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Understanding Fitness Trends in the Virtual Age: A Content Analysis of TikTok Workout Videos

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ABSTRACT

The purpose of this study was to examine the content of workout videos on TikTok. A sample of 297 TikTok workout videos was coded for demographic factors and body shape of content creators, as well as the presence of body positivity messaging, appearance-related messaging, and other relevant themes. The results suggest that TikTok workout content is often presented in a time-lapse format with little verbal instruction, which may make it difficult for viewers to perform the exercises. The majority of the videos depicted young women with athletic bodies and other characteristics associated with culturally based beauty ideals, and approximately half of the videos included non-White content creators. Approximately a quarter of the videos in the sample included objectification and a smaller proportion of the sample included messages about inner positivity. Overall, the TikTok platform may provide underrepresented individuals opportunities to seek out workout content from a more diverse group of instructors; however, the fact that many of these videos including objectifying depictions of the content creators is concerning. Further experimental work is needed in order to more fully elucidate the effects of TikTok workout videos on viewers.

Social media platforms such as TikTok, Instagram, and YouTube have provided easy-to-access workout videos for many years. However, the COVID-19 pandemic led to an increase in the use of these virtual workouts in response to the shutdown of fitness centers (Sui, Rush, et al., 2022). Many began working out throughout their homes, creating workout spaces in living rooms and offices. Physical activity and exercise became a way to reduce stress during the pandemic (Cronshaw, 2022) and was protective for psychological functioning, as physical inactivity is known to have adverse effects on one's physical and emotional well-being (Amatriain-Fernández et al., 2020). In fact, public health organizations all over the world encouraged individuals to stay active while at home by engaging in stretching, aerobic exercise, and strength conditioning (Polero et al., 2021), citing that exercise has been demonstrated to increase both physiological and cognitive functioning (Carron et al., 1996). As a result, many turned to workout videos as a way to engage in exercise behaviors (Sui, Rush, et al., 2022). Mindbody, a wellness technology platform, reported that 17% of consumers used prerecorded workout videos in 2019 compared to 73% of users in 2020. Additionally, 85% of consumers attended livestream classes in 2020, whereas only 7% did in 2019 (Cording, 2020). During the pandemic, social media workout influencers found opportunities to capitalize on their platforms. For example, Chloe Ting's video "Abs in Two Weeks" has over 16 million views since it was posted in August of 2021 (Ting, 2021) and "PE with Joe," attracted almost 1 million viewers to participate in a free online livestream physical education class on YouTube (Guinness World Records, 2020).

The fitness industry was significantly affected by the lockdowns, and although many patrons have returned to gyms after restrictions were lifted, citing boredom and lack of motivation with their home workouts (Felsted, 2023), it has been reported that at least a third of customers have chosen not to return for various reasons (UpSwell Marketing, 2022). Although not everyone who works out at home will use workout videos from social media (some may choose other avenues such as workout DVDs, Peloton or, the Lululemon workout mirror), a search on various popular social media platforms indicates that workout videos are extremely popular. For example, as of September, 2023, a search on Instagram indicated that #workout had 219 million posts, #workoutroutine had 5.5 million posts, and #workoutvideos had 2.2 million posts. Additionally, someone does not need to be a workout influencer or part of the fitness industry to post their own workouts. Workout content is particularly popular on TikTok, a social media platform that enables users to record and share videos. As of September of 2023, #workout had 156.8 billion views, #workoutroutine had 7.9 billion views, and #workoutvideos had 224.6 million views on TikTok. TikTok has grown in popularity, particularly with a younger demographic (Statista, 2023) and may be a salient way to communicate workout information, as the videos are overlaid with music tracks to engage viewers. Given the popularity of workout content on social media, it is important to understand the types of messages users may be exposed to when they view such content.

Sociocultural theory (Thompson et al., 1999) emphasizes the role of internalization of the thin-ideal, defined as the

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unrealistic, idealized standard for women within Western cultures, in the development of body dissatisfaction. Pressure to achieve the thin-ideal is communicated to women by a variety of sources, particularly via mass media. It has been found that fitness content includes unrealistic, idealized bodies and can communicate messages that may lead to increases in body dissatisfaction or disordered eating (e.g., Holland & Tiggemann, 2016; Rounds & Stutts, 2021). The impact of exposure to unrealistic beauty ideals in traditional media has been well established (e.g., Thompson et al., 1999), and social media has been found to increase exposure and engagement with such messages (Harriger, Thompson, et al., 2023).

During the COVID-19 pandemic, it was reported that fitness content creators who typically posted posed, still images felt the need to create video content as the demand increased in order to keep their followers engaged (Godefroy, 2020). These content creators, who were not trained fitness professionals, often provided instructions that may not have been credible (Godefroy, 2020). Moreover, viewers of video content often believe that the content creators provide reliable information regarding health and wellness (Raggatt et al., 2018) and may view the creators of video fitness content as an expert on physical fitness and overall health (Hinz et al., 2021b). Additionally, the dynamic nature of the video content may keep the viewer engaged for longer periods of time compared to still images (Sokolova & Perez, 2021). The TikTok platform may be particularly salient, as the algorithm is designed to keep the users engaged by learning what the user likes to view and in turn populating similar videos on a "For You" feed. Often the videos become more extreme and less monitored (Harriger et al., 2022). In the case of workout videos, it is possible that a viewer may begin watching videos that are posted by someone in the fitness industry they follow but will quickly be shown videos posted by other users, many of whom likely do not have proper training in health or wellness fields. Social Cognitive Theory (Bandura, 2001) provides a framework from which to further understand how such messages could potentially affect viewers.

Social Cognitive Theory asserts that people learn by observing others' actions and their consequences (Bandura, 2001). Social Cognitive Theory further posits that individuals are likely to model behaviors present in mass media. Social media platforms, such as TikTok, provide opportunities for mass communication of unrealistic beauty ideals and can significantly impact thinking and behavior (Harriger, Wick, et al., 2023; Perloff, 2014).

Research demonstrates that messages regarding health posted on social media by content creators can shape users' attitudes and behaviors (Looi et al., 2023). For example, if social media users view messages that link exercise activities to attainment of beauty ideals, this might motivate exercise behaviors (Simpson & Mazzeo, 2017). Additionally, individuals are more likely to model behavior that is socially rewarded (Bandura, 2009). Attitudes about fitness, reasons for exercising, and the ideal body may be related to visible social rewards such as "likes," "views," "follows," or "comments" on social media (Borzekowski et al., 2010; Simpson & Mazzeo, 2017). Given the increased focus on health misinformation (Lofft, 2020) on social media, the purpose of the current study was to further investigate the messages conveyed to viewers in workout videos on TikTok, as these videos are important communicators of appearance ideals and behaviors designed to achieve those ideals.

The role of the fitness instructor/content creator

Although exercise is associated with positive impacts on both physiological and cognitive functioning (Carron et al., 2001), not all exercise environments are equal. In particular, fitness instructors function as important role models with the potential for great influence on the attitudes and behaviors of their participants (Reinboth et al., 2022). Positive messages within workout instruction are postulated to impact intrinsic motivation related to beliefs regarding exercise. Intrinsic motivation is one factor that positively predicts physical self-worth (Thøgersen-Ntoumani & Ntoumanis, 2007). One study found that when instructors make comments that focus on the functionality of the body (e.g., building strength, health benefits) compared to comments focused on appearance (e.g., blast that cellulite, getting a bikini body), participants report an increase in body satisfaction, lower body surveillance, and positive mood (Engeln et al., 2018). Additionally, when instructors utilize strategies that enhance the mastery of skills, there is concurrently a promotion of positive self-image, self-efficacy, and self-esteem (Mainwaring & Krasnow, 2010). One recent study examining the use of behavior change techniques in workout videos on YouTube found that instructors demonstrated the workouts and provided instructions to viewers regarding how to perform the exercises, which may increase consumers' likelihood of engaging in physical activity (Sui, Morava, et al., 2022).

Negative messaging associated with exercise has equally salient impacts on motivation, body image, and overall mental health. When fitness instructors make comments about appearance or focus on goals related to achieving an ideal body, participants engage in higher levels of self-objectification and body surveillance, and report more body shame (Engeln et al., 2018; Tiggemann & Boundy, 2008). A recent analysis of the use of behavior change techniques in YouTube workout videos found that instructors often reminded viewers that engaging in the workout or continuing to work out when tired could result in "health" consequences (e.g., toning of particular body parts, burning calories, losing fat or weight; Sui, Morava, et al., 2022). Although this may be a strategy that can lead to behavioral change, women who exercise for appearance-related reasons are more likely to report body dissatisfaction and disordered eating compared to women who exercise for reasons related to health and fitness (Engeln et al., 2018; Prichard & Tiggemann, 2008; Tylka & Homan, 2015).

The appearance or workout attire worn by an instructor or content creator may also influence participants. One study found that participants reported higher positive affect when they exercised with instructors who wore loose-fitting clothing and focused on health-related outcomes (Raedeke et al., 2007). Exposure to a four-minute video of instructors with an idealized body resulted in lower confidence and one's ability to appear fit or

competent while exercising (Fleming & Martin Ginis, 2004). Another study found that when women perceived a greater discrepancy between their own body and that of their workout instructor, they reported higher levels of body dissatisfaction, greater social physique anxiety, and poorer perception of their own attractiveness (Martin Ginis et al., 2008). Finally, it has been found that fitness instructors are likely to be young, White women with idealized bodies (e.g., thin/athletic bodies with visible muscles and low body fat; Chung et al., 2024). Similarly, research on yoga instructors found little diversity in terms of age, body size, and other demographic characteristics (Hinz et al., 2021a, 2021b). Therefore, our first research question was:

RQ 1: How are content creators who post workouts represented on TikTok (e.g., perceived gender, age, race/ethnicity, body build, culturally-based beauty ideals, clothing tightness, skin exposure)?

The motivational theory of role modeling (Morgenroth et al., 2015) is grounded in social cognitive theory and focuses on the ways in which role models inspire people to set goals. This theory states that that role models can inspire others, reveal the possible, and model behavior (Morgenroth et al., 2015). When applied to workout video content, the appearance of the content creator, their physique, their modeling of physical exercises, and the messages conveyed by the content creator may motivate viewers to engage in exercise behavior. Viewers could view the instructor's physical appearance as attainable if they follow the workout plans or may believe claims that the fitness role model makes about expected results. For example, many fitness instructors make claims about achieving a "dream body" or unrealistic promises, such as achieving "shredded abs" in 2 weeks. Past work has shown that such claims can lower viewers mental health and self-esteem (Ratwatte & Mattacola, 2021). This leads us to our second research question:

RQ 2: Do TikTok workout videos promote unrealistic goals?

Relatedly, social norms, beliefs about others' behaviors and what is approved of or disapproved by others (Gibbs, 1965) can also inform research on workout content on social media. Weight-normative messaging is prevalent on social media and emphasizes an individual's personal responsibility for maintaining a "healthy" weight (Tylka et al., 2014). When these messages are conveyed by role models, individuals may feel an obligation to conform to such norms, even if that means utilizing unhealthy means to do so. Fitness influencers often perpetuate weight normative messaging, which is problematic as it leads to false assumptions that the athletic-ideal (which is largely related to esthetics rather than health) is an attainable goal (Marks et al., 2020; Pfender et al., 2023). Although exercise is viewed as a health behavior (e.g., Carron et al., 1996), exercising for appearance-related reasons is detrimental (Engeln et al., 2018; Prichard & Tiggemann, 2008; Tylka & Homan, 2015), and therefore it is important to further examine the content of workout videos on TikTok, as those who post the content have great potential to be viewed as a role model and communicate social norms to viewers. This leads to our third research question:

RQ 3: Are appearance-focused themes (objectification, thin praise, weight/fat loss, weight/fat stigmatizing, and body/weight/food shaming or guilt) present in TikTok workout videos?

Exposure to fitness-related messaging

There is little research examining the effects of exposure to workout content on social media; however, a related area of research focuses on fitspiration messaging. Fitspiration (a combination of the words fitness and inspiration) is a social media trend that focuses on the promotion of health and wellness through exercise and dieting (Deighton-Smith & Bell, 2018; Slater et al., 2017). Although it was intended as a healthier alternative to thinspiration, which promotes disordered eating to achieve extreme thinness, researchers have reported that this is not the case, as fitspiration content also idealizes thinness, disordered eating thoughts and behaviors, objectification, exercising for appearance-related reasons, and punishment through restriction or exercise (Boepple & Thompson, 2016; Boepple et al., 2016; Deighton-Smith & Bell, 2018; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018). Additionally, not all fitspiration posts include information about exercise or working out, as many include sexually objectifying, posed content (Boepple et al., 2016; Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018)

Exposure to fitspiration content on social media is related to increased body dissatisfaction and negative mood (e.g., Holland & Tiggemann, 2016; Rounds & Stutts, 2021), and one study found that when exposed to fitspiration media images, women felt that their idealized physiques were less obtainable and their satisfaction with their current fitness level decreased (Krug et al., 2020). Additionally, it has been reported that even when the functionality of the body is emphasized in fitspiration images, women report dissatisfaction with their appearance when exposed to idealized bodies (Mulgrew & Hennes, 2015; Mulgrew & Tiggemann, 2018). The majority of the research examining the effects of exposure to fitspiration content has focused on still images. A very recent study found that exposure to fitspiration TikTok videos was associated with higher levels of state appearance comparisons and state negative mood in comparison to a control group who viewed art videos. Interestingly, in this study, there was no direct relationship between fitspiration exposure and body dissatisfaction; however, state appearance comparisons did mediate this relationship (Pryde & Prichard, 2022). This study contradicted findings regarding the direct relationship between exposure to fitspiration images on Instagram and body dissatisfaction, and the researchers postulated that videos may promote the functionality of the body more so than Instagram still images (Alleva et al., 2015; Pryde & Prichard, 2022). They stated "[t]hus, while fitspiration videos still portray an idealized body to females using social media, women may be more inclined to acknowledge body functionality in response to this type of TikTok material (Pryde & Prichard,

2022, p. 249). This differs from studies examining the effects of exposure to still images on Instagram, where women report dissatisfaction with their appearance when exposed to idealized bodies even when the functionality of the body is empathized (Mulgrew & Hennes, 2015; Mulgrew & Tiggemann, 2018). Therefore, additional research examining the content of fitness-related videos on social media, where the functionality of the body may be emphasized, is important.

Fitspiration, yoga, body positivity, and workout content analyses

Findings from recent content analyses examining messages related to fitspiration, body positivity, and yoga can provide insight into our understanding of fitness-related content. Fitspiration was intended to promote a healthy lifestyle; however, research demonstrates that fitspiration content is similar to thinspiration content in its idealization of thinness, disordered eating cognitions and behaviors, exercising for appearance-related reasons, and punishment through exercise or restriction (Boepple & Thompson, 2016; Boepple et al., 2016; Deighton-Smith & Bell, 2018; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018). Fitspiration content is likely to depict individuals with thin and toned bodies, and messages within the content emphasize the role of exercise and dieting to achieve this fitness aesthetic (Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018). Additionally, messages within fitspiration posts often center on weight management and appearance rather than health or wellness (Ahrens et al., 2022; Deighton-Smith & Bell, 2018; Simpson & Mazzeo, 2017). Fitspiration content ranges from actual workouts to posed, objectified images. One content analysis of fitspiration images on Instagram reported that posts did contain many positive messages that could motivate viewers to engage in "healthier" behaviors such as exercise and eating "healthy" food items, the posts also contained problematic messaging, such as objectification and a focus on unrealistic, idealized bodies (Tiggemann & Zaccardo, 2018). Another analysis of fitspiration content on YouTube found that fitness influencers were likely to endorse unhealthy behaviors such a restriction or elimination of particular food groups, and equate health and fitness with unrealistic beauty ideals (Ratwatte & Mattacola, 2021). Finally, a content analysis of fitspiration on Instagram found that although some accounts did provide credible content (e.g., examples of workouts, positive messaging), the majority of the accounts in the sample contained posts with sexualization and objectification and promoted unrealistic, unhealthy appearance ideals (Curtis et al., 2023).

In an effort to challenge unrealistic appearance ideals, the body positivity movement (#bopo) on social media includes content depicting a diverse array of body types, encouragement for viewers to love themselves despite any perceived flaws, and posts encouraging inner positivity and care for one's body (Cohen et al., 2019; Hallward et al., 2023; Lazuka et al., 2020). This movement is not without criticism, however, as various content analyses report that some body positive content on social media contains themes inconsistent with the movement, including a lack of diversity (most posts include thin, White, young women), idealized appearances, objectification, or the promotion of products designed for weight loss (Harriger, Wick, et al., 2023; Lazuka et al., 2020). Content analyses of body positivity can provide an important framework for the examination of workout videos, as body positivity messages have the potential to communicate both positive (e.g., appreciate what your body can do, exercise to build strength) and potentially harmful (e.g., working out for aesthetic reasons or for weight loss) messaging to viewers. Therefore, our fourth research question was:

RQ 4: Are positive body image themes (body acceptance/love, body appreciation, inner positivity, conceptualizing beauty broadly, adaptive investment in body care, fat acceptance) present in TikTok workout videos?

Finally, content analyses of yoga images and videos can also provide some insight on important themes to consider in workout videos. Yoga is a popular practice that focuses on physical movement, posture, breathing, and meditation or self-reflection (Salmon et al., 2009; Webb et al., 2020). It has been reported that, similar to fitspiration content, yoga content on social media depicts unrealistic, idealized bodies in still images and videos with little diversity in terms of age, body size, and other demographic characteristics (Hinz et al., 2021a, 2021b). For example, in one analysis of yoga videos on Instagram, the researchers found that the videos included only able-bodied individuals with greater levels of muscularity compared to still images. The instructors also wore form fitting clothes and often exposed their arms or midriffs. There was, however, little objectification in the videos (Hinz et al., 2021b), which differs from content analyses of still images of fitness-related content (Deighton-Smith & Bell, 2018; Hinz et al., 2021a; Tiggemann & Zaccardo, 2018) or content analyses of still images of body positivity (Lazuka et al., 2020). The authors argue that video content may more easily portray performance or functionality of the body, and this focus may have been related to lower levels of objectification (Hinz et al., 2021b). A recent content analysis of body positivity on TikTok reported similar findings, as the videos were less likely to display objectification compared to past content analyses of still images (Harriger, Wick, et al., 2023). Therefore, additional examination of fitness-related video content is important. Another interesting finding from analyses of yoga content is that yoga instructors often demonstrate advanced skills with little instruction or possible modifications (e.g., the instructor providing alternative exercises or ways to perform the skills for viewers; Hinz et al., 2021b), which could pose risks for the viewers attempting the skills without the flexibility, strength, or experience of the instructors (Hinz et al., 2021b). Therefore, our fifth research question was:

RQ 5: Do TikTok workout videos provide modifications?

There is only one content analysis, to our knowledge that has examined the physical attributes of workout instructors and the messages prevalent in workout content. Chung et al. (2024) found that YouTube workout instructors were likely to be young, White women with idealized bodies (e.g., low levels of body fat and thin/athletic bodies with visible muscles). The videos often contained explicit messages from the instructors about burning fat or calories but also included body positivity messages, such as body appreciation (e.g.,

appreciating the functionality of the body), inner positivity (e.g., exercising for fun/enjoyment), and adaptive investment in body care (e.g., the importance of taking care of one's body). It is important to extend these findings to other platforms, such as TikTok, as the results from YouTube videos may not generalize to other social media platforms. YouTube videos may be less likely to utilize a time-lapse format, which allows videos to be played back at an increased speed, than social media platforms such as TikTok. This time-lapse format could be protective in that content creators may be less likely to make appearance-related comments, but it also could be problematic, as it could make it more difficult for viewers to follow along and perform the exercises. TikTok also provides a platform for individuals to quickly and easily upload videos of their workouts, and therefore, videos may be less likely to be posted by trained professionals. For this reason, we chose to utilize the term "content creator" rather than instructor in this current analysis. Finally, the demographic of YouTube content creators may also differ from those who post on TikTok, which has been found to attract a younger demographic (Statista, 2023). In order to further understand how TikTok may differ from YouTube or other platforms, as well as the messages within the videos, we proposed the final two research questions:

RQ 6: What other relevant themes (eating disorders, mental health, thin stigma, commercialism) are present in TikTok workout videos?

RQ 7: Do significant differences in the frequency of body positivity and appearance focused themes in TikTok workout videos exist?

Method

Video selection

In order to select the videos for our analysis, we searched #workout on TikTok using a new account that was created for the purpose of the study. This prevented potential past viewing or search history from influencing the content generated by the current search. As this was a new account that did not follow other accounts, only videos from public accounts were collected. We did not rule videos out based on number of likes had but rather collected the first 25 videos that appeared each day. A total of 350 videos were collected over a period of 2 weeks in June of 2022 by an undergraduate research assistant. Past content analyses have utilized this method of data collection and have similar sample sizes (Cohen et al., 2019; Harriger, Wick, et al., 2023; Lazuka et al., 2020). Duplicate videos, videos that did not contain an actual workout, and videos that contained captions or text that were not in English were excluded from the final sample. A total of 53 videos were removed; therefore, the final sample consisted of 297 videos. The research assistant downloaded and saved the videos in Google Drive, along with any accompanying text, where the coders could access the files.

Coding procedures

The codebook created for the current study was informed by previous content analyses examining body positivity and fitspiration images and videos on Instagram and TikTok (Cohen et al., 2019; Harriger, Wick, et al., 2023; Lazuka et al., 2020), content analyses of yoga images and videos (Hinz et al., 2021a, 2021b) and workout videos on YouTube (Chung et al., 2024). Studies conducted by Hinz et al. (2021a, 2021b) assessed the physical appearance of the instructor but did not examine the messages communicated throughout the videos; therefore, we consulted studies examining messages in fitspiration and body positivity as well. A list of all codes as well as examples of each code can be viewed in Table 1.

The coders were two undergraduate students majoring in psychology who participated in a number of training sessions where they were introduced to coding manual and examples of each theme. They watched several workout videos as illustrations for the themes in the codebook. The videos were also collected by searching #workout on TikTok but were saved in a separate file to be used for training purposes only. The coders independently coded sets of 10 workout videos from TikTok that were also not included in the final analysis and then met with the first author to resolve any discrepancies that arose during their independent coding. If it became apparent that a variable was unclear, the codebook was amended to include additional examples, or further clarification was provided. The training was considered complete when there was 90% agreement across all variables between the coders. After training was complete, each coder independently viewed and coded all videos in the final dataset for the current analysis. In order to determine inter-rater reliability, Krippendorf's alpha (Kalpha; Krippendorff, 2004) was calculated for each variable and the values are displayed in Tables 2 and 3. According to Krippendorff (2004), $a \geq .80$ is recommended, however $a \geq .667$ is appropriate when making tentative conclusions. Past studies have supported the use of the criteria of at least 90% agreement between raters when $a < .667$ and descriptive statistics are used (e.g., Harriger, Wick, et al., 2023). This current analysis presents descriptive statistics only; therefore, we required a minimum interrater agreement of 90% when Kalpha was less than .667. All coded variables met this threshold, with the exception of conceptualizing beauty broadly (Kalpha = .57) which was excluded from further analysis. Additionally, Kalpha could not be calculated for any variables that did not appear in the set of videos (body/weight/food shaming or guilt, thin stigma, eating disorders, and mental health) even though the agreement between raters was 100%. After each coder viewed and rated the videos, they met to discuss and resolve any discrepancies. After discussions, Kalpha was excellent (1.00) for all variables.

Coding attributes and themes

Video variables

Each video was categorized as whether or not it was presented in timelapse format, which allows videos to be played at a greater speed than it was recorded. We also collected data regarding whether the videos provided modification options

Table 1. Definitions and examples of coded themes.

Variable	Definition	Example
Positive Body Image Themes		
Adaptive Investment in Body Care	Video emphasizes respecting and taking care of one's body by engaging in positive, health-promoting self-care behavior	Video of a woman's workout routine in which she reminds viewers to stay hydrated and to stretch
Body Acceptance/ Love	Video encourages acceptance of one's body or body parts that don't conform to ideal standards	Video of a woman who throughout her entire pregnancy continued weightlifting
Body Appreciation	Video encourages appreciation of the features, functionality, and health of the body	Workout is focused on hip strength and mobility, not what one's body looks like
Conceptualizing Beauty Broadly	Video depicts a wide range of appearances, body sizes/shapes, and inner characteristics as attractive	Various women of different appearances and body sizes doing Pilates
Inner Positivity	Video encourages cultivation of inner characteristics and positive feelings (e.g., body confidence, optimism, happiness, having fun, enjoying the work out) that may be expressed in outer behaviors (e.g., kindness, mindfulness, helping others)	A couple helping each other exercise and then smiling and expressing happiness toward one another
Appearance-Focused Themes		
Body/Weight/Food Shaming or Guilt	Instructor makes comments about feeling guilt or shame about one's body, weight, or food behaviors (could be about self or a comment designed to encourage the viewer to feel that way about their own body)	N/A
Fat Acceptance	Video demonstrates acceptance, celebration, and/or admiration, specifically of higher weight individuals	Video of a woman working out with the caption. "Just because one doesn't lose weight doesn't mean they're not making progress"
Losing Weight or Fat	Emphasis on working out to lose body fat or to lose weight	Video of a woman working out who has her current weight and goal weight typed on the video; her current weight is much higher than her goal weight
Objectification	Focus on a specific body part, sexually suggestive pose, absences of clearly visible head/face	Woman is doing Romanian Deadlifts (RDLs) with the camera angle focusing on her backside; her face is not visible during the workout
Thin Praise	Video Positively Portrays Thinness	Video of a woman showing workouts that helped her get a flat stomach; she shows before and after photos of this transformation
Thin Stigma	Video ridicules or stigmatizes thinness	N/A
Weight/Fat Stigmatizing	Video negatively portrays being overweight/having fat	Before and after video of a man who loses weight and fat from working out, with #GlowUp in the caption
Other Relevant Themes		
Commercialism	Video advertises or promotes a commercial product or brand	Video of subject throwing Gains candy in to his mouth before he begins his workout
Eating Disorders	Video refers to eating disorders or eating disorder recovery	N/A
Mental Health	Video refers to mental health (taking care of oneself beyond working out)	N/A

Themes with 'N/A' in the Example column were coded for but absent in the present content analysis.

(an instructor demonstrating alternative ways to perform the exercises or the main instructor verbally stating how an exercise could be modified), and whether the promoted goals were unrealistic (e.g., "get shredded abs in two weeks"). Finally, each video was rated for the type of workout provided (cardio, body Sculpting, weights, abs only, glutes). Videos could receive more than one code if relevant (for example, a video might provide cardio and abdominal exercises).

Demographics

Individuals in each video received codes for perceived gender (man, woman, other), perceived age range (<15 years old, 15–20, 20s, 30s, 40s, 50s, 60s+), and perceived race/ethnicity (African-American/Black, Asian, White, Indigenous, Latinx, Middle Eastern, or other).

Appearance and body-related attributes

Coders also rated whether the individuals in the videos met Western culturally-based beauty ideals (e.g., white teeth, styled hair, clear skin) or whether visible "flaws" (e.g., stretch marks, acne, cellulite, and scars) were present. The variables were rated on a Likert scale ranging from 1 (*not at all*) to 4 (*to a great extent*; Cohen et al., 2019; Harriger, Wick, et al., 2023; Lazuka et al., 2020). Each instructor also received a rating for body tone/muscular definition (1= Little to no visible definition, 2 = Visible definition [definition of multiple muscle groups clear], 3 = High-level definition [multiple muscle groups clear and highly developed musculature present], 4 = Unable to determine [e.g., loose clothes]; Hinz et al., 2021a, 2021b) and body type/physical build (1= Very thin [visible bone structure but not due to the position of the body], 2 = Thin [slight to slender frame with no visible fat stores, and little to no visible muscular definition], 3 = Athletic ["athletic ideal"- lean or medium frame with little to no visible fat stores but visible muscularity], 4 = Average [medium frame with moderate level of visible fat], 5 = High level of visible fat, 6 = Unable to determine [loose clothes]; Hinz et al., 2021a, 2021b), and clothing tightness (1 = tight fitting, 2 = normal/comfortable fit, 3 = loose/baggy fit, 4 = swimsuit/underwear; Lazuka et al., 2020). Finally, we also rated the individuals on their skin exposure (Bare arms, bare legs, bare midriff; all were rated as "yes" or "no" and cleavage (0 = not applicable/man, 1 = No cleavage visible at all, 2 = Typical levels of cleavage visible [what one would expect to see in typical workout], 3 = Clear presentation [cleavage appears intentionally highlighted]; Hinz et al., 2021a, 2021b).

Post themes

Each video was also coded for positive body image themes (body appreciation, body acceptance/love, conceptualizing

Table 2. Interrater reliability and frequency of video and Instructor characteristics.

Variable	Krippendorf's Alpha	Frequency
Video Characteristics		
Modifications	.91	1.6%
Unrealistic Goals	.93	1.8%
Instructor Characteristics		
Perceived Age of Main Instructor	.91	15-20: 6.1% 20s: 79.4% 30s: 14.6%
Diverse Races and Ethnicities of Instructors	.96	55.3%
Perceived Race/Ethnicity of Main Instructor	.94	African-American or Black: 13.2% Asian: 10.8% White: 45.8% Indigenous: 0% Latinx: 1.1% Middle Eastern: 0.8% Other: 0% Racially Ambiguous: 28.3%
Diverse Body Sizes of Instructors	1.00	5.5%
Body Type/Build of Main Instructor	.94	Very Thin: 0.5% Thin: 5.3% Athletic: 77.5% Average: 13.3% High Level of Visible Fat: 2.7% Unable to Determine: 0.8%
Muscle Tone of Main Instructor	.95	Little to No Visible Definition: 18.8% Visible Definition: 74.3% High-Level Definition: 6.1% Unable to Determine: 0.8%
Visible Arms of Main Instructor	.97	66.6%
Visible Legs of Main Instructor	.98	39.8%
Visible Midriff of Main Instructor	.98	39.9%
Visible Cleavage of Main Instructor	.99	Not Applicable: 34.0% No Cleavage Visible: 53.8% Typical Levels of Cleavage Visible: 11.7% Clear Presentation of Cleavage: 1.6%
Meeting Culturally Based Beauty Ideals	.98	Unable to Determine: 6.3% Not at All: 0.8% Somewhat: 61.6% A Good Deal: 29.1% To a Great Extent: 2.1%
Not Aligned With Dominant Western Beauty Ideals	.94	Unable to Determine: 6.1% Not at All: 88.9% Somewhat: 4.0% A Good Deal: 0.8% To a Great Extent: 0.3%
Clothing Tightness of Main Instructor	.97	Tight Fitting: 49.1% Normal/Comfortable Fit: 46.9% Loose/Baggy Fit: 1.9% Swimsuit/Underwear: 2.1%

beauty broadly, adaptive investment in body care, inner positivity, and fat acceptance). These variables have been assessed in other studies that have derived their codebooks from Tylka and Wood-Barcalow's (2015) work on positive body image (Cohen et al., 2019; Lazuka et al., 2020) and have expanded Tylka and Wood-Barcalow's depiction of positive body image to include fat acceptance (Harriger, Wick, et al., 2023). The videos were also assessed for appearance-focused themes (objectification, weight/fat loss. thin praise, weight/fat stigmatizing, and body/weight/food shaming or guilt), or other relevant themes (mental health, eating disorders, thin stigmatizing, and commercialism). All codes were obtained from previous content analyses (Chung et al., 2024; Cohen et al., 2019; Harriger, Wick, et al., 2023; Lazuka et al., 2020; Webb, Vinoski, Warren-Findlow, Burrell, et al., 2017; Webb, Vinoski, Warren-Findlow, Padro, et al., 2017). The ratings were determined by considering the title, the verbal and visual components of the videos, and any accompanying captions or text. The video received a code of 0 if the theme was absent and a 1 if the theme was present. Each video received a code for each theme.

Results

Video characteristics

The majority of the TikTok workout videos (69.5%) utilized that time lapse format. Approximately, a quarter (27.6%) of the videos were exclusively body sculpting exercises, 14.1% were exclusively abdominal workout videos, 10.3% were exclusively glute workout videos, 8.5% were exclusively cardio videos, and 7.7% were exclusively weight-lifting videos. The remaining videos (31.8%) included more than one type of workout. The majority of videos (86.7%) included only one content creator. A minority of videos included two (12.2%) or more than two (1.0%) content creators. For the videos that included multiple content creators, 62.6% included all women, 30.5% included all men, and 6.9% depicted both men and women. Most videos

Table 3. Interrater reliability and frequency of video themes.

Theme	Krippendorf's Alpha	Frequency
Positive Body Image Themes		
Adaptive Investment in Body Care	.81	6.1%
Body Acceptance	1.00	0.5%
Body Appreciation	.79	2.9%
Conceptualizing Beauty Broadly	.57	N/A
Inner Positivity	.90	19.4%
Appearance-Focused Themes		
Body/Weight/Food Shaming or Guilt	N/A	0%
Fat Acceptance	.67	0.5%
Losing Weight or Fat	.92	10.3%
Objectification	.93	24.9%
Thin Praise	.86	1.1%
Thin Stigma	N/A	0%
Weight Stigma	1.00	0.8%
Other Relevant Themes		
Commercialism	.83	26.5%
Eating Disorders	N/A	0%
Mental Health	N/A	0%

Krippendorf's Alpha was unable to be calculated for Eating Disorders, Thin Stigma, Mental Health, and Body/Weight/Food Shaming or Guilt Themes as both raters were in 100% agreement that these themes were absent from all coded videos.

depicted a woman as the main content creator (66.6%) rather than a man (33.4%).

Characteristics of the content creators (RQ1) and unrealistic goals (RQ2)

Most of the content creators were perceived to be in their 20s (79.3%). However, some were also perceived to be in their 30s (14.6%) or between the ages of 15 and 20 (6.1%). Approximately half (55.4%) of videos included at least one content creator who was not perceived to be White. Specifically, 13.2% of videos included a content creator who was perceived to be African-American or Black, 10.8% included content creator who was perceived to be Asian, 1.1% included a content creator perceived to be Latino or Latina, .8% included an instructor who was perceived to be Middle Eastern, and 28.4% included a content creator who was perceived to have an ambiguous race or it was difficult to determine their race or ethnicity.

The most common body type was athletic (77.5%), followed by average (13.3%) and thin (5.3%). High levels of visible body fat (2.7%) and thin bodies (0.5%) were both rare. The majority of content creators had visible muscle definition (74.3%), 18.8% had little to no visible muscle definition, and 6.1% of instructors had high-level muscle definition. Muscle definition of content creators was not able to be determined in a minority of videos (0.8%). In the sample of videos, 66.6% of content creators had bare arms, 39.8% had bare legs, and 39.8% showcased their midriffs. Visible cleavage was present in 13.3% of videos, with 1.6% of videos intentionally highlighting the content creators' cleavage. The majority of content creators met culturally-based beauty ideals somewhat (61.8%) or to a great extent (28.9%). Only 5.1% of videos included instructors with features not aligned with dominant Western beauty ideals. The majority of the content creators wore either tight fitting (49.1%) or normal/comfortable fitting (46.9%) clothing. Unrealistic goals in the videos, including messages such as "get abs in two weeks," were rare (1.9%).

Prevalence of appearance focused or positive body image (RQ 3 and 4)

Inner positivity was present in 19.4% of videos and adaptive investment in body care was present in 6.1% of videos. Body appreciation (2.9%), body acceptance (0.5%), and fat acceptance (0.5%) were all rare.

Objectification was found in 24.9% of the videos, while losing fat or weight was present in 10.3%. Thin praise (1.1%), weight stigma (0.8%), and fat acceptance (0.5%) were rare, and thin stigma and body/weight/food shaming or guilt were absent from the videos.

Presence of modifications (RQ 5) or other themes (RQ6)

Very few videos (1.6%) included modifications (e.g., a content creator performing modifications in the video or discussing how one might modify the exercise). The most common video theme was commercialism (26.5%). Themes of eating disorders and mental health were absent from the coded videos.

Comparison of the frequency of body positive themes vs. Appearance-focused themes (RQ7)

Body positive themes were summed into a singular total body positive theme score and appearance-focused themes were summed into a singular total appearance-focused theme score. Results of a paired-samples t-test revealed no significant difference between total body positive themes and total-appearance focused themes in the coded TikTok videos ($t(375) = -1.85$, $p = .07$). A similar result was observed when comparing mean frequencies for body positive themes and appearance-focused themes in the coded TikTok videos ($t(375) = .83$, $p = .41$).

Discussion

The purpose of this content analysis was to examine the appearance-related attributes of instructors as well as the messages present in workout videos on TikTok. The majority of the posted videos utilized the time-lapse format, did not provide explicit instructions or modifications, and did not promote unrealistic goals. The content creators were often young women with idealized bodies who met culturally-based beauty ideals. Although very little body diversity was found, it was promising that over half of the videos included at least one instructor who was not White. Finally, the most common messages found in the TikTok workout videos were objectification, commercialism, and inner positivity.

All of the videos in the sample included content creators demonstrating the exercises for viewers; however, the majority of videos used the time-lapse format, which did not provide an opportunity for content creators to offer verbal instructions. This format is common on social media, particularly TikTok, as it enables the content creators to keep their viewers engaged. It has been reported that consumers are more likely to engage in physical activity when instructors provide instructions and demonstrate exercises (Sui, Morava, et al., 2022); therefore, the

time-lapse format may not be conducive for those who would like to follow along or to engage with the exercise content.

We first sought to examine how content creators who post workout content are represented on TikTok. The majority of workout videos in the current sample depicted a woman who was perceived to be in her 20s. This is consistent with past studies of yoga videos and images on Instagram (Hinz et al., 2021a, 2021b). TikTok also appeals to a younger demographic (Statista, 2023); therefore, it is not surprising that the videos were posted by young users. Interestingly, approximately half of videos included at least one content creator who was not White. This differed from a content analysis of yoga videos (Hinz et al., 2021b) as well as an analysis of workout videos on YouTube (Chung et al., 2024) where the majority of instructors were White. Exercise provides a variety of health benefits (Lahart et al., 2019; Ruegsegger & Booth, 2018); however, underrepresented individuals may be less likely to engage with fitness content lacking diversity (Walker et al., 2021). Therefore, underrepresented individuals may find that the TikTok platform affords opportunities to receive workout advice from a more diverse group of individuals.

The majority of the content creators had athletic bodies with visible muscle definition. The content creators were also likely to showcase bare arms and, to a lesser extent, bare legs or midriffs. Content analyses of yoga instructors and fitness influencers reported similar results (e.g., Ahrens et al., 2022; Hinz et al., 2021a, 2021b; Mulgrew & Tiggemann, 2018; Webb, Vinoski, Warren-Findlow, Burrell, et al., 2017; Webb, Vinoski, Warren-Findlow, Padro, et al., 2017). It has previously been suggested that the dynamic nature of video content may showcase muscularity compared to still images (Hinz, Mulgrew, et al., 2021b), and this analysis supported that notion. Additionally, the majority of the content creators met culturally based beauty ideals (e.g., clear skin, white teeth, flat stomach) and very few had feature inconsistent with these ideals (e.g., cellulite, belly rolls), which is similar to past content analysis of fitspiration posts (e.g., Boepple et al., 2016; Simpson & Mazzeo, 2017) and YouTube workout videos (Chung et al., 2024). It is also possible that, in line with social cognitive theory, the focus on idealized bodies in workout videos on TikTok may influence the exercise behaviors and standards of beauty adopted by viewers (Bandura, 2001). Viewers may be more likely to model exercise behaviors (e.g., a health behavior); however, the messages within the videos are that "healthy" bodies are thin and athletic. Indeed, according to Social Cognitive Theory, women are likely to adopt the reinforced idea that a healthy body is toned and slender (Simpson & Mazzeo, 2017). Consistent with social norms theory, it has been noted that fitness influencers are likely to promote the athletic-ideal (which is largely related to esthetics rather than health) which leads viewers to adopt the false assumption that this an attainable goal (Marks et al., 2020; Pfender et al., 2023). Additionally, a past study found that participants who were exposed to instructors with idealized bodies or whom perceived greater discrepancy between a workout instructor's body and their own body experience were more likely to report body dissatisfaction and lower confidence (Fleming & Martin Ginis, 2004; Martin Ginis et al., 2008). Therefore, it is possible that greater representation of diverse body types could be protective for those who choose to engage with workout content on TikTok and could lead to adoption of positive exercise attitudes and behaviors.

The content creators also did not promote unrealistic goals (RQ2), which was consistent with the findings from a content analysis of workout videos on YouTube (Chung et al., 2024). This is promising, as past research has found that unrealistic promises regarding attaining a "'dream body'" can be detrimental for self-esteem and mental health (Ratwatte & Mattacola, 2021).

In addition to examining the appearance of the fitness content creators, we also sought to assess the types of messaging present in the videos. The results regarding messaging differed from a study examining YouTube workout videos (Chung et al., 2024), and this is likely due to the timelapse and shorter format of TikTok videos. Many of the YouTube videos were created for the viewers to exercise with the instructor in real time. In addition to providing the viewer with detailed instructions and demonstrations, the content creator also had ample time to highlight body positivity themes such as inner positivity (e.g., the importance of exercising for fun), adaptive investment in body care (e.g., remember to hydrate, take rest days), and body appreciation (e.g., appreciating the functionality of one's body; Chung et al., 2024). In the current sample of TikTok videos, body positivity messaging was largely absent. The most common body positivity theme, which was present in less than a quarter of the videos, was inner positivity. These videos often depicted more than one instructor, as they laughed and had fun while working out together.

Similarly, appearance-related themes were also largely absent in this sample. The most common appearance-related theme present in the workout videos was objectification, which occurred in approximately a quarter of the sample. Many of these videos included a camera angle which focused solely on the instructor's buttocks. Additionally, hashtags such as #thinwaist and #bigbutt often accompanied the videos. In a study examining fitness influencers on Instagram (Ahrens et al., 2022), the authors stated that female fitness influencers use their platforms to perpetuate the unrealistic, idealized appearance ideals, which can lead to self-objectification and body dissatisfaction, and encourage sexualization of women. They also reported that this may encourage other women to post similar fitness content in their quest to receive high numbers of views and likes (Ahrens et al., 2022). In terms of social cognitive theory, these findings have two implications. First, viewers may be more likely to adopt the unrealistic standards of beauty communicated through mass media when they see others being rewarded (e.g., likes, comments, follows) and may engage in behaviors designed to achieve the idealized body (Bandura, 2001, 2009). Second, viewers may be more likely to post similar content in a quest to reap similar rewards (Bandura, 2001, 2009).

It was encouraging to see that problematic messaging, such as an emphasis on losing fat or weight, thin praise, body shaming, or weight stigma, was rare in this sample. These results paralleled a content analysis of workout videos on YouTube, as appearance-related themes were also largely absent from YouTube workout videos (Chung et al., 2024).

As social norms theory suggests that weight-normative messaging in fitness-related content is problematic (Marks et al., 2020; Pfender et al., 2023) and can lead to negative health outcomes (Minadeo et al., 2022), it was promising that explicit messaging about weight loss or related topics was largely absent. Moreover, while explicit messages about burning fat or calories was extremely rare in the coded TikTok videos, almost half of YouTube workout videos include these kinds of messages (Chung et al., 2024).

We also assessed whether the workout instructors provided modifications. Overall, the videos did not provide modifications to viewers, which was consistent with a content analysis of Yoga videos on Instagram where the instructors often demonstrated advanced skills with little instruction or possible modifications (Hinz et al., 2021b). This could pose risks for the viewers, as the instructors often showcased extreme flexibility and strength in order to maintain viewer engagement (Hinz et al., 2021b). The results of this study differed from a content analysis of workout videos on YouTube where the content creators spent the majority of their time providing explicit instructions and demonstrating the exercises (Chung et al., 2024). This is likely due to the longer format of typical YouTube videos compared to the time-lapse format of TikTok or other social media videos.

During the pandemic, fitness influencers who typically posted posed, still images felt pressured to create video content to keep their followers engaged (Godefroy, 2020). As they were not trained fitness professionals, they often provided instructions that may not have been credible (Godefroy, 2020). Viewers of fitness video content often believe that the instructor is an expert who provides reliable information (Hinz et al., 2021b; Raggatt et al., 2018). Anecdotally, many of the videos on TikTok were from individuals posting their daily workouts to either maintain a following or to hold themselves accountable. They did not provide detailed instructions, and many of the exercises were advanced. In light of the findings of Hinz et al. (2021b) and Raggatt et al. (2018), this suggests that TikTok may not be the most appropriate platform to distribute workout instruction. The motivational theory of role modeling (Morgenroth et al., 2015) posits that role models inspire viewers to set goals and model behavior. If instructions for advanced exercises are not provided by the content creators, untrained viewers may inaccurately believe that they can perform the exercises and could be injured in their attempt to model the workout instructor. Importantly, this study did not measure how viewers respond to the videos or whether they were difficult to follow and so we recommend that future studies consider this in their design.

We also examined whether other types of themes were present in the workout videos. Approximately a quarter of the videos included commercialism, such as promotion of products or brands. Many content creators included links or codes viewers could use to purchase merchandise or directed viewers to other websites or social media platforms. Social media provides opportunities for individuals to monetize their platforms in order to earn income (Smith & Fischer, 2021), and TikTok is no exception.

Lastly, we sought to determine whether significant differences in the frequency of body positivity and appearance-focused themes in TikTok workout videos existed in our sample. No significant differences were found. This may be a result of insufficient power to detect an effect, or it may be that TikTok workout videos truly do not differ in their communication of body positivity versus appearance focused themes. Given the low frequency of these themes, as evidenced by our descriptive analyses, it seems that the nature of typical TikTok videos (e.g., time-lapse and music) provides fewer opportunities for the communication of *any* types of health-related messaging, either positive or negative.

Limitations and future directions

The current study is not without limitations. First, we utilized a deductive strategy by choosing variables that were assessed in relevant analyses examining yoga, fitspiration, and body positivity content. This is a common strategy in content-analytic studies (e.g., Cohen et al., 2019; Harriger, Wick, et al., 2023; Lazuka et al., 2020); however, it may have prevented us from identifying themes relevant to the TikTok platform. Future work might consider employing an inductive approach in their examination of workout content. Additionally, the videos were identified over a two-week period. Although this is a common sampling strategy, it is possible that the results of our analysis do not generalize to all TikTok workout content. We would also recommend that future work examine how user engagement (e.g., comments, likes, shares, views) may differ based on the content of the workout videos. Also, the majority of the content creators in the current analysis were women who targeted a female audience, and it would be helpful to also examine the messages present in workout content targeting men. Anecdotally, many of the videos depicting men were of extreme workouts (e.g., flipping tires, lifting heavy weights), and it would be interesting to further understand messaging in extreme workout content. Finally, we examined the content of workout videos on TikTok but did not measure the effects of engaging with the content. Therefore, we recommend that future researchers employ experimental methods to measure the effects of viewing workout content on TikTok or other relevant platforms. We also recommend research grounded in social cognitive theory (Bandura, 2001, 2009) to measure the effects of viewing content that is socially rewarded (e.g., likes, comments, follows) compared to content with lower levels of social rewards. Finally, the development and implementation of digital health literacy programs which enable individuals to understand and critically evaluate health-related information found in electronic sources, such as the TikTok platform, and to apply the knowledge gained to address or solve various health issues is an important future direction. This could prevent the internalization of misinformation or unhealthy messages regarding exercise and appearance.

Conclusion

The results of the current content analysis provided mixed results regarding the communication of fitness-related information in TikTok videos. First, workout content on TikTok is often presented in a time-lapse format with little verbal instruction, which may make it difficult for viewers to perform

the exercises. The majority of the videos depicted young, female content creators with athletic bodies and other characteristics associated with culturally based beauty ideals, which is consistent with past content analyses of workout and other fitness-related content. However, approximately half of the videos included racial diversity, which is promising, as TikTok may provide opportunities for underrepresented individuals to engage with diverse content. A proportion of the sample included objectification, which has been linked to deleterious effects such as self-objectification and body dissatisfaction. A smaller proportion of the sample included messages about inner positivity, one of the tenets of body positivity, as the instructors demonstrated enjoyment and fun during the workout. Overall, the TikTok platform may provide underrepresented individuals opportunities to seek out workout content from a more diverse group of individuals; however, the lack of instruction and the presence of objectification found in the videos may have negative consequences. Given the influence of content creators on health-related behaviors, it is important to further examine how messages about fitness and health may affect users' body image, diet, and exercise or other health-related behaviors. Therefore, we recommend further research on the effects of exposure to workout content on TikTok.

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