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Body Positivity vs. Fitspiration: Comparing the Video Content and Comments on YouTube

By

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Abstract

Background: The emergence of social media has revolutionized the discourse surrounding body image, particularly through trends like fitspiration and body positivity. While fitspiration often emphasizes physical appearance and restrictive behaviors, the trend of body positivity emerged to challenge societal ideals and promote acceptance. However, there are controversies as to whether the trend of body positivity has delivered its promise. Despite extensive research, direct comparisons between these trends on platforms like YouTube remain scarce. This study addresses this gap by analyzing fitspiration and body positivity content and comments on YouTube. This study aims to provide insights into various aspects of fitspiration and body positivity content on YouTube, including their popularity, content themes, and sentiment in comments.

Data: This study gathered textual data, including video titles, descriptions, user-defined content tags, and comments, as well as contextual data such as video view count, comment count, duration, and category, from the most viewed fitspiration and body positivity YouTube videos using the YouTube API. The data covered videos published between 2013 and 2023, with the 11-year period divided into equal half-year windows. The videos were sampled using the keywords "fitspo" and "fitspiration" for fitspiration samples, and "bodypositive" and "bodypositivity" for body positivity samples, within specified half-year time windows. In total, 1045 fitspiration videos and 752 body positivity videos were analyzed, along with 7997 fitspiration comments and 13776 body positivity comments.

Methods: The study employed a mixed-methods approach to analyze various aspects of video content and comments on YouTube. For popularity and duration comparison, descriptive analysis was conducted on sample volume, view count, comment count, and video duration. This involved examining the overall distribution and trends of these variables across different years and topics. For video topic comparisons, the distribution of video categories and frequently used hashtags was examined to understand the types of content and trends within each topic. Additionally, cluster analysis was performed to evaluate cohesion within each trend and distinction between trends. For comment analysis, pretrained Large Language Models (LLMs) were deployed to analyze the sentiment of comments and used to identify prominent themes present in the comments, shedding light on the topics and sentiments expressed by viewers.

Results: *Popularity and Duration Comparison:* The number of body positivity videos published on YouTube steadily increased from 2013 to 2019. On average, body positivity videos garnered higher view counts, comment counts, and likes compared to fitspiration videos. In the recent three years (2021 to 2023), body positivity videos reached their highest average view count and comment count over the 11-year period. Conversely, fitspiration

videos exhibited a more stable trend in average view count with no noticeable overall growth.
Topic Comparison: The "People & Blogs" category emerged as the most prominent video category for both topics. However, the most notable contrast was observed in the "Sport" category, which constituted over 23% of fitspiration videos but less than 2% of body positivity videos.

Sentiment Comparison of Comments: The majority of comments under both fitspiration and body positivity videos exhibited positive sentiments. However, body positivity videos had a higher proportion of negative comments.

Themes Comparison of Comments: The majority of comments across both topics were found to have the prominent theme of Gratitude or Appreciation for Content, followed by Physical Appearance or Body Shape/Parts. Physical Appearance or Body Shape/Parts comments were less positive and more negative than average in sentiment; they tend to be more negative in body positivity than fitspiration. Body Functionality emerged as the third most common prominent theme in fitspiration comments, but was only marginal in body positivity comments. The body positivity constructs Conceptualize Beauty Broadly and Encouragement of Body Acceptance were more frequently found in body positivity comments than fitspiration ones. However, half of Conceptualize Beauty Broadly comments in body positivity were negative. Personal life story sharing was the third most frequent theme in body positivity; however, it was also the most negative theme across the ten themes.

Conclusions: Body positivity videos on YouTube have surged in popularity in recent years, peaking between 2021 and 2023, while fitspiration videos have shown more stable viewership trends. A key difference between the two trends is the emphasis on body positivity versus physical exercise. However, it's noteworthy that a significant portion of body positivity comments exhibit negative sentiment, particularly those focusing on Conceptualizing Beauty Broadly. Surprisingly, body positivity content often centers more on physical appearance than fitspiration content. This emphasis on appearance correlates with higher rates of negative sentiment in body positivity comments. Additionally, personal life story sharing is prevalent in body positivity discussions, with a notable proportion reflecting negative experiences. These findings highlight concerns about body positivity discourse online and suggest avenues for further research, particularly in understanding the impact of these interactions on viewers.

Keywords: Body Image; Fitspiration; Body Positivity; YouTube

1 Introduction

While body image issues are not a new phenomenon, the burgeoning of social media in the last two decades or so has added new dimensions (Edosomwan et al., 2011). Considerable academic focus has been placed on uncovering social media content closely related to body image to understand what viewers are exposed to. Content analysis has been a key area of research that deepens the understanding of body image-related messages on online platforms. Among body image-related social media content, "fitspiration" and "bodypositivity" are among the most studied trends.

The social media trend of fitspiration (also known as "fitspo", a portmanteau of "fit" and "inspiration") has been a significant aspect of online fitness culture. Comparisons were initially drawn between fitspiration and thinspiration (a blend of "thin" and "inspiration"), revealing more similarities between fitspiration and thinspiration than differences—regarding aspects such as appearance comparison and messages encouraging restrictive eating (Alberga et al., 2018; Tiggemann & Zaccardo, 2018). Fitspiration content predominantly focuses on physical appearance, positioning actions as means to achieve culturally-based appearance ideals (Bell et al., 2024; Deighton-Smith & Bell, 2018; Ratwatte & Mattacola, 2021). Consuming and posting fitspiration content have been associated with negative body image outcomes such as disordered eating and compulsive exercise (Holland & Tiggemann, 2017; Raggatt et al., 2018); for a systematic review, see Jerónimo and Carraça (2022).

In response to the appearance-ideal messages dominant in content like "fitspiration", the "body positive movement" emerged as a space to promote positive body image, challenge dominant societal appearance ideals, and foster acceptance and appreciation of all bodies and appearances (Cohen, Irwin, et al., 2019; Sastre, 2014). Scholarly attention has been directed towards investigating whether body positivity, as an online trend, fulfills its promise of promoting positive body image according to the theoretical construct, which encompasses love and respect for individuals' bodies (Tylka & Wood-Barcalow, 2015). Comparisons are often drawn between body positivity and fitspiration content. Existing content analysis has found that body positivity social media content embodies the construct of body positivity to varying degrees (Cohen, Irwin, et al., 2019; Harriger et al., 2023; Lang et al., 2023; Lazuka et al., 2020). However, the perpetuation of a focus on appearance, akin to fitspiration, has been identified in both Western (Cohen, Irwin, et al., 2019; Harriger et al., 2023; Lazuka et al., 2020), and non-Western social media (Lang et al., 2023), raising concerns about over-investment in physical appearance, a well-established risk factor for body image. Experiments have also yielded mixed results regarding the protective effects of body positivity posts or text alone on individuals' body image (Davies et al., 2020; Tiggemann et al., 2020).

Experiments with fitspiration and body positivity caption conditions have shown that exposure to body positivity captions leads to significantly higher weight esteem than exposure to fitspiration captions (Davies et al., 2020). It is therefore important to understand the themes behind those content. Despite ubiquitous comparisons drawn between body positivity and fitspiration content (e.g., Cohen, Irwin, et al., 2019), to the best of my knowledge, there is no direct comparative study between the two trends with comparable samples. Samples in different content analyses were collected at different times and under different conditions; therefore, the results in different analyses may not be best suited for comparing the two trends. Further insights into the differences between the two trends are necessary to guide a more in-depth investigation of the effect mechanism. A direct comparative study is imperative.

Additionally, YouTube as a popular social media platform has been understudied by body image research. To illustrate the popularity of both trends on YouTube, a hashtag search for "#fitspo" on March 18, 2024, yielded 139K videos; comparably, a search for the hashtag "#bodypositive" yielded 131K videos. Research has found that 88% of YouTube users watch health-related videos on YouTube, with fitspiration-related videos being the most popular (Mohamed & Shoufan, 2024). Given that 85% make decisions based on health-related YouTube videos, the body positivity and fitspiration content and discourses on YouTube could have significant implications and consequences for public health.

Comments as a textual data source also deserve more attention. The significance of comments has been underscored by experimental works. Accompanied by the same plus-size model photos, participants who were exposed to body-negative comments were significantly more likely to leave negative comments on the images (Talbot et al., 2021). In another image-controlled experiments, Davies et al. (2020) identified protective psychological effects of body positivity captions and a negative influence on mood of fitspiration captions. The experimental results pointed to the unneglectable significance of social media comments.

The only content analysis of YouTube focused on fitspiration video transcripts and comments (Ratwatte & Mattacola, 2021), while no direct analysis of body positivity YouTube content was conducted. Given the absence of a direct comparison of fitspiration and body positivity content, combined with the scarcity of knowledge of YouTube discourses, this study aimed to fill in the gap by directly comparing fitspiration and body positivity YouTube content and comments in terms of popularity, sentiment, and themes.

2   Literature Review

The literature review is structured to initially introduce the trends and content analyses of fitspiration and body positivity on social media. It then delves into observational and

experimental findings regarding the impact of this content on individuals' physical and mental well-being. Lastly, the review identifies research gaps and raises pertinent questions.

On a high level, content analyses of both body positivity and fitspiration content have revealed similarities in sharing a focus on physical appearance such as weight loss (for fitspiration, Boepple and Thompson (2016), Boepple et al. (2016), and Deighton-Smith and Bell (2018); for body positivity, Cohen, Irwin, et al. (2019), Lang et al. (2023), and Lazuka et al. (2020)). The key difference between both trends was the presence of body positivity constructs in body positivity content (Cohen, Irwin, et al., 2019). Experiments with fitspiration and body positivity captions as stimuli have found opposite effects on individuals' mood and body esteem (Davies et al., 2020).

2.1   Fitspiration as a Social Media Trend

Fitspiration, an amalgamation of the words "fit" and "inspiration," has been proposed as a healthy antidote to thinspiration (i.e., thin inspiration) but has been proven to fall short (Tiggemann & Zaccardo, 2015). The phenomenon of fitspiration has attracted extensive academic attention over the last decade. Fitspiration content has been linked with harmful psychological and behavioral outcomes (for a systematic review, see Cohen, Irwin, et al., 2019). Content analysis has been key in the efforts to understand the fitspiration landscape. Boepple and Thompson (2014)'s content analysis of healthy living blogs was among the first to point out the label "#fitspiration" in health-related online content. The focus then shifted to social media platforms as it soon became a social media trend (Simpson & Mazzeo, 2017).

It was commonly found in fitspiration content a heavy focus on physical appearance and absence of emphasis on health (Boepple & Thompson, 2016; Deighton-Smith & Bell, 2018; Simpson & Mazzeo, 2017). Additionally, potentially unhealthy behaviors were found to be promoted (Tiggemann & Zaccardo, 2018). On other notes, discussions about exercise-related knowledge were also found present in fitspiration posts (Bell et al., 2024; Ratwatte & Mattacola, 2021).

Research has found that fitspiration content promotes exercise for appearance reasons, specifically the ideal being lean and muscular. Boepple and Thompson (2016)'s content analysis on popular fitspiration websites found an appalling 93% of the websites contain messages promoting exercise for appearance reasons. Ten percent praises thin body types, which are the overwhelming majority (97.72%) of body types depicted in the images. In social media, Deighton-Smith and Bell (2018) specifically studied the captions of fitspiration Instagram posts in addition to images. One of the six themes they discovered was "Fit is sexy," which positioned "fit" as a physical and sexual attribute.

Dysfunctional messages regarding dieting and exercising are commonly found in fitspiration online content. Over one fourth of popular fitspiration websites contain guilt-inducing

messages about food (Boepple & Thompson, 2016). These messages also extend to exercise. Tiggemann and Zaccardo (2018) studied Instagram samples of images returned by a search of the hashtag "#fitspiration," where they analyzed the quotes on image samples. They found 11.3% of the quotes were potentially dysfunctional in encouraging extreme behaviors neglecting physical health, such as "...blood is acceptable, pain is acceptable. Quitting is not." Instagram captions also contain heavy motivational messages that encourage self-regulation and perseverance, and could potentially be dysfunctional.

Recent development has stressed the shift of fitspiration content across time. Bell et al. (2024) conducted a follow-up analysis of Deighton-Smith and Bell (2018), using identical sampling methods as Deighton-Smith and Bell (2018)'s research to obtain a new set of fitspiration Instagram posts in 2021 for temporal comparison. In the textual data, it was found that the theme of framing fitness as sexually desirable was less salient in 2021, and more focus was put on exercise-related knowledge and instruction.

Particularly relevant to this research, Ratwatte and Mattacola (2021) conducted the only fitspiration content analysis on English-language YouTube content, revealing similar focus on physical appearance, and additionally, discourses on body dissatisfaction. Similar to Cohen, Irwin, et al. (2019)'s analysis on body positivity content, they sampled from only the top influencers. The three most-viewed videos from ten fitspiration channels with the highest number of subscribers were included in the analysis. The transcript of those videos as well as the most-liked comments, including the comment thread, were included in the textual data. In transcripts, both fitness for appearance reasons and health reasons were identified as prominent themes. In the comments, discourses on appearance-focused body dissatisfaction as well as exercise technicalities were identified. Additionally, certain comments focused on expressing appreciation for content creators and videos.

2.2   Body Positivity as a Theoretical Construct versus Social Media Trend

In research of the body positivity trend online, the theoretical construct was applied by researchers to the coding scheme in content analysis of body positivity social media content in an attempt to answer a key question among others: to what extent the body positivity content on social media is body positive (Cohen, Irwin, et al., 2019; Harriger et al., 2023; Lang et al., 2023; Lazuka et al., 2020). Another essential aspect the body positivity content analyses have tried to reveal is the appearance focus including weight loss, thin praise, etc., drawing comparison with the fitspiration trend. The findings share that more posts contain at least one component of the six features than those contain appearance-focused messages. However, it was debatable how prominent the positive body image messages and appearance-focused messages are.

Body positivity as a construct was earlier theorized by Wood-Barcalow et al. (2010)'s

research through interviews with fifteen college women who self-identified as body positive. They defined body positivity as "an overarching love and respect for the body that allows individuals to (a) appreciate the unique beauty of their body and the functions that it performs for them; (b) accept and even admire their body, including those aspects that are inconsistent with idealized images; (c) feel beautiful, comfortable, confident, and happy with their body, which is often reflected as an outer radiance, or a 'glow;' (d) emphasize their body's assets rather than dwell on their imperfections; (e) have a mindful connection with their body's needs; and (f) interpret incoming information in a body-protective manner whereby most positive information is internalized and most negative information is rejected or reframed" (p. 112).

In 2015, Tylka and Wood-Barcalow (2015) followed up on the definition with the six core features that make up the multifaceted construct of positive body image: (1) body appreciation: appreciation of features, functionality, and health of the body, (2) body acceptance and love: expressing love for and comfort with the body, even if not completely satisfied with all aspects of the body, (3) broadly conceptualizing beauty: the perception that a wide range of appearances can be beautiful, (4) adaptive investment in body care: regularly engaging in appearance-related self-care that projects an individual's sense of style and personality via only benign methods, (5) inner positivity: inner characteristics and positive feelings (e.g., body confidence, optimism, happiness), and (6) protective filtering of information: accepting information that is consistent with positive body image while rejecting messages that could endanger it.

Some content analyses have revealed a close alignment of these social media content with the six body positivity thearetical components, including Cohen, Irwin, et al. (2019)'s analysis on Instagram's most popular body positivity Instagram accounts. These were influencers with a minimum of 50,000 followers and a minimum of 100 posts identified in an Internet search. It was found that over 80% of the sample contained at least one out of the six body positivity features, among which over 65% had the most common theme conceptualizing beauty broadly and 33% were found to contain body acceptance messages. Lazuka et al. (2020), as a direct follow up to Cohen, Irwin, et al. (2019), sampled from posts that first appeared in search and not exclusively posted by body positivity influencers. They deployed the hashtag "#BodyPositivity" in the sampling process of 7 days. A similar coding scheme as Cohen, Irwin, et al. (2019) was deployed in the content analysis. Similarly, body positivity constructs were frequently found in the sample, with inner positivity (73.2%), conceptualizing beauty broadly (31.7%), and body acceptance/love (25.2%) being the first three.

However, a focus on appearance was also frequently identified. 41% of the body positivity influencers' posts contained at least one appearance-focused theme (Cohen, Irwin, et al.,

2019), which include exercise or dieting or weight loss for appearance, clothing and beauty, thin praise, etc. In the representative sample of not exclusively influencers by Lazuka et al. (2020), 8.5% of the posts were found to praise a thin body type and 7.7% contain messages of weight loss or dieting or exercising for appearance reasons.

Not only in the western cultural context, the mixed presence of body positivity constructs and negative appearance focus in body positivity trends were found on Chinese popular social media Xiaohongshu (Lang et al., 2023). The coding scheme was similar to Cohen, Irwin, et al. (2019) and Lazuka et al. (2020) in the positive body image and appearance-focused themes. They found nearly 80% of the posts embody at least one of the six components of positive body image defined by Tylka and Wood-Barcalow (2015). Regarding the appearance focus, as many as 43% of the sample contain themes like encouragement of makeup. The weight loss theme was found to be much more prominent than in the western samples, almost 40% of the posts mentioned weight loss or diet or exercise. More alarmingly, 14% stressed the importance of appearance, 10% contained messages of weight stigmatization and 7% contained encouragement of cosmetic surgery, which was mostly likely to be against the notion of body acceptance and appreciation.

However, in contrary to the findings above, Harriger et al. (2023) revealed a lack of theoretical construct of body positivity in "#bodypositivity" TikTok videos—two-thirds of the 342 sampled videos were found to not include any aspect of the body positivity constructs. Body acceptance and love was the most prominent among the seven features, with Fat Acceptance added to the six core features, and it was only present in 16.7% of the videos. All of the other aspects of positive body image were found in less than 10% of the samples. On the other hand, negative appearance-focused themes such as weight loss, thin praise, clothing and beauty were also much less frequently found than in the Instagram samples by Cohen, Irwin, et al. (2019) and Lazuka et al. (2020).

Overall, the extent to which social media content tagged with "body positivity" truly promotes body positivity is controversial. Further investigation into other social media platforms, such as YouTube, is needed, particularly in light of varying results observed between video-focused platforms like TikTok and picture-focused platforms like Instagram.

2.3 Effects of Fitspiration and Body Positivity Content

In body image research, comparisons have often been drawn between fitspiraiton and body positivity content due to their common focus on physical appearance and effects on individuals' body image related outcomes.

Besides content analyses, surveys and experiments have been conducted by researchers to study the influence of engaging with fitspiration and body positivity content. The following paragraphs divide the research into those that studied the engagement with unaltered social

media posts (including image, captions, etc.) and those that studied the effect of texts specifically, which is particularly relevant to this study as it primarily focuses on textual data. In general, negative outcomes such as body dissatisfaction were associated with fitspiration content, while controversies surrounded the effects of body positivity content (texts, specifically).

2.3.1   Engaging with Fitspiration and Body Positivity Social Media Posts

While negative outcomes including increased physical appearance comparisons, body dissatisfaction, and increased negative mood were found in engaging with fitspiration content (Holland & Tiggemann, 2017; Raggatt et al., 2018), positive outcomes were identified for exposure to body positivity social media posts (Cohen, Fardouly, et al., 2019).

Research indicates that viewing fitspiration content leads to increased body dissatisfaction, negative mood, and lower appearance self-esteem among females (Pryde & Prichard, 2022; Rounds & Stutts, 2021; Tiggemann & Zaccardo, 2015). Similarly, males engaging with fitspiration content experience higher levels of internalizing the muscular-ideal, engaging in appearance comparisons, and feeling body dissatisfaction (Fatt et al., 2019). Beyond viewing fitspiration, posting such content is associated with higher levels of drive for thinness and muscularity, as well as increased risks of bulimia and compulsive exercise (Holland & Tiggemann, 2017).

Surveys have revealed that fitspiration is a heavily appearance-focused trend. Raggatt et al. (2018) in their survey asked their participants reasons why they access fitspiration content on social media. As many as 57% of respondents reported the reasons to improve their body shape, 54% to lose weight, and 42% to improve their physical appearance. Research has shown that engagement in upward appearance comparisons was common in consuming social media and it has been associated with body dissatisfaction, diet and exercise behaviors, and negative mood (Fardouly et al., 2017; Scully et al., 2023).

On the other hand, Cohen, Fardouly, et al. (2019) found that brief exposure to body positivity Instagram posts significantly improved young female participants' positive mood and state body satisfaction, while the opposite significant was found for exposure to thin-ideal posts. No significant difference in state objectification was found in different groups. No significant effect of body image outcomes was found in the control group who were exposed to appearance-neutral posts. The posts used in treatment conditions were sourced from popular accounts that were perceived to subscribe to thin-ideal or body positivity that were rated as representative of the definition of body positive and idealized images. The significant increase of body satisfaction after exposure to body positivity content was replicated by Nelson et al. (2022)'s experiment on a more age-diverse female sample.

2.3.2 Effects of Texts Alone

Experimental work has been conducted to study the effects of fitspiration and body positive texts alone.

Davies et al. (2020) identified protective effects of body positivity captions and a negative influence on mood of fitspiration captions. They studied the change in mood and body esteem of young adult females under one of three conditions—body positivity, fitspiration, and neutral captions. Identical fitspiration images sourced from Instagram were used above these captions. They found a significantly increased negative mood after exposure to fitspiration captions with fitspiration images, but no significant change when the same images were accompanied by body positivity or neutral captions. On the other hand, weight esteem was significantly higher with body positivity captions than fitspiration and neutral captions. Note that the body positivity captions were sourced from Instagram but were carefully selected to be in line with the theoretical constructs of body positivity. Similarly, a selection process was conducted for fitspiration messages to contain inspirational messages regarding health and fitness.

Contrary to the benefits of positive body image messages found in Davies et al. (2020), in Arigo et al. (2021)'s experiment on college students, there was no significant difference in body satisfaction between the group exposed to self-compassion messages, which embody some components of positive body image, and the group exposed to fitspiration messages. Also on university students, but all females, Talbot et al. (2021) found no relationships between body positive comments accompanying images of plus-size models and increased mood and psychological well-being. Similarly, Tiggemann et al. (2020) concluded that positive body image captions didn't lead to greater body satisfaction and body appreciation in college female students. The experimental design included two sets of conditions: body positivity captions present vs. no caption, and images of average body type and thin body type. The thin body type pictures were also rated by researchers as significantly more attractive than the other group of images. Regardless of the image type, body positivity captions did not lead to greater body satisfaction and body appreciation pre- and post-exposure to the composed Instagram posts.

Since both fitspiration and body positivity content have a close focus on physical appearance (Boepple & Thompson, 2016; Harriger et al., 2023), investigating appearance-focused messages is particularly relevant. Tiggemann and Barbato (2018) found that exposure to appearance-focused comments led to greater body dissatisfaction than comments irrelevant to physical appearance. The experiment involved participants (female undergraduate women) briefly viewing a set of images of full-body shots of women that were rated moderately-attractive to attractive, accompanied by either comments complementing the appearance of the women subjects featured in the images, or observations of the places

featured. Comparing the groups, participants exposed to appearance-focused comments had greater body dissatisfaction post-exposure than the control group. Since both fitspiration and body positivity texts have been found to focus on physical appearance (Boepple & Thompson, 2016; Harriger et al., 2023), they both have the potential to have negative effects on individuals' body image.

It's important to note that in these experimental studies, the fitspiration and body positivity texts were not identical to what viewers were naturally exposed to. A careful selection was imposed to ensure that body positivity captions aligned with the theoretical constructs of body positivity (Davies et al., 2020; Tiggemann et al., 2020). Therefore, the purpose was more to study the effects of positive body image messages rather than the captions that followers of the body positivity trend would naturally be exposed to. It's also worth noting that most studies were conducted on college female students, so effects could differ for people in different age groups.

In sum, while fitspiration captions might impose an increased negative mood after exposure (Davies et al., 2020), there is controversy surrounding the effects of positive body image texts alone on individuals (Davies et al., 2020; Tiggemann et al., 2020).

2.4   Research Gap and Research Questions

Given the disparities in effects observed, a deeper understanding of content was required to comprehend what might contribute to different outcomes and to guide further experimental work. Among popular social media platforms, YouTube, as one of the most prominent online communities, remains relatively unexplored. Founded in 2005, YouTube boasts the status of being the world's most popular online video community with 2.7 billion monthly active users globally (Shepherd, 2024). Research has indicated that users view YouTube as a valuable source of health-related information (Mohamed & Shoufan, 2024).

Currently, the only content analysis on YouTube sampled from the top fitspiration channels with a substantial following (Ratwatte & Mattacola, 2021). Comparisons of results between Cohen, Irwin, et al. (2019) and Lazuka et al. (2020) lend support to the notion that such influencer content might not be representative of fitspiration content that social media users are naturally exposed to. Moreover, Ratwatte and Mattacola (2021) chose to select videos intended to "inspire" users and excluded videos solely about fitness instructions and cooking, which renders the sample less representative of what fitspiration-interested viewers would generally be exposed to. Additionally, no content analysis on body positivity YouTube videos was identified. Hence, more investigation into the body positivity trend on other social media platforms like YouTube is warranted, especially considering the different results on the video-focused platform TikTok compared to the picture-focused platform Instagram (Cohen, Irwin, et al., 2019; Harriger et al., 2023).

Furthermore, comments, as a valuable data source of online discourses, have been rarely focused on by body image research. One of the few analyses on fitspiration comments found both appearance-focused comments including complaints about one's body and discussions focused on exercise techniques (Ratwatte & Mattacola, 2021). While upward appearance comparison was linked with negative body image outcomes (Scully et al., 2023), focusing on body functionality has benefits in fostering better body appreciation (Alleva et al., 2016). There is a need for more exploration of comments to understand their potential effects.

Another research gap was the direct comparison of both trends, although comparisons between the two were often made in literature (e.g., Cohen, Irwin, et al., 2019), and content of the two used as stimuli in the same experiment (Davies et al., 2020). To the best of my knowledge, no comparable samples were drawn for both trends at the same time from the same source. Also, no uniform coding scheme was applied to both to facilitate a direct comparison of themes. We have little knowledge of, for example, how prevalent the positive body image constructs are in fitspiration content compared to body positivity posts.

The aim of this study was to directly compare the fitspiration and body positivity trends on YouTube using mainly textual data including video hashtags, content tags, and comments, exploring the sentiments and themes. An additional objective was to compare the video popularity, category, and duration of the two trends. To collect a representative sample of popular content and facilitate temporal comparison, relevant data of videos published from 2013 to 2023 were collected.

Four research questions were raised to guide the study, aiming to provide insights into various aspects of fitspiration and body positivity content on YouTube, including their popularity, content themes, and sentiment in comments.

RQ1: How do the popularity and duration of body positivity videos on YouTube compare to fitspiration videos from 2013 to 2023? Given that both trends started to gain academic attention about a decade ago—for example, Sastre (2014) for body positivity and Tiggemann and Zaccardo (2015) for fitspiration, it is hypothesized that they have similar popularity over the years. Regarding video duration, since YouTube only rolled out YouTube Shorts in 2020 (Todd, 2021), it is hypothesized that the video duration has significantly dropped since 2020. YouTube Shorts are short-form videos that are up to 60 seconds long and have a separate segment in the YouTube interface, see Figure 1.

RQ2: What are the similarities and differences in the topics covered in body positivity and fitspiration video content, considering video category, hashtags, and content tags? Content analyses of both body positivity and fitspiration content have revealed similarities in sharing a focus on physical appearance such as weight loss (for fitspiration, Boepple and Thompson (2016), Boepple et al. (2016), and Deighton-Smith and Bell (2018); for body positivity, Cohen, Irwin, et al. (2019), Lang et al. (2023), and
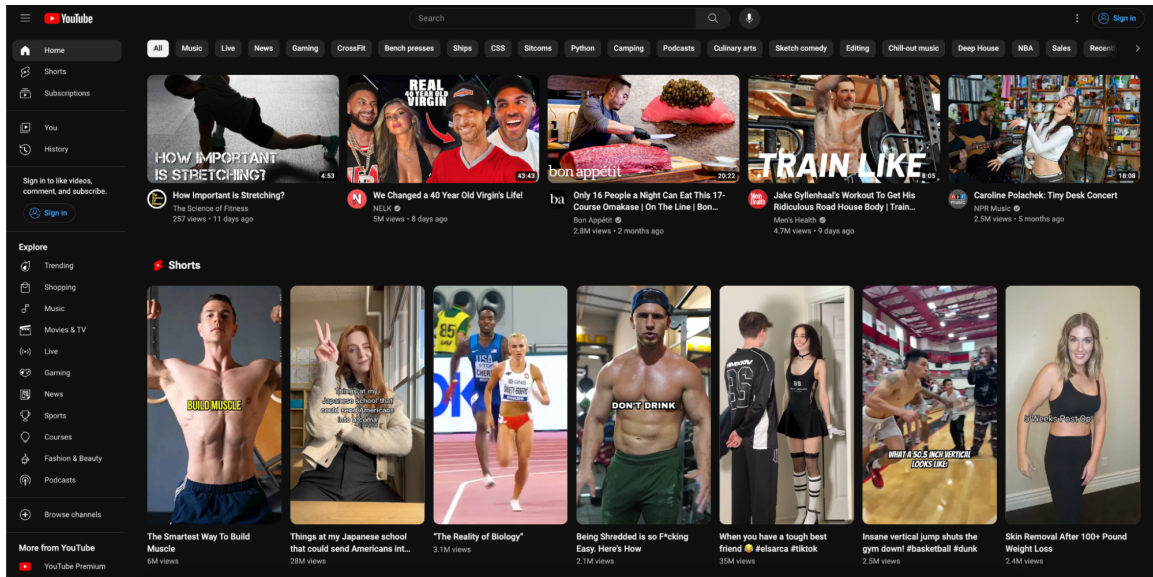
Figure 1: Screenshot of the YouTube PC interface

Lazuka et al. (2020)). Additionally, existing content analyses have shown that both trends tend to contain motivational messages in texts. For instance, 43% of body positivity Instagram posts had a motivational theme (Lazuka et al., 2020). In Instagram fitspiration image quotations, almost 60% are inspirational quotes unrelated to fitness, and almost 40% contain fitness-related inspirational messages (Tiggemann & Zaccardo, 2018). Therefore, it is expected that video content and comments of both trends contain appearance-focused messages as well motivational content.

In terms of differences, it is plausible that body positivity constructs were hypothesized to be more prevalent in body positivity than fitspiration content, as the trend of body positivity was designed to promote positive body image. Positive body image themes were also commonly identified in body positivity content on most platforms (Cohen, Irwin, et al., 2019; Lang et al., 2023; Lazuka et al., 2020). Fitspiration content might contain more exercise-focused messages than body positivity, as it was meant to have some level of exercise focus. Discussion of exercise-related details has also been identified in fitspiration discourses (Boepple et al., 2016; Ratwatte & Mattacola, 2021), but not so much in body positivity. For the video category, fitspiration is posited to be more Sports-focused than body positivity.

RQ3: How do the themes discussed in comments on body positivity videos differ from those on fitspiration videos? It is generally expected that comments themes would closely follow the video content; therefore, the results are expected to reflect what's found in RQ2, i.e., comments of both trends contain appearance-focused messages as well as motivational ones, and comments of body positivity videos contain more body positivity

theoretical construct while fitspiration discourses pay more attention to physical exercise. It is also expected that some themes in fitspiration content would embody the concept of being part of a community, as found in the past comment analysis of YouTube fitspiration videos (Ratwatte & Mattacola, 2021). Survey respondents have also reported the parasocial relationship as one of the main reasons they follow fitspiration content (Raggatt et al., 2018), and YouTube specifically (Sokolova & Perez, 2021).

RQ4: How do comments on body positivity videos compare to comments on fitspiration videos in terms of sentiment? Existing content analyses have shown that both trends tend to contain motivational messages in texts (Lazuka et al., 2020; Tiggemann & Zaccardo, 2018). Therefore, it is posited that body positivity and fitspiration comments are similar in sentiment, with both tending to have predominantly positive sentiments. Differences are also expected, particularly for comments of different themes.

3   Data and Methods

3.1   Data

The aim of the data collection was to simulate a natural search and obtain a collection of representative sample on YouTube which users would be most likely to be exposed to. This study utilized textual data, including video title, video description, user-defined content tags, and comments, as well as contextual data, including video view count, comment count, duration, and category, of the most viewed fitspiration and body positivity YouTube videos obtained through the YouTube API. The videos were sampled using the keywords "fitspo" and "fitspiration" for fitspiration samples, and keywords "bodypositive" and "bodypositivity" for body positivity samples. These keywords were chosen to align with previous research in fitspiration (Boepple et al., 2016) and body positivity content analysis (Cohen, Irwin, et al., 2019; Harriger et al., 2023; Lazuka et al., 2020).

All videos were published between the years 2013 and 2023, covering an 11-year range. For each half-year window, up to 50 relevant videos were returned and collected (fewer than 50 if the total results were less than 50). In total, data from 1797 YouTube videos were collected, with 1045 being fitspiration videos and 752 being body positivity videos, reflecting a slight imbalance in the number of published videos related to the two sets of keywords.

The data sampling process comprised two main components. Firstly, querying for relevant videos using predetermined keywords provided basic video information, with the most important being the video ID, which serves as a unique identifier for each video and is crucial for collecting specific data for each video. Secondly, data intended for analysis, including textual data and contextual data, were collected for each video ID. This included

retrieving information such as the video title, description, content tags, and comments, as well as contextual details like view count, duration, and category.

3.1.1 Querying for Videos using Keywords

Part one involved querying for video IDs using the ubiquitously used keywords "fitspo" and "fitspiration" for fitspiration samples, and "bodypositive" and "bodypositivity" for body positivity samples. I chose to stick to these keywords for easier comparison with existing literature. There is hardly any past content analysis targeted at fitspiration and body positivity content that has used keywords outside of these. Hashtags were not utilized due to their tendency to only identify videos with hashtags in the title in the preliminary trial of data collection, potentially excluding useful data sources. Therefore, the "#" symbol was omitted despite being used for traditional data collection methods (e.g., Lazuka et al., 2020).

To sample the video data, 22 half-year windows were generated for each year from 2013 to 2023. In the preliminary data collection, the half-year time window was determined to yield a maximum of 50 videos per window. The objective of data collection was to replicate a natural search of fitspiration and body positivity content to reveal what viewers are most interested in, with less focus on collecting less-viewed content. Experimentation with shorter periods, such as a week or a month, typically resulted in returns of fewer than 50 videos, with the last videos having few views or comments, indicating the time window was too granular. Therefore, a half-year period per 50 videos for each topic was deemed appropriate for data collection. Only four years (2019 to 2022) out of the 11 yielded a full return of 100 videos, further suggesting that using a more granular time window for sampling would not produce a more representative sample.

Within each time window, videos were queried with the publish time specified to fall within the window using the "list" method for "search," aiming to simulate a natural search and obtain a collection of search results matching the query parameters specified in the API request. The result return order was set to be "viewCount" to be aligned with the objective—analyzing content that YouTube users who are interested in these topics would be naturally exposed to. The reason for specifying the language was the cultural dependence of the concept of body image. Different cultures may use different hashtags to express body positivity. For instance, (Lang et al., 2023)'s study on Chinese social media platform Xiaohongshu did not utilize "#bodypositivity"as seen in English-language samples. Instead, culturally-dependent hashtags such as "#RefusingFacialAnxiety" were employed.

The maximum results were set to 50, the maximum allowed per query. If the number of videos was less than 50 for the half-year window, all available videos were collected; if more than 50, the most viewed 50 were collected. With one query per time window and

22 windows, a total of 1100 videos were requested for the sample per topic. The exact same queries, except for keywords, were used for both topics. This process resulted in the sampling of 1045 unique videos for fitspiration and 752 for body positivity, see Table 1.

Query Keyword	Number of Results Returned	% Video Requests Fulfilled	Number of Comments Returned
fitspo, fitspiration	1045	95	23157
bodypositive, bodypositivity	752	68	12281

Table 1: Summary of query results

3.1.2 Collecting Content Details and Comments

Part two involved collecting data intended for analysis for each video ID queried in phase one, retrieving information such as the video title, description, content tags, and comments, as well as contextual details like view count, duration, and category.

For comments, the first 100 comments ordered by "relevance" were collected for each video using the "list" method for Comments ("Comments: list", 2022). In fact, the most liked comments were returned. If the video had less than 100 comments, all comments were collected. Of the videos, 629 had comments turned off. The total number of comments collected is shown in Table 1.

Replies to top-level comments were not collected for two reasons. First, the focus was primarily on what viewers were mostly exposed to and their opinions about the video content or the topic. The most liked comments are more representative than the replies, which are naturally folded and hidden from viewers. Secondly, the replies to top-level comments are usually more aimed at the top-level comment and less at the video itself. Typically, commenters engage in a conversation by posting back-and-forth comments directed at each other. To avoid confusion in the analysis, it was decided not to analyze comments in the form of replies to top-level comments.

The video details for every video were collected using the "list" method for videos ("Videos: list", 2022), including textual data such as user-defined tags (mostly words or phrases), video title, description, and contextual data including video view count, comment count, duration, and category.

3.2 Methods

3.2.1 Data Preprocessing

First, the data of basic video information obtained from querying per keyword and data of video specifics obtained from querying per video ID were merged to create the complete video-level dataset. This dataset includes keywords used for the query, time window used for the query, video ID, title, description, content tags, video publish time, video category ID, performance statistics (view count, like count, and comment count), and video duration. Each row represents one video.

I extracted the video publish year from the publish time strings for temporal analysis, which is more reliable than the time window used for queries in case the query return was not exactly in the specified time window. For video duration, I converted the raw string format to an integer representing seconds; for example, "PT10M41S" was converted to the integer 641 (seconds). The video category IDs, which are integers, were mapped to the category name using the mapping queried from the YouTube API, specifying the region as the US, consistent with querying for videos ("VideoCategories: list", 2022); for instance, ID 17 was converted to "Sports." Hashtags were extracted from both video descriptions and titles for hashtag analysis later.

For the comment data, comments with empty strings were removed from the dataset. Additional information such as query keywords and video language was added to the dataset mapped by video ID from the video dataset.

3.2.2 Descriptive Analysis

To address RQ1 regarding the comparison in video popularity, the distribution of sample volume and average view count and comments per publish year were analyzed for each trend. Additionally, to address the second part of RQ1 concerning video duration, the average duration per publish year was analyzed for each trend.

For RQ2 regarding topic comparison of the YouTube videos, analysis was conducted on video categories and hashtags. Since hashtags and video categories are manually added by content creators and provide insights into video content, frequency analysis was performed on hashtags extracted from video descriptions and titles, as well as video categories. No distinction was made between hashtags in descriptions or titles, as there arguably isn't a meaningful difference in where content creators choose to place them.

3.2.3 Language Detection

Despite specifying the language parameter to prioritize English-language results, it was observed during the preliminary examination of the sample that not all returned videos

were in English. The API guide explains the language parameter as returning "results that are most relevant to the specified language," and notes that "results in other languages will still be returned if they are highly relevant to the search query term" ("Search: list", 2022).

To determine the primary language of the video sample, I utilized the XLM-RoBERTa-based language detection model hosted on Hugging Face ("papluca/xlm-roberta-base-language-detection · Hugging Face", 2022). This model was fine-tuned on a language classification task based on the XLM-RoBERTa base model by Conneau et al. (2020). It supports the detection of 20 languages, including English, Spanish, French, etc. The average accuracy of language classification in the test set of size 10,000 was 99.6%, and for English, it was 100

To prepare the text for language detection, I removed hashtags, as they can be in English to attract views even if the video content is not primarily in English. For videos with a valid video description after removing all hashtags, the description was used as the corpus for language detection. For videos without a valid description, the title was used after removing hashtags. Using the description was prioritized because it typically provides a longer text and richer information for language detection.

For each video, only the top inference result by the language detection model was kept as the presumed video language. 67.33% of the entire sample is classified as in the English language, 793 of which are fitspiration videos and 417 are body positivity videos, as shown in Table 2. The other top 3 languages present in the sample are Spanish, Italian, and Hindi.

Query Keyword	Number (%) of English Videos	Number (%) of Comments of English Videos
fitspo, fitspiration	793 (75.89)	7997 (61.12)
bodypositive, bodypositivity	417 (55.45)	13776 (59.49)

Table 2: Summary of English-language results

3.2.4   Cluster Evaluation of Content Tags

As an additional approach to answer RQ2 about the topic comparison of YouTube videos, user-added content tags in English-language videos were analyzed using cluster analysis. While hashtags are sometimes used for attracting viewers, user-defined content tags are added by content creators to help viewers find ("YouTube Help", n.d.). Therefore, content creators would ideally add accurate content tags to attract the desired audience. Also, unlike hashtags, because content tags are not clickable and do not lead to content with the same hashtag, there is less incentive to add irrelevant but viral tags. These traits make content tags a valuable data source for studying video content. Examples of content

tags include "fitness," "fitspo," "motivation" (most common for fitspiration), and "body positivity," "body positive," "plus size (most common for body positivity)."

The clusters per topic of content embeddings were evaluated on English-language videos to assess how semantically different the content tags are between English-language fitspiration and body positivity content.

The embeddings, which represent the semantic meanings of the tags in a 384-dimensional space, were obtained using the "all-MiniLM-L6-v2" model hosted on Hugging Face ("sentence-transformers/all-MiniLM-L6-v2 · Hugging Face", 2024). This model, based on a distilled model MiniLM (Wang et al., 2020), was fine-tuned on a dataset of 1 billion sentence pairs. The embeddings were clustered per topic to determine the similarity or difference between the content tags of the two trends.

For evaluating the semantic coherence within each cluster and the difference between clusters, well-established metrics of cluster analysis, including intra-group distance, inter-group distance, and silhouette score, were used (Shahapure & Nicholas, 2020; Vendramin et al., 2009). Intra-group distance measures the average distance between all data points and the centroid of the cluster, indicating the compactness or cohesion of clusters. Inter-group distance calculates the Euclidean distance between the two cluster centroids. Intra-group distance and inter-group distance were compared to evaluate the distinctiveness of the two groups. The larger the inter-group distance is compared to the intra-group distance, the more seperated the two clusters are.

Silhouette score was calculated as an additional widely-used metric, where values near 0 indicate overlapping clusters, with higher values indicating better cluster separation. The average silhouette score was calculated to indicate the separation between the two clusters. Additionally, the tags were ranked in terms of silhouette score per topic to determine which tags have the most power in semantically distinguishing between the two topics.

- a: The mean distance between a sample and all other points in the same class.

- b: The mean distance between a sample and all other points in the next nearest cluster.

The Silhouette Coefficient s for a single sample is then given as:

$$s = \frac{b - a}{\max(a, b)}$$

Inter-group distance, intra-group distance, and silhouette score are robust measures designed to evaluate the separation and cohesion of clusters, regardless of the semantic space's size. While within a limited semantic space, the metrics allow us to assess the

clustering performance in terms of both cohesion within clusters and separation between them.

3.2.5 Comment Analysis

The comment analysis focused on the sentiment and themes of the comments to address RQ3 and RQ4. Pre-trained LLMs hosted on Hugging Face, which were trained on the corresponding downstream tasks and exhibit good performance, were deployed for the analysis. Similar to cluster analysis of tags, comment analysis only considered comments under English-language videos. As a result, 13776 comments were analyzed for body positivity videos, and 7997 comments for fispiration videos, as shown in Table 2.

3.2.5.1 Sentiment Analysis

To address RQ4 regarding sentiment comparison, the Twitter-roBERTa-base model for Sentiment Analysis hosted on Huggingface was utilized ("cardiffnlp/twitter-roberta-base-sentiment-latest · Hugging Face", 2024). This model is a RoBERTa-base model trained on approximately 124 million tweets and fine-tuned for sentiment analysis on English texts. Evaluation of the model has shown it outperforms other models in sentiment analysis tasks with a 73.7 F1 score (Loureiro et al., 2022). The model can only process sequences with a maximum length of 512 tokens. Therefore, if a comment exceeds this limit, it is truncated at the 512th token, and only the truncated text is fed into the model for sentiment analysis.

The model returns scores for each sentiment label (positive, neutral, and negative), with the sentiment label having the highest score being assigned to each comment corpus. These sentiment labels are then converted to numeric values, with positive sentiment assigned a value of 1, negative sentiment assigned -1, and neutral sentiment assigned 0. For significance testing, a Mann-Whitney U test was conducted between two groups of sentiment numeric labels.

3.2.5.2 Thematic Analysis

To address RQ3 regarding the comparison of themes in comments, zero-shot classification of themes was conducted after classes were concluded from preliminary qualitative analysis.

The thematic analysis consisted of three steps. The first step involved developing themes for classification through qualitative analysis of example texts. The second step focused on evaluating the accuracy of the model's classification. The final step involved deploying the model on the entire comment sample.

The topic analysis utilized the bart-large-mnli model hosted on Huggingface ("facebook/bart-large-mnli · Hugging Face", 2024). This model is based on the large pre-trained model BART (Lewis et al., 2019) and fine-tuned on the Multi-Genre Natural Language Inference (MultiNLI) dataset composed of 433k sentence pairs annotated with textual entailment in-

formation ("nyu-mll/multi_nli · Datasets at Hugging Face", 2024). The model is designed for zero-shot sequence classification, taking a list of predefined candidate labels and text sequences and classifying the text into candidate labels. Note that the model is ready for deployment without any training, as it is already pre-trained on huge amounts of text data.

For qualitative analysis, 30 comments per topic were randomly sampled from the entire comment sample of English-language videos to develop comment classes for the classification of both body positivity and fitspiration comments. A uniform list of topics allowed for direct comparison. The development of candidate themes was guided by literature and hypothesis, as well as preliminary qualitative analysis.

As hypothesized, body positivity constructs were expected to be prevalent in body positivity comments, based on past bopo analyses (Cohen, Irwin, et al., 2019; Lang et al., 2023; Lazuka et al., 2020). Cohen, Irwin, et al. (2019) found among the six body positive themes, the most common ones were a broad conceptualization of beauty, depicted by two-thirds of these posts, and body acceptance/love. Both themes were also identified as common in other body positivity content analyses by Lazuka et al. (2020) and Lang et al. (2023). Other positive body image themes that were not present in my qualitative analysis were therefore not included in the list of themes used for classification.

Furthermore, based on the identification of exercise-related details in fitspiration discourses by researchers such as Bell et al. (2024) and Ratwatte and Mattacola (2021), it was hypothesized that physical exercise would be a prominent theme. Therefore, Body Functionality or Physical Performance was included after preliminary analysis.

Another hypothesis included the prevalence of appearance-focused messages in both fitspiration and body positivity content (Harriger et al., 2023; Lang et al., 2023; Simon & Hurst, 2021). (Tang et al., 2022), in their qualitative content analysis on quarantine weight loss YouTube videos, identified rich graphic comparisons that could encourage discussions. Three related themes found in qualitative analysis were Physical Appearance or Body Shape/Parts, Weight Loss/Body Transformation, and Dieting/Calorie Count.

It was also hypothesized that a sense of community would be evident in the comments, based on the findings of Ratwatte and Mattacola (2021) who observed frequent appreciation towards YouTubers. This concept was also prominent in the preliminary analysis. Therefore, Gratitude or Appreciation for Content was included as a theme.

Moreover, considering that over a third of all posts were rated as promoting a commercial product or self-promotion by Cohen, Irwin, et al. (2019), Advertisement or Commercialism was included in the themes. Additionally, as 43.1% of body positivity Instagram posts are labeled as motivational according to Lazuka et al. (2020), the highest among the five categories of overall themes, and prominent inspirational content was found in fitspiration Instagram content by Deighton-Smith and Bell (2018), Motivational Quotes was included.

Lastly, a novel theme that emerged after preliminary analysis was Personal Life Stories.

Ten overarching themes were identified as a result. An overview of the ten themes can be found in the Table 3 with definitions provided. Examples for each theme were sourced from this batch of sample for developing the themes.

After the themes were developed, a set of 20 comments per topic were randomly sampled from entire sample for evaluation of model accuracy. Each comment was manually labeled and assigned one most prominent theme out of the 10 themes. Then, the bart-large-mnli model was applied to classify the comment texts and a score was given to candidate label per comment. The manual labels were then compared against the model's classification results. The percentage of the correct prominent label having the highest score was 77.78%. Also, given a threshold score of 0.15, 90.44% of sample were correctly classified.

Following a satisfactory evaluation result, the entire sample of comment texts was inputted into the model. Like the trial run, the multi-label parameter was set to "False" to identify the most relevant theme. Note that each theme still received a score indicating its prominence in the text. Each comment was assigned a prominent theme and present theme(s). The prominent theme was determined by selecting the theme with the highest score out of all 10 themes. Each comment received one prominent theme. The scores were then converted to binary values representing the presence of each theme in the text using a threshold of 0.15. It is important to note that each comment did not necessarily have only one theme present; multiple or no themes could be identified within a single comment based on the threshold.

4 Results

4.1 Descriptive statistics of videos

4.1.1 Volume Analysis

To address RQ1 regarding video popularity, the volume of videos published each year for each trend was analyzed, as shown in Figure 2. While the precise total number of videos posted on YouTube with the keywords cannot be determined, the volume of returned results serves as an approximate measure of the total volume. In the sampling process, a maximum of 50 videos per half-year window was requested for each topic. If fewer than 50 videos satisfy the keyword and other constraints, all results are returned, making the sample volume an accurate representation of the relevant videos on YouTube. It is evident that the number of body positivity videos published on YouTube increased steadily from 2013 to 2019, surpassing fitspiration in volume by 2023.

| Theme	Definition	Example Comment
Gratitude or Appreciation for Content	Comments expressing thankfulness or admiration towards the video creator or the content itself.	lovely video x
Physical Appearance or Body Shape/Parts	Comments discussing or evaluating the appearance, shape, or specific body parts depicted in the video or of their own.	Is your summer body is ready...
Weight Loss/Body Transformation	Comments related to weight loss journeys, transformations, or discussions about changing physical appearance.	I'd rather work towards getting back to my fit self, than just leaving it to be - that never worked for me before.
Dieting/Calorie Count	Comments focusing on dietary habits, calorie counting, or discussions about nutrition and food intake.	Sure I can eat healthy for 5 days but idk how to keep choosing the healthier option
Body Functionality or Physical Performance	Comments discussing physical abilities, performance, or functionality of the body in relation to exercise or movement.	Pretty impressive being able to move that much weight man...
Encouragement of Body Acceptance	Comments promoting self-love, body acceptance, or positivity towards one's own body image.	She is happy with her weight and has high self-esteem...
Conceptualize Beauty Broadly	Comments reflecting on diverse or inclusive definitions of beauty beyond traditional standards.	I'd prefer shaving/waxing but choosing to embrace your body hairs are awesome
Personal Life Stories	Comments sharing personal anecdotes, experiences, or narratives related to the video content.	I have DARK arm and leg hair and my friend said I'm too hairy
Advertisement or Commercialism	Comments containing promotions, advertisements, or endorsements for products or services.	I saw this ad!! The dresses are SO CUTE
Motivational Quotes	Comments featuring motivational or inspirational quotes intended to uplift or encourage others.	For the ones saying "life is too short to exercise", tell them "exercise to make it longer"

Table 3: Candidate themes and definitions
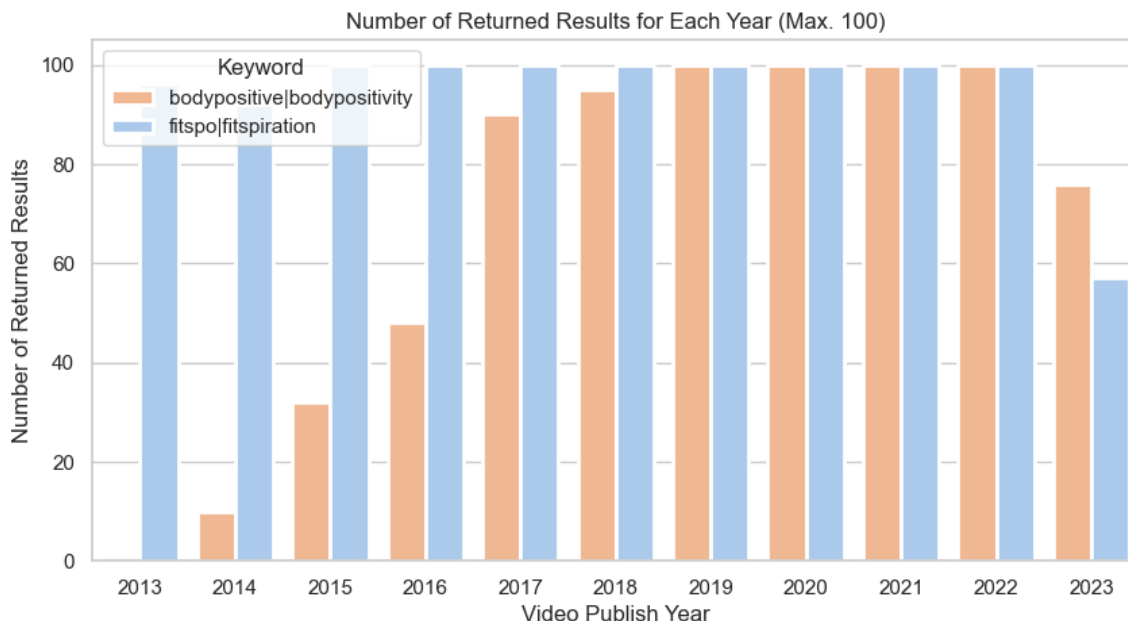
Figure 2: Number of results returned for each year

4.1.2 Video Performance

Another aspect considered to answer RQ1 regarding video popularity was the average number of views and comments received by videos published each year per topic, shown in Table 4. Body positivity videos have a greater view count, comment count, and like count on average than fitspiration ones.

Query Keyword	Avg. View Count (10^5)	Avg. Like Count (10^3)	Avg. Comment Count	Avg. Duration (s)
fitspo, fitspiration	1.81	3.28	77.81	303.11
bodypositive, bodypositivity	10.31	35.40	907.38	389.03

Table 4: Average video performance and duration

There is a noticeable upward trend for body positivity, starting with significantly fewer average views and comments per video in 2013 compared to fitspiration, as shown in Figure 3 and Figure 4. Notably, from 2013 to 2014, there was a substantial increase in interest in body positivity. By 2015, body positivity videos began to surpass fitspiration in view count. In the recent three years (2021 to 2023), body positivity videos reached their highest average view count and comment count over the 11-year period. Conversely, fitspiration

videos exhibit a more stable trend in average view count with no noticable overall growth. According to the Mann-Whitney U test, body positivity videos have significantly more views and comments than fitspiration in the most recent two years of the sample coverage (p = 0.00).
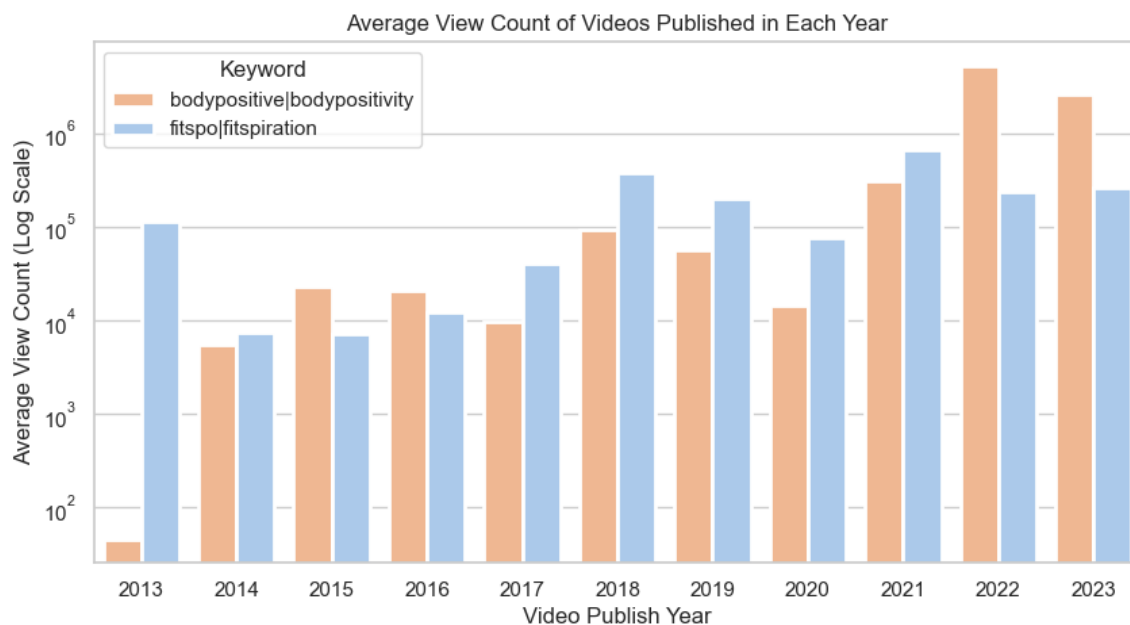

Figure 3: Average view count for videos published in each year

To illustrate how views and comments are distributed across videos, the year 2022 was selected as an example, as it is the most recent year with a full sample (100 videos) of both topics, as shown in Figure 2. For both view and comment count, the first quartile of body positivity videos is comparable to the third quartile of fitspiration videos, as in Figure 5 and Figure 6. Additionally, body positivity videos exhibit greater variance in views and comments compared to fitspiration videos, indicating a wider range of popularity among body positivity videos.

4.1.3 Video Duration

On average, body positivity videos are approximately 86 seconds longer than fitspiration videos, as shown in Table 4.

Examining the temporal change, the average video duration across years per topic is depicted in the Figure 7. From 2014 to 2020, body positivity videos consistently had longer durations than fitspiration videos, but this trend reversed after 2020. Interestingly, in 2020, the average duration of body positivity videos was almost twice as long as fitspiration
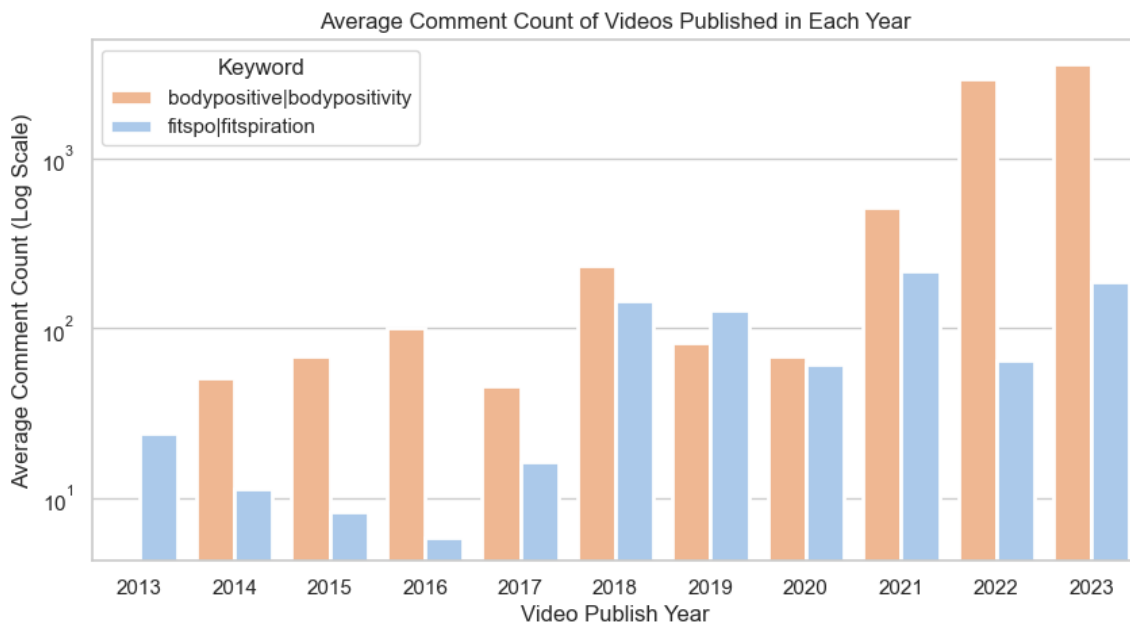
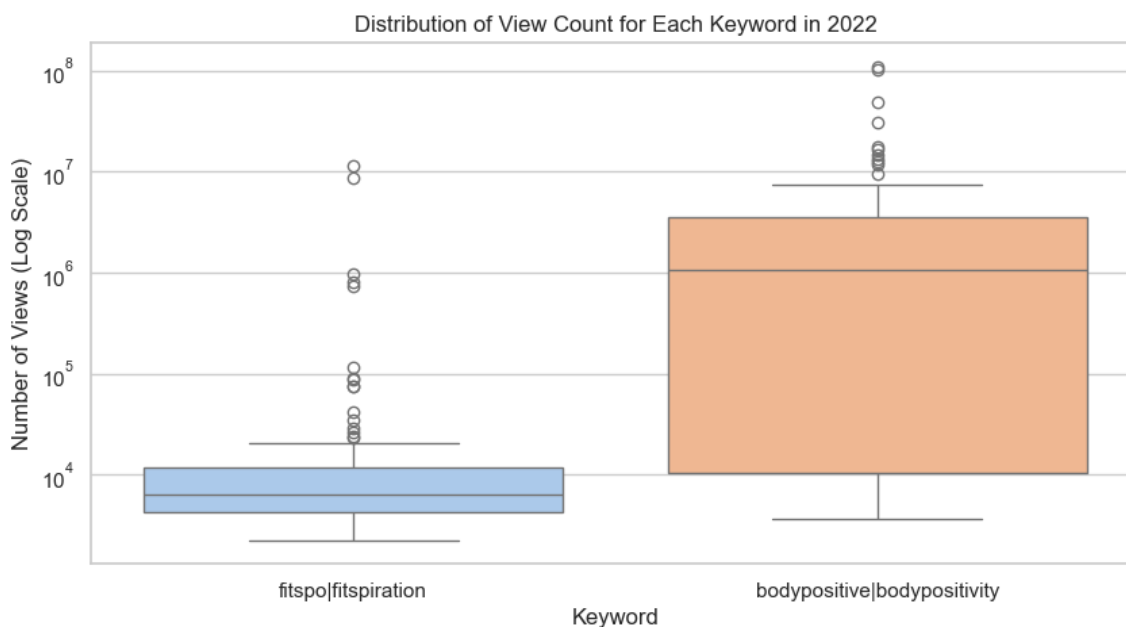Figure 4: Average comment count for videos published in each year

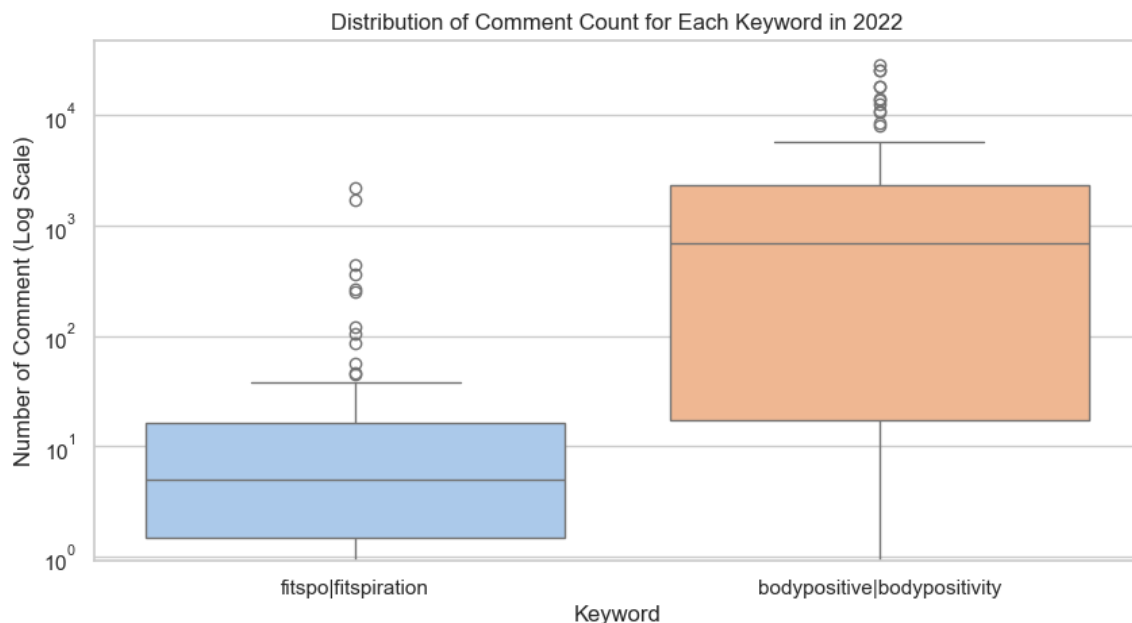Figure 5: View count distribution for videos published in 2022

Figure 6: Comment count distribution for videos published in 2022

videos. The box plot (Figure 8) of video duration distribution in 2020 also reveals that this difference is not solely driven by outliers, as the lower quartile of body positivity video duration is close to the average length of fitspiration videos. Since 2021, the duration of body positivity videos has remained under 4 minutes, marking a dramatic decrease from 2020.

4.1.4 Video Category

To address RQ2 regarding the topic comparison of videos from the two trends, the video category, extracted from metadata queried from the YouTube API, was analyzed. Content creators strategically select video categories to attract interested viewers (Reddy, 2023). Out of the 15 video categories present in the entire sample, the top 8 categories include People & Blogs, Sports, Entertainment, Howto & Style, Music, Film & Animation, Education, and News & Politics. A report detailing the video count in each category is available in Table 5, along with the percentage of each category within the respective trend sample.

The percentage of each category in the entire sample per topic is depicted in the Figure 9. People & Blogs emerges as the most prominent video category for both topics. However, the most notable contrast is observed in the Sports category, which constitutes over 23% of fitspiration videos but less than 2% of body positivity videos. Conversely, a larger percentage of Howto & Style, Entertainment, and Music category videos are present in
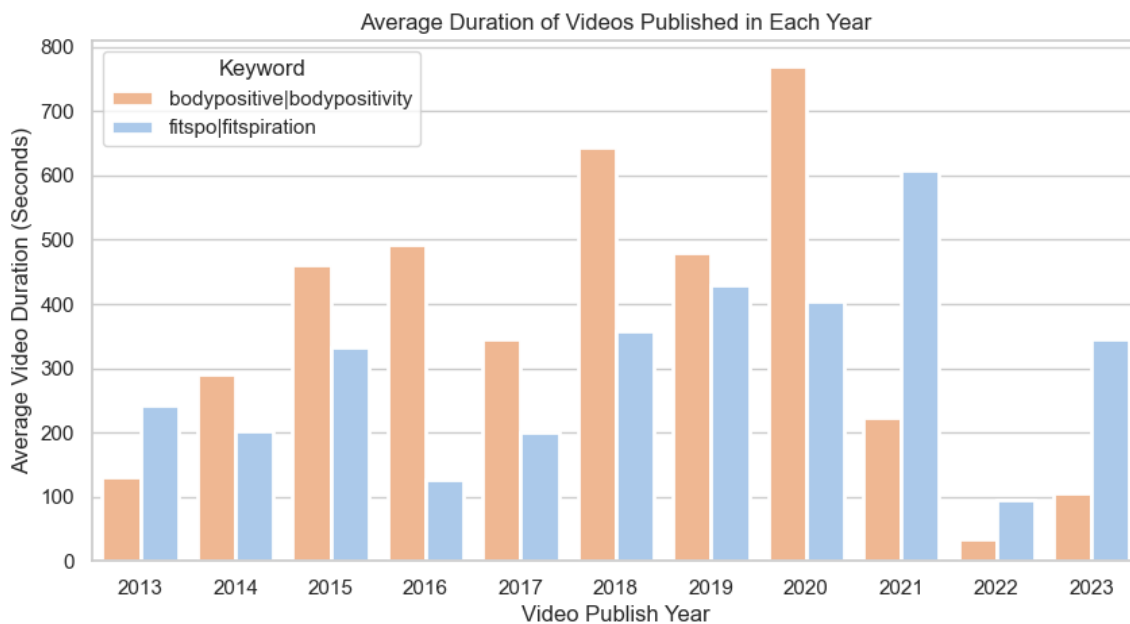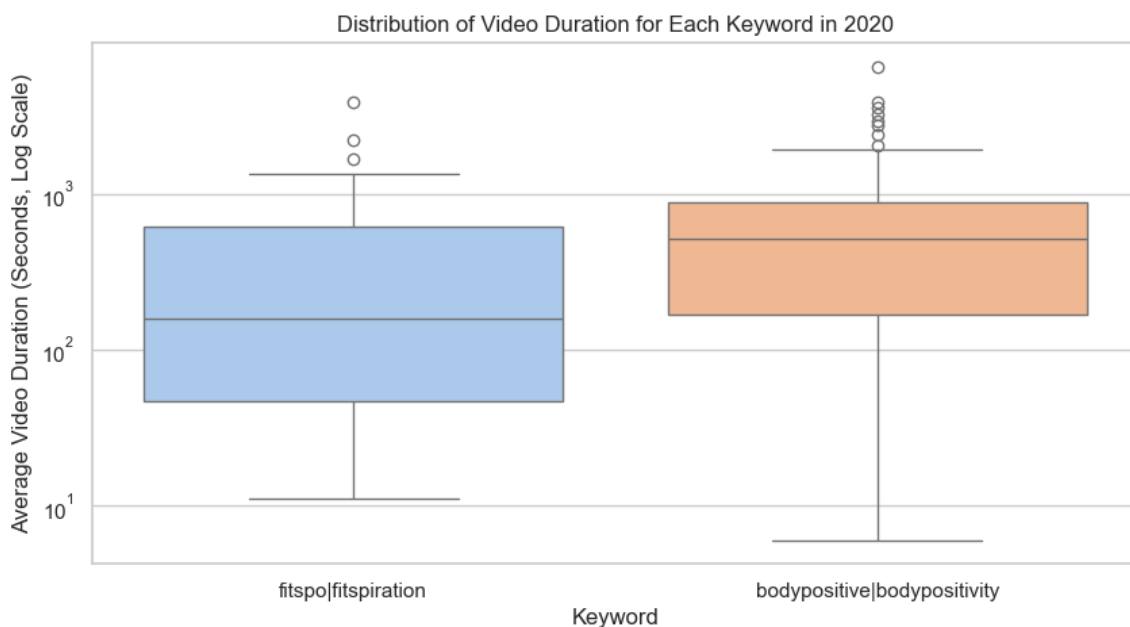
Figure 7: Average video duration for each year

Figure 8: Video duration distribution for videos published in 2020

Category (ranked by total frequency)	Number (%) of Fitspiration Videos	Number (%) of Body Positivity Videos
People & Blogs	488 (46.70)	410 (54.52)
Sports	250 (23.92)	15 (1.99)
Entertainment	105 (10.25)	99 (13.16)
Howto & Style	82 (7.85)	110 (14.73)
Music	23 (2.20)	33 (4.39)
Film & Animation	23 (2.20)	18 (2.39)
Education	19 (1.82)	15 (1.99)
News & Politics	27 (2.58)	7 (0.93)

Table 5: Summary of the top 8 video categories

body positivity videos compared to fitspiration videos, ranking 2nd, 3rd, and 4th place for body positivity videos, respectively.
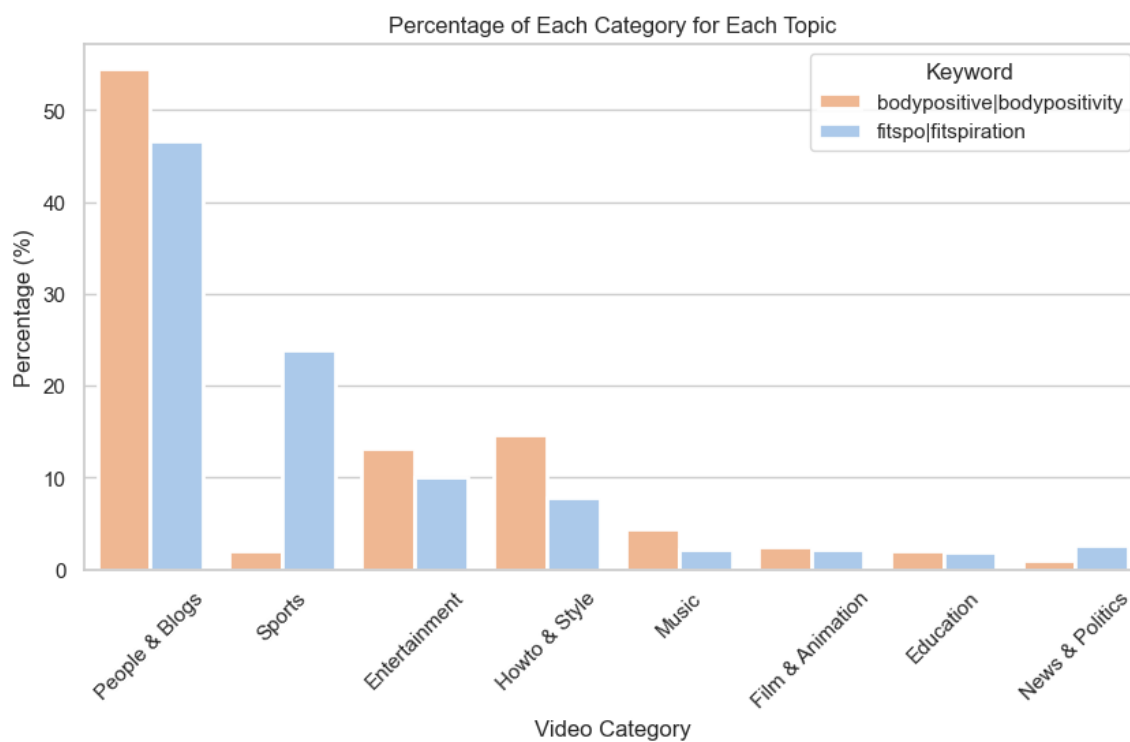

Figure 9: Distribution of video categories

4.2   Hashtag Frequency

In further addressing RQ2 regarding the topics of videos in both trends, hashtags were extracted from the titles and descriptions of the sampled YouTube videos. A total of 63.16% of the videos contained hashtags in either their title or description.

The Figure 10 illustrates the 10 most frequently used hashtags for fitspiration and body positivity videos, respectively. Notably, there were no shared hashtags that were frequently used by both topics. Positive body image-related hashtags were only in body positivity videos, and exercise-related hashtags were only in fitspiration ones.
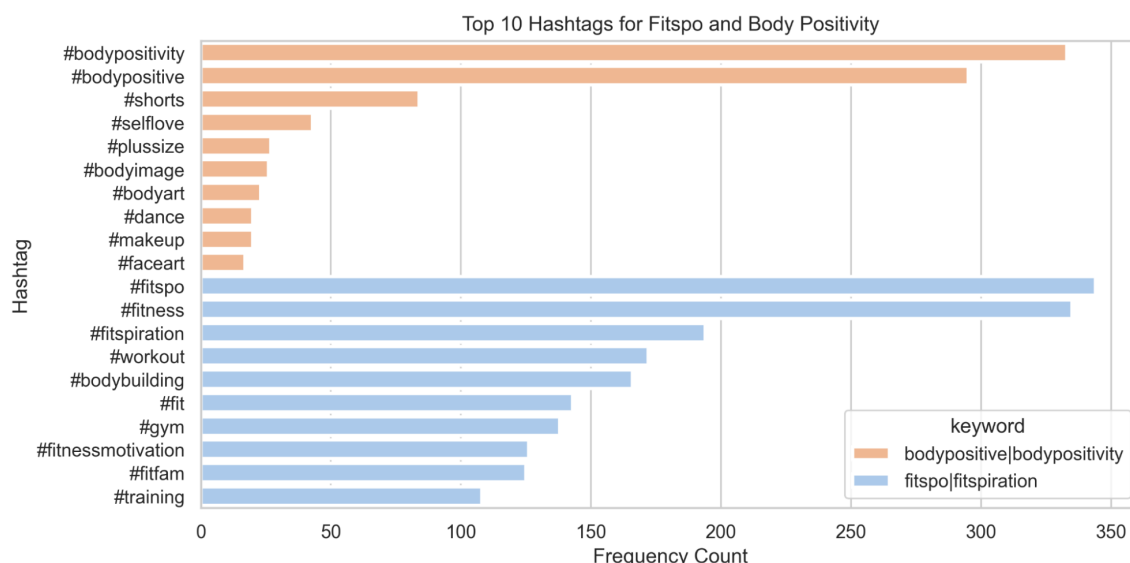

Figure 10: Top 10 hashtags for both trends

For body positivity content, the top two hashtags were the keywords used in sampling. "#shorts" was predominantly used in YouTube Shorts, which are videos up to 60 seconds in length. Particularly noteworthy was the presence of the positive body image hashtag "#selflove", ranking as the fourth most used hashtag, exclusively within body positivity content. The hashtag "#bodyimage" also suggested that body positivity content often directly addressed body image issues. Additionally, "#plussize," representing body shapes perceived as overweight subjectively, ranked as the fifth most used hashtag in body positivity videos, reflecting a focus on diverse body shapes and sizes. Other hashtags like "#makeup" and "#faceup" also highlighted an emphasis on physical appearance.

In fitspiration content, the 10 most frequently used hashtags predominantly revolved around fitness-related themes, including "#fitness", "#workout", "#fit", "#training", among others. The presence of "#bodybuilding" as the fifth most frequently used hashtag under-

scored a focus on physical fitness in fitspiration videos.

4.3   Cluster Evaluation of Content Tags

Cluster Analysis was conducted to further address RQ2 regarding the comparison of video content in the two trends.

Among the entire sample, 61.94% of the videos had content tags attached to them, with a slightly lower percentage (60.83%) observed for English-language videos. For body positive English-language videos, there were 1648 unique tags, while fitspiration videos had 4298 unique tags.

To assess the semantic cohesion of tags within each topic, the intra-group distance was computed. For fitspiration tags, the intra-group distance was 0.9120, while for body positivity, it was 0.9143. Although fitspiration tags exhibited slightly tighter clustering, both intra-group distances were significantly larger than the inter-group distance (0.1370), indicating poor separation between the two clusters. This suggests that the tags used for body positive and fitspiration content have more semantic similarity than difference.

The average silhouette score, close to 0 (0.0066), further confirmed the overlapping clustering of the two topics, indicating that user-defined tags for fitspiration and body positive videos are not semantically distinct from each other. The visualization in the Figure 11 illustrates the two clusters in two dimensions, achieved using t-SNE (t-distributed Stochastic Neighbor Embedding) to reduce dimensionality while preserving data relationships in a lower-dimensional space (Van der Maaten & Hinton, 2008).

The Table 6 displays the tags with the highest silhouette scores in each topic. Tags with higher silhouette scores have greater distinguishing power for their respective topics. Notably, "workout" and "gym" emerged as the most distinguishing words for fitspiration content compared to body positivity content. Conversely, "body positivity," "self-love," "self-esteem," and "self-image" were among the most typical phrases for body positivity content.

4.4   Comment Analysis

An analysis of comments was conducted to address RQ3 and RQ4, focusing on the comparison of sentiment and themes.

The distribution of comments per video per topic in the analyzed sample was first examined, as shown in Figure 12. Notably, for both topics, the number of comments per video was polarized, with most videos receiving either less than 20 or more than 80 comments. This polarization in engagement can be attributed to recommender systems biasing towards already popular videos, as discussed by Zhou. Body positivity samples

Topic	Content Tag	Silhouette Score
Fitspiration	fitness workout	0.05176
	fitness female workout	0.04960
	fitness girl workout	0.04885
	female fitness workout	0.04830
	fitness girls workout	0.04821
	gym workout	0.04762
	gym girl workout	0.04572
	workout gym	0.04553
	female fitness gym	0.04505
	gym workouts	0.04453
Body Positivity	body positivity and self love	0.03170
	body positivity	0.03083
	body positivity & self love	0.03082
	body positivity and self care	0.02974
	body negativity	0.02959
	body image and self esteem	0.02929
	body positivity cringe	0.02909
	self esteem	0.02908
	low self esteem	0.02857
	poor self image	0.02817

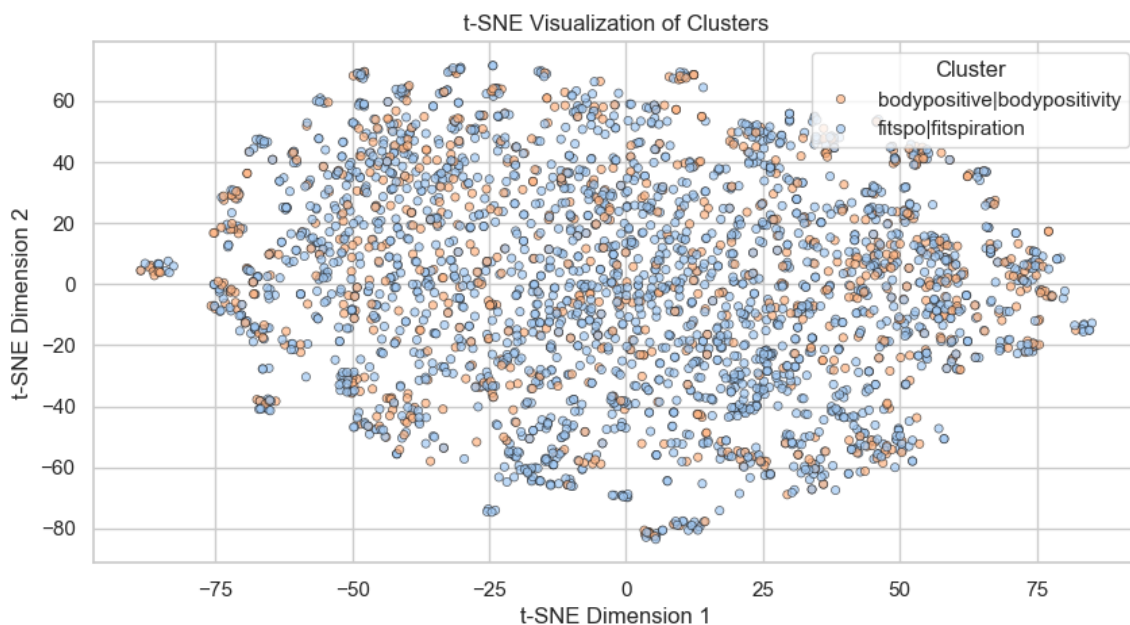Table 6: Content tags and their Silhouette Score

Figure 11: t-SNE visualization of clusters of content tags

tended to have more videos with 80-100 comments collected, while fitspiration ones had more in the 0-20 range.
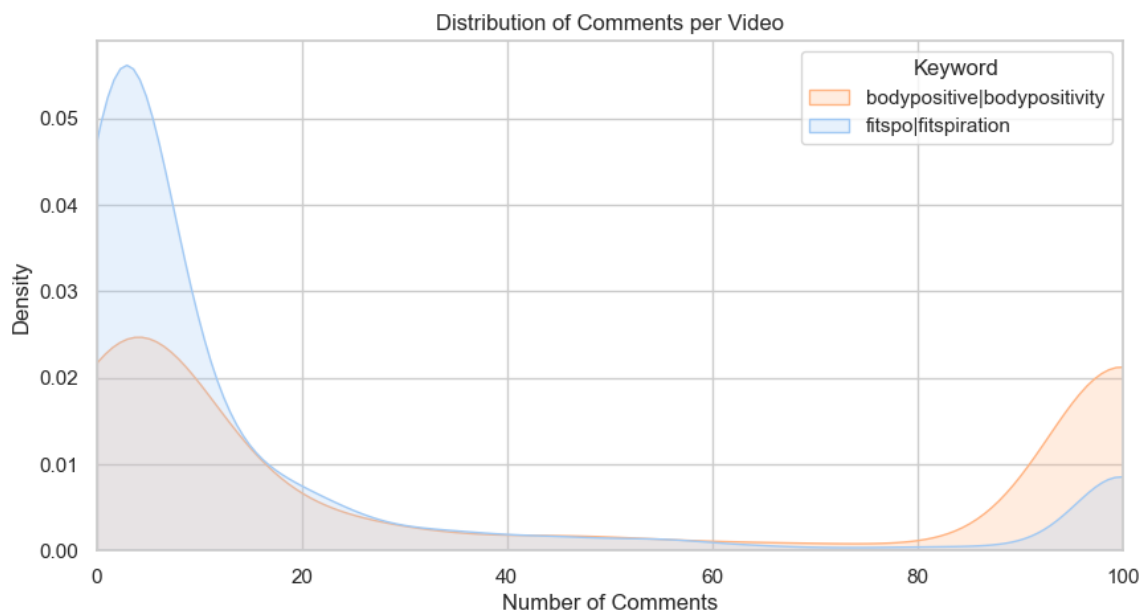

Figure 12: Distribution of comment count across videos

4.4.1 Sentiment Analysis

To answer RQ4 about the sentiment of comments, sentiment analysis was conducted for each comment. A comparison of the sentiment distribution for each topic revealed that the majority of comments under both fitspiration and body positivity videos exhibited positive sentiments Figure 13. However, body positivity videos had a higher proportion of negative comments (almost 25%) compared to fitspiration videos (10%), while fitspiration comments had more comments categorized as neutral sentiment than negative. Table 7 displays detailed results. Significance testing via the Mann-Whitney U test did not yield significant results (p=2.66).
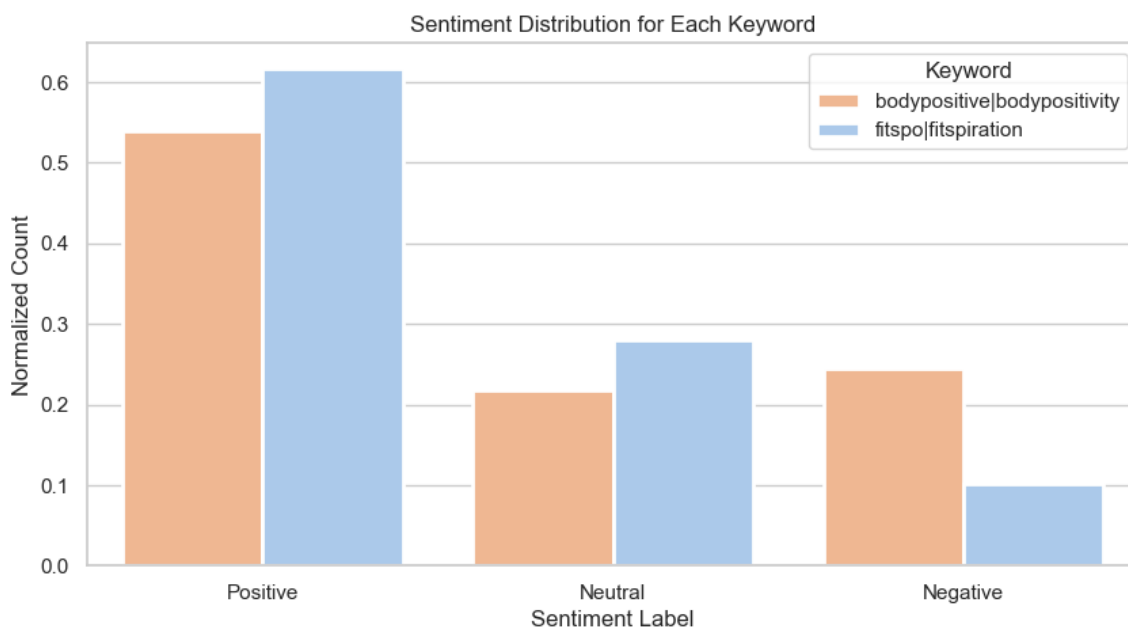
Figure 13: Number of videos of each sentiment label

Topic	Sentiment Label	% Videos
Fitspiration	Positive	0.68
	Neutral	0.28
	Negative	0.10
Bodypositivity	Positive	0.54
	Neutral	0.22
	Negative	0.24

Table 7: Percentage of videos of each sentiment

4.4.2 Thematic Analysis

To address RQ3 about the themes of comments for each trend, a zero-shot classification model was deployed for the comment sample. Two aspects of themes were analyzed: prominent themes (one per comment) and themes present in the comments. For prominent themes, a cross-examination of sentiment of comments in each theme was also conducted.

4.4.2.1 Prominent Theme

In the analysis of prominent themes, each comment was assigned a prominent theme, defined as the theme with the highest score out of all 10 possible themes. The distribution of themes is reported in Figure 14.

The majority of comments across both topics were found to have the prominent theme of Gratitude or Appreciation for Content, followed by Physical Appearance or Body Shape/Parts. Interestingly, body positivity content exhibited a slightly greater proportion of themes related to physical appearance compared to fitspiration comments, with percentages of 37.84% and 33.16%, respectively.

Body Functionality or Physical Performance emerged as the third most common prominent theme in fitspiration comments, but was only marginal in body positivity comments. Encouragement of Body Acceptance and Conceptualize Beauty Broadly were more prominent in body positivity comments than in fitspiration comments, together accounting for more than 8% of the comments for body positivity and less than 2.5% for fitspiration. Owing to their absence in the preliminary analysis, other facets of the Body Positivity construct were deemed marginal within the sample of YouTube comments, thus not included in the classification.

For each prominent theme in each topic, the percentage of positive, neutral, and negative sentiments was also calculated. Table 8 shows the percentage of positive and negative sentiments in each theme per topic. Gratitude or Appreciation for Content, Encouragement of Body Acceptance, and Motivational Quotes were the three themes that were most frequently associated with positive sentiment for both topics. Gratitude or Appreciation for Content was barely found with negative sentiment for both topics. The vast majority of Body Functionality or Physical Performance were non-negative for both topics as well.

For both topics, less than half of Physical Appearance or Body Shape/Parts comments were positive in sentiment. In comparison, body positivity comments with such themes had about half as much chance of being negative (35.01%) than fitspiration comments (18.44%). Since in general more than half of the comments were positive (see Figure 4), it indicated Physical Appearance-focused comments were less positive and more negative than average.

Comments themed with Personal Life Stories had the largest proportion of negative sentiment, followed by Conceptualize Beauty Broadly for both topics, though the proportion of themes being negative was greater for body positivity comments. 50.00% of the body
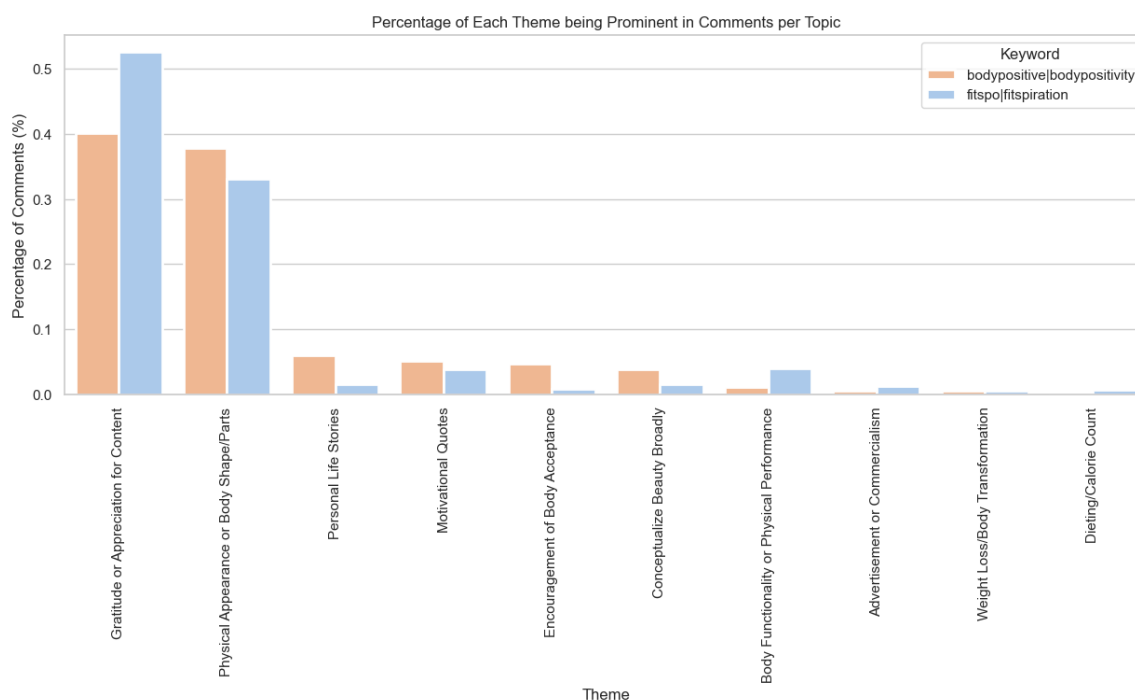
Figure 14: Frequency of each theme being the most prominent

positivity comments themed with Conceptualize Beauty Broadly were negative in sentiment.

Prominent Theme	% of Positive Sentiment		% of Negative Sentiment	
	Fitspiration Comments	Body Positivity Comments	Fitspiration Comments	Body Positivity Comments
Gratitude or Appreciation for Content	78.41	77.41	3.28	8.51
Physical Appearance or Body Shape/Parts	41.33	36.58	18.44	35.01
Motivational Quotes	64.80	52.55	9.87	25.50
Personal Life Stories	31.78	17.51	34.88	53.96
Encouragement of Body Acceptance	78.13	71.43	0.00	11.83
Conceptualize Beauty Broadly	31.09	28.52	31.93	50.00
Body Functionality or Physical Performance	41.14	46.41	12.03	19.61
Advertisement or Commercialism	43.69	18.67	19.42	48.00
Weight Loss/Body Transformation	60.00	35.82	13.33	23.88
Dieting/Calorie Count	28.33	15.38	15.00	46.15

Table 8: Percentage of positive and negative sentiment in each theme

4.4.2.2 Present Themes

Analyzing only the most prominent comment was insufficient because first, Gratitude or Appreciation for Content and Physical Appearance or Body Shape/Parts overshadowed other themes in most comments in terms of prominence; additionally, one comment could

have multiple themes present. Therefore, a threshold of 0.15 was used for determining if a theme was present in a given comment text. The majority of the comments were assigned two themes (45.44%) and one theme (42.93%). Only less than 0.5% of the comments were assigned no theme under this threshold.

Figure 15 shows the distribution of themes present in fitspiration and body positivity comments. Gratitude or Appreciation for Content and Physical Appearance or Body Shape/Parts were still the most frequent themes for both body positivity and fitspiration comments. Interestingly, the overwhelming majority of body positivity comments had these two themes, while it was much less frequent in fitspiration comments. Motivational Quotes was the third most frequent theme for both topics. Personal Life Stories was a frequent theme only in body positivity comments but not in fitspiration comments.
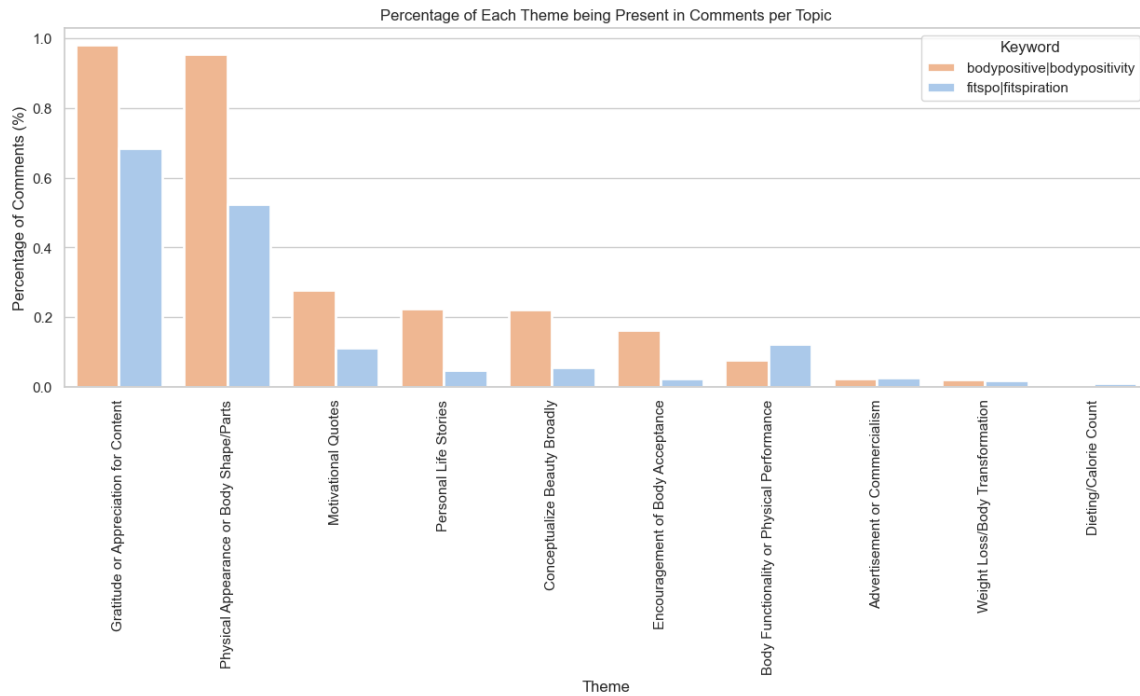

Figure 15: Frequency of each theme being present

22.23% of body positivity comments had Conceptualize Beauty Broadly as a theme, 16.37% had the theme Encouragement of Body Acceptance present. The percentage of fitspiration comments with these two themes was much lower, with only 5.465% having Conceptualize Beauty Broadly and 2.338% having the theme Encouragement of Body Acceptance present. Body Functionality or Physical Performance was the only theme that made up a higher percentage in fitspiration comments (12.20%) than in body positivity comments (7.703%).

Motivational Quotes were found more than twice as much in body positivity comments than in fitspiration comments (27.84% vs. 11.27%). Personal Life Stories were only frequently found in body positivity comments but not in fitspiration comments—more than 22.35% in body positivity but less than 5% in fitspiration. Advertisement was marginal in both body positivity and fitspiration comments (under 3%). Weight Loss/Body Transformation and Dieting/Calorie Count were barely present in both types of comments.

5   Discussion

Fitspiration has been revealed as a social media trend that predominantly focuses on physical appearance, positioning actions as means to achieve culturally-based appearance ideals (Bell et al., 2024; Deighton-Smith & Bell, 2018; Ratwatte & Mattacola, 2021), while the "body positive movement" emerged as a space to promote positive body image in response to toxic body image trends including Fitspiration. Exposure to body positivity and fitspiration texts on social media leads to opposite psychological results (Davies et al., 2020).

However, researchers have been questioning the essence of the body positivity trend on social media. The focus on physical appearance—similar to fitspiration—and the lack of messages that align with positive body image has been a cause for concern (Harriger et al., 2023).

While there is no lack of content analyses on both trends and comparisons between them by the authors (Cohen, Irwin, et al., 2019; Harriger et al., 2023; Lang et al., 2023; Lazuka et al., 2020), there has been no direct comparison between fitspiration and body positivity social media content with observational samples controlled for data source, data collection procedures, and thematic coding schemes.

The aim of this study was to directly compare the trends of fitspiration and body positivity on YouTube using contextual information and comments. The key question to answer is how these two trends differ from each other, and how they are similar to each other. This is particularly meaningful in light of the debate over whether body positivity is actually a positive social media movement. It is also interesting to know whether fitspiration has been influenced by the body positivity trend to become more body-positive.

5.1   Comparison of Popularity in Body Positivity and Fitspiration on YouTube

Body positivity started as a minor trend on YouTube in 2013 but ended up being more popular than fitspiration, while fitspiration had a much larger following in 2013 but did not grow as much as the body positivity trend. This is somewhat surprising given that

both trends began to gain academic attention about a decade ago, Sastre (2014) for body positivity and Tiggemann and Zaccardo (2015) for fitspiration.

The growth of body positivity as a trend on YouTube from 2013 to 2023 indicates that body positivity as a concept has been widely spread on social media during this period. Evidence could be found in the sample volume and video performance metrics. The volume of videos associated with body positivity appears to have surpassed fitspiration since 2022. In addition, the reception of body positivity YouTube videos also seems to outperform fitspiration ones. Since 2020, the average user interactions of body positivity videos, in terms of view count and comment count, have surpassed fitspiration ones significantly. Further temporal studies on other social media platforms are much needed to confirm the findings.

The popularity growth of body positivity might be associated with the increase in shorter-form videos. From 2020 to 2021, body positivity videos saw the largest growth in terms of view count and comment count, as well as the most drastic drop in video duration. Consistent with the hypothesis, the drop in video duration for body positivity was concurrent with the introduction of YouTube Shorts, videos lasting less than 60 seconds ("Short-form video experience", n.d.). However, surprisingly, fitspiration videos were longer in 2021 compared to 2020. From 2021 to 2023, fitspiration videos have consistently been longer than body positivity ones, possibly due to the fact that fitspiration videos contain more longer-form instructional content.

5.2   Positive Body Image versus Physical Exercise

The body positivity trend exhibits the most salient characteristic of positive body image constructs, while fitspiration emphasizes physical exercise prominently. It is evident from both video content and user comments that these are the distinguishing factors between body positivity and fitspiration trends. Evidence suggests that exposure to both the body positivity construct and messages emphasizing body functionality can be beneficial to body image. In this sense, the body positivity and fitspiration trends could offer viewers different benefits.

5.2.1   Video Content

In examining user-defined video categories and textual data such as video content tags and hashtags in titles and descriptions, a significant contrast emerged between body positivity and fitspiration YouTube content. The key disparity lay in the presence of body positivity constructs in body positivity content, juxtaposed with their absence in fitspiration content, and conversely, the presence of physical exercise themes in fitspiration content, absent in

body positivity content. This observation aligns with previous analyses of body positivity content (Cohen, Irwin, et al., 2019; Harriger et al., 2023; Lang et al., 2023; Lazuka et al., 2020), which consistently highlight these theoretical constructs. Also, the absence of exercising content in body positivity videos corroborates findings by Cohen, Irwin, et al. (2019). On the other hand, the identification of physical exercise themes in fitspiration content resonates with another study analyzing fitspiration video content and comments (Ratwatte & Mattacola, 2021), where body functionality emerged as a major theme in video transcripts and exercise-related discussions in comments.

From the cluster analysis of content tags, the most distinguishable themes between the two trends are body positivity constructs and physical exercise. While these may not be the most prominent themes overall, they stand out as having the most semantic differences between body positivity and fitspiration content tags. Tags with the highest silhouette scores for body positivity videos predominantly feature phrases like "body positivity" or "self-esteem," while fitspiration content tags prominently include terms like "workout" or "gym."

Content tags are not the sole indicators of the disparity between body positivity and fitspiration trends. Other elements, including hashtags in video titles and descriptions, video categories, and thematic analysis of comments, also reinforce this distinction. Analyzing the top 10 hashtags used in video titles and descriptions, excluding sampling keywords, body positivity videos commonly feature hashtags like "#selflove" and "#plussize," which align with themes of body acceptance and appreciation (Tylka & Wood-Barcalow, 2015). In contrast, fitspiration videos frequently employ hashtags like "#workout" and "#gym," indicative of their focus on physical activities. Further evidence can be found in video categories, where fitspiration videos exhibit a significantly higher proportion of sports-related content compared to body positivity videos. This discrepancy underscores the emphasis on physical exercise within fitspiration content.

The prevalence of exercise-related content in fitspiration YouTube videos mirrors findings from a comparative study of fitspiration Instagram samples between 2021 and 2014 (Bell et al., 2024). This study revealed a notable increase in exercise-related content in 2021 Instagram posts compared to the 2014 sample, suggesting a shift towards greater relevance of exercise within fitspiration social media content.

In conclusion, the analysis of user-defined video categories, content tags, and hashtags reveals significant distinctions between body positivity and fitspiration content on YouTube. Body positivity content emphasizes constructs related to self-acceptance and body positivity, while fitspiration content focuses more on physical exercise themes. These differences are supported by previous research. Considering Bell et al. (2024)'s findings, the prevalence of exercise-related content in fitspiration videos might suggest a shift towards greater

emphasis on physical activity within fitspiration social media content over time.

5.2.2 Video Comments

In body positivity comments, the emphasis on Conceptualizing Beauty Broadly and Encouraging Body Acceptance outweighs that in fitspiration comments, where Body Functionality or Physical Performance takes precedence. This finding aligns with the findings of video content, highlighting a strong consistency between the content of video comments and the videos themselves.

Among body positivity comments, 22.23% encompass the theme of Conceptualizing Beauty Broadly, with 16.37% reflecting Encouragement of Body Acceptance. In contrast, Conceptualizing Beauty Broadly appears in only 5.5% of fitspiration comments, with Body Acceptance at a mere 2.3%. This highlights the limited prevalence of body positivity constructs in fitspiration content, a gap addressed by this study.

The prominence of these two themes aligns with Cohen, Irwin, et al. (2019)'s analysis of body positivity Instagram posts, which identified Conceptualizing Beauty Broadly and Encouragement of Body Acceptance as the most common themes among the six. However, Cohen, Irwin, et al. (2019)'s study observed a higher incidence of these themes, likely attributed to their sample being drawn from prominent Instagram body positive influencers. Conversely, the corpus analyzed in this study comprises comments under YouTube videos, potentially posted by individuals with varied focuses and follower counts. This discrepancy is corroborated by lower percentages of body positivity themes found in analyses of social media content not exclusively from body positivity influencers, such as Lazuka et al. (2020), who sampled from Instagram but not exclusively from body positivity influencers, and Harriger et al. (2023)'s analysis of TikTok videos.

It is noteworthy, however, that half of body positivity comments centered on Conceptualizing Beauty Broadly exhibit negative sentiment, prompting further exploration into the ramifications of negatively-toned body positivity posts. Current experiments in body positivity tend to favor explicitly or implicitly positive texts (e.g., Tiggemann et al., 2020). In view of the negative sentiment in messages that embody the body positivity construct, more experimental work is needed to reveal the effect of the negative sentiment versus neutral and positive sentiment.

Body Functionality or Physical Performance emerged as the predominant theme within fitspiration comments, appearing nearly twice as frequently as in body positivity comments. In fitspiration discourse, it ranked third in prominence, following Appreciation for Content and Physical Appearance, themes shared by both fitspiration and body positivity comments. This underscores the distinct focus of fitspiration content on physical exercise and body functionality. This emphasis is corroborated by a qualitative analysis of fitpiration

YouTube comments by Ratwatte and Mattacola (2021), which observed discussions on technical aspects of exercise routines, such as squatting. Survey research has also highlighted the perceived benefits of accessing fitspiration content in providing health-related information (Raggatt et al., 2018).

Evidence suggests that both body positivity themes and an emphasis on body functionality can yield beneficial outcomes for body image. Texts aligned with Body Positivity constructs have been associated with increased weight esteem compared to neutral or fitspirational texts (Davies et al., 2020). On the other hand, research indicates that directing attention towards the functional aspects of one's body rather than its appearance fosters positive body image (Alleva et al., 2016, 2018). Survey findings by Raggatt et al. (2018) also underscore the health-oriented motivations behind accessing fitspiration content, such as seeking inspiration for exercise, nutrition, and general wellbeing. However, Sokolova and Perez (2021) found that fitspiration content only motivates viewers who are already physically active, but not those who are not. It might be worthwhile to explore the relationship between posting body-functionality-related comments and physical activity levels, as well as individuals' body image.

5.3 Focus on Physical Appearance

Preoccupation with physical appearance, due to its harmful effects, has been a focal point in both fitspiration and body positivity content analyses. This study has found consistent results regarding a prominent focus on physical appearance in both fitspiration and body positivity YouTube content and comments.

Research has shown that engagement in appearance-oriented activities (e.g., viewing or commenting on photo or video content, uploading or editing one's own photos or videos) is linked to increased self-objectification, body dissatisfaction, and disordered eating (Fardouly & Vartanian, 2016; Holland & Tiggemann, 2017). A survey conducted during the COVID-19 lockdown revealed that following appearance-focused Instagram accounts was associated with a greater drive for thinness among females aged from 14 to 35 (Vall-Roqué et al., 2021). Brief exposure to appearance-focused text alone was found to lead to increased body dissatisfaction compared to neutral comments (Tiggemann & Barbato, 2018).

Past content analysis of fitspiration and body positivity social media content has shown that both trends tend to focus on physical appearance, even just with texts (Boepple et al., 2016; Harriger et al., 2023; Lang et al., 2023). For example, Lang et al. (2023)'s content analysis of body positivity posts on the Chinese social media platform Xiaohongshu found that over 40% of the posts conveyed appearance-focused messages. Boepple et al. (2016) found appearance-related messages about exercise in 92.85% of the textual components of fitspiration website texts. Similar positioning of exercise for physical appearance reasons

has been found on other social media platforms, such as Instagram (Deighton-Smith & Bell, 2018), Pinterest (Simon & Hurst, 2021), and YouTube (Ratwatte & Mattacola, 2021).

5.3.1 Video Content

This study has found consistent results regarding a prominent focus on physical appearance in both fitspiration and body positivity YouTube content and comments. Among the frequently used hashtags, the body-related hashtag "#bodybuilding" was found in fitspiration videos, indicating a focus on body shape. Ratwatte and Mattacola (2021) demonstrated that exercising for physical appearance change was a prominent theme in fitspiration YouTube video transcripts, with being visibly toned framed as a nature of fitness goals.

The body shape-related hashtag "#plussize" was found in body positivity videos. While the video content could promote body positivity, this still indicates a preoccupation with body shapes and physical appearance. In Lazuka et al. (2020)'s analysis of body positivity Instagram posts and Harriger et al. (2023)'s analysis of TikTok videos, fat acceptance was found in 8% of the posts. Interestingly, Lazuka et al. (2020) included fat acceptance as one of the appearance-focused themes, while Harriger et al. (2023) included it in one of the positive body image themes. Despite being an appearance-related theme, it might have a different effect on psychological outcomes than other appearance-related messages like thin praise or exercising for appearance reasons.

In addition, beauty-focused hashtags "#makeup" and "#faceart" were also found in body positivity videos, consistently indicating a focus on beauty in body positivity content analyses. Cohen, Irwin, et al. (2019) found that over a third of posts emphasized clothing and beauty for appearance. Lazuka et al. (2020) revealed that 22.4% of hashtags in Instagram posts were themed fashion and beauty. The most common theme among the appearance-focused themes in Xiaohongshu posts was "encouragement of makeup" (44.09%) (Lang et al., 2023).

5.3.2 Video Comments

In comments, Physical Appearance or Body Shape is the second most prominent theme among all themes, following appreciation for content creators in both trends. It was present in over 95% of body positivity comments, while the percentage in fitspiration comments is much lower. The comments reflect a preoccupation with physical appearance in the video. The preoccupation with physical appearance was also found in Harriger et al. (2023)'s study in the TikTok space. While over 90% of appearance-related messages were once found in fitspiration content (Boepple et al., 2016), the percentage found in this study is lower, likely because fitspiration posts have become less appearance-centered over the years (Bell et al.,

2024).

The comments with a prominent theme of physical appearance were found to be more negative than the average sentiment of the sample for both trends. In comparison, body positivity comments with such themes have about twice as much chance of being negative than fitspiration comments. Less than half of Physical Appearance or Body Shape/Parts comments are positive in sentiment. This was likely due to a wealth of statements on body dissatisfaction with this theme. Ratwatte and Mattacola (2021) found in YouTube comments a prominent theme of body dissatisfaction (e.g., "...I love my body but my legs...I hate them...") or failing to meet body goals (e.g., "I've lost 5 pounds in 7 days and I'm a little disappointed. I thought I would lose more").

In general, the negative sentiment in appearance-focused messages in both trends corroborates with the experimental results that such content contributes to mood drop (Tiggemann & Zaccardo, 2015). Surprisingly, a focus on physical appearance was more common in body positivity comments, and they are more likely to be negative in sentiment than fitspiration ones. Since appearance-focused messages could still express body positivity constructs, experiments should focus on studying the effects of appearance-focused messages with different themes. Since this is the first direct comparison of the two trends in terms of physical appearance focus, more research is needed to see whether it replicates on other social media platforms.

5.4 Other Themes in Comments

5.4.1 Motivational Content

Both body positivity and fitspiration contents have been found to be rich in motivational messages. For example, almost half of the body positivity Instagram posts were labeled as motivational (Lazuka et al., 2020). A large number of the TikTok videos included messages such as "be yourself" or "do something that makes you happy today" (Harriger et al., 2023). Motivational quotes are also found in fitspiration content analyses (Tiggemann & Zaccardo, 2018).

Consistent with past research, in this study, motivational quotes have been found in both trends, ranking as the third most frequent theme for body positivity and the fourth most frequent for fitspiration. Almost one-fourth of body positivity comments contain motivational quotes, while about 10% of fitspiration comments do.

Note that motivational quotes do not necessarily imply healthy attitudes. Past content analyses have found potentially dysfunctional messages where extreme and perfectionist approaches towards exercise and diet were praised in fitspiration posts (Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018). These motivational quotes are also not necessar-

ily related to fitness. Tiggemann and Zaccardo (2018) in their investigation of quotations in fitspo Instagram images, found that 39.6% were inspirational fitness-related and 58.5% were inspirational but unrelated to fitness. Further classification of topics is needed to investigate the nature of these motivational quotes.

5.4.2 Personal Life Stories

The sharing of personal life stories was a new finding in the thematic analysis of comments. Comparing both trends, personal life story sharing was much more prevalent in body positivity than fitspiration comments. Over 5% of body positivity comments had personal life stories as the main theme, the third biggest theme, and over 20% had the theme present in comments, whereas for fitspiration comments, it was only marginal.

It was also found that Personal Life Stories have the largest proportion of negative sentiment among all themes, indicating that negative experience sharing was somewhat common. These messages were potentially intimate and vulnerable in nature, exposing individuals' past experiences. It could be that body positivity discussion online is more intimate and vulnerable than fitspiration ones.

5.5 Limitation and Further Directions

5.5.1 Limitation

This study is not without limitations. First and foremost, this study did not take the videos or other imagery data into account. It focused primarily on the textual data including content tags, hashtags, and comments, accompanied by some contextual data like video view count. Although investigating the textual content is of great importance in understanding the content themes and ongoing discussions of both trends, studies have found that visual images alone might have effects on body image outcomes (Slater et al., 2017; Tiggemann & Barbato, 2018; Tiggemann et al., 2020). Therefore, the image, being the other component of YouTube content, deserves academic attention and a similar comparison study as well.

Content analyses have been conducted to examine images primarily in terms of the human subjects from aspects like demographics, body-related attributes, how much the visual embodies culturally based beauty ideals, and objectification (e.g., Lazuka et al., 2020). For both body positivity and fitspiration trends, images have been found to embody culturally based beauty ideals to a great extent (Boepple et al., 2016; Harriger et al., 2023), which encourages upward appearance comparison and thereby negative outcomes (Scully et al., 2023). However, it was also frequently found that body positivity content sometimes emphasizes features that disobey culturally based beauty features. For example, in Lazuka's research into body positivity Instagram posts, stomach rolls or cellulite were present in over

38% of the images of human bodies.

In addition, more diverse body types were found featured in body positivity social media posts (Cohen, Irwin, et al., 2019; Lang et al., 2023; Lazuka et al., 2020), in contrast with the majority thin and toned body types found in fitspiration content (Boepple et al., 2016; Tiggemann & Zaccardo, 2018). Exposure to thin-ideal images, regardless of caption, has been found to lead to greater body dissatisfaction and lower body appreciation relative to average images (Tiggemann & Barbato, 2018; Tiggemann et al., 2020). On the flip side, exposure to bodies that do not conform to the thin-ideal can lead to less body dissatisfaction and better mood (Talbot et al., 2021). Knowing the adverse effects of engaging with idealized images on social media, YouTube being one of the most popular video platforms, there still lacks analysis of the imagery of body positivity and fitspiration content on YouTube. Also, direct comparison studies of images are insufficient. In view of the drifting effect of the algorithms, samples need to be collected at the same time using the same procedures to ensure valid comparisons.

Second, this study relied on the YouTube API to collect samples, which was less transparent in how it works, as opposed to the natural sampling process of searching and scrolling. Despite trying to imitate the natural search and collect the most viewed content and interacted comments, the API call had more limited transparency in how it selected the results that were returned. We have limited knowledge as to how the query keywords, language restrictions, and region code were used. However, this problem, in fact, also exists in the traditional data collection process, as the algorithmic system is a black box at play.

To be noted, the computational data collection method has its advantages of efficiently collecting a large amount of data across time. If not for the YouTube API, it would be a lot more challenging to collect samples with 11 years of coverage and collect data of videos that were published in the exact half-year time window. In fact, most extant content analyses that collected data manually only had samples that were collected over a short period of time (e.g., Lazuka et al., 2020), which limits the sample representativeness. Also, it is convenient to utilize the view count of videos and likes of comments for API calls to collect a representative sample of fitspiration and body positivity content that audiences are most likely to be exposed to on YouTube. This study serves as a demonstration of how computational methods could aid body image content analyses to obtain more representative data. Computational methods could also be applied to collect imagery data to address the first limitation in future research.

Third, for the sake of consistency with analyses on other social media platforms, this study used the keywords "fitspo" and "fitspiration" for fitspiration samples, and the keywords "bodypositive" and "bodypositivity" for body positivity samples. However, there could be other keywords that could represent the trends of fitspiration and body positivity

on YouTube.

5.5.2 Further Directions

This study's findings offer grounds for further exploration in certain directions.

First, it is worth delving deeper into the longitudinal change of body image-related media content, especially in view of the significant event of the COVID-19 global outbreak in 2020 ("Coronavirus disease (COVID-19) pandemic", n.d.). Temporal comparisons hold potential in unveiling the potential impacts of such a global health crisis on individuals' body image. This study has also shown a significant shift in the popularity of body positivity content, which has gained a great amount of audience since 2013. In the line of temporal comparisons, Bell et al. (2024) compared fitspiration Instagram samples in the years 2021 and 2014 and revealed that fitspiration content might have shifted to be more exercise-related and less sexually suggestive. However, comparing two sets of samples collected in a short time window invites considerable uncertainty. The computational methods of data collection through scraping or API calls offer a great way to collect data from different time periods, as demonstrated by this research. Future research should consider revealing the temporal changes in body image-related media content.

Second, the effect of sentiment on body image-related messages is worth studying. In the current experiment with physical appearance-related fitspiration and body positivity messages, the factor of the message's sentiment has not been strictly controlled or studied. Most studies reported choosing positive messages (Tiggemann & Barbato, 2018; Tiggemann et al., 2020). Since a large number of messages, though containing components of positive body image, are negative in sentiment, the effect of negative-sentiment body positivity messages is worth attention. For instance, this study found half of the body positivity comments themed with"Conceptualize Beauty Broadly" were negative in sentiment, indicating it is common for the followers of the body positivity trend to be exposed to negative comments. Current experiments with body positivity texts tend to choose texts that are positive in tone, explicitly or implicitly (Tiggemann et al., 2020). This begs a deeper dive into the effects of negatively toned body positivity posts. Controlling for sentiment or manipulating only sentiment in future experiments is essential to pinpoint the source of effects.

Third, further research should shed light on the details of physical appearance focus. Research, including this study, has shown that fitspiration and body positivity content put a lot of attention on physical appearance. Experiments have shown that engaging with physical appearance-centered messages can be harmful to individuals (Tiggemann & Barbato, 2018). However, the spotlight on physical appearance in body positivity and fitspiration content can be different. Lazuka has found that in some positivity posts, the focus on appearance could be on showing culturally-based imperfections, which is in line

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with the notion of body acceptance, one of the key constructs of body positivity. Such differences in physical appearance or body shape-focused content need to be more detailedly coded in future content analysis. Also, experiments should be conducted to figure out whether themes of physical appearance-focused messages could lead to different outcomes.

Lastly, fitspiration content should be further studied in light of the theoretical constructs of body positivity. Though marginal, body positivity themes were found in the fitspiration YouTube comments, giving grounds for labeling fitspiration content in terms of body positivity constructs for other social media platforms. Since the rise of the popularity of the body positivity trend on social media, it is reasonable to posit that recent fitspiration social media content might be more conscious of body positivity.

6   Conclusion

While body positivity videos on YouTube have experienced a notable increase in popularity over the years, reaching peak average view counts and comment counts in the recent three years (2021 to 2023), fitspiration videos demonstrated a relatively stable trend in average view counts without significant growth.

The prominence of the body positivity construct versus physical exercise was the most distinguishing element of the body positivity trend compared to the fitspiration trend. Both elements have the potential to be beneficial for viewers' body image outcomes. However, half of body positivity comments centered on Conceptualizing Beauty Broadly, the most salient body positivity construct, exhibited negative sentiment. Whether these negative sentiments have adverse effects on viewers warrants further research.

Surprisingly, the focus on physical appearance was more prominent in body positivity content than in fitspiration content. An alarming 95% of body positivity comments mentioned physical appearance as a theme. Comments with a predominant focus on physical appearance tended to exhibit more negative sentiment than the sample average. Furthermore, body positivity comments with physical appearance focus had about twice as much chance of being negative than fitspiration comments.

Analysis of comments has also revealed a prominent theme of personal life story sharing in body positivity comments. The sharing of personal stories had the largest proportion of negative sentiment among all themes, indicating that sharing negative experiences was somewhat common. The implications of this aspect of body positivity discourses deserve exploration.

Overall, the findings raise particular concerns about body positivity content on social media. The interaction between themes and sentiment warrants further experimental research.

Data and Code Availability Statement

Code for data cleaning and analysis is provided as part of the replication package. It is available at GitHub Repository.

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