

TikTok and teen mental health: an analysis of user-generated content and engagement

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Abstract

Background: TikTok is a social media mobile application that is widely used by adolescents, and has the potential to serve as a revolutionary platform for public and mental health discourse, education, and intervention.

Objective: Our study aimed to describe the content and engagement metrics of the hashtag #teenmentalhealth on TikTok.

Methods: In this study, we: (a) conducted a directed content analysis of the Top 100 TikTok videos tagged with #teenmentalhealth, and (b) collected data on video engagements (views, likes, saves, and shares) and computed view-based engagement rates.

Results: The videos collectively garnered 144,320,591 views; 28,289,655 likes; 219,780 comments; 1,971,492 saves; and 478,696 shares. Most of the generated content were from teens and therapists. Engagement metrics revealed strong user engagement rates across user types. The most prevalent content categories represented across videos were personal experience, coping techniques or treatment, humor, interpersonal relationships, and health campaign. The content categories with the highest engagement rates were relatable media representation, health campaign, social isolation, and humor. Only a single video incorporated evidence-based treatment content.

Conclusion: TikTok facilitates communication and information dissemination on teen mental health. Future research should focus on improving the quality and credibility of digital content while maintaining engagement through creativity, self-expression, and relatability. Use of popular social media platforms and community-engaged research to disseminate evidence-based content may help bridge the translational research gap.

Keywords: adolescents, dissemination & implementation science, eHealth/mHealth, psychosocial functioning.

The Internet and social media has shaped how teens learn, socialize, spend their free time, and engage with the world (Child, 2018). The Internet and social media serve as a primary means of physical- and mental health-related information-seeking and communication platform for teens (Gray et al., 2005; Gulliver et al., 2010; Lupton, 2021). A nationally-representative survey of 1,567 adolescents in the US found that mental health is one of the most frequently searched health topics among this age demographic (Wartella et al., 2016). Mental health disorders typically begin during childhood and adolescence, and persist throughout the lifespan if left untreated (Kessler et al., 2007). Research shows that a majority of teenagers do not discuss potential health and mental health risks with medical providers (Ettel III et al., 2012). Similarly, a majority of adolescents who exhibit elevated mental health symptoms in school and primary care settings do not follow-up with mental health referrals, especially those who are from racial and ethnic minority groups, have public insurance, or come from low-income households (Mojtabai & Olfson, 2020).

A developmental science framework suggests that “meeting teens where they are” necessitates the use of technology for prevention and intervention programs and a paradigm shift

in healthcare (Giovannelli et al., 2020). Social media platforms are widely utilized to exchange and share health information and resources. Social media provides opportunities for health campaigns and the dissemination of public health science (Khan et al., 2021). Social media platforms are commonly utilized by teens to connect with others with the same chronic health and mental health conditions, creating online peer-to-peer communities connected by shared illness experiences (Berkanish et al. 2022; Jorge et al. 2020; Third & Richardson, 2009; Yonker et al., 2015). Recent systematic reviews suggest that online teen peer support interventions have positive impacts on chronic illness and mental health (Berkanish et al., 2022; Zhou & Cheng, 2022).

TikTok is among the most popular social media platforms, with 1.5 billion monthly active users in 2023 and is expected to reach 2 billion by the end of 2024 (Iqbal, 2023). During the COVID-19 pandemic, TikTok's rise to becoming the most downloaded mobile app spurred research into health-related content on this platform (Freer, 2020). TikTok is a social media mobile application with easy-to-use video creation tools that allows users to create, watch, and share short videos with accessible video-editing features such as filters, an extensive library of licensed music to create personalized

soundtracks, and content from popular TV shows, YouTube, or other TikTok videos (Hern, 2022). An article in the *New York Times* entitled “How TikTok is rewriting the world” describes TikTok as a “a greatest hits compilation, featuring only the most engaging elements and experiences of its predecessors.” (Herrman, 2019). It is especially popular among adolescents and young adults, with 42% of users aged 18–24 and 27% of users aged 12–17 (McLachlan, 2022).

Adolescents increasingly turn to social media for health-related information, surpassing their interaction with traditional healthcare providers (Ettel III et al., 2012; Lupton, 2021; Wartella et al., 2016). Generation Z-ers (born in the late 1990s and early 2000s) who grew up in the digital age constitute the majority of TikTok’s audience and commonly utilize TikTok for “infotainment” (McLachlan, 2022). “Infotainment” has been extensively studied in communication research as an information/entertainment hybrid—conveying information via “soft news” entertainment styles and genres to increase interest in social, political, and health issues (Savolainen, 2022). In comparison to competing platforms, TikTok has not only surpassed Instagram as the most popular social media app among users aged 12–17, but has achieved the highest engagement rates and comment rates relative to Instagram Reels and YouTube Shorts (Muhammad, 2023; Rodriguez, 2021). Unique to the TikTok platform, the majority of short video content is both created and consumed by teens; TikTok has “blurred the line between creator and consumer far more than YouTube had ever managed.” (Anderson & Auxier, 2021; Hern, 2022; Iqbal, 2023; McLachlan, 2022).

TikTok is a growing platform for creative expression and sharing of health information. Recent research has centered on use of TikTok for content dissemination on adolescent health topics and increasing adolescents’ health knowledge (Basch, Fera, et al., 2021; Basch, Hillyer, & Jaime, 2022; Haninuna et al., 2023; McCashin & Murphy, 2023). In addition, it has been utilized by minoritized youths as a platform for community-building and social support (Burns-Stanning, 2020; Hiebert & Kortess-Miller, 2023; MacKinnon et al., 2021). It has the potential to be leveraged as a public health tool to disseminate mental health information and promote youth mental health (Bahnweg & Omar, 2023; McCashin & Murphy, 2023; Pretorius et al., 2022). A recent review suggests that social media-based interventions for adolescent mental health is an emerging field, and early research has shown that such interventions are feasible and acceptable (Kruzan et al., 2022). Adolescents may turn to TikTok for mental health support due to mental health stigma and a lack of trust in healthcare professionals (Bahnweg & Omar, 2023). Mental health professionals who are “TikTok influencers” may promote mental health awareness, normalize discourse surrounding youth mental health, and improve mental health literacy among teens (Alonzo & Popescu, 2021; Pretorius et al., 2022). Several commentaries have provided recommendations to healthcare providers and parents for fostering awareness and open communication with adolescents in their use of TikTok for mental health information (Bahnweg & Omar, 2023; Chochol et al., 2023). Although a still emerging field, several recent studies have examined the mental health-related content of TikTok and found that mental health communication is highly prevalent, content creators use personal storytelling narratives and humor across a range of mental health problems, and content is generated by

health professionals and nonprofessionals, alike (Basch, Donelle, et al., 2022; Herrick et al., 2021; McCashin & Murphy, 2023; Pretorius et al., 2022).

Building from this prior work, this study is the first to specifically focus on adolescents. We examined the Top 100 videos of the hashtag #teenmentalhealth on TikTok using methods adapted from exploratory qualitative studies of health-related content on TikTok (Bahnweg & Omar, 2023; Basch, Donelle, et al., 2022; Basch, Yalamanchili, et al., 2022; Chochol et al., 2023). Study methodology involving an exploratory qualitative analysis of the Top 100 videos on TikTok of a single hashtag has been widely utilized in recent research on topics ranging from COVID-19 vaccines to climate change (Basch, Mohlman, et al., 2021; Basch, Yalamanchili, et al., 2022; Baumel et al., 2022; Carter et al., 2021; Hong et al., 2023), and on mental health topics such as coping with breast cancer, eating disorders, and drug and alcohol use (Basch, Hillyer, Yalamanchili, et al., 2022; Davis et al., 2023; Russell et al., 2021). The objectives of our study were to conduct a directed content analysis of the hashtag #teenmentalhealth on TikTok, and to describe engagement metrics associated with these Top 100 videos. We aimed to conduct an exploratory analysis of the type of TikTok content users are generating, amplifying, and engaging with on the hashtag #teenmentalhealth. Digital health communication efforts by researchers and agencies can aim to align with the characteristics of mental health messages that are already popular on TikTok (an information ecosystem where teens already seek and create mental health content), to enhance engagement and reach (Brownson et al., 2018; McCormack et al., 2013).

Methods

Data acquisition/extraction

The study design was a directed content analysis of TikTok videos using the hashtag #teenmentalhealth. Using TikTok’s Discover function, we entered in “teen mental health”. This populates the most relevant search results and Hashtags. The hashtag #teenmentalhealth was selected because it was the teen-specific hashtag with the most views. Qualitative content analysis was based on established methodology (Hsieh & Shannon, 2005). Using the “discover” function on the TikTok social media platform, we identified the Top 100 videos with the hashtag #teenmentalhealth on November 24, 2023. The 100 videos included in our analysis were listed first via TikTok’s Discover function by Hashtag, consistent with methodology from other recent TikTok mental health studies (Basch, Hillyer, Yalamanchili, et al., 2022; Davis et al., 2023; Russell et al., 2021). Top videos by Hashtag are listed via the Discover function based on a TikTok proprietary algorithm that prioritizes engagement, user interactions, and video information. The Hashtag display page is standard across TikTok users regardless of users’ individual preferences (i.e., does not vary based on individual user accounts), but follows engagement trends and does not remain stable over time. All videos in the Top 100 videos were in English. We archived the videos in an individual TikTok account (belonging to N.L.) for analysis purposes.

Qualitative content analysis

We conducted a directed content analysis utilizing the content categories from Basch et al. (2022)’s TikTok study examining the hashtag #mentalhealth. Directed content analysis is a deductive approach to qualitative analysis based on an existing

framework of content categories (Basch et al., 2022) including: general mental health; personal experience; interpersonal relationships; depression; suicide; coping techniques or treatment; child or adolescent mental health; biological and neurological influences of mental health; self-harm; anxiety or fear; physical health conditions or variables; stress; mental health stigma; and, missing other people or connections due to COVID-19 (which we renamed “social isolation”).

Two of the authors (N.L., K.S.) coded TikTok videos in sets of five to iteratively refine and adapt the Basch et al. (2022) coding categories to correspond to teen mental health TikTok video content. Using conventional content analysis and inductive category development, we expanded the preliminary codebook to include the emergence of 11 new coding categories that were generated directly from the data: barriers and inadequacies to mental health treatment; interpersonal conflict; humor; caregiver relationships; peer relationships; romantic relationships; relatable visual media representations (e.g., from television, film); health campaign; evidence-based treatment approaches; eating disorders; and,

substance use. We also coded user type as self-described by the individual TikTok user in the video itself or user profile (teen, parent, therapist, or other). Definitions for each code were developed (Table 1). A primary coder (N.L.) re-coded all of the videos based on the final version of the codebook. Two other authors (K.S., X.Z.) each coded a unique subset of 35% of the videos. Inter-rater reliability was calculated as percent agreement between raters and indicated strong inter-rater agreement (93% agreement between N.L. and K.S.; 94% agreement between N.L. and X.Z.).

Engagement metrics

We extracted engagement metrics (views, likes, comments, shares, saves) for each video in the Top 100 on December 1, 2023. Engaged users interact through “likes,” comments, saving, and “sharing” posts on social media. Social Media industry standards consider these interactions to be interchangeable measures of user engagement with social media content (Wies et al., 2023). A view-based Engagement Rate for each video was calculated based on an established

Table 1. Codebook with coded content categories and their definitions.

Content categories	Definition
Personal experience	User references personal experiences with mental health symptoms and/or treatment
Interpersonal relationships	User references relationships and communication with family, peers, healthcare providers, or educators
Depression	User references depression, sadness, or other mood symptoms
Suicide	User references suicidal ideation, suicidal intent, or suicide attempt
Coping techniques or treatment	User provides advice for coping, describes coping behaviors, or discusses experiences with mental health treatment
Biological and neurological influences of mental health	User describes biological and neurological causes and risk factors for mental illness, genetic factors, neurological deficits, abnormal brain function
Self-harm	User references nonsuicidal self-injury (e.g., cutting, burning, scratching)
Anxiety or fear	User references anxiety, worries, and fears
Physical health conditions or variables	User references chronic or physical health conditions, physical health problems, or impact of mental health on physical functioning
Stress	User references feeling stressed and situations being stressful
Mental health stigma	User references stigma, negative attitudes, and discrimination towards mental health problems and/or treatment
Social isolation	User references lack of social support, isolation, and feelings of loneliness
Barriers/inadequacies to mental health treatment	User references internal or external barriers to mental health help-seeking, and concerns and inadequacies regarding existing treatment options
Interpersonal conflict	User references conflict and problems in interpersonal relationships with family, peers, healthcare providers, or educators
Humor	Use of comedic skits, jokes, physical comedy, or gallows humor (grim and ironic humor that pokes fun at difficult situations)
Caregiver relationships	User references relationships and communication with caregivers
Peer relationships	User references relationships and communication with same-age peers or friends
Romantic relationships	User references relationships and communication with a romantic partner
Relatable media representation (main source, visual)	User incorporates visual clips from popular television shows, cartoons, movies, and music videos
Health campaign	User disseminates public health information to raise mental health awareness or promote behaviors to improve or prevent mental health symptoms
Evidence-based treatment approaches	User references evidence-based behavioral interventions (e.g., cognitive-behavioral therapy, mindfulness-based therapy) or psychotropic medications
Eating disorders	User references eating disorders, restrictive eating, or binge eating
Substance use	User references recreational drug or alcohol use, substance abuse, addiction, or recovery from addiction

formula in the social media industry and background literature: (Video Likes + Comments + Shares + Saves)/Video Views $\times 100$ (Adobe, 2022; Linarakis et al., 2022; Sehl & Tien, 2023). The total number of views represents the reach of a social media post (i.e., that people have seen your post). Beyond the information provided in total number of views, a social media engagement rate that takes into account engagements (i.e., likes, comments, saves, shares) indicates whether content a user shares is aligned with their target audience's personal preferences, relevance, and interests.

Although engagement rates on social media have been calculated using various formulas, it is a generally accepted industry standard that a "good" engagement rate ranges from 1% to 5% (Sehl & Tien, 2023). A marketing study found that TikTok engagement rates are stronger than their leading competitors by 15% (TikTok for, 2021). Thus, for the purposes of this study, we chose to internally define a "high" engagement rate on TikTok as 4% to 18% (conservative "high engagement" cut-off rates which have some limited precedent but approaches vary) (Adobe, 2022). We examine whether the most engaging videos with the hashtag #teenmentalhealth meets this pre-established social media cut-off rate, and describe content coding categories and user types associated with higher engagement rates.

Microsoft Excel was used to collect and record qualitative coding data and engagement metrics. Descriptive summary statistics were calculated using R version 4.3.0 and the tidyverse packages (Team, 2023; Wickham et al., 2019). Tables were generated using the gt package in R (Iannone et al., 2023).

Results

In total, the Top 100 Tiktok videos included in this study received 144,320,591 views; 28,289,655 likes; 219,780 comments; 1,971,492 saves; and, 478,696 shares. On average, each video received 1,443,206 views ($SD = 2,075,220$); 282,897 likes ($SD = 579,469$); 2,220 comments ($SD = 5,977$); 19,715 saves ($SD = 41,970$); and, 4,787 shares ($SD = 10,575$). The median number of views was 764,150 (IQR = 1,483,025); likes was 83,400 (IQR = 265,050); comments was 548 (IQR = 1,400); saves was 5,990 (IQR = 13,987); and, shares was 820 (IQR = 4,147). The videos were posted between December 13, 2020 and November 21, 2023. With regards to the recency of videos with over 1 million views (the most views/greatest reach), 19 out of 42 videos were posted in the past year (2023).

About half of the Top 100 TikTok videos were generated by teens ($n = 47$ videos) and slightly less than half by therapists ($n = 39$ videos). Relatively few videos were generated by parents ($n = 7$ videos), and other unclassified users ($n = 7$ videos). Nine TikTok users had more than one video represented in the Top 100 (number of videos ranged from 2 to 4); all other users had a single video in the Top 100.

Table 2 includes (a) the frequency of inclusion of specific content categories in descending order, and (b) the engagement rate, and total number of views, likes, comments, saves, and shares, for each content category, respectively. The most prevalent content categories were personal experience ($n = 74$) and coping techniques or treatment ($n = 53$), both of which appeared in most sampled videos. Additional prevalent content categories included humor ($n = 44$), interpersonal relationships ($n = 38$), and health campaign ($n = 33$). All

other content categories appeared in less than 25% of the sampled videos. Of note, "evidence-based treatment approaches" were only included in one video. The "Biological or neurological influences of mental health" category did not appear in any of the videos and was excluded from the tables. Supplemental Table S1 displays frequency of co-occurring codes using a heat map. More frequently co-occurring codes are in darker shades of green. The most frequently co-occurring codes were: Personal experience/Coping techniques or treatment (co-coded 43 times), Personal experience/Humor (co-coded 34 times), and Personal experience/Interpersonal relationships (co-coded 34 times).

Engagement rates ranged from 0.04% to 49.6% across the Top 100 videos, with the majority ($n = 92$) of the TikTok videos generating strong engagement rates (defined as $\geq 4\%$). The five content categories with the highest engagement rates were relatable media representation (e.g., from television, film) (26.01%), health campaign (25.82%), social isolation (25.69%), humor (25.65%), and eating disorders (24.09%). Although associated with the highest engagement rates, relatively few videos incorporated the following content categories: relatable media representation ($n = 8$), social isolation ($n = 5$), and eating disorders ($n = 4$). Romantic relationships were the content category with the highest engagement rate (32.98%), though there was only one video in that category; this high engagement rate was primarily driven by a disproportionate number of saves relative to video views. Although relatable media representation was included in $<10\%$ of the videos, this content category was associated with 19,376,891 views, constituting 13.43% of the total number of views for #teenmentalhealth.

In the Top 100 videos, engagement rates were high across all user types: teen (19.80%), therapist (23.84%), parent (16.74%), and other (24.27%). See also Table 3 for views, likes, comments, saves, and shares by user type. As the distribution of social media and internet data are right-skewed, we present medians and interquartile ranges (Bernstein et al., 2013; Griffis et al., 2014). Prevalence of coding categories by user type (teens and therapists only) are shown in Table 4; we did not individually describe content categories for parents and other users as they constituted a minority of users in our sample. Therapists included coping techniques or treatment in most of their generated content (79.49%) whereas teens only included this content category 36.17% of the time. Both teens and therapists included personal experiences in the majority of their generated content (82.98% and 64.10%, respectively). Teens and therapists included humor in roughly half of their generated content (40.43% and 51.28%, respectively). Caregiver relationships were included almost three times as frequently in therapist-generated content (33.33%) as compared to teen-generated content (12.77%). Therapists included health campaigns in their content 46.15% of the time, nearly twice as commonly as teens (23.40%).

Of these 100 videos, the top 10 most viewed videos in the sample were mostly created by therapists ($n = 6$), followed by parents ($n = 2$), teens ($n = 1$), and other users ($n = 1$). The most viewed video was created by a therapist, and included "humor" and "health campaign" content categories. It received 13.8 million views, 4.7 million likes, 51,100 comments, 176,900 saves, and 68,400 shares, and had a 36.21% engagement rate—the fourth highest among all sampled videos. One video represented in the top 10 had the lowest overall engagement rate (0.04%) of all 100 videos. As

Table 2. Total views, likes, comments, saves, and shares of Top 100 TikTok #TeenMentalHealth videos by category. Top 100 videos were identified on November 24, 2023; data were collected on December 1, 2023, from ~4:00 to 6:00 p.m. Pacific Time.

Content categories ^a	Videos (N = 100), n ^b	Views (N = 144,320,591), n (%)	Engagement rate ^c	Likes (N = 28,289,655), n (%)	Comments (N = 219,780), n (%) ^d	Saves (N = 1,971,492), n (%)	Shares (N = 478,696), n (%)
Personal experience	74	90,850,691 (62.95%)	0.195233330696406	16,085,302 (56.86%)	100,641 (45.79%)	1,254,223 (63.62%)	296,917 (62.03%)
Coping techniques or treatment	53	62,085,291 (43.02%)	0.156240082695272	9,122,573 (32.25%)	69,403 (31.58%)	398,548 (20.22%)	109,687 (22.91%)
Humor	44	78,662,891 (54.51%)	0.256469445039847	18,501,757 (65.40%)	143,220 (65.17%)	1,187,168 (60.22%)	342,483 (71.54%)
Interpersonal relationships	38	60,115,900 (41.65%)	0.196504568674843	10,789,439 (38.14%)	79,379 (36.12%)	794,034 (40.28%)	150,197 (31.38%)
Health campaign	33	47,559,900 (32.95%)	0.25818006345682	11,516,922 (40.71%)	112,494 (51.18%)	509,312 (25.83%)	140,290 (29.31%)
Caregiver relationships	24	39,442,300 (27.33%)	0.183459407793156	6,811,802 (24.08%)	57,530 (26.18%)	311,405 (15.80%)	55,324 (11.56%)
Depression	21	32,489,200 (22.51%)	0.1972468081701	6,012,998 (21.26%)	45,009 (20.48%)	296,997 (15.06%)	53,387 (11.15%)
Barriers/inadequacies to mental health treatment	19	14,080,191 (9.76%)	0.20089578330294	2,586,147 (9.14%)	16,914 (7.70%)	188,615 (9.57%)	36,975 (7.72%)
Anxiety or fear	18	31,143,200 (21.58%)	0.186889722314984	5,482,206 (19.38%)	34,712 (15.79%)	264,797 (13.43%)	38,629 (8.07%)
Mental health stigma	15	22,019,400 (15.26%)	0.18236659491176	3,723,313 (13.16%)	32,669 (14.86%)	226,332 (11.48%)	33,289 (6.95%)
Interpersonal conflict	14	17,655,900 (12.23%)	0.174832209063259	2,781,649 (9.83%)	29,039 (13.21%)	234,904 (11.92%)	41,228 (8.61%)
Self-harm	9	17,015,600 (11.79%)	0.191936282000047	3,076,300 (10.87%)	13,861 (6.31%)	161,952 (8.21%)	13,798 (2.88%)
General mental health	8	8,562,200 (5.93%)	0.0847700357384784	654,953 (2.32%)	4,211 (1.92%)	60,275 (3.06%)	6,379 (1.33%)
Stress	8	6,664,700 (4.62%)	0.140406619952886	819,466 (2.90%)	18,788 (8.55%)	75,825 (3.85%)	21,689 (4.53%)
Relatable media representation (main source, visual)	8	19,376,891 (13.43%)	0.260062927535692	4,159,262 (14.70%)	20,074 (9.13%)	694,318 (35.22%)	165,557 (34.58%)
Peer relationships	7	5,411,800 (3.75%)	0.196396393067002	897,809 (3.17%)	6,488 (2.95%)	129,412 (6.56%)	29,149 (6.09%)
Suicide	6	6,583,200 (4.56%)	0.187133912832665	1,131,661 (4.00%)	8,049 (3.66%)	74,932 (3.80%)	17,296 (3.61%)
Social isolation	5	7,349,100 (5.09%)	0.256946564885496	1,722,098 (6.09%)	9,613 (4.37%)	135,629 (6.88%)	20,696 (4.38%)
Eating disorders	4	6,338,400 (4.40%)	0.240879428778019	1,254,700 (5.39%)	8,137 (3.70%)	57,583 (2.92%)	8,634 (1.80%)
Physical health conditions or variables	3	2,549,300 (1.77%)	0.121953085160632	286,800 (1.01%)	1,023 (0.47%)	17,569 (0.89%)	5,503 (1.15%)
Substance use	3	13,200,000 (9.15%)	0.197956893939394	2,508,500 (8.87%)	26,785 (12.19%)	64,800 (3.29%)	12,946 (2.70%)
Romantic relationships	1	3,700,000 (2.56%)	0.329824594594595	991,300 (3.50%)	8,351 (3.80%)	190,400 (9.66%)	30,300 (6.33%)
Evidence-based treatment approaches	1	139,000 (0.10%)	0.00731654676258993	855 (0.00%)	45 (0.02%)	70 (0.00%)	47 (0.01%)

^a Video creator user types included teens ($n = 47$); therapists ($n = 39$); and other un-categorized users ($n = 7$).

^b Most videos contained content from multiple categories and were coded accordingly.

^c Engagement rate was calculated across all videos for each category using this formula: (total likes + total comments + total saves + total shares)/total views.

^d One video's comment section was disabled by the user.

Table 3. Engagement metrics of Top 100 TikTok #TeenMentalHealth videos by creator user type. Top 100 videos were identified on November 24, 2023; data were collected on December 1, 2023, from ~4:00 to 6:00 p.m. Pacific Time.

User	N	Engagement rate ^a	Views, median (IQR)	Likes, median (IQR)	Comments, median (IQR)	Saves, median (IQR)	Shares, median (IQR)
Teen	47	0.197985221503099	765,500.00 (1,300,450.00)	128,100.00 (228,150.00)	565.50 (1,405.00)	8,203.00 (12,384.00)	836.00 (6,049.50)
Therapist	39	0.238440537704329	472,900.00 (1,329,250.00)	65,200.00 (173,400.00)	360.00 (1,019.00)	2,747.00 (6,776.00)	658.00 (2,421.50)
Other	8	0.242681472489021	761,500.00 (1,662,025.00)	153,800.00 (447,412.25)	950.50 (1,092.00)	16,150.00 (69,658.75)	2,449.50 (13,783.00)
Parent	6	0.16740466767531	2,650,000.00 (3,800,000.00)	495,600.00 (761,125.00)	1,967.00 (5,044.50)	17,100.00 (14,541.75)	1,904.50 (3,512.00)

^a Engagement rate was calculated across all videos for each user type using this formula: (total likes + total comments + total saves + total shares)/total views.

Table 4. Content category prevalence by creator user type in Top 100 TikTok #TeenMentalHealth videos. Top 100 videos were identified on November 24, 2023; data were collected on December 1, 2023, from ~4:00 to 6:00 p.m. Pacific Time.

Category	N	Teen, N (%) ^a	Therapist, N (%) ^a
Personal experience	74	39 (82.98%)	25 (64.10%)
Coping techniques or treatment	53	17 (36.17%)	31 (79.49%)
Humor	44	19 (40.43%)	20 (51.28%)
Interpersonal relationships	38	14 (29.79%)	17 (43.59%)
Health campaign	33	11 (23.40%)	18 (46.15%)
Caregiver relationships	24	6 (12.77%)	13 (33.33%)
Depression	21	10 (21.28%)	7 (17.95%)
Barriers/inadequacies to mental health treatment	19	11 (23.40%)	6 (15.38%)
Anxiety or fear	18	6 (12.77%)	7 (17.95%)
Mental health stigma	15	8 (17.02%)	4 (10.26%)
Interpersonal conflict	14	5 (10.64%)	7 (17.95%)
Self-harm	9	7 (14.89%)	1 (2.56%)
General mental health	8	3 (6.38%)	3 (7.69%)
Stress	8	4 (8.51%)	3 (7.69%)
Relatable media representation (main source, visual)	8	4 (8.51%)	0 (0.00%)
Peer relationships	7	5 (10.64%)	2 (5.13%)
Suicide	6	3 (6.38%)	3 (7.69%)
Social isolation	5	3 (6.38%)	2 (5.13%)
Eating disorders	4	2 (4.26%)	2 (5.13%)
Physical health conditions or variables	3	2 (4.26%)	1 (2.56%)
Substance use	3	0 (0.00%)	2 (5.13%)
Romantic relationships	1	1 (2.13%)	0 (0.00%)
Evidence-based treatment approaches	1	1 (2.13%)	0 (0.00%)
Biological and neurological influences of mental health	0	0 (0.00%)	0 (0.00%)

^a % of all videos created by each user type that contain each content category.

engagement rates represent whether content a user shares is aligned with their target audience's personal preferences and interests, a high view count but low engagement rate may indicate potential misalignment with the interests of their target audience. This was a TikTok Ad (the only Ad in represented in our dataset) which businesses can pay for as promotional content to get their brand in front of their target audience (TikTok for Business, 2024). Content categories represented across multiple top 10 videos were: humor (60%), health campaign (40%), personal experience (40%), coping techniques or treatment (40%), interpersonal relationships (30%), anxiety or fear (30%), caregiver relationships (30%), depression (20%), substance use (20%), and relatable media representation (20%). See Table 5 for additional details on the top 10 most viewed videos.

Discussion

Online interventions that utilize technology platforms such as social media may be particularly appealing to younger generations who are digital natives and are accustomed to interacting on smartphones and the internet, and use social media for social support and self-help. However, online interventions designed in research settings have limited reach (Psihogios, Lane-Fall, et al., 2022). Designing for implementation involves the co-design of online interventions in collaboration with all relevant stakeholders (teens, caregivers, clinicians)

utilizing human-centered design principles (Bahnweg & Omar, 2023; McCashin & Murphy, 2023; Psihogios, Lane-Fall, et al., 2022; Stiles-Shields et al., 2022, 2023; Valentine et al., 2019). Popular social media platforms like TikTok present unique opportunities for mental health awareness and promotion, and reaching marginalized and traditionally hard-to-reach populations with its easy-to-use video creation tools, and “infotainment” content generated for teens and by teens (MacKinnon et al., 2021; Nesi, 2020; O'Reilly et al., 2019; Valentine et al., 2019). Marginalized communities place a high value on storytelling and sharing of personal narratives as a means for exploring and affirming identity, and for community building and digital advocacy (Hiebert & Kortess-Miller, 2023; Lupton, 2021; MacKinnon et al., 2021). Users can foster a supportive digital ecosystem with TikTok's communal content generation feature, creating video responses to comments, collaborating on side-by-side video duets with other content creators, and stitching TikTok videos together (Haslem, 2022; MacKinnon et al., 2021). Here, we purposely sampled the Top 100 TikTok videos to examine the teen mental health communication content that is highly visible and has wide reach. To our knowledge, this is the first study to examine the communication content and engagement metrics associated with the most popular TikTok videos on teen mental health.

We found that the Top 100 videos with the hashtag #teenmentalhealth received approximately 144 million cumulative views. Of the videos that collected over 1 million views, roughly half were posted over the previous year. This is because one of the factors prioritized in proprietary social media visibility algorithms is recency, and a new video typically peaks in engagement within a week after its posting (Hutchinson, 2020; Singh, 2023). Due to this peak engagement pattern of views and engagements, videos that are older and with more time and opportunity for viewers to engage with its content are not necessarily the most visible in social media feeds or the most engaging. Teen-user generated content accounted for about half of the videos, and therapist-user generated content accounted for slightly less than half of the videos. Relatively few videos were generated by parent- or other-users. Engagement rates for the Top 100 videos were similarly high across all user types, well surpassing industry norms for strong engagement. This suggests that teens and therapists, alike, are able to generate content that may reach and resonate with a teen target audience. A directed content analysis showed that the most prevalent content categories represented across these popular videos were personal experience, coping techniques or treatment, humor, interpersonal relationships, and health campaign. Humor was commonly incorporated in videos discussing serious mental health topics including anxiety, depression, and coping techniques or treatment. The content categories associated with the highest engagement rates were relatable media representation, health campaign, social isolation, humor, and eating disorders.

Our findings align with previous studies in several ways. Our findings were consistent with a thematic analysis of the hashtag #EDrecovery on TikTok which identified the major themes of raising awareness about mental health, sharing of personal experiences, and use of gallows humor (i.e., poking fun at a grim or hopeless situation) (Herrick et al., 2021). This suggests that popular mental health content shared on TikTok commonly focuses on health campaigns and personal

Table 5. Top 10 TikTok #TeenMentalHealth videos based on number of views: user type, content categories, views, and engagement. Top 100 videos were identified on November 24, 2023; data were collected on December 1, 2023, from ~4:00 to 6:00 p.m. Pacific Time.

Rank	Views	Engagement rate ^a	User	Personal		Coping		Anxiety or fear	Humor	Caregiver relationships	Media representation	Health campaign	Substance use
				experience	Interpersonal relationships	Depression	techniques or treatment						
1	13,800,000	0.362057971014493	Therapist						X			X	
2	7,700,000	0.201660519480519	Parent	X	X	X		X		X			
3	6,800,000	0.266970588235294	Therapist	X	X		X			X			
4	6,800,000	0.149974264705882	Parent	X	X		X			X			X
5	5,900,000	0.29203	Other	X					X		X		
6	5,900,000	0.301627118644068	Therapist						X			X	
7	5,300,000	0.236811320754717	Therapist					X	X			X	
8	4,700,000	0.000402553191489362	Therapist				X						
9	4,700,000	0.265162127659574	Therapist			X	X	X	X			X	
10	3,800,000	0.131543421052632	Teen					X	X		X		
Count	—	—	—	4	3	2	4	3	6	3	2	4	2

^a Engagement rate was calculated for each video using this formula: (total likes + total comments + total saves + total shares)/total views.

^b Only Tik Tok Ad represented in dataset.

mental illness narratives. Consistent with Pretorius et al.'s (2022) study of mental health professional "influencers" on TikTok and Instagram, we found high levels of engagement with therapist-user generated content, and that a majority of posts were created for entertainment value, to provide information, and to address mental health concerns. This suggests that social media may provide a potential platform for "TikTok therapists" to reach teens, despite the stigma surrounding mental health treatment-seeking in this age demographic (Saporito et al., 2011). However, less than 20% of their "influencer" videos included content on coping techniques or treatment whereas this content was represented in over half of the videos in our #teenmentalhealth dataset. In comparison to Basch et al.'s (2022) TikTok analysis of the hashtag #mentalhealth, we found a similarly high number of cumulative views, likes, and comments, each numbering in the millions. Personal experiences were similarly prevalent in Basch et al. (2022)'s content analysis. However, although coping techniques or treatment and interpersonal relationships were among the most prevalent content categories in our study, this content appeared in less than 20% of their videos. Differences in the prevalence of coping content from prior studies may be due to methodological differences in how these codes were defined; the previous publication did not include a codebook for us to cross-reference. Interpersonal relationship content may be more prevalent in teen mental health videos as this is a normative focus within adolescent development (Collins & Steinberg, 2008; Smetana et al., 2006).

Promisingly, our findings showed that TikTok videos on teen mental health have the potential for wide reach and strong engagement. Teens and popular "TikTok therapists" who successfully utilize the social media platform for mental health promotion/awareness are also adept at generating content that is both widely viewed and highly engaging. This approach may help "meets teens where they are," and researchers have already begun to leverage the interactive nature of TikTok to connect with younger audiences (Comp et al., 2021; Giovanelli et al., 2020). Notably, there are some important takeaways from our study for clinicians, researchers, and policy makers in creating social media health campaigns that maximize reach and engagement. Despite concerns about mental health stigma that commonly affect this age demographic, a majority of videos by teens included self-disclosure of personal struggles with mental health symptoms and disorders (Bulanda et al., 2014; Chandra & Minkovitz, 2007). Incorporating relatable personal narratives on mental health in the form of "infotainment" generated by teens and for teens (e.g., teenage mental health educators) may help shape positive attitudes towards mental health knowledge among teens (Bulanda et al., 2014; Chandra & Minkovitz, 2007). Other recent studies have recommended community-engaged research with youths in the co-design and implementation of social media health campaigns and digital mental health programs (Cohen et al., 2021; Lattie et al., 2022; Psihogios, Ahmed, et al., 2022). We also found that therapist-generated content on TikTok was as engaging and popular as that of teen-generated content, suggesting that providers may be able to utilize TikTok for mental health outreach and to help reduce stigma towards mental health service use. A growing number of psychologists are connecting with new teen clients/patients via social media platforms on TikTok, and provide advice on creating an

ethical social media presence (Medaris, 2024). A majority of videos by therapists included content on coping techniques or treatment, but only one video in our dataset included evidence-based treatment content (e.g., cognitive behavioral therapy). Videos that included content on coping techniques or treatment were mostly focused on the therapist-client relationship and communication techniques for therapists who work with teens. There is a well-established practice-research divide even in digital mental health; for example, a previous study found that only 2% of publicly available psychosocial wellness mobile apps were evidence-based (Lau et al., 2020). In addition to creating relatable personal narratives, researchers, clinicians, and policy makers may also enhance the reach and impact of their health campaigns by incorporating humor and other content categories that were most prevalent in the Top 100 videos evaluated in this study.

Our study has several limitations. Our analysis included only TikTok videos in the English language and are limited to the Top 100 videos on TikTok; the content and engagement of other less popular videos with the hashtag #teenmentalhealth may vary. We only examined social media content on TikTok which may differ from other popular social media platforms. In addition, we relied on users' self-descriptions to categorize user-type and did not have information regarding therapists' professional credentials. TikTok user profiles also do not provide publicly accessible basic demographics information (e.g., age, sex, gender, race, ethnicity) which may impact generated content and engagement. For example, content creators may have specific target audiences based on their demographics or other characteristics. Notably, there are recent concerns raised regarding lack of transparency with TikTok's algorithms and potential racial bias and suppression of content created by people of color (Amarikwa, 2023). It is unclear whether this impacted the diversity of content creators with the most visible content on social media feeds and the generalizability of our findings. Our study utilized cross-sectional data from TikTok which are unstable and the social media landscape and viral of-the-moment trends continue to rapidly evolve. Thus, we expect the Top 100 videos to change over time along with the cultural zeitgeist. Social media, like other aspects of the technological revolution (e.g., smartphones), is an ever-changing landscape, often reflecting significant changes within a few years' timeframe (Bik & Goldstein, 2013; Kaplan & Haenlein, 2010; Kong et al., 2020). Nonetheless, trends in social media communication capture changes in societal norms, trends, and major global events and is a valuable area of research even though findings of the current study and other social media studies are historically time-bound (Anderson, 2020; Kaplan & Haenlein, 2010).

We recognize that social media data are inherently skewed and contain "viral video" outliers. Such "viral videos" that become cultural phenomena (e.g., music video Gangnam style by PSY with over 2 billion views) have been modeled according to mathematical epidemiology and researchers have identified their key characteristics (e.g., focus on ordinary people, humor, whimsical content) (Bauckhage et al., 2015). Although engagement rate definitions and calculations utilized in this study are based on established social media industry and research norms, it is possible that engagements via comments and shares may constitute negative engagement with the video (i.e., denigrating the video rather than content that aligns with target audience preferences). Finally, TikTok

does not have the functionality to export or externally save videos outside of TikTok which has implications for reproducibility. However, TikTok is in the process of building out its Research Application Programming Interface to support researcher access to public data on its platform. This will help facilitate future big data analyses such as natural language processing of comments on user posts. Despite these limitations, our study will help inform future evaluations of TikTok for public and youth mental health.

In the time since we conducted our initial analysis, new legislation has stipulated that TikTok would have to be sold or banned in the US, and policy stakeholders have also recently called for banning teens from social media apps (Hadero, 2024). However, social media platforms may help overcome mental health care access barriers and particularly for teens with minoritized identities (Schleider, 2024). Leveraging existing digital platforms that teens actively use and are matched to their established online habits will maximize the reach and uptake of digital mental health programs (Psihogios, Lane-Fall, et al., 2022; Stiles-Shields et al., 2023). Future research studies should focus on utilizing teen-centric social media platforms like TikTok or Instagram to disseminate evidence-based mental health information, resources, and coping strategies, facilitate social connections, address barriers to mental health service-seeking (e.g., mental health stigma), and to correct mental health misinformation (Basch, Donelle, et al., 2022; McCashin & Murphy, 2023; Psihogios, Ahmed, et al., 2022; Psihogios, Lane-Fall, et al., 2022). Importantly, we only identified one video that incorporated evidence-based treatment content. Thus, enhancing the quality and credibility of mental health information disseminated on social media while maintaining the appeal and engagement of generated content is warranted. Community-engaged partnerships with content creators to develop evidence-based content on popular social media apps may help bridge the “translation gap” between scientific discovery and real-world implementation (Lattie et al., 2022; Psihogios, Lane-Fall, et al., 2022). “TikTok influencers” reach their audience through curated content that incorporates creativity, humor, relatability, and self-disclosure. Understanding and mastering creative mechanisms for “infotainment” on popular social media apps will allow healthcare researchers and providers to effectively connect with pediatric audiences on critical mental health topics. Ideally, future work will be focused on developing mental health content within a broader whole person health framework that incorporates a focus on improving health and well-being in multiple interconnected biological, behavioral, social, and environmental areas.

Supplementary material

Supplementary material is available online at *Journal of Pediatric Psychology* (<https://academic.oup.com/jpepsy/>).

Data availability

The publicly available data underlying this article were accessed from <https://www.tiktok.com/>. The derived data generated in this research will be shared on reasonable request to the corresponding author.

Author contributions

Nancy Lau (Conceptualization [lead], Data curation [lead], Formal analysis [lead], Funding acquisition [lead], Investigation [lead], Methodology [lead], Project administration [equal], Visualization [equal], Writing—original draft [lead], Writing—review & editing [lead]), Kavin Srinakaran (Data curation [equal], Formal analysis [equal], Investigation [equal], Methodology [equal], Writing—review & editing [equal]), Homer Aalfs (Data curation [supporting], Formal analysis [equal], Investigation [supporting], Visualization [equal], Writing—review & editing [equal]), Xin Zhao (Data curation [supporting], Investigation [supporting], Methodology [supporting], Writing—review & editing [supporting]), and Tonya M. Palermo (Conceptualization [equal], Investigation [equal], Writing—review & editing [equal]).

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