



Effects of fitspiration content on body image: a systematic review

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Abstract

Purpose Fitspiration (also known as “fitspo”) aims to inspire individuals to exercise and have healthy habits, but emerging research indicates that exposure to it can have a negative impact on body image. This study aims to analyze the relationship between individuals’ exposure to fitspiration content and body image measures or associated variables (e.g., appearance comparison).

Materials and methods A comprehensive search of peer-reviewed papers published in English between 2000 and August 2022 was conducted in PubMed, PsycINFO and Google Scholar, based on the PICOS model. To be included, studies had to analyze the relationship between exposure to fitspiration content (I) and body image or associated variables (O) in adolescents and adults (P). Study methodological quality was assessed using an adaptation of the EPHPP Quality Assessment Tool for Quantitative Studies. Outcome data were synthesized narratively and by vote counting.

Results Twenty articles met the eligibility criteria and were included. Nineteen studies analyzed the relationship between fitspiration and body image, twelve analyzed the association between exposure to fitspiration and physical appearance comparison tendencies, and nine analyzed the association between fitspiration content and mood. One study analyzed the association between frequency of viewing fitspiration content and motives for exercise. Results showed that exposure to “fitspiration” increased individuals’ body dissatisfaction, physical appearance comparisons, and negative mood, especially in younger populations.

Conclusions Fitspiration has been seen as a new and prolific digital trend, considered beneficial for health. However, our results showed that fitspo is associated with negative body image, especially in younger populations that are more exposed to this content. Most of the studies were conducted in females and young age participants, which limits the extrapolation of results by gender and age. Future studies are needed to confirm and extend these findings.

Level of Evidence Level 1, Systematic Review.

Keywords Body image · Fitspiration · Mood · Social media · Physical appearance comparison

Introduction

Body image is defined as an individual’s perception of their body appearance, and the attitudes (feelings, beliefs, and behaviors) that result from that perception [1, 2]. Media is considered a powerful and pervasive sociocultural influence, that can impact one’s body (dis)satisfaction [3]. Through

its different channels (e.g., television, magazines, internet, and newspapers), media has imposed models of behavior, transmitting social concepts of perfect body ideals that individuals are encouraged to follow [4]. Perfect body ideals are also highly disseminated on the new social media (e.g., Instagram, SnapChat and Facebook), especially among younger populations. Recent studies show that ~65% of adults use the internet for social networking [5, 6] and that over 90% of teens and young adults (14–22 years) are active users of social networking sites, daily [6, 7]. The exposure to these sociocultural body ideals in social media can have a negative implication on individuals’ well-being, mental health (e.g., depression, anxiety, and loneliness), exercise and eating behaviors, and body image [5, 7–13].

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The “athletic ideal” is characterized by thinness and visible muscularity, including a more muscular upper body, toned abdomen and a firm lower body. These ideologies have won popularity in the most diverse media vehicles [14], being presently part of a global movement, known as fitspiration (a combination of “fit” and “inspiration”) [4]. Fitspiration involves inspirational images and citations of healthy living, which emphasize the importance of adopting healthy exercise and dietary habits to improve health and fitness and achieve a fit/athletic body [4, 15, 16]. This movement emerged years after the “thinspiration” movement, a trend that was characterized by thin bodies as the ideal body image [17], and adherence to it is growing fast. In December 2016, the search for the hashtag “#fitspiration” on Instagram resulted in nearly 10 million photos already [18]. In addition, the number of “influencers” and models who display inspirational photos with motivational text and healthy food suggestions is currently high [19]. In theory, fitspiration content has the potential to positively influence and promote individuals’ health and well-being through exercise and diet, and in fact, individuals who follow this trend report that they are inspired to be physically active and eat healthily [20]. However, these ideals remain difficult to achieve for most individuals without resorting to unhealthy behaviors [4, 21], raising some important concerns, particularly regarding individuals’ body image [19].

Dissemination of fitspiration in the media

Fitspiration content is extensively disseminated on the internet in various media platforms (e.g., Facebook, Instagram, Twitter, Tumblr, Pinterest, and Snapchat). Social networking services such as Facebook, Snapchat and Instagram allow users to create public or private profiles, form networks of ‘friends’ or ‘followers’ to share, view and comment on user-generated content [12] and are currently more popular than conventional media formats (e.g., magazines and television) [22]. This type of media facilitates the propagation of various beliefs and behaviors, making it easier for behavior models to transmit social concepts of body ideals [23]. Initially, research on the impact of these media on body image was focused on the use of Facebook, one of the first social media platforms. Research has shown that it is not just the amount of time an individual spends on Facebook, but the amount of time spent on photo-related activities that correlates with body image concerns [24]. This study also showed that Facebook exposure was associated with negative mood and negative body image among women, highlighting the tendency for physical appearance comparison [24]. Other social media have recently been more focused on photo-related activities (i.e., sharing and “liking” photos/videos) [25]. One of these social media is Instagram, where images are usually denoted and searchable by specific hashtags (short searchable phrases preceded by the ‘#’ symbol). A

prominent hashtag with #fitspiration or #fitspo returns over 65 million posts on Instagram. According to the use of this platform, the frequency of posting and the time spent by the individual viewing photos are positively correlated with individuals’ body image concerns [9].

Fitspiration and body dissatisfaction

The effects of media representation on body image are attributed to the process of social comparison between an individual’s physical appearance and idealized bodies conveyed in the media [26]. Individuals who evaluate their own appearance by comparing it to the cultural and beauty ideals presented in the media invariably show dissatisfaction with their body and physical appearance [27]. Tiggemann and Zaccardo further showed that appearance comparison tendencies mediated the effect of viewing fitspiration posts on body dissatisfaction, hence being detrimental to body image, as individuals compare their own appearance to the idealized bodies on those images [15].

About 25% of fitspiration followers report dissatisfaction when comparing themselves to the overall appearance and fitness of the individuals in the images. Independent of the potentially positive intentions and popularity of fitspiration, its content can have a negative impact on the way an individual relates to his/her body [20]. The great concern related with fitspiration exposure focuses on its influence on young people’s self-esteem [28]. Evidence shows that older adults report a lower tendency to engage in appearance social comparisons than young adults. In addition, studies clearly show that young adults use media more frequently than older adults [29]. Fitspiration images typically display only one body type, a lean and muscular body [30], promoting exercise and diet with an increased focus on appearance rather than on health and well-being [19].

No systematic review summarizing the evidence on the effects of fitspiration content on individuals’ body image has been found. However, the literature on this subject has shown a substantial boost in the last few years. Therefore, the aim of this systematic review was to synthesize the available evidence on the relationship between individuals’ exposure to fitspiration and body image measures or associated variables (e.g., mood, appearance comparison, exercise goals). Findings from this review can inform future policies and health campaigns, especially those targeting young populations more susceptible to body image disturbances.

Methods

This systematic review was conducted following the propositions of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses [31], a recognized guideline

designed to help authors make an adequate and comprehensive reporting of a systematic review, covering its rationale, methods (databases used, eligibility criteria, qualitative/quantitative procedures), results and implications. Hence, it facilitates comparability and replication, guaranteeing a greater quality of the review. The PRISMA statement consists of a 27-item checklist, is endorsed by organizations and journals in the health sciences domain [31] and has been extensively applied in prior systematic reviews [32].

Covering the rationale for the review, databases used to identify studies, results of meta-analyses conducted, and implications of the review findings.

Search strategy and eligibility criteria

A search for studies published between January 2000 and August 2022 was conducted in Pubmed, PsycINFO and Google Scholar. Additional articles were identified through manual cross-referencing and a search on Research Gate. This period was selected given that this type of media (through the internet) only became more relevant from 2000 onward. Fitspiration did not exist before that time. The inclusion criteria for this review were (i) papers conducted in adolescents or adults; (ii) peer-reviewed papers written in English; (iii) analyzing the relationship between exposure to fitspiration content and body image measures or associated variables (e.g., physical appearance comparison, mood, exercise goals). No restrictions were made about study design.

The search included various combinations of three sets of terms, based on the PICOS Model (Fig. 1).

Data extraction

Titles, abstracts, and references of potential articles were reviewed by one author (FJ) and checked by the other author (EVC). The full text of potentially relevant articles was retrieved and completely read. Duplicate studies were excluded. Data extraction was performed by FJ, following PRISMA [31]. EVC checked the extraction and consulted the articles whenever doubts emerged. Any disagreements were discussed between both authors. Data compilation included information about study details (author, year,

country of publication, affiliation, and funding), participants (age, gender, weight, and body mass index), study design, outcomes of interest, intervention duration and characteristics (when available), instruments, and main findings. More details about the research and/or data extraction can be obtained upon request.

Quality assessment of studies

The quality of the selected studies was assessed using an adaptation of the Quality Assessment Tool for Quantitative Studies from the Effective Public Health Practice Project (EPHPP; Thomas et al. [33]), used in previous systematic reviews (e.g., Teixeira et al. [33]). FJ performed the quality assessment. EVC checked the ratings for each study and consulted the articles whenever doubts emerged. Any disagreements were discussed between both authors. This framework allows the evaluation of experimental and observational studies' quality according to eight domains: (A) representativeness—selection bias, (B) study design, (C) confounding factors, (D) blinding, (E) data collection, (F) data analysis, (G) Reporting and (H) representativeness—withdrawals/dropouts. Each domain is rated strong (low risk of bias, good methodological quality), moderate or low (high risk of bias, low methodological quality), and the final rating is determined according to the ratings of each domain.

Assessment of the certainty of the evidence in the present review

Certainty of evidence refers to how confident we can be that a review provides a complete and accurate summary of the best available evidence, and thus, that an estimate of effect is correct [34, 35]. To evaluate certainty of evidence in the overall body of evidence, we used the GRADE approach [34], following the most recent PRISMA guidelines [31]. To complement the assessment of reliability and certainty of evidence, we applied the SURE *checklist*, which includes 5 criteria to evaluate the identification, selection, and appraisal of studies; another 5 criteria to evaluate how findings were analyzed in the review; and one criterion for other considerations) [35].

Data synthesis

This review examined the association between the exposure to Fitspiration content and body image measures or related variables. Results were summarized in tabular form (Table 1), organized by outcomes and study design, by one author (FJ) and rechecked by the other author (EVC). A narrative synthesis and vote counting of the main findings was performed.

#1 Adolescent OR Teenager OR Adult OR Exercisers OR Young Adult
#2 Fitspiration OR Fitspo OR Fitness inspiration
#3 Motivation OR Body image OR Body Dissatisfaction OR Body Satisfaction OR Body Appreciation OR Goals OR Motives OR Self-Determination OR Autonomous OR Intrinsic OR Extrinsic
#4 1 AND 2 AND 3

Fig. 1 Database search (PICOS model)

Results

Selection of the studies

The initial search resulted in a total of 2739 potentially relevant articles. Of these, 79 articles were duplicated. After the screening of titles and abstracts, 2612 articles were excluded, because they were not related to fitspiration and body image or associated variables (e.g., physical appearance comparison and mood). Two articles were excluded, because the authors did not have access to the full article, even after contacting the respective authors. The full text of 46 articles was evaluated. Of these, 26 were excluded for various reasons (e.g., no data required for the review ($n=23$); not empirical articles ($n=3$)). Thus, 20 articles met the eligibility criteria and were included in the present systematic review (Fig. 2).

Studies' characteristics

Most of the included studies had an experimental design (Randomized Controlled Trial; $n=10$; Quasi-experimental; $n=1$). The nine remaining studies had an observational design (cross-sectional; $n=9$). Most studies were conducted in female samples ($n=13$), three in male participants, and other four in both genders. Mean age was $22,0 \pm 4,0$ years and mean body mass index was $23,0 \pm 1,1$ kg/m².

Exposure to fitspiration content was assessed with several questions about media exposure.

Body image was assessed using several instruments and comprised the assessment of body dissatisfaction (mostly using Visual Analogue Scales), body appreciation (using the Body Appreciation Scale), and physical appearance comparisons (mostly using the Physical Appearance Comparison Scale).

Some factors typically associated with body image measures were also assessed in some of the included studies and considered in the present systematic review. Mood/depression ($n=9$) was mostly assessed through Visual Analogue Scales and motives for exercise ($n=1$) through the Exercise Motivation Inventory-2.

Quality assessment of the studies

The quality assessment of the studies can be found in Supplementary File 1. Of the 20 studies, 17 studies were rated with a weak quality and three rated with a moderate quality. The overall rating for each study was determined by assessing the component ratings. A large number of studies failed in three criteria, i.e., blinding, representativeness (selection bias) and representativeness (withdrawals/dropouts). Some articles did not mention if the intervention was concealed

from participants or did not conceal the intervention at all. In terms of Representativeness (selection bias), the individuals selected to participate were volunteers and thus not likely to be representative of the wider population. In relation to the withdrawals/dropouts' criteria, some studies did not detail the numbers and/or reasons for withdrawals.

Assessment of the certainty of the evidence

This systematic review is a narrative synthesis of findings from multiple studies, hence relying primarily on the use of words, text, and quantitative results of each included study. Analyses of the certainty of the evidence gathered on the present systematic review, and regarding the effects of fitspiration on body image or associated variables, were conducted using GRADE [34]. Overall, results showed that all experimental ($n=11$) studies had high certainty of evidence for the outcomes body image, physical appearance comparison and mood. The observational studies ($n=9$) had an overall certainty of evidence classified as low for the outcomes body image, physical appearance comparison, mood and goals/motives for exercise. Still, the SURE checklist indicated the presence of important limitations that might affect the degree of confidence on the evidence included in this review: (i) language bias was not avoided, given that only papers in English were included. A more comprehensive search could have resulted in a higher number of retrieved papers; (ii) data screening and extraction were completed in full by only one author. Although a second author has consulted articles whenever there were doubts or unclear information, some information might have been misunderstood or left out; (iii) Due to the scarcity of studies per outcome measure, quantitative meta-analysis could not be performed, neither moderator nor subgroup analysis to explore the heterogeneity across studies [35]. Taking these results in consideration, the findings of the current systematic review should be interpreted with caution. Assessment of certainty of evidence is presented in Supplementary File 2.

Main results

Seventeen studies showed that exposure to "fitspiration" images led to increased body dissatisfaction [15, 18, 36–46, 48–50, 56]. The study carried out by Krug et al. demonstrated a neutral effect of fitspiration content on body image [45]. One study conducted by Limniou, Mahoney and Knox did not show a prejudicial effect of fitspiration content on individuals' body image [25] (Table 2).

Nine studies showed an increase in physical appearance comparison among individuals exposed to fitspiration content. The comparison between the individuals' body and the idealized bodies in fitspiration images resulted in an increase in physical appearance comparison, which consequently

Table 1 Characteristics of included studies

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Bowles, Walsh and Andre [43]	Cross-sectional study	361 University students (280 female; 80 males; 1 other); mean age: 20.2 ± 1.4 years; BMI: 24.3 ± 4.9 kg/m ² ;	Explore the relationships between fitpiration and body image perceptions amongst college students.	1. Social media usage <i>Questions: "How frequently you used social media (average hours per day)?; The social media platforms you followed; Do you see fitness content on your social media?";</i> 2. Body dissatisfaction <i>Questions: "Generally happy with their body most days?; Does fitpiration Influence body image?";</i>	Participants that followed fitpiration were more likely to be dissatisfied with their bodies, compared to participants who did not. Findings demonstrate fitpiration was related to poorer body image perceptions among students.	Weak
Cataldo et al. [56]	Cross-sectional study	729 Participants (527 females; 202 males); mean age: 37.8 ± 11.68 years;	Examine the role of social media influence as a possible factor contributing to a set of connected issues attributable to the fitpiration construct.	1. Social media usage <i>Assessed dimensions: "engagement", "presence" and "exposure";</i> 2. Body Dissatisfaction (Appearance Anxiety Inventory (AAI));	Greater levels of appearance anxiety were associated with the exposure to fitness-related contents on social media. These results strongly confirm the previously highlighted association between fitpiration media and body image anxiety and symptoms related to body dysmorphic disorder and body dissatisfaction.	Moderate
Fardouly and Vartanian [51]	Cross-sectional study	276 Female participants; age: 22.6 ± 2.4 years;	Examined the relationship between Instagram use (overall, as well as specifically viewing fitpiration images), body image concerns and self-objectification among women.	1. Using Instagram <i>Questions: "How often do you check Instagram (even if you are logged on all day)?"; "Overall, how much time do you spend on Instagram on a typical day?"; "How often do you viewed fitpiration images on Instagram";</i> 2. Body Dissatisfaction (Dissatisfaction subscale from the Eating Disorders Inventory-3); 3. Appearance comparison tendency (Appearance Comparison Scale);	Viewing fitpiration images on Instagram was associated with greater body dissatisfaction and that relationship was mediated by appearance comparison tendency. Together, these results suggest that Instagram usage may negatively influence women's appearance comparison—related to concerns and beliefs.	Weak

Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Fatt, Fardouly and Rapee [38]	Cross-sectional study	118 Male participants; mean age: 19,4 ± 1,92 years; BMI: 22,0 ± 3,9 kg/m ² ;	Analyze associations between the frequency of viewing “fitspiration” content with body satisfaction and motives for exercise.	1. Time spent using the social network Instagram. Scale of assessment: 9-point Likert-type scale with the response options: from 1 (not often) to 9 (4 h or more); <i>Question: “How much time did you spend on Instagram per day?”</i> ; Frequency of viewing “fitspiration” posts Scale of assessment: 5-point Likert-type scale with the response options: 0 (Never) to 4 (Very Often); <i>Question: “How often do you view fitspiration content?”</i> ; 2. Body dissatisfaction (Body Esteem Scale for Adolescents and Adults (BESAA)); 3. Appearance comparison tendency (Physical Appearance Comparison Scale-Revised (PACS-R)); 4. Internalization of the muscular ideal (Sociocultural Attitudes Toward Appearance Questionnaire-4 Revised (SATAQ-4R)); 5. Motives for Exercise (Exercise Motivation Inventory-2 (EMI-2));	Viewing more “fitspiration” content was associated with increased internalization of the muscular ideal and appearance comparison tendency across individuals. These facts were associated with higher reports of body dissatisfaction when exercise was based on appearance and less on health.	Weak
Griffiths and Stefanovski [36]	Cross-Sectional Study	108 University students (85 females; 23 males); mean age: 19,5 ± 2,9 years; BMI: 21,8 ± 3,7 kg/m ² ;	Analyze the associations of exposure to “fitspiration” with body satisfaction.	1. Fitspiration Exposure <i>Questions: “Since the last survey, have you seen fitspiration?”; “Duration of each exposure to fitspiration content?”</i> ; 2. Body Dissatisfaction (Visual Analogue Scale (VAS)); <i>Questions: “How satisfied with your weight are you feeling right now?”; “How satisfied with your appearance are you feeling right now?”; “How satisfied with your body shape are you feeling right now?”</i> ;	Women reported a weekly average of 9,5 h of exposure to “fitspiration” content, while men reported 4,9 h. Single exposure to “fitspiration” was associated with lower body satisfaction. Men were shown to be more susceptible to “fitspiration” content.	Moderate
Limniou, Mahoney and Knox [25]	Cross-Sectional Study	109 University students (94 female; 23 male); mean age: 20,0 ± 3,3 years;	Analyze the effects of “fitspiration” images on body image and internalization of the “fit” body as an ideal.	1. Using Instagram (Questions about using Instagram); <i>Assessed dimensions: “Frequency of use”; “Frequency of posting”; “Importance of likes”; “Number of followers”</i> ; 2. Mood (5-item scale); 3. Body Dissatisfaction (5-item scale);	Exposure to fitspiration images produced a significant reduction in mood and internalization of ideal body. “Fitspiration” was not damaging to individuals’ body satisfaction or caused an internalization of the athletic body as an ideal.	Moderate

Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Rafati, Dehdashti and Sadegh [48]	Cross-sectional Study	241 Female participants; age: 22.6 ± 2.4 years;	Investigate how Instagram use is associated with body dissatisfaction in young women.	1. Time spent using the social network Instagram Scale of assessment: 7-point Likert-type scale with the response options: from 1 (not at all) to 7 (every 5 min); <i>Question: "How often do you use Instagram?";</i> Scale of assessment: from 1 (5–15 min) to 8 (6 h or more); <i>Question: "Overall, how much time do you spend on Instagram each day?";</i> 2. Frequency of viewing "fitspiration" posts Scale of assessment: 5-point Likert-type scale with the response options: from 1 (never) to 5 (each time I use Instagram) <i>Question: "Frequency of seeing fitspiration images on Instagram?";</i> 3. Body Dissatisfaction (Dissatisfaction subscale from the Eating Disorder Inventory (EDI)); Appearance comparison tendency (5-point rating scale (0 = "Never" to 10 = "Often")); <i>Question: "When looking at female images on Instagram, how often do you compare your appearance to them?";</i>	The findings showed that exposure to fitspiration images increase appearance comparison and had significant positive relationships with body dissatisfaction.	Weak
Seekis, Bradley and Dufy [50]	Cross-sectional Study	338 Female university students; mean age: 19.1 ± 2.1 years; BMI: 22.6 ± 3.7 kg/m ² ;	Examine the associations between fitspiration and body dissatisfaction via upward appearance comparison.	1. Fitspiration Social Media Use <i>Questions: "How often participants browse or follow sites that promote fitness, weight loss, female sports athletes, or fitspiration personalities?";</i> 2. Body Dissatisfaction (Dissatisfaction subscale from the Eating Disorders Inventory-3); 3. Appearance comparison tendency (Upward Physical Appearance Comparison Scale (UPACS));	Results revealed significantly positive correlations between fitspiration use, appearance comparison and body dissatisfaction.	Weak

Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Sumter, Cingel and Antonis [46]	Cross-Sectional Study	359 Female participants; age: 22.5 ± 2.6 years;	Investigate the body image related correlates of fitspiration media use (e.g., body dissatisfaction).	1. Fitspiration Social Media Use Question: "How often they visited each of the four types of fitspirational social media accounts on average over 3 months (1) fitness, (2) healthy eating, (3) weight loss, and (4) mental well-being accounts"; 5-point scale (From 1 = I checked the pages continuously throughout the day to 9 = never); 2. Body Dissatisfaction (Body Attitude Test (BAT));	Exposure to fitspiration images increased a body dissatisfaction.	Weak
Fioravanti, et al. [44]	Quasi-experimental	122 Female participants; mean age: 22.3 ± 2.3 years; BMI: 21.3 ± 2.8 kg/m ² ;	Examine the associations between fitspiration daily exposure and body positive mood, body satisfaction, and appearance comparison tendency.	1. Mood (Visual Analogue Scale (VAS)); Assessed dimensions: "Anxiety"; "Depression"; "Happiness"; "Confidence"; "Anger"; 2. Body dissatisfaction (Visual Analogue Scale (VAS)); Questions: "Satisfied with my weight"; "Satisfied with my overall appearance"; "Satisfied with my body shape"; 3. Appearance comparison tendency (State Appearance Comparison Scale (SACS) and Physical Appearance Comparison Scale (PACS)); 4. Body Image (Multidimensional Body-Self Relations Questionnaire Appearance Scales (MBSRQ-AS));	Daily exposure to fitspiration images was associated with the highest rates of Body dissatisfaction, negative mood and appearance comparison.	Weak
Davies and Udell [47]	RCT	109 Female participants; age: 21.6 ± 1.5 years;	Explore the impact of fitspiration ideals and their effect on mood.	1. Mood (International-Positive and Negative Affect Scale-Short Form (IPNAS-SF));	Fitspiration encouraging observers to improve their personal fitness and increase negative mood.	Weak

Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Dignard and Jarry [42]	RCT	331 Female university students; mean age: 20.6 ± 2.6 years; mean BMI: 23.4 ± 4.3 kg/m ² ;	Analyze the effects of "fitspiration" images on body image and appearance comparison.	<p>1. Time spent using the social network media (e.g., Facebook, Instagram, Snapchat, Twitter, Tumblr or Pinterest?);</p> <p>2. Appearance comparison tendency</p> <p>Question: "You have thought about your appearance when viewing the images of fitspiration/travel";</p> <p>7-point Likert scales (From 1 = very poor to 5 = excellent)</p> <p>Question: "How much do you compare your general appearance and specific body parts (e.g., legs, arms, or abdomen)";</p> <p>7-point Likert scales (From 1 (no comparison) to 7 (a lot of comparison))</p> <p>3. Body Dissatisfaction (Body Image States Scale (BISS));</p> <p>4. Body Appreciation (Body Appreciation Scale—2);</p>	Exposure to Fitspiration images resulted in lower body satisfaction than viewing travel images. A greater appearance comparison tendency predicted an increase of body dissatisfaction.	Weak
Krug et al. [45]	RCT	122 Female participants; age: 19.7 ± 3.1 years; BMI: 22.1 ± 5.0 kg/m ² ;	Assess for the first time the influence of fitspiration images (e.g., women exercising, women in exercise gear, muscular women etc.), relative to neutral images (e.g., furniture, plants, paintings) via an experimental design on satisfaction with different body attributes, pressures to change one's body, and mood.	<p>1. Appearance comparison tendency (Physical Appearance Comparison Scale-Revised (PACS-R));</p> <p>2. Body dissatisfaction (Body Change Inventory (BCI));</p> <p>3. Inventory (BCI);</p> <p>4. Fitspiration exposure</p> <p>5-point scale (From 1 = more than once per day to 5 = never);</p> <p>Questions: "Do you view fitspiration images/content on social media, if yes on what platforms and how often?"; "Have you ever posted fitspiration content, if yes on what platforms and how often?";</p> <p>5. Mood</p> <p>Questions: "How happy are you right now?"</p> <p>11-point rating scale (0 = extremely unhappy, 10 = extremely happy);</p> <p>6. Appearance comparison tendency</p> <p>Questions: "How much are you thinking about how you look compared to other people?"; "How much pressure do you feel to change your bodyshape?"; "How attainable does this body shape seem to you?";</p> <p>10-point rating scale (0 = Not at all, 10 = Very much);</p>	Engagement with fitspiration content did not affect most aspects of satisfaction with one's body attributes, mood or appearance comparisons.	Weak

Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Prichard et al. [41]	RCT	108 Female university students; mean age: 20.2 ± 1.9 years; mean BMI: 23.0 ± 3.9 kg/m ² ;	Analyze the effects of viewing "fitspiration" images on body satisfaction, mood, and exercise behavior.	<p>1. Mood (Visual Analogue Scale (VAS)) Assessed dimensions: "Anxiety"; "Depression"; "Happiness"; "Anger"; "Confidence";</p> <p>2. Body Dissatisfaction (Visual Analogue Scale (VAS)) Assessed dimensions: "Fat"; "Physically attractive"; "Satisfied with body shape"; "Satisfied with body size";</p> <p>3. Media use (Questions about the use of social media);</p> <p>Questions: "How many times in the past week have you used Facebook, Instagram, YouTube, SnapChat, Tumblr, Myspace, Twitter or Pinterest?"; "Do you have an Instagram or Facebook account, if so, the average number of minutes you spend per day?"; "How often in the past week have you viewed fitness, fashion and travel content on social media?"; "Posts made about fitness, fashion and travel content?";</p> <p>4. Inspiration (7-point scale from 1 (Not at all) to 7 (Very inspired) to measure inspiration according to the image viewed); Question: "How inspired did you feel to improve your fitness while viewing the fitspiration images?"; "How inspired did you feel to travel after viewing the travel images?";</p> <p>5. Exercise behavior (Rating scale of perceived physical exertion and distance covered on the 10-min walk);</p>	Exposure to fitspiration images increased negative mood and body dissatisfaction compared to exposure to travel images. Participants who trained after exposure to fitspiration images were significantly more susceptible to report higher subjective effort ratings.	Weak
Robinson et al. [18]	RCT	106 Female university students; mean age: 20.6 ± 1.9 years; BMI: 22.7 ± 3.9 kg/m ² ;	Investigate the impact of "fitspiration" images on body satisfaction.	<p>1. Social media use (Questions about the social network used and time spent); Questions: "Which social network do you use?"; "How much time do you use that social media?";</p> <p>2. Body Dissatisfaction (Visual Analogue Scale (VAS)); Assessed dimensions: "Fat"; "Physically attractive"; "Satisfied with body shape"; "Satisfied with body size";</p> <p>3. Appearance comparison tendency (Physical Appearance Comparison Scale-Revised (PACS-R));</p>	The present study shows that "fitspiration" images lead to a significant increase in body dissatisfaction. A greater appearance comparison tendency between individuals also occurs, which predicted an increase in body dissatisfaction.	Weak

Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
<p>Rounds and Stutts [39]</p>	<p>RCT</p>	<p>283 Female university students; mean age: 20,2 ± 1,3 years; BMI: 23,0 ± 3,7 kg/m²;</p>	<p>Analyze the impact of "fit-spiration" content on body satisfaction and negative mood.</p>	<p>1. Body Dissatisfaction 1.1. 6-point scale from 1 (does not apply well) to 6 (applies exactly) Questions: "I would like to change a good deal about my body"; "On the whole I am satisfied with my looks"; "I would like to change a good deal about my looks"; "On the whole I am satisfied with my body";</p> <p>1.2. Visual Analogue Scale (VAS); Questions: "I am satisfied with my weight"; "I am satisfied with my overall appearance"; "I am satisfied with my body shape";</p> <p>2. Mood (Visual Analogue Scale (VAS)); "How depressed do you feel right now?"; "How happy do you feel right now?";</p> <p>3. Instagram use Assessed dimensions: "The number of followers they have"; "The number of accounts they follow"; "the number of ftspiration accounts they follow (defined as female fitness/workout accounts)"; "posting frequency"; and "their Instagram post content";</p>	<p>Body satisfaction decreased significantly, and negative mood increased in the ftspiration exposure groups. Already in the partial exposure group, body satisfaction and mood were negatively affected compared to the control group.</p>	<p>Weak</p>
<p>Slater, Varsani and Diedrichs [40]</p>	<p>RCT</p>	<p>160 Female university students; mean age: 23,4 ± 2,8 years; BMI: 23,4 ± 2,8 kg/m²;</p>	<p>Analyze the impact of exposure to ftspiration and self-compassion images on body satisfaction, considering their body appreciation, self-compassion, and mood.</p>	<p>1. Instagram and social media usage Questions: "The number of accounts they follow"; "How often they post pictures"; "What their uploaded pictures mainly consist of"; "Other social networking services used (e.g., Facebook, Pinterest, Twitter, Tumblr)"; "Average daily use";</p> <p>2. Body dissatisfaction (Visual Analogue Scale (VAS)); Questions: "Satisfied with my weight"; "Satisfied with my overall appearance"; "Satisfied with my body shape";</p> <p>3. Body Appreciation (Body Appreciation Scale) Questions: "Satisfied with my weight"; "Satisfied with my overall appearance";</p> <p>4. Mood (Visual Analogue Scale (VAS)); Assessed dimensions: "Anxiety"; "Depression"; "Happiness"; "Confidence";</p> <p>5. Appearance comparison tendency (Physical Appearance Comparison Scale (PACS));</p> <p>6. Internalization of the ideal body (Sociocultural Attitudes Towards Appearance Scale-3 (SATAQ-3));</p> <p>7. Self-Compassion (Self-Compassion Scale);</p>	<p>Women who read self-compassion citations showed higher body satisfaction, body appreciation, which reduced negative mood compared to women who viewed neutral images. Viewing a combination of ftspiration images and self-compassion citations led to positive outcomes compared to looking at ftspiration images alone. The results suggest that self-compassion may offer a new way to mitigate the negative impact of media on women's body satisfaction.</p>	<p>Weak</p>

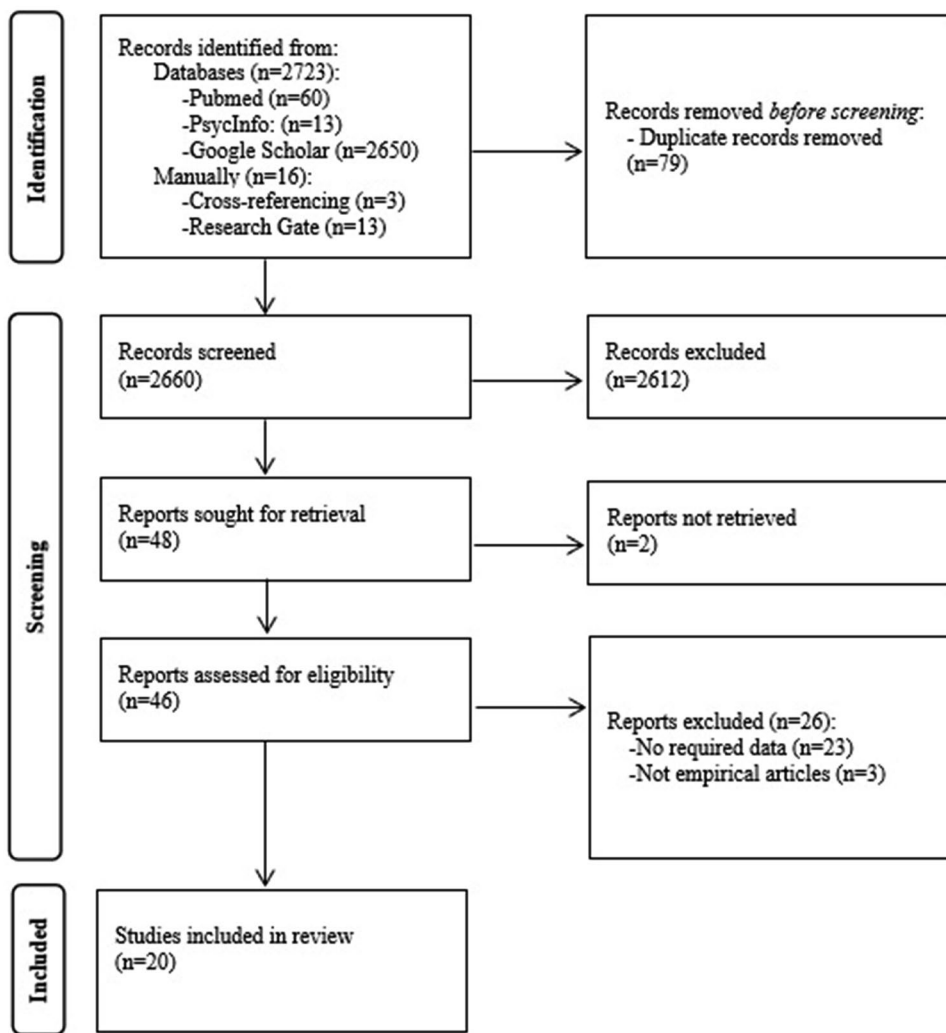
Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Tiggemann and Anderberg [49]	RCT	300 Men participants; age: $24,9 \pm 3,0$ years; BMI: $26,0 \pm 5,8$ kg/m ²	Investigate the effect of image type (fitspiration, scenery) on men's body and facial satisfaction (after controlling for pre-exposure scores) and appearance comparison.	<p>1. Social networking usage Questions: "Do you have a Facebook or Instagram account?"; "How much time you spend there per day?"; "How many friends you have on Facebook, and the number of followers and people they follow on Instagram";</p> <p>2. Body Dissatisfaction Assessed dimensions: "strong"; "physically active"; "satisfied with my body size and shape"; "satisfied with my muscle tone and definition"; "satisfied with my facial appearance"; "pleased with my facial complexion";</p> <p>3. Appearance comparison tendency (State Appearance Comparison Scale (SACS));</p>	Exposure to fitspiration resulted in significantly lower body satisfaction relative to viewing clothed fashion images or scenery images. Comparison of appearance did not differ between groups with exposure.	Weak
Tiggemann and Zaccardo [15]	RCT	130 Female university students; mean age: $19,9 \pm 2,8$ years; BMI: $23,2 \pm 4,9$ kg/m ² ;	Analyze the impact of "fitspiration" images on body image.	<p>1. Experimental manipulation: image type ("fitspiration" vs "Travel images"); 5-point Likert scales (From 1 (very poor) to 5 (excellent) which evaluates the 'quality' and 'visual appeal' of the images</p> <p>2. Body dissatisfaction (Visual Analogue Scale (VAS)); Assessed dimensions: "weight dissatisfaction"; "appearance dissatisfaction"</p> <p>3. Mood (Visual Analogue Scale (VAS)); Assessed dimensions: "Anxiety"; "Depression"; "Happiness"; "Confidence";</p> <p>4. Social networking use (Questions about the use of social networking sites); Questions: "Do you have an Instagram and/or Facebook account?"; "Do you view Instagram image on another social networking sites?"; "How much importance they placed on the quality of the photograph (e.g., blurriness, composition) when posted by others and by themselves?";</p> <p>5. Time spent on social networks (1 question about time spent); Question: "How much time do you spend on social networks per day?";</p> <p>6. Appearance comparison tendency (State Appearance Comparison Scale (SACS) and Physical Appearance Comparison Scale (PACS));</p>	Acute exposure to fitspiration images increased negative mood and body dissatisfaction compared to travel images. Individuals exposed to fitspiration images were more likely to compare their bodies to the images, increasing negative mood and body dissatisfaction after exposure. Fitspiration can have negative consequences on body image.	Weak

Table 1 (continued)

Authors	Study design	Sample	Aim of the study	Variables and Instruments	Results and conclusions	Study quality
Yee et al. [37]	RCT	223 Male participants; mean age: 20,9 ± 4,4 years; BMI: 23,2 ± 3,9 kg/m ² ;	Analyze the effects of exposure to "fitspiration" images on male body image.	<p>1. Body dissatisfaction (Revised Male Body Attitudes Scale (MBAS-R));</p> <p>2. Appearance comparison tendency (Physical Appearance Comparison Scale-Revised (PACS-R));</p> <p>3. State body fat and muscularity dissatisfaction 11-point scale (From 0 = extremely dissatisfied to 10 = extremely satisfied); <i>Questions: "How do you feel about your level of body fat/level of muscularity right now?";</i></p> <p>4. Urge to engage in body change behaviors <i>Question: "Exercising to increase muscularity"; "Exercising to reduce body fat"; "Consuming anabolic steroids"; "Going on a diet to increase muscularity"; "Going on a diet to reduce body fat";</i></p> <p>5. Mood 11-point rating scale (0 = extremely unhappy, 10 = extremely happy); <i>Question: "Right now, what is your mood like?";</i></p>	Before and after viewing each fitspiration image, participants reported dissatisfaction with their body fat, dissatisfaction with muscularity and negative mood, and a desire to engage in behaviors to reduce body fat and increase muscle mass. Analyses revealed that, compared to viewing neutral images, viewing "fitspiration" images increased body dissatisfaction. Viewing "fitspiration" images caused negative body image.	Weak

Fig. 2 Flow chart of the articles selected



resulted in higher body dissatisfaction [15, 18, 37, 38, 42, 44, 48, 50, 51]. The studies conducted by Krug et al. and Tiggemann and Anderberg reported that exposure to fitspiration content had no effect on physical appearance comparison [45, 49]. Only the study performed by Slater, Varsani, and Diedrichs reported a positive effect of viewing a combination of fitspiration images and self-compassion quotes on physical appearance comparison compared to viewing only fitspiration images [41] (Table 3).

Results on body image-related measures showed that exposure to fitspiration images increased negative mood. Most of these studies found associations between negative mood and body dissatisfaction [15, 20, 37, 41, 44, 47]. However, not all studies agreed. The study of Limniou, Mahoney and Knox reported increased overall negative mood in individuals exposed to fitspiration, but no changes in body satisfaction [25] (Table 4).

Only one study identified the relationship between the frequency of viewing fitspiration content and goals/motives for exercise. This study showed that the relationship between

the internalization of the muscular ideal, transmitted by fitspiration, together with an appearance comparison tendency, resulted in appearance-focused exercise goals/motives. This type of exercise motives was preferred above other motives related to health and well-being [38].

Discussion

The purpose of this systematic review was to examine the impact of fitspiration content on body image and associated variables (e.g., physical appearance comparison and mood). Fitspiration is designed to be inspirational and motivational, but the overall results suggest that this inspiration is of poor value to individuals. This review showed that exposure to fitspiration images has a negative effect on individuals body image, increasing their body dissatisfaction [15, 37, 41–45]. This finding can be related to the demand for self-control implied in fitspiration images and to the discomfort they cause on individuals by instigating them to pursue unreal

Table 2 Associations between fitspiration content exposure and body image

Study	Study design	Positive effect	Neutral effect	Negative effect
Bowles, Walsh and Andre [43]	Cross-Sectional Study			*
Cataldo et al., [56]	Cross-Sectional Study			*
Fardouly and Vartanian [51]	Cross-sectional Study			*
Fatt, Fardouly and Rapee [38]	Cross-sectional Study			*
Griffiths and Stefanovski [36]	Cross-sectional Study			*
Limniou, Mahoney and Knox [25]	Cross-Sectional Study *			
Rafati, Dehdashti and Sadegh [48]	Cross-sectional Study			*
Seekis, Bradley and Dufy [50]	Cross-sectional Study			*
Sumter, Cingel and Antonis [46]	Cross-Sectional Study			*
Fioravanti et al. [44]	Quasi-experimental			*
Dignard and Jarry [42]	RCT			*
Krug et al. [45]	RCT		*	
Prichard et al. [41]	RCT			*
Robinson et al. [18]	RCT			*
Rounds and Stutts [39]	RCT			*
Slater, Varsani and Diedrichs [40]	RCT			*
Tiggemann and Anderberg [49]	RCT			*
Tiggemann and Zaccardo [15]	RCT			*
Yee et al. [37]	RCT			*

*indicator of association and their direction

Table 3 Associations between fitspiration content exposure and physical appearance comparison

Study	Study design	Increased	No change	Decreased
Fardouly and Vartanian [51]	Cross-sectional Study	*		
Fatt, Fardouly and Rapee [38]	Cross-sectional Study	*		
Rafati, Dehdashti and Sadegh [48]	Cross-sectional Study	*		
Seekis, Bradley and Dufy [50]	Cross-sectional Study	*		
Fioravanti et al. [44]	Quasi-experimental	*		
Dignard and Jarry [42]	RCT	*		
Krug et al. [45]	RCT		*	
Robinson et al. [18]	RCT	*		
Slater, Varsani and Diedrichs [40]	RCT			*
Tiggemann and Anderberg [49]	RCT		*	
Tiggemann and Zaccardo [15]	RCT	*		
Yee et al. [37]	RCT	*		

*indicator of association and their direction

Table 4 Analysis of the impact of fitspiration content on individuals' mood

Study	Study design	Positive effect	Neutral effect	Negative effect
Limniou, Mahoney and Knox [25]	Cross-Sectional Study			*
Fioravanti et al. [44]	Quasi-experimental			*
Davies and Udell [47]	RCT			*
Krug et al. [45]	RCT		*	
Prichard et al. [41]	RCT			*
Rounds and Stutts [39]	RCT			*
Slater, Varsani and Diedrichs [40]	RCT	*		
Tiggemann and Zaccardo [15]	RCT			*
Yee et al. [37]	RCT			*

*indicator of association and their direction

and exaggerated body goals [4]. Viewing fitspiration images in the media is also associated with greater internalization of the muscular ideal, which is in turn reflected in a greater tendency toward physical appearance social comparisons, which then results in greater body dissatisfaction [15, 18, 37, 38, 50]. Studies also suggested that exposure to fitspiration content is generally associated with negative mood, although the later did not always relate to negative body image. As consistently shown in prior research, negative body image (directly and through associated negative affect/mood) is a strong precursor of disordered eating behaviors, such as bulimia and anorexia [52–54]. In fact, the promotion of changes in diet or exercise by individuals who share fitspiration content was shown to lead to excessive/addictive exercise and disordered eating, which are often stimulated by choices based on appearance [37, 39]. Therefore, promoting media literacy is highly relevant, especially among younger populations (e.g., adolescents and young adults) which seem to be the most exposed to fitspiration content through the new media (e.g., social media and websites), and thus more likely to suffer from the negative consequences of its content.

This review has important implications as it contributes to the growing literature about new media and body image. Specifically, physical appearance inspiration is herein highlighted as a new and prolific digital trend that is associated with body image disorders, as opposed to its often-propagandized misleading benefits. Although fitspiration content is directed at inspiring individuals to achieve fitness and health, it seems to be more closely related to motivations and inspirations focused on appearance [30], generally of poorer quality, and with more detrimental consequences for individuals' psychological health and behaviors [55]. One way to mitigate the negative effect of fitspiration content, seems to be through self-compassion citations, which appear to provide a way to ease the negative impact of fitspiration and media on individuals' body (dis)satisfaction [40]. This solution warrants further investigation though. In addition, most of the studies included in this review involved young age and/or female samples, which limits the extrapolation of the conclusions to older and/or male populations. More studies exploring fitspiration effects on older populations and male samples are thus required. Considering the popularity of fitspiration and the pervasive nature of social media, research is also needed to look at specific aspects of fitspiration that can lead to positive experiences. Similarly, it would be important to conduct studies that aim to investigate the mechanisms of action of fitspiration on body image, as well as its impact on goals and motivations for exercise, eating and weight management. Better quality studies are also required to provide more robust conclusions and improve knowledge in this area.

Strength and limitations

This is the first systematic review to synthesize the evidence on the effects of fitspiration images on body image and associated variables. Fitspiration is a new trend in the new media directed at inspiring individuals to achieve fitness and health, but, as it became clear in the present review, with a negative impact on the individuals' body image, appearance comparison tendency, mood, and motives for exercise. However, this review is not without limitations. First, only a narrative synthesis summarizing the results of the included studies could be conducted, given that the scarcity of studies per outcome measure prevented the conduction of quantitative meta-analyses. More studies exploring the effects of fitspiration in each outcome variable (e.g., body image, appearance comparison, etc.) are required, so that formal methods of pooling data can be conducted and thus give more robustness to results. Other limitations are present in this review, namely: i) only three search engines were used to search articles for this review; ii) only English language articles were included; iii) data screening and extraction were completed in full by only one author (FJ) and only checked by the second author (EVC), although the later has consulted articles whenever there were doubts or unclear information; iv) no moderator or subgroup analysis could be explored due to the reduced number of studies. Provided these limitations, caution in interpreting the findings from the current systematic review should be taken. Future, better quality, research is clearly needed to deepen our understanding, confirm, and possibly extrapolate these findings. Nevertheless, the findings from this review are informative for the design of future campaigns to promote media literacy and thus protect those populations that are more vulnerable to these contents.

What is already known on this subject?

The ideologies of an “athletic ideal body” have won popularity on social media, being presently part of a global movement known as fitspiration (a combination of “fit” and “inspiration”). Fitspiration is designed to be inspirational and motivational, but some studies suggest that it might not be innocuous to an individuals' psychological health and behaviors.

What does this study add?

This is the first systematic review summarizing the evidence on the effects of fitspiration content exposure on body image and related variables. This review evidenced the putative negative impact of fitspiration content on body image, physical appearance comparison and mood. This study alerts for the deleterious effects of this kind of health and

fitness movements that are so prevailing in the new media, and that most likely affect younger, less prepared/critical, populations.

Conclusion

Sociocultural ideals have undermining effects on body image, which extend to new fitness movements conveyed in the new media, such as fitspiration. The fitspiration content contributes to increased physical appearance comparisons, body dissatisfaction and increased negative mood among individuals, especially youngsters. This content seems to be sufficiently persuasive to stimulate changes in individuals' perceptions of their bodies, resulting in a negative body image (a well-known precursor of eating disorders). Although requiring further confirmation, future media literacy campaigns would do well to consider these findings, so that these detrimental effects can be at least attenuated.

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Author contributions FJ and EVC conceived the study. FJ and EVC conducted the literature search. FJ wrote the manuscript and EVC reviewed it and wrote some sections. FJ and EVC collated, analyzed, and interpreted the data. Both authors have read and approved the version submitted for publication.

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Data availability All relevant data are within the manuscript and the supplementary files. For complementary data that support the findings of this study contact the corresponding author.

Declarations

Conflict of interest The authors declare no conflict of interest.

Ethical approval Since this review is solely based on published data, no ethical approval was needed.

This review was not registered in PROSPERO because of the overload on the website during the Covid-19 pandemic, but a protocol has been developed for this review. If you would like access to the protocol, you can contact the author of the study.

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