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Highs, Lows, and Hormones: A Qualitative Metasynthesis of Transgender Individuals' Experiences Undergoing Gender-Affirming Hormone Therapy

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ABSTRACT

Gender Affirming Hormone Therapy (GAHT) is a key therapeutic approach which aims to help trans and gender diverse (or simply “trans”) individuals’ transition from their sex-presumed-at-birth to their experienced gender identity. Previous reviews have focused on synthesizing quantitative experiences; however, a qualitative lens is important to understand the personal journey of GAHT. This review provides a qualitative meta-synthesis of the experiences of trans people around the world who have undergone GAHT to elicit contextualized understanding of the changes experienced. Systematic searches of eight databases identified an initial 2670 papers, refined to a final 28 papers. Overall, findings suggested that the GAHT journey is unique and elicited a myriad of changes which, whilst challenging at times, were life-changing and brought about positive psychological, physical, and social changes. Other themes explored GAHT not being treated as a fix-all for associated mental health issues, the rules that govern appraisal of physical changes, how privilege and social identity evolve, and the power of affirmation. This work offers important recommendations to improve the care offered to trans people undergoing GAHT. Namely, person-centered support is essential, and peer-navigation may be a useful future direction to explore.

KEYWORDS

Hormone therapy;
transgender; qualitative;
systematic review; transition

Introduction

Defining transgender and gender affirming hormone therapy

The term “*Transgender*” or “*trans*” is an umbrella term used to describe a wide range of individuals whose gender differs from the gender presumed for them at

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birth (Davidson, 2007; Lindqvist et al., 2021). Trans people may use the gender binary terms “female” or “male,” whilst others feel their gender identity is not best represented by the cis-normative social constructions of gender, identifying with other terms such as non-binary, or gender-fluid (Beemyn, 2011; Vijlbrief et al., 2020). Whilst current estimates of the trans population are marred by systematic underrepresentation and inconsistencies in measurement (Zhang et al., 2020), some estimations suggest that 0.1% – 2.0% of the global population may be trans (Goodman et al., 2019; Nolan et al., 2019; Spizzirri et al., 2021), and that this proportion of the world’s population is growing (Nolan et al., 2019). This growth, which may be indicative of increased measurement of previously excluded gender identities in research and census data (Zhang et al., 2020), as well as greater societal acceptance and willingness to self-report trans identities (Nolan et al., 2019), strengthens the need for greater understanding of their healthcare needs.

For most trans individuals there will be a desire to pursue processes of masculinization or feminization to align their external appearance with their gender. One method to achieve this is through Gender Affirming Hormone Therapy (GAHT) (Connelly et al., 2021), previously referred to as cross-sex hormone therapy (Costa & Colizzi, 2016), hormone therapy (Unger, 2016), or as part of a “medical transition” (involving a constellation of medical and surgical affirming procedures) (Radix, 2016). GAHT involves intentional administering of anti-androgens, estrogen, or testosterone via injection, tablet, patches, gels, or implants to bring about clinically significant changes in hormone levels and consequent changes in physical appearance (Cundill, 2020; Irving & Lehault, 2018). For trans individuals who seek medical transition, GAHT is an important and essential component of their care—however many individuals report being denied care and experiencing systematic barriers to accessing required care (Cruz, 2014; Kachen & Pharr, 2020; Kattari et al., 2020; Nahata et al., 2017; Safer et al., 2016).

The physical and psychological impact of GAHT

There are a number of systematic and meta-analytic reviews that explore both physical and psychological changes that emerge directly and indirectly from undergoing GAHT. For example, a systematic review by Connelly et al. (2021) on the physiological impacts of GAHT identified preliminary evidence that GAHT may cause changes in blood pressure. Similar reviews have found that GAHT may come with decreased hemoglobin and muscle strength for transfeminine individuals (Harper et al., 2021), changes in bone mineral density (Delgado-Ruiz et al., 2019), and exacerbated insulin resistance for transfeminine individuals (Spanos et al., 2020). Other systematic reviews have reported no greater risk of negative outcomes (McFarlane et al., 2018), and a review by Weinand and Safer (2015) found that there was no greater risk of mortality for trans individuals undergoing GAHT.

Reviews have also sought to synthesize psychological changes that emerge due to GAHT. A review of 22 published articles by Baker et al. (2021) found that there were positive changes in quality of life, depression, and anxiety. These are comparative to an earlier systematic review by White Hughto and Reisner (2016), who found that GAHT improved depression, anxiety, somatization, hostility and quality of life for trans participants. A final review by Costa and Colizzi (2016) found similar supporting evidence for the ameliorating role of GAHT on improving mental health for trans people, but suggest there is complexity in this association. In many cross-sectional studies there was found to be no effect of GAHT on mental health when measured cross-sectionally, but longitudinal studies found consistent support for its beneficial impact.

Much of the previous research and reviews have focused on quantitative approaches to understanding impact. This can be beneficial in some instances, particularly where outcomes are readily quantitatively measured (e.g. hormone levels or weight gain). But the complexity of experiences that trans people undergo during GAHT cannot be condensed into a number, thus focusing only on quantitative values misses key parts of their stories. Consider the findings by Costa and Colizzi (2016) which showed that the benefits of hormone therapy were most clearly demonstrated by longitudinal evidence—implying that cross-sectional, quantitative experiences alone may misconstrue the overall impact of GAHT. A later quantitative study by Foster Skewis et al. (2021) shows that quality of life trajectories during the first six months of GAHT differ for those seeking masculinization versus feminization—with transfeminine folk not experiencing any significant changes whereas their transmasculine counterparts experiencing significant improvements. Whilst the authors postulate why this may be (e.g., gender dysphoria and early physiological changes), qualitative explorations into why this may be would offer a contextualized understanding of an individual's unique ecological system and lived experience, and how it relates to their GAHT journey (Crowe et al., 2015).

Finally, the works of both Costa and Colizzi (2016) and Foster Skewis et al. (2021) suggest that longitudinal evidence is important to adequately capture fluctuations in wellbeing during GAHT. Whilst qualitative explorations are not longitudinal, they do provide a similar benefit in conveying change over time from the lived experience perspective of trans individuals. In the context of healthcare, qualitative research offers opportunity for poignant reflection on a myriad of intersecting factors and processes that influenced healthcare access and develop interventions (Renjith et al., 2021). Given this benefit, the use of qualitative methodologies in healthcare research continues to rise (Morse, 2015). However, despite the continued call for improved healthcare for trans people and the benefit of qualitative methodologies to inform this (Rolfe et al., 2018), no study has synthesized the qualitative evidence for trans

peoples journeys undergoing GAHT and leveraged this to inform recommendations for healthcare provision.

The current study

The aim of the current study is to synthesize the available qualitative research exploring the experiences of trans people undergoing GAHT. Specifically, we wanted to understand the experienced psychological, physiological, and social changes that trans people undergo during GAHT. Answers to this question will allow for a greater understanding of the journey of undergoing GAHT and contextualize its impact above and beyond what quantitative measurements can offer. The outcomes of this review may serve to provide education to trans individuals deliberating or commencing GAHT, and to provide service providers with important areas of focus for service delivery.

Methods

Review registration

This review is registered within the International Prospective Register of Systematic Reviews (PROSPERO—CRD CRD42021248104). Initially this review intended to explore the experiences of individuals before and during GAHT, however we deviated from this to focus only on experiences undergoing GAHT given the large number of papers with this narrowed focus.

Search strategy

This paper adhered to the Preferred Reporting Items of Systematic Review and Meta-Analysis (PRISMA-P) (see [Appendix B](#) for completed checklist). Google Scholar searches were conducted to identify initially relevant papers. The titles/abstracts of these papers were used to model the final search strategy. Two authors (JF and JD) devised the search strategy in consultation with library staff, and all authors agreed on the final terms searched. The final strategy contained strings of terms related to 1) trans identity, 2) hormone therapy, and 3) qualitative research. Terms were searched across eight relevant databases (CINAHL, Cochrane, Embase, Medline, PsycINFO, PubMed, Scopus, and Web of Science). Searches of two journals “International Journal of Transgender Health” and “Transgender Health” were also conducted to find papers not already included. These journals were selected due to their overlap with the topic and high quartile rankings. As well, reference lists of included studies were also checked. All searches were completed in April 2021. See [Appendix A](#) for an overview of the search terms used.

Title/abstract searches were screened by two authors (JF and MM) independently using Endnote software. Both authors read all abstracts and compared against inclusion/exclusion criteria. The full-text review was conducted by one author (JF) against the inclusion/exclusion criteria. A second reviewer (MM) re-read all excluded papers, and any that authors were unsure of were discussed with a third author (JD). All authors agreed on the final selection of included papers.

Inclusion and exclusion criteria

Included papers were required to be 1) available in English, 2) peer-reviewed, 3) have utilized either qualitative or mixed-methods methodology, and 4) describe the experiences of undergoing GAHT. We also required included papers to identify experienced psychological, physiological, or interpersonal changes as a research aim and/or a qualitative theme to ensure that included papers provided a substantial contribution to our research question. Papers were excluded if 1) they used a quantitative methodology only, 2) were study protocols, 3) the qualitative findings were unable to be extracted from mixed methods studies, and 4) when the experiences of GAHT were not distinct from surgical transition or cosmetic procedures. For example, articles were excluded if they described trans individuals' experiences of transitioning broadly and experiences associated with hormonal therapy could not be clearly extracted or determined from the surgical transition experiences. This was done to capture the unique contextual changes derived from hormones alone. To allow for inclusion of studies across the lifespan across multiple cultural backgrounds, no inclusion/exclusion criteria were stipulated regarding age or country of origin. No date parameters were set for included studies to allow for potential exploration of changes in experiences across different time-points.

Methodological quality & transgender/gender diverse research sensitivity

We used the NICE (National Institute for Health and Care Excellence) quality appraisal checklist for qualitative studies to ascertain methodological quality (NICE, 2012). Papers were scored against fourteen methodological areas and were assigned a final score depending on how well they satisfied criteria. Papers that satisfied 10+ criteria were assigned ++, papers that met between four-nine criteria were assigned "+," and papers that met three or less criteria were assigned "-". Papers were not excluded based on quality assessment outcomes.

When conducting research within any population, such as the trans community, it is imperative that the community is meaningfully engaged (Suarez-Balcazar, 2020). A quality appraisal tool called the *Quality Assessment Tool For Appropriate Community Engagement of Trans and Gender Diverse Communities in Research* was purposively developed for this study to assess

Table 1. Quality assessment tool for appropriate community engagement of trans and gender diverse communities in research.

Item	Score		
	Evident	Unclear	No
Methodology and Research Design			
1. Relevance of research and methodological approach has been carefully considered, with potential community benefit to trans communities clearly articulated.	1	0	0
2. The study allows for the inclusive measurement of an individual's self-identified gender identity.	1	0	0
3. There is clearly communicated, meaningful community engagement in every step across the research process from study conception, design, interpretation, data analysis, and knowledge translation.	1	0	0
Analysis, Interpretation, and Presentation of Results			
4. There is a clear statement made by the research team about their positionality in retrospect to the current participants.	1	0	0
5. The presentation of results does not dismiss or devalue the historical, and continuing, validity of trans identities, for example indigenous "third genders."	1	0	0
6. Research is presented using culturally and gender sensitive, non-judgmental terminology that avoids stigmatization, discrimination and inherently pathological descriptive terms, research questions, and presentation of results.	1	0	0
7. Confidentiality procedures are clearly described including the use of pseudonym and protection of identities within participant's communities.	1	0	0
8. Clear reference is made to the intersectional nature of a trans identity, including consideration of how multiple domains may influence study outcomes.	1	0	0
Total:			

This tool is not designed for excluding or ranking studies. Rather the aim of this tool is to offer poignant reflection on the overall appropriateness of studies involving trans and gender diverse participants. Higher cumulative best practice scores indicate greater level of meaningful community engagement.

how appropriately studies included within this review conducted research alongside trans individuals. Items used in this tool were generated based on a variety of clinical guidelines for best practice working with trans and gender diverse participants (Adams et al., 2017; Bauer et al., 2019; Henrickson et al., 2020; Vincent, 2018; A. A. Singh et al., 2013), and the principles of community-based participatory research (Israel et al., 2010; Suarez-Balcazar, 2020). We utilized a reflective process where an initial twenty items were identified and through consultation with the research team were narrowed down to eight. We then sought peer review by a trans woman with experience in conducting research who provided their thoughts on the breadth and appropriateness of items. The final eight items included in this tool can be found in Table 1, and more information about the development of the tool can be found in supplementary files.

Data analysis

The findings were synthesized following guidance on performing a "qualitative meta-synthesis" by Sandelowski and Barroso (2007). Three authors were involved in the initial coding of data and performing the meta-synthesis (JF, JD, and SW). One member of the research team (JF) read through the included studies and developed an initial coding framework. This coding framework consisted of objective subheadings exploring primary outcomes (physiological changes,

psychological changes, social changes) and secondary outcomes (beliefs and knowledge around GAHT, concerns, expectations, life changes, hormone usage) which would later form the basis for the meta-synthesis. This coding structure was agreed upon by all authors involved in this stage of analysis and was applied to all included studies to answer the research question. JF coded all papers and five were cross-referenced by SW to ensure accuracy in applying the coding structure. Any discrepancies in application were resolved by the third author (JD). NVivo software was used to code the data. Once coded, JF explored the codes and generated initial themes. This involved a process of reading and re-reading to identify central organizing principles that would form the basis of themes. Through deliberation between the authors involved in this stage of analysis over a period of three months, this was refined into the thematic structure presented in this paper. Disagreement was considered as a group, and (whilst none occurred), irreconcilable points were to be presented to the remainder of the authorship team. Following this, other members of the research team, which included trans peers and clinicians with expertise in trans healthcare were invited to reflect and modify the themes. Changes in language were discussed as a group and amended, however no deviations from the presented themes were recommended.

Of the three authors who conducted the initial analysis all identify as cisgender, however JF also identifies as Queer. Some scholarly work identifies that insider/outsider positionality is fluid and non-dichotomous (Levy, 2013), and therefore before analysis was conducted, JF reflected on his dual-positionality as cisgender (outsider) but also as Queer (an insider under the LGBTQ+ umbrella). A challenge during this early analysis is to ensure that experiences were not viewed through a lens of cishnormativity. Reflection on this was conducted as a group with all the authors but also through wider discussions with trans colleagues and peers to challenge the “default” worldview of the researchers. The authors involved trans people who offer a unique and poignant insider experience based on their own GAHT journeys. However, as identified by Hayfield and Huxley (2015), it was also important to consider how this insider status may also influence their analytical interpretations of themes and control over their interpretations. Again, reflection was considered as a group about how to ensure themes were non-biased, but affirming, in their presentation. Taken together, this authorship team offers a harmonious balance of insider and outside researcher perspectives (Dwyer & Buckle, 2009) alongside experience in providing healthcare to trans individuals and the broader LGBTQ+ community.

Search results

Our initial searches of the literature found 2670 papers, of which 1347 were removed as duplicates. A total of 1323 papers had their titles and abstracts screened for relevance, of which 892 were removed at this stage. A full-text review was conducted on 431 papers, of which 403 were found to be not

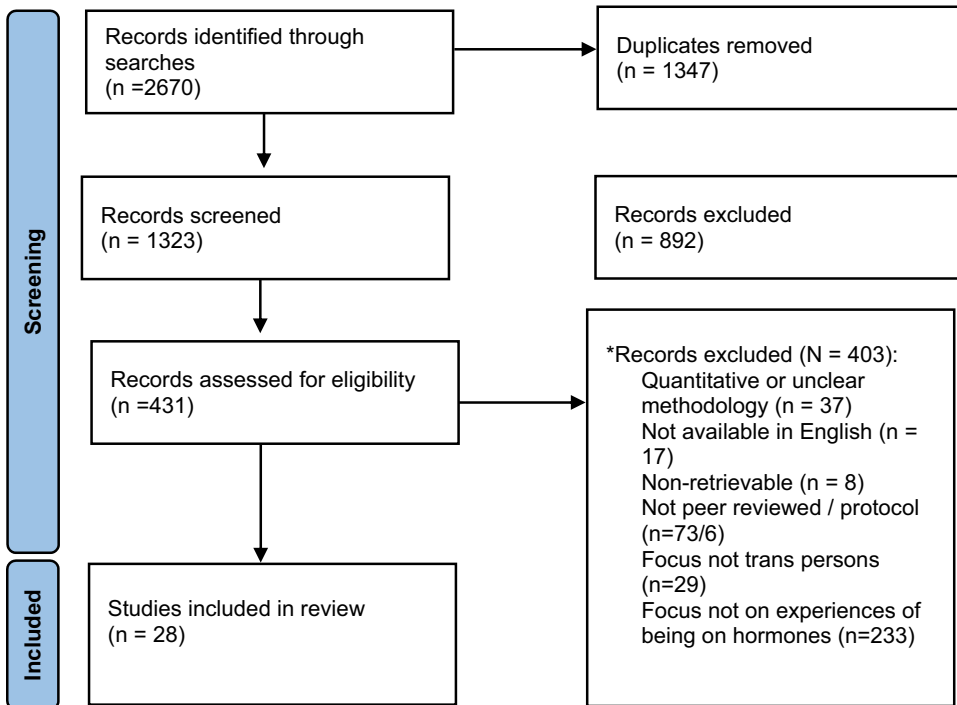


Figure 1. Preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram.

relevant. This left a final sample of 28 papers to include in the qualitative synthesis. See [Figure 1](#) for an overview of the study selection process within a PRISMA flow-chart.

Results

[Table 2](#) summarized the study characteristics including basic demographic details of the samples included studies as well as the methodologies and overall methodological weakness scores. Please note that the language used to describe trans identities in the results section of this paper is from the original published articles included in this review. The authors acknowledge that these terms do not always reflect contemporarily appropriate language and may be considered offensive to some. Of the studies, 15 of the 28 studies focused on transfeminine folk specifically, and 26 of the 28 included results from transfeminine people. Conversely, only two studies reported only on transmasculine perspectives. Overall, the included papers were predominantly from the USA and Canada (12), however there were also papers from Asia (4), Australia (2), Europe (4), South America (5), and the UK (2). Within the sample was great cultural heterogeneity, with participants identifying as coming from a wide range of cultural backgrounds across the 18 studies that reported this. Data was mostly conducted using semi-

Table 2. Demographic details of included studies.

Author (Year)	Country	Sample	Aim of study	Analysis Method	NICE	Community Engagement
Abreu et al. (2020)	USA	<ul style="list-style-type: none">● Focus Groups (N = 15)● 15 Transgender women, M_{age} = 42.8 (22–61)● Hispanic = 3, Latina = 4, White Latina/Hispanic = 3, Indigenous Native Latina = 1, Mulata Latina = 1, Mestiza = 1, White = 1, No answer = 1	Explore Latina transwomen experiences with healthcare systems.	Thematic Analysis	++	6
Aguayo-Romero et al. (2015)	Colombia	<ul style="list-style-type: none">● Life History Interviews (n= 14): M_{age} = 30.4 (22–46)● Focus group (n=11): M_{age} = 27.9 (21–41)● All participants identified broadly as transgender.● Ethnic/racial identity not described.	How personal and social factors influence gender affirmation through GAHT and body modification.	Use of iterative coding with deliberation across a team of 5	++	6
Alanko et al. (2019)	Finland	<ul style="list-style-type: none">● Semi-structured interviews (N=19)● 10 males, nine females. N = 19 M_{age} = 35.20 (21–62)● All white	Investigate the experiences of coping and resilience in Finnish transgender adults.	Grounded Theory	++	4
Araya et al. (2021)	USA	<ul style="list-style-type: none">● Semi-structured interviews (N = 30)● 18 transmasculine, 12 transfeminine, M_{age} = 17.5 (15–20)● White = 26, American Indian or Asian American = 4, Hispanic = 5	To understand Transgender adolescents' experiences with romantic relationships.	Thematic Analysis	++	6
Brown et al. (2012)	USA	<ul style="list-style-type: none">● Semi-structured interviews (N =9)● 9 Male-to-Female Transsexuals, M_{age} = 33.8 (27–66)	To understand the career experiences of transsexual women.	Consensual qualitative research	++	6
Budge et al. 2012	USA	<ul style="list-style-type: none">● Semi-structured interviews (N = 18)● 13 Male-to-Female, 2 Female-to-Male, 2 gender queer, 1 biologically male cross-dresser, M_{age} = 45.17 (20–67)● White = 14, White and Native American = 4	To explore the emotional experiences of Transgender individuals during GAHT.	Grounded Theory	++	7

(Continued)

Table 2. (Continued).

Author (Year)	Country	Sample	Aim of study	Analysis Method	NICE	Community Engagement
Carille et al. (2021)	UK	<ul style="list-style-type: none">• Dyadic semi-structured interviews with parents and Transgender or non-binary young people ($N = 27$)• 6 trans male, 1, trans female, 2 as male, one as girl, 2 as trans male AND non-binary, 2 as non-binary, $M_{age} = 15$ (5–20)• White British/English = 11, non-disclosed ethnic minority = 1, Scottish and Welsh = 1	To understand the experiences of Trans and non-binary children, youth decision-making to seek affirming care.	Iterative thematic analysis	++	6
Cheng (2020)	China	<ul style="list-style-type: none">• Semi-structured interviews ($N = 1$), 1 participant identified as male-to-female, Age information not provided, Chinese.	To understand the transitioning experience through a case study of one Chinese trans-woman.	Interpretative phenomenological analysis	++	5
Dadasovich et al. (2017)	USA	<ul style="list-style-type: none">• Focus groups ($N = 14$), all Transgender men, $M_{age} = NA$ (20–44)• White = 77.1%, Black = 6.6%, Latino = 3.3%, Asian = 4.9%, Other race/ethnicity = 8.2%.	To explore testosterone, use among transman and how it relates to increased behavioral risk for HIV.	Independent coding of qualitative data in team of 2	+	5
Doorduyn et al. 2014	The Netherlands	<ul style="list-style-type: none">• Semi-structured interviews ($N = 12$)• 4 Transman/boy, 3 Transsexual, 2 Transgender (broadly), 2 Gender dysphoric, 1 Transwoman, $M_{age} = 43.33$ (19–60)• White Dutch = 11, White Dutch and Jewish = 1.	To understand the connection between sexual development and gender development.	Grounded Theory	+	4
Giovanardi et al. (2019)	Italy	<ul style="list-style-type: none">• Semi-structured interviews ($N = 10$), all Trans women, $M_{age} = 37.40$ (23–62)• Race/ethnicity not described.	To understand the perspectives of older Trans people on hormone suppression.	Consensual Qualitative Research Method	++	4
Klein et al. (2018)	USA	<ul style="list-style-type: none">• Semi-structured interviews and blogs ($N = 1$), identified as female-to male, aged 20 at study start.• Race/ethnicity not described.	To understand the experiences of a Transgender college student as they commence GAHT.	Narrative approach	++	5
Lindley et al. 2020	USA	<ul style="list-style-type: none">• Semi-structured interviews ($N = 14$), 8 Female-to-Male/Trans Man, 3 male/masculine, 2 Male-to-Female, 1 gender-nonconforming, Median age = 25 (18–35).• White non-Hispanic = 6, Hispanic/Mexican = 3, African American = 1, American Indian = 1, No answer = 3.	To understand ecologically different levels of influence have impact on participant's sexuality.	Deductive content analysis	++	6

(Continued)

Table 2. (Continued).

Author (Year)	Country	Sample	Aim of study	Analysis Method	NICE	Community Engagement
Loza et al. 2017	USA	<ul style="list-style-type: none">• Semi-structured interviews ($N = 13$), all transgender women, all aged 18+ (no other age information available).• Mexican/Latina = 7, no other race/ethnicity information provided.• Open-ended questionnaire ($N = 67$), all Transgender women, $M_{age} = 48.67$ (20–79)• White = 96%, Mixed ethnicity = 4.	To understand health risks and barriers to care for Transgender women living on a USA—Mexico border city.	Ethnographic and phenomenological techniques.	++	6
Mohamed et al. 2018	UK	<ul style="list-style-type: none">• Transgender women, $M_{age} = 48.67$ (20–79)• White = 96%, Mixed ethnicity = 4.	To understand Transgender women's experiences and attitudes toward hormone therapy, particularly as they age.	Inductive thematic analysis	++	6
Padilla et al. (2018)	Puerto Rico	<ul style="list-style-type: none">• Ethnographic observations and semi-structured interviews ($N = 39$), all Transwomen, $M_{age} = 29$ (range not provided)• Race/ethnicity not described.	To understand hormone and silicone injection in Puerto Rican Transwomen.	Elaborate process of coding as a team.	++	6
Petry (2015)	Brazil	<ul style="list-style-type: none">• Narrative Interviews using a pre-structured script ($N = 7$), all Transwomen, age information not provided.• Race/ethnicity not described.	To understand Transwomen's experience of GAHT and sex-reassignment surgery.	Organization of reportedly important information.	+	4
Regmi et al. (2019)	Nepal	<ul style="list-style-type: none">• Race/ethnicity not described.• Focus Groups ($n=62$), all transwomen, $M_{age} = 23.06$ (range not provided).• Semi-structured Interviews ($n=9$), all transwomen, age information not provided. Bahmin/Chhetri = 26, Newar = 8, Janajati = 25, Dalit = 3	To understand the usage and side effects of hormones in transgender women in Nepal.	Thematic Analysis	++	6
Restar et al. (2019)	The Philippines	<ul style="list-style-type: none">• Semi-structured interviews ($N = 9$). All Transwomen, $M_{age} = 25.6$ (18–29)• Race/ethnicity not described.	Understanding how decisions around GAHT can be influenced and connect with antiretroviral therapy for HIV.	Thematic Analysis	++	5
Riggs et al. (2020)	Australia	<ul style="list-style-type: none">• Dyadic semi-structured interviews with parents and Transgender or non-binary young people ($N = 10$), 5 males, 4 females, 1 non-binary, $M_{age} = 14.3$ (range not provided)• Race/ethnicity not described.	To explore how young Transgender people and their parents perceive the medical care they have experienced.	Thematic Analysis	++	3
Romito et al. (2021)	USA	<ul style="list-style-type: none">• Semi-structured interviews ($N = 9$), 7 females at birth, 2 as male at birth, $M_{age} = 17$ (16–20)• White = 7, Ethnic minority = 2.	To explore how gender identity and gender-transitioning influence body image and disordered eating.	Identifying themes in case studies.	++	6

(Continued)

Table 2. (Continued).

Author (Year)	Country	Sample	Aim of study	Analysis Method	NICE	Community Engagement
Rosenberg et al. (2019)	Australia	<ul style="list-style-type: none"> Semi-structured interviews ($N = 12$), all trans-women, $M_{age} = N/A$ (23–54) Race/ethnicity not described. 	To understand how Transgender women navigate changes in sexuality following GAHT.	Thematic Analysis	++	6
Pullen Sansfacon et al. 2019	Canada	<ul style="list-style-type: none"> Semi-structured interviews ($N = 35$), 14 Transfeminine, 22 Transmasculine*, $M_{age} = N/A$, 4 aged 9–11, 14 aged 13–15, 17 aged 16–17. White/Anglo-Saxon/Caucasian/Irish/Canadian/Québécois = 24, Non-white or Indigenous = 4, No answer = 7. 	To understand Transgender youth's experiences, including their goals, perspectives toward care, and feelings about medical interventions.	Grounded Theory and Thematic Analysis	++	7
Y. Singh et al. (2014)	India	<ul style="list-style-type: none"> Focus Groups ($n=7$), 57% hijra, 43% transgender, $M_{age} = 27.4$ (17–46) Semi-structured interviews ($N = 30$), ~60% transgender, 23% hijra, woman ($n=4$), $M_{age} = 27.1$ (19–54) 	To understand male-to-female individual's access to and use of gender transition services in 7 Indian cities.	Grounded Theory and Thematic Analysis	++	6
Van Schuylenbergh et al. (2019)	Belgium	<ul style="list-style-type: none"> Race/ethnicity not described. Semi-structured interviews ($N = 9$). All women, $M_{age} = 46.22$ (40–54) Country of origin: Spain = 1, Belgium = 1, Ecuador = 7. 	To explore uncontrolled GAHT, silicone usage and condom usage in Transgender sex workers.	Grounded theory.	++	6
R. Wassersug et al. (2007)	Canada	<ul style="list-style-type: none"> Semi-structured interviews ($N = 12$), all women, $M_{age} = 46$ (30–63). White Canadian born = 11, Latina born in Central America = 1 	To explore Transgender women's experiences undergoing GAHT.	Independent coding of qualitative data in team of 6.	++	5
Winter and Doussantousse (2009)	Laos	<ul style="list-style-type: none"> Structured Interview ($N = 112$), 50% <i>kathoey</i> (transgender women), 37.5% third gender/women of the second kind, 12.5% women/"real woman," $M_{age} = 21.84$ (14–36) 	To explore South-East Asian Transgender people's perspectives on GAHT, including their experiences on GAHT and how it is accessed.	Qualitative information was quantified into portions of samples who endorsed similar responses.	+	6
R. J. Wassersug and Gray (2011)**	Canada	<ul style="list-style-type: none"> Race/ethnicity not described. Semi-structured interviews ($N = 12$), all trans-women, $M_{age} = 46$ (30–63) White Canadian born = 11, Latina born in Central America = 1 	To compare the transitioning experiences of Transgender woman compared to cisgendered men undergoing prostate cancer therapy.	Interpretative phenomenology techniques.	++	1

Ps = Participants; GAHT = Gender Affirming Hormone Therapy. All gender identities are self-identified by participants. The terminology used in this table is from the original published articles include in this review and may not reflect contemporary language and may be considered offensive to some. * = numbers exceed total number of participants, however, are reported directly from the paper. ** Participants are the same as in R. Wassersug et al. (2007). NICE = National Institute for Healthcare and Excellence Checklist for Qualitative Research; Community engagement assessed with the purpose built Quality Assessment Tool For Appropriate Community Engagement of Trans and Gender Diverse Communities in Research, scores out of a possible 8.

structured interviews and data analysis was conducted using a wide range of theoretical perspectives, including thematic analysis and ground theory.

Overall, 24/28 (86%) of papers were shown to have high methodological quality (++), and 4/28 (14%) had moderate methodological quality (+). According to our evaluation of trans involvement using our best practice community engagement tool, most of the included studies, 17/28 (60%), followed at least 6 or more (out of 8) of the best practice guidelines. Common areas where papers lose points in this domain were the inclusion of the trans community in every step of the research process (often not included in the research question development phase) and reporting of relevant positionality for all authors. In conjunction with methodological quality, this tool suggests that the quality of research within this qualitative meta-synthesis is both methodologically high and the majority adhere to best practice with the trans community. This may suggest that the voices of participants, which inform this review, have been collected in a respectful and methodologically rigorous manner, improving the overall validity of the findings.

Key themes

Findings of the data meta-synthesis are presented below under the overarching key theme *Hormones are a roller coaster . . . you've just got to ride it*, highlighting the range of unique experiences an individual can have undergoing GAHT. There were commonalities in experiences identified in the following four convergent underlying themes: 1) *Hormone Therapy isn't a Psychological "Band Aid;"* 2) *The Rules of Alignment;* 3) *Shifting Privilege;* and 4) *The Power of Affirmation.* Combined, these findings provide contextualized understanding of how trans people experience and see their world during their transition. Quotes cited in text from the included papers are *italicized*, indented and referenced. Common sub-themes identified within themes by the authors during analysis are presented as *italicized* statements to emphasize key messages and experiences.

Overarching theme: *Hormones are a roller coaster . . . you've just got to ride it*

Situated across four domains (psychological, physical, sexual, and social) it is clear that undergoing GAHT comes with both positives and negatives, highs, and lows. Psychologically, some participants describe changes as being akin to an “*emotional roller coaster*” (R. Wassersug et al., 2007), and that upon commencing GAHT their whole world changed (Abreu et al., 2020). The overall sense from participants is that the journey of GAHT may get worse before it gets better. For example, psychological changes can manifest as increased aggression or irritability (Abreu et al., 2020; Giovanardi et al., 2019; Klein et al., 2018; Loza et al., 2017; Mohamed & Hunter, 2018;

Padilla et al., 2018; Winter & Doussantousse, 2009). Conversely others describe the psychological changes as making them feel “*the best they have ever felt*” (Budge et al., 2012). In reference to physical changes the same story arose again—for some there were changes such as weight-gain or bone pain (Carlile et al., 2021; Klein et al., 2018; Loza et al., 2017; Mohamed & Hunter, 2018; Romito et al., 2021), however for others there was sheer joy in watching their breasts develop for the first time (Petry, 2015; Restar et al., 2019). Sexually, some participants felt unprepared and dismayed at their decreased libido (Dadasovich et al., 2017; Giovanardi et al., 2019; Winter & Doussantousse, 2009), whereas others felt this reduction was positive as it helped aligned them with their gender (Giovanardi et al., 2019; Mohamed & Hunter, 2018; R. Wassersug et al., 2007). Socially, whilst many people had new opportunities due to commencing hormones (for example, new career prospects) (Brown et al., 2012), fears around harassment and misogyny came as a cruel companion for others (R. Wassersug et al., 2007). Before experiencing improvement in quality of life often reported with GAHT, many described that there is first a process of adapting to changes in an individual’s hormonal make-up and navigating the emotional and psychological changes that appear. This is captured by one participant who suggests that:

The worst damage from the hormones is mental health ... but your character gets stronger. (Aguayo-Romero et al., 2015)

Across all the included studies the unifying theme was that when the bad and the good are taken together, GAHT was a tremendous benefit for individuals. Participants often commented on the psychological benefits of taking a “*step-forward*” (Pullen Sansfaçon et al., 2019; Romito et al., 2021), leading to “*fundamental changes in your psyche*”. For some, undergoing GAHT really was living out their “*biggest dream*” (Mohamed & Hunter, 2018; Restar et al., 2019). Others expressed regret for not having undergone GAHT sooner (Giovanardi et al., 2019). Therefore, the narrative arising from this review is—whilst recognizing the experiences associated with GAHT are unique to the individual—that while there are “*ups and downs*” and “*highs and lows*,” ultimately GAHT is “*worth it*.”

You know, it’s not like an instant thing but it’s almost like ... you feel for the first time, you know ... you connect with your body ... you’re not uncomfortable all the time. (Lindley et al., 2021)

Theme 1: Hormone therapy isn’t a psychological “Band Aid”

For some, GAHT may contribute to long-term psychological improvements, such as reduced feelings of depression (Romito et al., 2021; Rosenberg et al., 2019). Many studies within this review also report that participants felt GAHT

addressed or reduced their experiences of gender dysphoria (Klein et al., 2018; Mohamed & Hunter, 2018; Pullen Sansfaçon et al., 2019; Rosenberg et al., 2019). While a major goal of GAHT is to affirm an individual's gender identity and reduce dysphoria, this impact is perhaps not linear. For one participant, GAHT redirected dysphoric thoughts to their genitals—something which could not be drastically altered by hormones alone (Rosenberg et al., 2019). For other individuals taking puberty blockers there was no experience of affirmation; however, it was not their desire to seek affirmation from puberty blockers, rather they wanted to stop unwanted physical changes in their body (Riggs et al., 2020).

I just knew 100% that I was a girl, so . . . no, nothing really affirmed it, I just knew. Because like that would be like if anyone, a cisgender person were to get an injection to block puberty because there was a problem with their puberty, they'd still feel the same about themselves (15 years old). (Riggs et al., 2020)

GAHT may not be able to resolve all psychological issues or “rectify” gender dysphoria—and for many “that’s OK.” As previous reviews have identified that within the trans community there may be poorer mental health (Lin et al., 2021; Liu et al., 2019; Williams et al., 2021), findings from the current review suggest that commencing GAHT may potentially come with *temporary* negative mental health experiences. Therefore, given this increased risk at the start of GAHT, hormones are not, and should not be used as “Band Aids” for pre-existing mental health problems (if any are present).

Theme 2: The rules of alignment

Participants reported a vast array of responses to psychological and physiological changes they experience during hormone therapy. Synthesis of findings identified two underlying themes relating to rules of alignment: 1) idiosyncratic rules govern how individuals respond to these changes and 2) what happens when these rules are broken.

Subtheme 1: Idiosyncratic rules govern how individuals respond to these changes

Our analysis suggests there is perhaps a subconscious rulebook for how individuals appraise the GAHT-induced physical changes based on how they align the changes with their gender and that these idiosyncratic rules govern how individuals respond to the changes they are experiencing. For example, breast growth, softer skin, and hair loss were often met with a positive reaction for transfeminine participants (Aguayo-Romero et al., 2015; Cheng, 2020; Giovanardi et al., 2019; Mohamed & Hunter, 2018; R. Wassersug et al., 2007; Romito et al., 2021). Conversely, muscle growth, hairlines, and masculine silhouettes were reported as positive for transmasculine participants (Klein et al., 2018; Romito et al., 2021). One participant

felt that their emotional changes—becoming “*weepy*,” was OK because it was very “*womanly*” (Petry, 2015)

The rules of alignment move beyond simply how the physical changes are gender-affirming and may further connect to the attitudes held toward hormone therapies and contexts in which individuals live. For example one participant felt that there was no benefit to hormone therapy beyond physical beauty (Regmi et al., 2019), and another expressed wanting to stop when their desired physical changes were achieved (Loza et al., 2017), suggesting that their attitudes toward GAHT may be grounded in aesthetic changes only and therefore their appraisals are also grounded in this. Participants who engage in sex work spoke to how the beautification changes were often positive and gender affirming. However they felt unfavorably about their resulting erectile dysfunction due to it hindering their work capacity and performance (Rosenberg et al., 2019; Van Schuylenbergh et al., 2019). Conversely, another participant, who did not engage in sex work, had the opposite reaction—that losing an erection was a benefit as they felt it was affirming of their feminine identity (Aguayo-Romero et al., 2015). So, the rules of alignment are perhaps twofold:

- 1) How affirming the changes are

The physical changes have started to come and they have been, like, really positive and relieving (Alanko et al., 2019).

- 2) How the changes impact day-to-day life.

I didn't know what to do with my libido. There wasn't an off button (Dadasovich et al., 2017).

Subtheme 2: What happens when these rules are broken?

When these rules of alignment are violated, many participants engage in potentially deleterious behaviors. For example, a desire to see affirming changes can trigger potentially dangerous misuse of hormones, with some participants adopting a “more is better” approach to hormone usage (Aguayo-Romero et al., 2015; Padilla et al., 2018). Interestingly, overuse driven by physical changes was noted only in transfeminine participants (Aguayo-Romero et al., 2015; Padilla et al., 2018; Petry, 2015; Pullen Sansfaçon et al., 2019), which is perhaps a reflection of differing societal expectations for men versus women. When rule number two “*How the changes impact their day-to-day life*” was violated, a number of studies reported that people who engaged in sex work stopped or had intermittent use of hormones, so they were able to continue to experience their usual day-to-day living and erectile function (Rosenberg et al., 2019; Van Schuylenbergh et al., 2019).

This “more-is-better” approach to GAHT identified in some papers may be influenced by inaccurate knowledge around the GAHT process. Inaccurate knowledge was reported by some participants (Aguayo-Romero et al., 2015; Mohamed & Hunter, 2018; Padilla et al., 2018; Winter & Doussantousse,

2009), and was especially prevalent within one sample from Columbia (Aguayo-Romero et al., 2015), where this study found a marked percentage of participants undergoing hormone therapy without supervision. Often peers functioned as proxy-practitioners (Loza et al., 2017; Regmi et al., 2019; Van Schuylenbergh et al., 2019; Y. Singh et al., 2014) as accessing care was difficult (Van Schuylenbergh et al., 2019; Y. Singh et al., 2014) – potentially contributing to knowledge deficits. Inadequate education can result in a misunderstanding or lack of potential risk awareness, or the belief that none exists at all (Aguayo-Romero et al., 2015; Mohamed & Hunter, 2018; Winter & Doussantousse, 2009). So, if one is “chasing” the physical changes, a lack of awareness around the potential risks for overuse or inconsistent use may have significant, deleterious impacts on the health and wellbeing of trans people—particularly as the outcomes of risk-taking regarding hormone misuse may not emerge until damage has occurred. This was very much the case for one participant, who reflected on their overuse as a serious, dangerous mistake.

I already made the mistake. I wanted it. I made a mistake, and that's it. I'm taking responsibility—knowing that it can be dangerous in any moment. (Aguayo-Romero et al., 2015)

Theme 3: Shifting privilege

GAHT comes with negotiating a new social position that encompasses shifting societal privilege through the experiences of gender roles. For some participants there was a sense that their privilege in society has pivoted—for some they gained privilege and others felt a sense that they had lost it. For example, some transfeminine individuals reported experiencing new worries around predatory men and sexism (R. Wassersug et al., 2007). For some transmasculine individuals, their male identities allowed for a sexual detachment that allowed them to experience casual sex which they felt was unavailable when identifying outwardly as female (Dadasovich et al., 2017). For these individuals, there was sometimes a sense that through experiencing both male and female privilege, it allowed them to better understand other's experiences (Brown et al., 2012).

I was given male privilege by virtue of the fact that I look like a man. I've also noticed that I've lost that privilege. I think it's more apparent to me because I've been on each side. (Brown et al., 2012)

There was liberation in this shifting privilege, with many participants discussing how through affirming their own identities, new worlds emerged. Some participants spoke to changing careers and educational pursuits because there were no longer the same expectations for them to perform a certain way (Brown et al., 2012). For example, transferring from a stereotypically masculine carpentry role to a more stereotypically feminine nursing role, aligning with no longer feeling the pressure to prove masculinity. Shifting privilege had

broadened their prospects and allowed them to pursue a life aligned with their authentic identity (Brown et al., 2012).

Theme 4: The power of affirmation

For some, having their identities affirmed, particularly from the outside world, was key in helping negotiate new social identities. For some participants the affirmation they experienced facilitated stronger social interactions—as participants described feeling affirmed within themselves but also through received external affirmation from others. For example, some participants expressed that they are kinder to others, more open to others, more sociable, and have a higher tolerance for people (Araya et al., 2021; Giovanardi et al., 2019; R. J. Wassersug & Gray, 2011; R. Wassersug et al., 2007). Through having their gender affirmed, some individuals felt that on a wider societal level, they belong to a new shared culture (Wassersug et al.).

Affirmation further fed into changes in sexual relationships. Within their sexual relationships, a sexual fluidity emerged which was often connected with partners now affirming their gender. For example, one participant described their evolving sexual and romantic relationship with men (Lindley et al., 2021).

... I never liked guys who were attracted to me as a female ... But now it's different, if they see me as male, I like it. (Lindley et al., 2021)

Romantic relationship dynamics also changed as individuals sought romantic partners who affirmed their gender, and current partners of trans people were required to consider their own sexual identities and labels in aligning with their partner's transition, consequently resulting in some relationships ending (Lindley et al., 2021). Some people also felt more comfortable and assertive in their romantic relationships as they had become more comfortable within themselves (Araya et al., 2021). Whilst not discussed in great depth, how affirming prospective employers were was a key consideration for trans people, with some being motivated to pursue specific career paths because of their potentially affirming stance (Brown et al., 2012). Overall, the affirmation that individuals receive help them navigate a new social position by influencing the relationships they form and the opportunities they pursue.

Discussion

The aim of the current review was to synthesize the available qualitative research on the experiences of trans people undergoing GAHT. This qualitative meta-synthesis identified an overarching theme of the experience of undergoing GAHT being a roller-coaster ride, but in the end, worth it. Within this overarching theme, themes emerged around hormones not being a psychological “Band Aid,” the rules around beliefs toward changes,

shifting privilege, and the power of an affirming stance. The findings of this qualitative meta-synthesis illuminate key considerations for the effective delivery of care to trans individuals—such as managing expectations, utilizing peer navigation, and using holistic, person-centered models of care.

Managing expectations

The overall process of the GAHT experience may be seen as one of getting worse before it may get better. For example, many participants describe increased aggression or sensitivity during GAHT. Our review further found that whilst overall for participants affirming procedures helped alleviate dysphoric feelings, for a small portion of participants, this process may instead redirect gender dysphoria rather than relieve it. This partially aligns with results from a recent longitudinal investigation on short-term effects of GAHT, which found that within the first six months there were no clinically significant changes in gender dysphoria for transmasculine and transfeminine participants, and no significant improvements in quality of life for transfeminine patients (Foster Skewis et al., 2021). Therefore, there is a need to ensure trans patients who are considering and undergoing GAHT are fully aware of potential changes in emotion and self-perception. In line with the Informed Consent model of care, trans patients should have available to them appropriate mental health supports to engage with at their discretion depending upon their unique and shifting needs during the GAHT journey (Cundill, 2020). This mental health support may be particularly useful in helping trans individuals navigate shifting social identities and adaptations to hormonal changes. Whilst mental health vulnerabilities are noted in this community (Lin et al., 2021; Liu et al., 2019; Williams et al., 2021), it is important to recognize that this may be less connected to self-perceptions of identity, and more to experiences of stigmatization and discrimination by others because of their identity (Cooper et al., 2020). Therefore, having available psychological support if required is imperative in cultivating ameliorative psychological processes to cope with this additional stress.

Findings from the current review suggest that the appraisal of physical changes are linked to how affirming they are and the impact they have on day-to-day life. There is a responsibility on behalf of practitioners to ensure that patients have reasonable expectations around the speed and magnitude of changes. Managing these expectations may minimize a desire to misuse hormones to expedite wanted physical changes.

Transforming peer support into peer navigation

There is a wealth of evidence demonstrating the pivotal role that peers have in the continued support for trans individuals. Peer support is strongly

connected to improved mental health for trans people (Kia et al., 2021), particularly in the process of normalizing trans identities and empowering trans people to overcome stigma (Johnson & Rogers, 2020). Peer support can be formalized into peer navigation, which are care approaches typically involving the empowerment of peers who have undergone similar journeys to provide support and navigation primarily in the context of accessing treatment and care (Kelly et al., 2014; Khalpey et al., 2021). Previous application of this model is relatively limited within trans communities, however one study by Reback et al. (2021) suggests that Peer Navigation was effective in treatment adherence and meeting care milestones within the HIV care continuum for trans women of color.

Evidence from our review points to peers functioning as proxy practitioners in the absence of affirming care. This appeared to be both a challenge—often being related to a lack of physician supervision and lower quality knowledge, but also a facilitator—as peers functioned as important, affirming, sources of support. Therefore, formal, or informal peer navigation may be important to have available for trans people undergoing GAHT. For example, peers can provide support and advice on a diverse range of key biological, psychological, and social contexts of change from the vantage point of their lived experience. This may be particularly important as trans people move forward with their transition and experience shifting identities in society. Therefore, practitioners should work with trans patients and their communities to connect them into formal and informal support networks to ensure that no patient is left to undergo this journey alone.

Holistic, affirming, person-centred care

Above all, the key takeaway from this review is that given the diverse experiences of GAHT on biological, psychological, and physiological levels there is a need to take a holistic approach to care that considers these changes at its epicenter. This suggestion, emphasizing a person-centered approach, is echoed in many professional recommendations for GAHT service provision (Coleman et al., 2022; Cundill, 2020). Practitioners need to collaborate with trans patients through their GAHT journey to ensure that appropriate service provisions are in place to ensure continued access to timely and appropriate care. For trans patients, a holistic approach may ensure that not only are key needs met, but that there is opportunity for key learning and education which, as this review found, may have ripple effects within their communities through the sharing of key health advice. This emphasis on person-centered care also aligns with Informed Consent Models of care (Cundill, 2020).

In this review, a fear of encountering a non-affirming practitioner (or a perceived lack of gender affirming practitioners), was related to unsupervised access and usage of hormones. When considered ecologically, trans patients

experience individual, interpersonal, and structural barriers that prevent access to healthcare, many of which are closely tied with forms of stigma (White Hughto et al., 2015). Therefore, to help trans patients overcome these barriers and access care, the onus is on practitioners to make concerted efforts to provide educated and inclusive affirming care in a way that helps to address these multiple intersecting levels of experiences and perceived fears and stigmatization and improves access to holistic person-centered care. This may involve utilizing professional resources and training to increase their knowledge and confidence managing trans patients (Grant et al., 2021; Rowe et al., 2017), or forming networks with practitioners experienced with providing trans care who can support their professional development and delivery of care.

Intersectional directions for the future

As described in the review by White Hughto et al. (2015), trans people can experience intense stigma, violence, discrimination—all of which can directly impact the way an individual adjusts to hormonal therapies, their transition, and their wellbeing. But according to prominent theories such as minority stress theory (Brooks, 1981; Meyer, 2003), multiple forms of stigma can intersect and compound outcomes. This aligns with the theoretical proposition of intersectionality—a key consideration in public health and trans research (Heard et al., 2020). Evidence for this includes one study by Jefferson et al. (2013) which found the combined impact of racial and trans discrimination predicted depression over and above the independent contribution of each form of discrimination. A later investigation exploring the misuse of hormones among trans people identified that younger, African American/Black trans women were more likely to misuse hormones (Clark et al., 2018). This article further explains that trans women who had stable housing and healthcare insurance were more likely to not misuse hormones—highlighting housing and cost-of-care as key structural barriers to safe hormone usage. Evaluation of these barriers and sociodemographic factors were not within the scope of the current study given its novelty as the first to synthesize qualitative perspectives. However, it is important for future reviews to consider differences between sociodemographic factors as unique contributors to experiences undergoing GAHT. This will help develop tailored and culturally safe service provision for trans people.

Study strengths and limitations

This paper is unique in that it is the first to qualitatively synthesize the available literature which follows an individual's journey through GAHT and reports, beyond quantitative changes, the highly contextual and

idiosyncratic process individuals experience. One strength of this review is the large number of papers and cultural diversity of participants which allows for a more representative perspective on hormone therapy around the world. Whilst qualitative research is perhaps not required to be generalizable (Leung, 2015); this expanded world view allows for more comprehensive results. Further, the research team employed extensive measures to ensure search terms encapsulated a wide range of research, drawing evidence from a range of databases and relevant journals. Finally, a range of insider and outsider perspectives (i.e., both trans and cisgender) informed the analyses and final presentation of the results. This allows for a balanced reporting of results that take full advantage of the analytical benefits that insider and outsider perspectives offer (Dwyer & Buckle, 2009; Hayfield & Huxley, 2015).

Whilst methodologically strong, this research is not without limitations. Although consultation was sought from the trans community around the analysis and reporting of the results, findings were still analyzed from the perspective of highly educated, white, middle-class individuals. Therefore, this will have influenced the lens on which this research is viewed. There was an over-representation of transfeminine perspectives in the literature reviewed, limiting how these perspectives can speak to the experiences of transmasculine folk undergoing GAHT. Future research is needed to explore the experiences of transmasculine individuals to further develop an understanding of their GAHT journeys and identify (potentially unique) supports required. Finally, many results were provided cross-sectionally and are indicative of where individuals are in one moment of time. Greater use of longitudinal, qualitative research will be beneficial to explore how experiences change over time and how these feeds into outcomes in a whole range of areas.

Conclusion

Overall, findings from this review suggest that GAHT is a roller-coaster of emotions, changes, and experiences. It is pivotal that care is provided with a holistic, affirming, person-centered approach which considers the context of the individual seeking hormones. This may provide trans patients with key supports through the transition journey, improving their experiences and their overall quality of life. Overall, whilst at times it may be challenging, GAHT is a life-changing affirming procedure, and the responsibility lies with the practitioner to recognize the individual's unique challenges and provide a person-centered approach to care that supports their clients to play an active role in developing models of care that address these nuanced needs.

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Data availability statement

Data extracted from included studies is described in Table 2 and is otherwise available in their published forms. All other resources are not publicly available.

Ethical approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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Appendices

Appendix A List of Search Terms

Trans Terminology:

Transgender* OR “gender divers*” OR “gender non*” OR “gender dysphori*” OR transsexual* OR transvesti* OR “Male-to-Female” or “Female-to-Male” OR “BrotherBoy*” OR “Sistergirl*” OR two-spirit* OR twin-spirit* OR two-soul* OR (trans) AND (man OR men OR male OR women OR woman OR female OR people OR person*)

MeSH terms: Transgender persons OR Transsexualism

GAHT Terminology:

“Hormonal therap*” OR “hormone therap*” OR “sex-reassignment” OR “gender affirming” “medical transition” OR “hormone use” OR “gender transition” OR (hormon*) AND (therap*) AND (transmasculine OR transfeminine OR cross-sex OR feminis* OR feminiz* OR masculin*)

Qualitative Terminology:

Qualitative OR interview* OR ethnography OR discourse OR “focus group” OR narrative OR phenomenology OR hermeneutics OR “grounded theor*” OR “mixed method*” OR “semi-structured interview*” OR “thematic qualitative” OR (content OR conversational OR thematic) AND (analysis OR method* OR approach* OR technique*)

MeSH terms: qualitative research OR hermeneutics OR focus groups

Appendix B PRISMA 2020 Checklist

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	Page 2
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Page 1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Page 3–4
Objectives	4	Provide an explicit statement of the objective(s) or question (s) the review addresses.	Page 3–4
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Page 4–5
Information sources	6	Specify all databases, registers, websites, organizations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Page 4
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Appendix A

(Continued)

(Continued).

Section and Topic	Item #	Checklist item	Location where item is reported
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Page 4
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Pages 5–6
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Page 6
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Page 6
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	Page 5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A (qualitative research)
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Page 6
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Page 6
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Page 6
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Page 6
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	Page 6
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A (no meta-analysis conducted)
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	Page 5
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	Figure 1

(Continued)

(Continued).

Section and Topic	Item #	Checklist item	Location where item is reported
Study characteristics	17	Cite each included study and present its characteristics.	Table 2
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Table 2
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	N/A (no meta-analysis conducted)
Results of syntheses	20a	For each synthesis, briefly summarize the characteristics and risk of bias among contributing studies.	Page 7
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A (no meta-analysis conducted)
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A (no meta-analysis conducted)
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A (no meta-analysis conducted)
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A (no meta-analysis conducted)
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A (no meta-analysis conducted)
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Pages 12–15
	23b	Discuss any limitations of the evidence included in the review.	Pages 14–15
	23c	Discuss any limitations of the review processes used.	Pages 14–15.
	23d	Discuss implications of the results for practice, policy, and future research.	Pages 12–15
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Page 4
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Page 4
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Page 4
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	Title Page
Competing interests	26	Declare any competing interests of review authors.	Page 15
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	Page 15

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