Table S1 Summary of technology-mediated (N=21) interventions inclusive of TGE youth: Updates since July, 2020[†] (Skeen SJ, Cain D. mHealth for transgender and gender-expansive youth: an update on COVID, venture capital, and the cultural in/congruence of revenue-driven sustainability models)

Name, description	Modality	HIV prevention– and/or care-focused	Evidence summary	Explicit theoretical grounding	Key/unique features	Gender affirmation dimension
Attuned Voice is a project of Weill Cornell Medical College, Ithaca College and Stony Brook University, and a TGE advisory committee, which aims to broaden the availability of high-quality tools to aid TGE and nonbinary individuals in attaining a voice congruent with their gender identity (11)	Smartphone app: iOS exclusive	No	*Attuned Voice* was developed by an interdisciplinary team of laryngologists, speech language pathologists, mobile developers, designers, and TGE advisors (11). As of February, 2022, it is available exclusively to study participants	*None available*	Behavioral self-monitoring; Biofeedback; TGE-curated informative resources	Psychological; social
Deadname Eraser is an extension of Apple's Safari browser, which allows TGE users to automatically replace their *deadnames*, or gender-incongruent birth names, in online documents. It is open source, with code, and French- and Spanish-language localizations, available on GitHub (12)	Smartphone app: iOS exclusive	No	None available	*None available*	–	Psychological; social
Gendo permits users to track their sense of gender, mood, and record free-text diary entries daily, logging their entries longitudinally in a gender-by-mood scatterplot (13)	Smartphone app: iOS and Android	No	While no outcomes evaluations specific to *Gendo* are discoverable, tracking emotion, mood, activity, and behaviors that may or may not facilitate gender affirmation is a key component of transgender-affirmative cognitive behavioral therapy (TA-CBT; 14)	CBT (15), TA-CBT (14)	Behavioral self-monitoring; User-generated content	Psychological
GenderGP is the titular app for a private UK-based telehealth provider of gender-affirming care. *GenderGP*, operating on a monthly subscription model, both works in partnership with, and aids in filling gaps left by, the UK National Health Service's gender identity development service (GIDS; 16)	Smartphone app: Android exclusive	No	While no outcomes evaluations specific to *GenderGP* are discoverable, the tensions surrounding GIDS and private gender-affirmative telemedicine for TGE youth in the UK are illustrated by Carlile *et al.* (17)	*None available*	Remote video counseling; TGE-curated informative resources; Provider education	Embodied; psychological; social
Gender Tag presents users with a series of highly granular "gender tags," which name and synopsize identities such as genderfluid, demigirl, and agender, among others. Users can add photo avatars to their chosen descriptors and export them for sharing (18)	Smartphone app: Android exclusive	No	None available	*None available*	–	Psychological; social
LifeSkills Mobile presents trans-feminine spectrum users (aged 26–29) with 4 modules to address self-concept and self-esteem; communication in the context of discrimination; education on sexual behavior and gender transition; and motivation and behavioral skills for safer sex, condom use, and substance use. A large-scale efficacy trial of the mobile intervention is currently underway by researchers at UCLA and University of Chicago (19)	Internet/webapp	Yes	Adapted from the in-person, group-based, *Project LifeSkills* intervention, which demonstrated efficacy to reduce condomless vaginal and anal sex acts at 12 months post intervention (20)	Theory of Empowerment (21); Information, Motivation, Behavioral skills model (IMB; 22)	Gamification; TGE-curated informative resources	Psychological
Project Spectra, a collective project facilitated by researchers at Northeastern University, is a free and open-source voice training app that emphasizes affirmation, playfulness, care, and self-determination among TGE users, unconstrained by cis-normative expectations of gendered voice pitch (23,24)	Smartphone app: iOS and Android	No	*Project Spectra* relies on input from a growing, evolving range of Discord community members and Spectra users), who emphasize principled and equitable decision-making throughout development. Methods such as informal polling, decentralized collaborative prototyping, focus groups, and user testing have been employed to this end (23)	*None available*	Behavioral self-monitoring; Biofeedback	Psychological; social
Pryde Voice & Speech Therapy is a suite of voice feminization tools and exercises available for purchase by users who may wish to attain a more feminine voice (25)	Smartphone app: iOS and Android	No	None available	*None available*	Behavioral self-monitoring; Biofeedback	Psychological; social
QMed/Queer Med is a gender-affirmative telemedicine practice serving TGE patients across the southeast U.S., including via GAHT. While certain services, such as testosterone initiation, previously required in-person consultation, the service is now entirely virtual. Uniquely, among GAHT-providing telemedicine services, *QMed* accepts health insurance (26)	Telemedicine/ online video counseling	No	None available	*None available*	Remote video counseling	Embodied; legal; psychological
Rate My Voice allows anonymous TGE and other users to submit and review short digital audio samples, assessing each speaker for attractiveness and confidence (27)	Smartphone app: iOS and Android	No	None available	*None available*	–	Psychological; social
Text Me, Girl! provides young trans women living with HIV with a series of 270 unique text messages grounded in theories of health behavior, mapped to stages of the HIV Care Continuum. The interventions aims to improve HIV health outcomes among young trans women experiencing compounding health inequities (28)	SMS/text message	Yes	The recently reported findings of an open-label RCT demonstrated that increased exposure to *Text Me, Girl!* was associated with greater retention in HIV care, viral suppression, and adherence to antiretroviral therapies among a sample of predominantly Black and Latinx/a trans women (28)	Health belief model; socio-cognitive theory; social support theory (29)	HIV testing and counseling; TGE-curated informative resources	Psychological; social
they2ze offers TGE young people a range of informative resources, across legal, employment, healthcare (including gender-affirmation, PrEP, PEP, and HIV testing access), plus educational modules for providers to gain cultural competence working on behalf of TGE youth (30)	Smartphone app: Android exclusive	Yes	While no outcomes evaluations specific to *they2ze* are discoverable, the app was used as an example in a recent asynchronous co-design study that sought to develop sexual education resources for TGE youth. *they2ze* was described as highly promising, but its apparent lack of updates since 2017 dampened interest considerably (31)	*None available*	TGE-curated informative resources; TGE-curated brick-and-mortar resources; HIV testing and counseling; Provider education	Embodied; legal; psychological
Transgender Empowerment by Texting (TExT) is an interactive SMS intervention delivered 4 days a week for 6 weeks by a masters' level intervention coach. The intervention aims to reduce anxiety and depression and increase social support among TGE and nonbinary adults. *TExT* was developed by researchers at Oklahoma State and Southern Illinois University (32)	SMS/text message	No	Reported outcomes (N=14) found reductions in anxiety and depression symptoms, and a non-significant increase in social support pre- and post-intervention. Feasibility and acceptability of the intervention was demonstrated (32)	Minority Stress (33); CBT (15), TA-CBT (14)	–	Psychological
TransLife, developed by an interdisciplinary team that includes transgender health specialists from the St. John's Well Child and Family Center in Los Angeles, aims to promote resilience and adaptive coping strategies among TGE users in order to mitigate suicidal ideation, while capturing longitudinal data on mood patterns. These data are used to tailor recommended coping tips, and to cultivate insights on environmental stressors. User-provided healthcare, mental health, and legal resources are listed. New users are required to commit to a safety plan, stored for use in case of acute suicidality among users (34)	Smartphone app: iOS and Android	No	A recent usability study (N=16) demonstrated early acceptability, engagement and usability among TGE users. Participants were particularly excited by the mood-tracking features (34)	Minority Stress (33)	Behavioral self-monitoring; Personal safety; TGE-curated brick-and-mortar resources; TGE-curated informative resources	Embodied; legal; psychological; social
Trans Voice Studio presents TGE users with a voice spectrogram tool, plus links to additional voice-training resources (35)	Smartphone app: Android exclusive	No	None available	*None available*	Behavioral self-monitoring; Biofeedback	Psychological; social
திருநங்கைகள் (*Thirunangaikal*): *Transgender* Welfare is the official mobile app of the Transgender Welfare Board, Social Welfare and Women Empowerment Department, of the Government of Tamil Nadu, India. Through the app, *thirunangai* (trans women) and *thirunambi* (trans men) can apply to the state's TGE-tailored social welfare programming for housing, education, and gender-affirming healthcare coverage (36,37)	Smartphone app: Android exclusive	No, but HIV testing is integrated within broader gender-affirming medical services accessible via the app (37)	None available	*None available*	TGE-curated brick-and-mortar resources; TGE-curated informative resources	Embodied; legal; psychological; social
TransTracks is a personalized transition tracker, allowing TGE users to log timestamped changes to their faces and bodies, presumably in response to GAHT. The app includes a "deep cover" mode, in which it masquerades as an innocuous transit app (38)	Smartphone app: iOS and Android	No	None available	*None available*	Behavioral self-monitoring; Personal safety	Embodied; psychological
Trans Women Connected focuses on gender affirmation; personal goal-setting; PrEP education; listings on PrEP providers, and medical, legal, educational, and housing services (39)	Smartphone app: iOS and Android	Yes	In response to the ongoing COVID pandemic, *Trans Women Connected* has added educational modules on COVID safety and mitigation strategies. A 2-arm cluster RCT of *Trans Women Connected* is underway (Christina J. Sun, PhD, e-mail communication, January 2022)	*None available*	HIV testing and counseling; TGE-curated informative resources; TGE-curated brick-and-mortar resources; User-generated content	Embodied; legal; psychological; social
[unnamed private TGE resource app[‡]] This app conceals resources for TGE youth, including external links to *Refuge Restrooms*, behind an innocuous menu of mindfulness tools. Its home-screen icon does not signal TGE affinity	Smartphone app: iOS and Android	No	None available	*None available*	Personal safety; TGE-curated informative resources	Embodied; legal; psychological; social
Voice Tools: Pitch, Tone, & Volume presents users with voiceprint, playback, tones to emulate, and related tools for TGE-tailored voice training (40)	Smartphone app: iOS and Android	No	None available	*None available*	Behavioral self-monitoring; Biofeedback	Psychological; social
Voice Pitch Analyzer presents users with a visualization of their voice's pitch, benchmarked against traditional, cis-centric female and male ranges (41)		No	None available	*None available*	Behavioral self-monitoring; Biofeedback	Psychological; social

*, As in our earlier review (1), we replace "medical affirmation" with "embodied affirmation" in order to capture bodily interventions, such as chest-binding and electrolysis, accessible in non-medical settings. †, No substantive updates to *Binder Reminder, Christella VoiceUp, EVA, Transgender Pelvic Health, Patch Day, Project Moxie, QueerDoc, Refuge Restrooms, Safe Transgender Bathroom App, ShotTrax, unnamed Washington, DC telehealth intervention*, were discoverable. The *TechStep* trial remains ongoing. Cf. Skeen *et al.* (1). *Spokane Trans Map* is no longer available in iOS or Android. ‡, Because rendering specific details of this app discoverable on the open web could subvert its ability to protect the privacy of young TGE and questioning people, we forgo specifics in this report. Evidence summaries are as of February 2022. Results are limited to English-language (partially, or in full) platforms and records. ED, erectile dysfunction; GAHT, gender-affirming hormone therapy; RCT, randomized controlled trial; TGE, transgender and gender-expansive.

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