law, including the EU General Data Protection Regulation and the Swiss Federal Act on Data Protection (World Medical Association, 2013). The study was submitted through BASEC (Req-2023-00990) and reviewed by the Cantonal Ethics Committee of Zurich, which determined that formal ethical approval was not required under the Swiss Human Research Act. Electronic informed consent was obtained before study procedures. The survey was hosted on a secure university server, and technical checks were used to reduce duplicate participation.

Measures

Gender congruence. Gender congruence was assessed with a German study translation of the 38-item Gender Congruence and Life Satisfaction Scale (GCLS-38; Jones et al., 2019). Items were scored so that higher values indicated greater congruence and lower dysphoria. The translation, scoring, and reliability checks are described in Supplement S1.

Sexual function. For the pre-vaginoplasty context, we used a modified FSFI composite (FSFI-mod-4) comprising desire, arousal, orgasm, and satisfaction. Lubrication and pain domains were omitted because they presume vaginal anatomy. Domain scores followed FSFI weighting conventions for the retained domains and were summed into a four-domain composite (Rosen et al., 2000; Wiegel et al., 2005). "No sexual activity" responses were coded according to the FSFI scoring rules for relevant domains. This adaptation improves content relevance for pre-operative trans women but reduces comparability with cisgender normative FSFI totals.

Depressive symptoms and health-related quality of life. Depressive symptoms were measured with the PHQ-9 (Kroenke et al., 2001). Health-related quality of life was measured with SF-12v2 Mental Component Summary (MCS) and Physical Component Summary (PCS) scores (Ware et al., 2002). MCS was used as the primary well-being/functioning proxy, and PCS was used in sensitivity analyses to reduce conceptual overlap with PHQ-9. PHQ-9 was used only as an outcome.

Surgical wish. The intrinsic wish or plan for vaginoplasty was assessed with an ordinal self-rating (2–10 scale) and a binary indicator derived from the reported plan for neovaginoplasty. The ordinal rating was treated as the primary operationalization; the binary indicator was used as a sensitivity check.

Qualitative prompts. Structured free-text prompts asked about desire, arousal, orgasm, bodily perception in sexual contexts, perceived hormone-related changes, partnered sexuality, anticipated meaning of surgery, and coping strategies. Three analysts coded a calibration set and resolved discrepancies by consensus. Intercode reliability on unreconciled calibration data was acceptable (Krippendorff's $\alpha = .78$; Krippendorff, 2018). Coded co-occurrence patterns and analytic memos informed a narrative congruence index (Miles et al., 2019).

Narrative congruence indices

The fine narrative congruence index was derived from targeted prompts on desire, arousal, orgasm, and intimate-context congruence. It was available for participants with sufficient codable text ($n = 12$), making it theory-proximal but sample-limited. To increase coverage, we also computed coarse person-level indices for all participants by aggregating affirming versus dysphoric signals across broader code families. All narrative indices were standardized before modeling.

The narrative indices were intended to capture the meaning and salience of congruence in intimate contexts rather than to duplicate GCLS or FSFI item content. The supplement describes the coding logic and independence checks. Qualitative findings are reported in aggregate; no verbatim quotations are included in the present manuscript because the free-text data are sensitive and anonymous.

Quantitative analysis

Analyses were exploratory and estimation-focused. For H1, we compared a baseline model predicting sexual function from standardized GCLS-38 and age with extended models adding narrative congruence and the GCLS x narrative interaction. For H2, we modeled surgical wish using FSFI-mod-4, GCLS-38, age, and narrative congruence, with ordinal and binary specifications. For H3, we modeled PHQ-9 depressive symptoms as a function of well-being/resources and examined whether the same well-being/resources signal predicted surgical wish.

Variance-based models were summarized using standardized coefficients, explained variance, and uncertainty intervals. Bayesian regression models were fitted in R using brms/Stan with weakly skeptical priors, four chains, and posterior predictive checks (Bürkner, 2017). Regions of practical equivalence and Bayes factors were used as sensitivity tools for evaluating near-null effects (Jeffreys, 1961; Kruschke,

2018; van de Schoot et al., 2014). Given the sample size, interactions and subgroup patterns were treated as hypothesis-generating.

Computing environment and AI-related data handling

Analyses were conducted on local, encrypted hardware. Qualitative coding decisions and all substantive interpretations were performed by human researchers. Local scripts were used to organize coded material and construct indices; no participant-level raw data were uploaded to external cloud or AI services for analysis. A generative-AI disclosure for manuscript preparation is included in the declarations section.

Results

Participant characteristics and scale descriptives

Participant characteristics are summarized in Table 1. The sample comprised 30 pre-vaginoplasty trans women on medically prescribed GAHT. Sexual function scores showed broad variability (FSFI-mod-4 M = 13.57, SD = 5.99, range 2.6–23.6). Depressive symptoms were in the moderate range on average (PHQ-9 M = 9.73), and SF-12v2 mental health was below population average (MCS z approximately – 1.68; T approximately 33.2). GCLS-38 was analyzed as a standardized congruence predictor; the model-relevant zero-order associations are reported in Table 2.

Table 1
Participant characteristics and key descriptives

Characteristic	Value
Sample size	N = 30
Age, years	M = 36.7
GAHT duration, months	M = 28.7; range 6-125
Pre-vaginoplasty status	100%
Fine narrative-index availability	n = 12
FSFI-mod-4	M = 13.57; SD = 5.99; range 2.6–23.6
PHQ-9	M = 9.73
SF-12v2 MCS	M z approximately – 1.68; T approximately 33.2
<i>Note.</i> GAHT = gender-affirming hormone therapy; FSFI-mod-4 = four-domain pre-operative FSFI composite; PHQ-9 = Patient Health Questionnaire-9; MCS = Mental Component Summary. GCLS-38 was used as a standardized model predictor; its bivariate associations with FSFI-mod-4 are reported in Table 2.	

H1: Gender congruence and sexual function

At the zero-order level, correlations between global gender congruence and sexual function were small and imprecise: r values ranged from approximately .20 to .34, and confidence intervals crossed zero (Table 2). This pattern did not indicate a simple scoring artifact because scale directions were aligned so that higher GCLS reflected greater congruence, and qualitative material repeatedly localized difficulty to intimate contexts rather than day-to-day functioning.

In the baseline model with GCLS and age, explained variance in sexual function was modest ($R^2 = .125$). Adding narrative congruence improved fit. In the full-sample coarse-index model ($N = 30$), R^2 increased to .325 ($\Delta R^2 = .20$), and the narrative effect was positive ($\beta = .39$, 95% CI [.02, .77], $p = .042$). In the fine-index sensitivity model ($n = 12$), R^2 increased to .455 ($\Delta R^2 = .33$), and the narrative effect was larger ($\beta = .60$, 95% CI [.26, .94], $p = .001$). The GCLS x narrative interaction was negative in direction but imprecise. These findings support the incremental value of intimacy-specific narrative content while requiring cautious interpretation due to small n for the fine index.

Table 2
Zero-order correlations between GCLS-38 and FSFI-mod-4 scores ($N = 30$)

Pair	r	95% CI
GCLS-38 vs FSFI-mod-4 composite	.33	– .04 to .61
GCLS-38 vs FSFI desire	.23	– .14 to .54
GCLS-38 vs FSFI arousal	.20	– .18 to .52
GCLS-38 vs FSFI orgasm	.34	– .02 to .62
GCLS-38 vs FSFI satisfaction	.33	– .04 to .62
Note. Higher GCLS-38 indicates greater congruence/lower dysphoria; higher FSFI-mod-4 indicates higher sexual function.		

H2: Sexual function, narrative salience, and surgical wish

The baseline model for surgical wish explained little variance ($\text{pseudo-}R^2 = .019$). In the fine-index model, adding narrative congruence increased $\text{pseudo-}R^2$ to .188 ($\Delta \text{pseudo-}R^2 = .169$). Narrative congruence was positively associated with surgical wish ($\beta = .544$, 95% CI [.022, 1.066], $p = .042$). FSFI-mod-4 showed a negative trend ($\beta = -.452$, 95% CI [-.966, .062], $p = .082$), suggesting that better retained sexual function may reduce urgency for surgery in some participants. Global GCLS was near zero. The full-sample coarse-index model showed the same direction but weaker precision ($\text{pseudo-}R^2 = .079$; narrative $\beta = .283$, 95% CI [-.208, .775], $p = .245$).

Taken together, these patterns suggest that surgical wish was not simply a function of global distress or poor sexual function. Instead, intimacy-specific salience may be clinically meaningful even when overall congruence appears relatively adaptive. Because the binary surgery-plan indicator had a high base rate and limited sensitivity, the result should be treated as a pilot signal.

H3: Well-being/resources, depressive symptoms, and surgical wish

A well-being/resources signal, represented primarily by SF-12v2 MCS, was strongly associated with fewer depressive symptoms (PHQ-9 model $R^2 = .575$; $\beta_{\text{MCS}} = -.779$, 95% CI [-1.061, -.497], $p < .001$). PCS-only sensitivity analyses attenuated the association but retained the negative direction. This result should be read as a concurrent association between mental functioning/resources and depressive symptoms rather than causal proof that coping reduces depression.

Across specifications, well-being/resources did not meaningfully predict surgical wish. The contrast between a strong PHQ-9 association and a near-null surgical-wish association supports the clinical distinction between mood-related support needs and identity- or anatomy-linked surgical motivation. Table 3 summarizes the main exploratory models.

Table 3
Exploratory model summaries for H1-H3

Hypothesis / model	N	Model fit	Key estimate or interpretation
H1 baseline: GCLS-38 + age -> FSFI-mod-4	30	$R^2 = .125$	Modest explained variance.
H1 coarse extended model	30	$R^2 = .325$; $\Delta R^2 = .20$	Narrative $\beta = .39$, 95% CI [.02, .77], $p = .042$.
H1 fine-index sensitivity	12	$R^2 = .455$; $\Delta R^2 = .33$	Narrative $\beta = .60$, 95% CI [.26, .94], $p = .001$.
H2 baseline surgical-wish model	30	pseudo- $R^2 = .019$	Little variance explained.
H2 fine-index surgical-wish model	12	pseudo- $R^2 = .188$; Δ pseudo- $R^2 = .169$	Narrative $\beta = .544$, 95% CI [.022, 1.066], $p = .042$; FSFI-mod-4 $\beta = -.452$, 95% CI [-.966, .062], $p = .082$.
H2 coarse full-sample model	30	pseudo- $R^2 = .079$	Narrative $\beta = .283$, 95% CI [-.208, .775], $p = .245$.
H3 PHQ-9 model	30	$R^2 = .575$	MCS $\beta = -.779$, 95% CI [-1.061, -.497], $p < .001$.
H3 surgical-wish models	30	near-null pattern	Well-being/resources did not meaningfully predict surgical wish across specifications.
<i>Note.</i> R^2 and pseudo- R^2 are descriptive model summaries. All β coefficients are standardized. p -values and confidence intervals are reported as exploratory estimates rather than confirmatory decision criteria.			

Mixed-methods integration

Qualitative analysis yielded 670 coded segments and dense co-occurrences among transitional change, sexual experience, and intimate-context congruence codes. Participants described phased sexual trajectories: early GAHT-related changes in spontaneous desire and arousal dynamics; a mid-phase of experimentation, recalibration, and renegotiation of partnered scripts; and, approaching surgical decision points, heightened attention to specific residual incongruences during intimacy.

The integrated interpretation is summarized in Table 4 and Figs. 1–3. Qualitative patterns clarified why bivariate correlations between global congruence and sexual function were small: global congruence and intimacy-specific salience may move in different directions at particular transition phases. Some participants can experience improved everyday congruence while becoming more aware of residual anatomy-linked cues during sexual situations.

Table 4
Joint display of quantitative signals, qualitative interpretation, and clinical meaning

Quantitative signal	Qualitative interpretation	Clinical meaning
Small zero-order GCLS-FSFI links	Global congruence did not fully capture intimate-context salience.	Ask specifically about sexual contexts rather than assuming everyday congruence generalizes to intimacy.
Narrative index increased R ² for sexual function	Meaning and salience of residual incongruence clarified FSFI variability.	Use narrative prompts to identify cues that facilitate or disrupt arousal, desire, orgasm, and satisfaction.
Narrative salience related to surgical wish in fine-index model	Surgical wish may reflect anatomy-linked intimate incongruence rather than generalized poor coping.	Support surgical autonomy while offering counseling for present-phase intimacy.
Well-being/resources predicted PHQ-9 but not wish	Mood-related resources and surgical motivation followed different logics.	Treat coping support as mood care, not as a substitute for gender-affirming surgery.
Note. The table summarizes coded themes rather than verbatim participant quotations.		

Exploratory timeline signal and robustness checks

GAHT duration correlated strongly with the well-being/resources signal ($r = .827$). Given the cross-sectional design, this should not be interpreted as within-person improvement over time. It may reflect time-linked adaptation, cohort effects, access to care, survivorship, or other unmeasured confounding. Robustness checks using rank-based models, outlier trimming, alternative narrative-index operationalizations, and Bayesian sensitivity analyses generally preserved effect directions while widening uncertainty for the smallest models.

Discussion

Principal findings

This pilot study produced three clinically interpretable signals. First, global gender congruence showed only small zero-order associations with sexual function, but models improved when intimacy-specific narrative congruence was added. Second, narrative salience showed a positive association with surgical wish in the fine-index model, with attenuated but directionally similar full-sample results. Third, well-being/resources were strongly associated with depressive symptoms but did not meaningfully predict surgical wish.

These signals support a cautious two-path account. The first path is identity- and intimacy-proximal: sexual function and surgical wish are better understood when residual congruence or incongruence is assessed in intimate contexts. The second path is well-being/resource-proximal: mood relates to perceived functioning, support, and adaptation, but this does not imply that better coping reduces the legitimacy or intensity of surgical goals.

Global relevance and transferability

Although the empirical sample was small and recruited in German-speaking countries, the clinical problem addressed here has clear relevance for global LGBTQ+ health. Trans women in many regions may initiate or consider GAHT, wait for or be denied genital surgery, and negotiate sexuality amid stigma, legal uncertainty, family or partner pressures, financial constraints, and variable availability of gender-affirming services. The present findings should not be read as global prevalence estimates or as evidence that one care model applies everywhere. Their intended global contribution is narrower and more defensible: they identify a counseling logic that can be locally adapted while preserving surgical autonomy.

Three transferable propositions follow. First, global measures of congruence may miss intimacy-specific dysphoria or salience; clinicians and researchers should therefore ask directly about sexual contexts rather than assuming that day-to-day congruence generalizes to partnered or solitary intimacy. Second, adapted sexual-function scores require narrative interpretation, particularly where language, culture, anatomy, surgical access, and sexual scripts affect how items are understood. Third, mood-related resources should be addressed as mental-health support, not used as a proxy for diminished need or motivation for vaginoplasty.

For readers working in settings with limited specialist services, the most actionable elements are low-cost and culturally adaptable: map affirming and dysphoric cues during intimacy, normalize heterogeneous desire, arousal, orgasm, and satisfaction trajectories during GAHT, discuss communication with partners, and distinguish supportive counseling from gatekeeping. In contexts where vaginoplasty is delayed, unavailable, unaffordable, or legally constrained, such counseling may reduce distress and improve sexual communication while explicitly maintaining respect for anatomy-

linked surgical goals. In high-resource systems, the same model argues for integrating sexual-health counseling before surgery rather than treating sexuality only as a post-operative outcome.

Global reach also requires measurement humility. Instruments developed or normed in cisgender or Western clinical populations may not have equivalent meanings across languages, cultures, and care pathways. Future work should therefore test the two-path account in multisite and multilingual samples, with community involvement in translation, item adaptation, and interpretation. Such studies should examine whether the proposed distinction between intimacy-proximal congruence and well-being/resources holds across racialized and ethnic communities, migration histories, socioeconomic positions, rural and urban settings, and different models of health-care financing and legal recognition.

A dysphoria-salience interpretation

We propose a tentative dysphoria-salience interpretation for future testing. As global congruence improves during GAHT, sexual situations may become contrast-rich contexts in which residual incongruence cues are especially salient. This account does not imply that congruence worsens sexuality. Rather, it suggests that sexual function may depend on the interaction between broad gender alignment and specific cues encountered during intimacy.

Two mechanisms are plausible. The first is cognitive-affective contrast: improved everyday congruence may raise expectations for a fully aligned sexual experience, making residual mismatch more disruptive when it appears. The second is attentional or predictive salience: as embodied expectations become more coherent, incongruent cues may generate stronger prediction errors during touch, interoception, or partnered interaction. These mechanisms remain speculative and require longitudinal tests before and after vaginoplasty.

Clinical implications

For pre-operative counseling, the findings support normalizing heterogeneous sexual trajectories under GAHT across diverse care settings. Clinicians can explicitly state that lower spontaneous desire, changing arousal patterns, altered orgasmic quality, and fluctuating partnered comfort are common topics for discussion rather than signs of failure. The counseling frame is deliberately scalable: even where specialist psychosexual services are unavailable, clinicians can use brief, non-pathologizing questions to separate intimacy-specific congruence, sexual functioning, mood, and surgical wish. Counseling should distinguish support for mood and coping from evaluation of surgical need, particularly in contexts where access barriers could otherwise transform psychosocial support into implicit gatekeeping.

Practical counseling may include mapping congruent and dysphoric cues, discussing positions or practices that reduce exposure to triggers, exploring affirmed erogenous zones, and supporting communication with partners about pacing, consent, and expectations. Coping strategies can improve

distress tolerance and relationship communication, but they should not be framed as substitutes for surgery when anatomy-linked incongruence persists.

Research implications

The next step is a preregistered longitudinal study across GAHT milestones and pre-/post-vaginoplasty assessment points, ideally implemented across multiple countries, languages, and health-system models, including settings with constrained surgical access. Such work should test whether narrative congruence adds out-of-sample predictive value beyond standardized scales, whether the GCLS x narrative interaction replicates, and whether any dysphoria-salience effect attenuates after surgery. Experience-sampling designs could capture in-the-moment cue salience, affect, desire, arousal, and partner context.

Measurement work is also needed. A harmonized pre-operative sexual-function instrument for trans women would reduce reliance on cis-normed scales and improve comparability across studies, but such an instrument should be developed with cross-cultural validation rather than exported uncritically from one setting. Until then, FSFI adaptations should explicitly report domain handling, zero coding, translation procedures, and the limits of normative interpretation.

Strengths and limitations

Strengths include a clinically focused mixed-methods design, integration of standardized measures with human-coded narrative material, transparent small-sample modeling, and explicit separation of mood-related resources from surgical wish. The study addresses an under-characterized pre-operative phase and offers directly translatable counseling targets.

Limitations are substantial. The sample was small ($N = 30$), self-selected, anonymous, and recruited online in German-speaking contexts; the findings should therefore be treated as transferable hypotheses for global LGBTQ+ health rather than as globally generalizable estimates. The design was cross-sectional and cannot establish causality or within-person change. GAHT regimen, anti-androgen class, estradiol route and dose, psychotropic medication, comorbidities, relationship context, partner perspective, legal context, and health-system barriers were not fully modeled. The fine narrative index was available for only 12 participants. The modified FSFI improves contextual relevance but lacks full validation for pre-vaginoplasty trans women, including cross-cultural validation. Finally, the well-being/resources construct partly overlaps with depressive symptom measurement, so the H3 association should be interpreted conservatively.

Conclusion

In this mixed-methods pilot of pre-vaginoplasty trans women on GAHT, intimacy-specific narrative congruence clarified otherwise small associations between global gender congruence and sexual function. Well-being/resources were associated with fewer depressive symptoms but not with surgical wish. The findings offer a globally relevant but appropriately bounded contribution: they propose two

partially independent clinical targets: phase-sensitive sexual/intimacy counseling that addresses residual incongruence and resource-oriented support that protects mood without pathologizing or replacing surgical motivation. Larger longitudinal, multisite, multilingual, and cross-cultural studies should now test the proposed dysphoria-salience account and refine measurement for pre-operative sexual function.

Declarations

Conflicts of interest:

The authors declare no competing interests.

Ethics statement

The study was submitted through BASEC (Req-2023-00990) and reviewed by the Cantonal Ethics Committee of Zurich, which determined that formal ethical approval was not required under the Swiss Human Research Act. All participants provided electronic informed consent.

Generative AI use disclosure

OpenAI ChatGPT (GPT-5.5 Pro, 2026) was used to support language editing, structural refinement, figure and caption consistency checking, and formatting of this revised submission package. The authors reviewed and verified the final scientific content, analyses, citations, and interpretations and accept full responsibility for the submitted work. No participant-level raw data were uploaded to external AI services for analysis.

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Author Contribution

Conceptualization: JS, MP, RvK, SE; Methodology: JS, SE, MP, MS; Coding: MP, MS, JS; Formal analysis: JS, MP; Investigation: JS; Writing-original draft: JS; Writing-review and editing: MP, MS, RvK, SE; Supervision: SE.

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Data Availability

The data contain sensitive information about a marginalized population and are not publicly available. De-identified data underlying the findings may be shared upon reasonable request to the corresponding author, subject to institutional approval, applicable data-protection requirements, and a data-use agreement. Analysis scripts and a redacted coding template may be shared to support reproducibility. Verbatim qualitative free-text responses are not publicly available because of the risk of participant re-identification.

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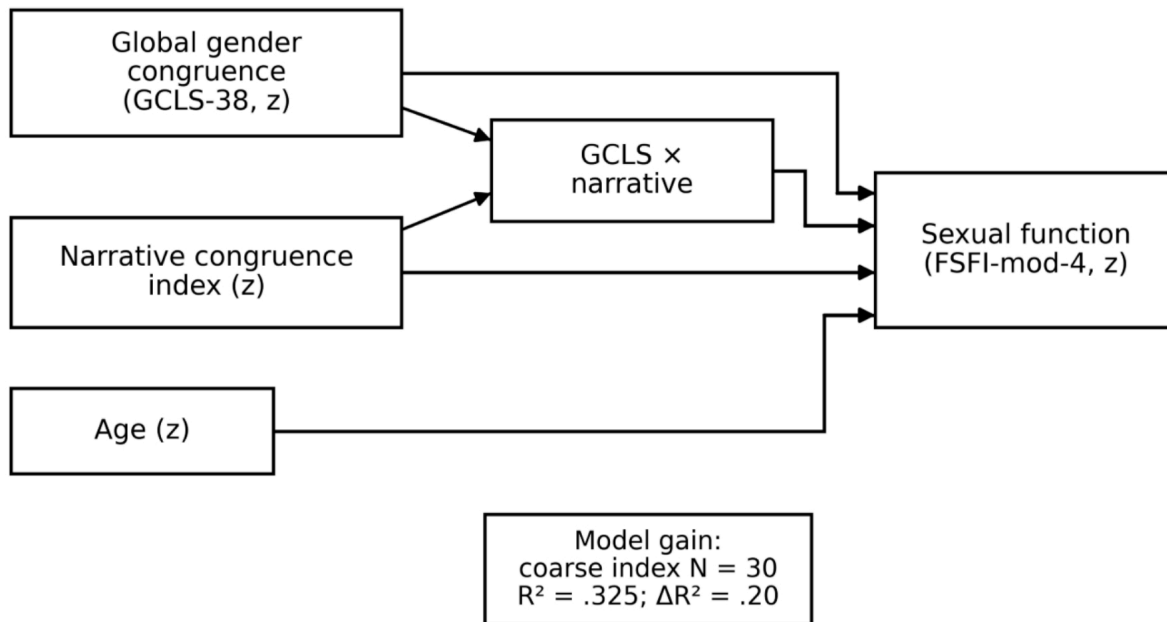
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Figures



Fine-index sensitivity (n = 12): $R^2 = .455$; $\Delta R^2 = .33$; narrative beta = .60.

Figure 1

H1 model: gender congruence, narrative congruence, and sexual function. The coarse full-sample narrative index improved explained variance ($R^2 = .325$; $\Delta R^2 = .20$); the fine-index sensitivity model showed a larger gain ($R^2 = .455$; $\Delta R^2 = .33$).

Positive narrative salience; inverse sexual-function trend; global GCLS near zero.

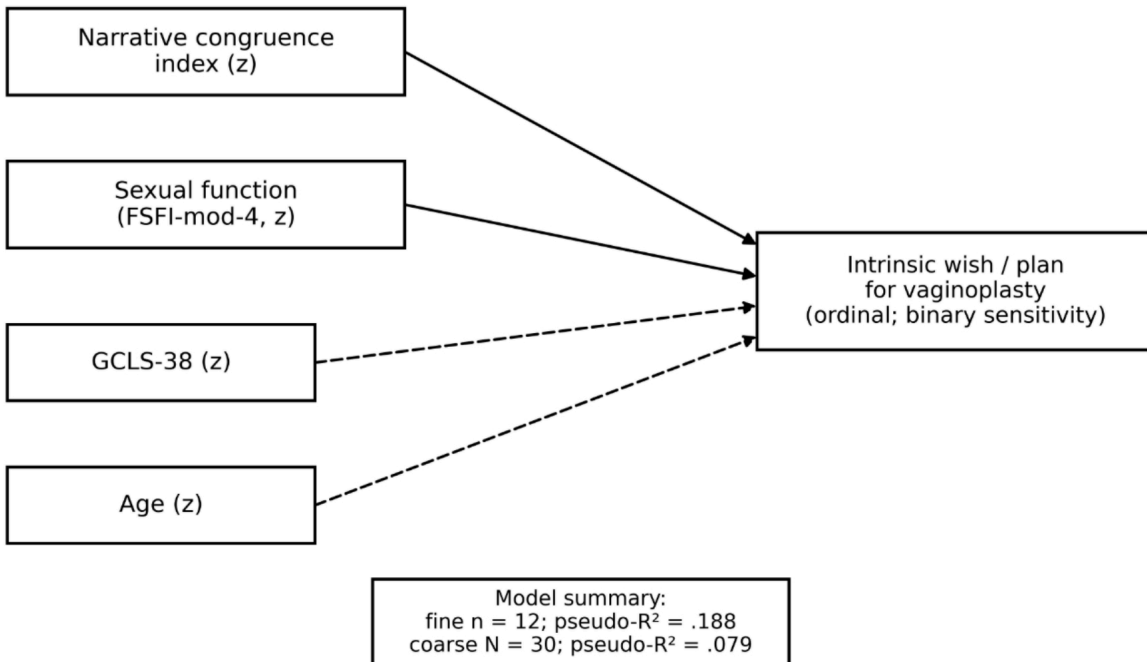
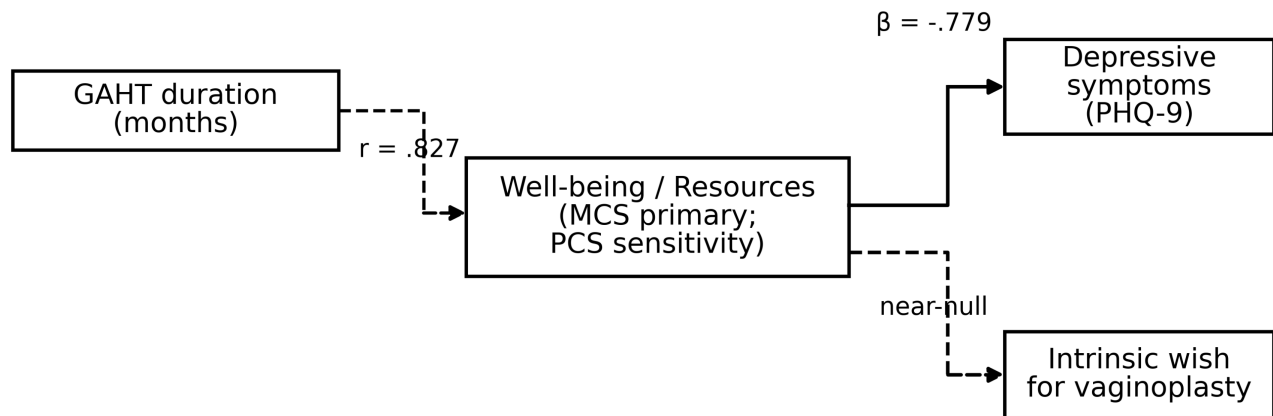


Figure 2

H2 model: narrative congruence and sexual function in relation to intrinsic wish or plan for vaginoplasty. Narrative salience was positive in the fine-index model; sexual function showed an inverse trend; global GCLS was near zero. The model-summary box is an annotation rather than a causal predictor.

Well-being/resources were associated with fewer depressive symptoms but not surgical wish.



Cross-sectional association only; not evidence of within-person change.

Figure 3

H3 model: well-being/resources in relation to depressive symptoms and surgical wish. Well-being/resources were associated with fewer PHQ-9 symptoms and showed no meaningful association with surgical wish. Dashed paths indicate cross-sectional or near-null signals rather than causal proof.