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## Fitspiration on social media: Body-image and other psychopathological risks among young adults. A narrative review

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### ABSTRACT

**Background:** The use of social media is popular in the health and the beauty industry, with an increasing number of brands using web platforms to promote their products. Among the recently-emerged trends, “fitspiration” (also abbreviated as “fitspo”) has raised health concerns. Evidence suggested that fitspiration contents, although originally conceived to promote a healthier lifestyle, often portray distressful themes that can lead to unhealthy thoughts and behaviours (e.g., body image and eating disturbances, excessive exercising, misuse of supplements). Despite its popularity, the knowledge on this trend is limited and relatively few studies explored its psychological impact on young people below 25-year-old.

**Methods:** A narrative literature search was conducted in order to provide an overview of the evidence linking fitspiration trends on social media to mental health disturbances.

**Results:** Various factors related to psychopathological risks have been associated with the exposure to fitspiration contents, which we have clustered in the following main topics: (i) exercise addiction and compulsive exercise; (ii) body dissatisfaction and objectification; (iii) appearance-related anxiety and depressive symptoms, self-esteem; (iv) excessive control of eating habits; (v) use of enhancing drugs; (vi) quality of life.

**Conclusion:** A wide range of negative psychological effects associated with fitspiration contents on social media were identified. Additional research is required to further elucidate the phenomenon, to determine the extent of the harm for young people, and to develop preventive mental health strategies.

### 1. Introduction

Use of social media is popular in the health and beauty industry with various social media platforms being used as sources of information and reinforcement regarding fitness ideals (Smith and Sanderson, 2015, Goldstraw and Keegan, 2016, López-Guimerà et al., 2010). Although such a phenomenon encompasses approximately all age groups, it is particularly common among young adults (20-24 years old), adolescents (10-19 years old) and pre-teenagers (11-12 years old) (Tiggemann and Slater, 2014, Vaterlaus et al., 2015). While various positive/adaptive approaches to use social media can be identified, such platforms can also play a negative role in the lives of individuals, especially when

they are exposed to unrealistic and unattainable body images, and compare their physical appearance with peers, models (Tiggemann and Zaccardo, 2015). The idealization of extremely thin and toned body images (Tiggemann and Zaccardo, 2015) as well as the emergence of new social media trends in the online fitness community, such “fitspiration” (a word arising from the amalgamation of the words “fitness” and “inspiration”, and often abbreviated to “fitspo”), have further enhanced the level of global concerns (Easton et al., 2018).

Fitspiration initially originated on the Instagram with followers uploading, sharing, and commenting on pictures and videos relating to very “fit” body (DiBisceglie and Arigo, 2019), and later spread on other social media platforms, including Facebook, Tumblr, Twitter, and Pinterest (Raggatt et al., 2018). Typical content includes selfies, represen-

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tation of “before and after” bodies, which underline physical changes in response to exercise or other specific behaviours, food, among others (Carrotte et al., 2017). Before the fitspiration phenomenon, two similar trends known as “thinspiration” and “bonespiration” were widely used on social media; they emphasized thinness and extreme thinness, mostly among female users, and have been criticised as potentially promoting anorexia (Talbot et al., 2017). It is possible to assert that, to a certain extent, the fitspiration movement emerged subsequently around 2013 as a healthy alternative to thinspiration, promoting healthier messages, like self-care, a salubrious diet, and motivating users to be fit (Tiggemann and Zaccardo, 2015, Talbot et al., 2017), instead of supplanting the ideal of a skinny physical image *per se*.

Fitspiration posts on social media tend to portray a toned and muscular ideal body (Talbot et al., 2017, Deighton-Smith and Bell, 2018, Ratwatt and Mattacola, 2019). A content analysis on Instagram related to fitspiration found that the majority of the posted images (63.7%) were representing people, mainly women; the 25% of the images depicted subjects performing exercise activity, the 19% contained healthy food, like fruit or protein shakes, while the remaining images consisted in positive inspirational quotations, statistics, gym equipment and exercise clothing (Tiggemann and Zaccardo, 2018). Picture of male models, although less common, typically adhere to a muscular or hypermuscular ideal body (Carrotte et al., 2017, Tiggemann et al., 2007, Thompson and Cafri, 2007). Results from another study adopting the same analysis on multiple social media platforms, such as Instagram, Facebook, Twitter, and Tumblr observed that in the shared material women appeared more than men, and that their images were significantly more sexualized, with emphasis on arms, legs and buttocks rather than on the face (Carrotte et al., 2017).

Several studies have suggested that fitspiration contents portray potentially harmful themes (Carrotte et al., 2017). Prichard et al. (Prichard et al., 2018) have found decreased body satisfaction and increased negative mood in a sample of young female participants, which was proportional to the time spent engaging with such content. Fitspiration trends on social media are associated with the promotion of unrealistic and ostensible healthy bodies that are appealing to the eyes, but do not seem to promote physical exercise as a way to reach ‘appearance-related’ rather than ‘health-related goals’ (Raggatt et al., 2018, Corazza et al., 2019, Pilgrim and Bohnet-Joschko, 2019, Simpson and Mazzeo, 2017). In fact, the most shared photos are characterized by “before-and-after” representations of one’s body (mainly torso and upper legs) and rarely related to the benefits of exercise on health (Blackstone and Herrmann, 2018). Data suggest that female adolescents are more vulnerable than males to the negative psychological outcomes related to fitspiration (Easton et al., 2018, DiBisceglie and Arigo, 2019), and that young women with low self-esteem, obsessive traits and perfectionism often represent the typical users who interact with fitspiration trends in order to obtain more personal security and endorsement (Pilgrim and Bohnet-Joschko, 2019). Men, as well as women, could be influenced by fitspiration content in term of thoughts and body perception, but the literature on this regard is still very limited (Easton et al., 2018).

The intertwined combination of biological changes (i.e., hormonal, neural, physical, and metabolic adjustments), psychological processes (i.e., salience, identity structuring) and mechanisms driving social interactions (i.e., popularity, need for approval, social desirability) happening throughout puberty and early adulthood can affect considerably the overall quality of life, and exacerbate dysfunctional patterns of eating or physical exercise. At the same time, social media platforms can be reached, and utilized anytime and anywhere, providing youngsters with quick ways to fulfill their need to belong, by joining virtual communities or following targeted profiles, channels or hashtags (Boursier et al., 2020). This uninterrupted connection allows individuals to be constantly engaged in content browsing or sharing behaviours (Cataldo et al., 2020), increasing the risk of an active (i.e., posting pic-

tures of one’s own body, checking reactions from other users) or passive (i.e., look up for new feeds) exposure to fitspiration-related contents.

Despite its popularity, the knowledge on social media-related fitspiration trend is limited and relatively few studies explored its negative psychological impact on young people. Thus, the aim of the present review is to summarize evidence related to the potential mental health-related effects of fitspiration trends among adolescents and young adults.

## 2. Methods

We opted for a narrative review to analyze fitspiration phenomenon under a qualitative perspective. The literature search was carried out in PubMed, Turning Research into Practice (TRIP), ScienceDirect, Scopus, Cochrane Library, and Google Scholar. Only studies related to young people (10-24 years old), young adults (19-24 years old), and adolescents (14-18 years old) interacting with fitspiration contents were considered for analysis. Keywords used to obtain the literature included were: “young people”, “teenager\*”, “adolescent\*”, “fitspiration trend\*”, “fitspo\*”, “body dysmorphic disorder”, “body image”, “body dissatisfaction”, “eating disorder\*”, “psychopatholog\*”. All relevant synonymous words were used in the search. We included original studies in peer reviewed journals focusing on young people (10-24 years old), young adults (19-24 years old) and adolescents (14-18 years old) interacting with fitspiration contents. Both longitudinal and cross-sectional studies were admitted, that could be retrospective or prospective. The search was limited to articles in English language published from 2010 to the present. Studies involving adults older than 25 years old, or published in a language other than English, or unrelated to the subject matter were excluded from the discussion. We also excluded case reports or series, opinion papers such as editorials, letters to the editor with no data, hypotheses, meta-analyses and reviews. The Critical Appraisal Skills Programme (CASP) checklist was used to qualify each article used.

In the following sections we provide an overview of the evidence linking fitspiration trends on social media to mental health disturbances. Various factors related to psychopathological risks have been associated with the exposure to fitspiration contents. We have clustered these issues in the following main topics: (i) Exercise addiction and compulsive exercise; (ii) Body dissatisfaction and objectification; (iii) Appearance-related anxiety and depressive symptoms, self-esteem; (iv) Excessive control of eating habits; (v) Use of enhancing drugs; (vi) Quality of life as graphically highlighted in Fig. 1.

## 3. Results

### 3.1. Exercise addiction and compulsive exercise

Different dysfunctional behaviours identified in fitspiration users have been reported in literature, such as exercising even when feeling faint, being ill or injured and sense of guilt when the athletic routine is interrupted (Blackstone and Herrmann, 2018). Fitspiration posts suggest pushing over the limit, ignoring pain or converting it into pleasure (Deighton-Smith and Bell, 2018). Experiencing pain is therefore turned into a source of motivation and is perceived as a form of satisfaction and pleasure. Subsequently, pain is considered a positive sensation and a drive to achieve a fit and attractive body (Müller et al., 2015). Suggestions are given to keep going “unless you puke, faint, or die” (Deighton-Smith and Bell, 2018).

These characteristics can underline the risk of problematic exercising and together with the use of enhancing drugs have received attention by several authors (Holland and Tiggemann, 2017, Mooney et al., 2017, De Luca et al., 2017). While Raggatt and colleagues (Raggatt et al., 2018) observed that 10% of their sample, mainly young females, was at risk of ‘exercise addiction’, Holland and Tiggemann (Holland and Tiggemann, 2017) reported that women who posted fitspiration images showed significantly higher scores on compulsive exercise behaviours.

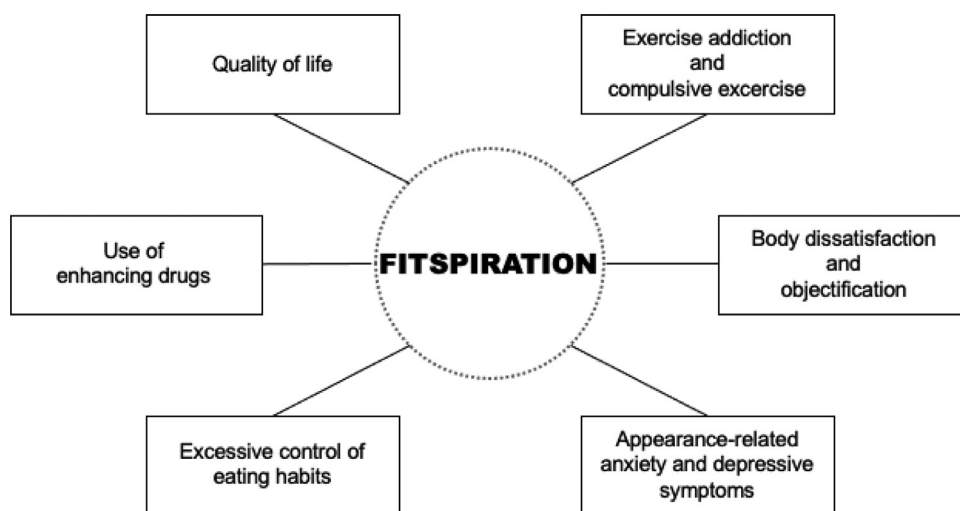


Fig. 1. Representation of the clusters discussing topics related to fitspiration contents.

Both ‘exercise addiction’ and excessive body workouts have been previously related to mental health disturbances, including eating disorders, anxiety and other forms of addiction (Colledge et al., 2020)

### 3.2. Body dissatisfaction and objectification

Body dissatisfaction, defined as «the discrepancy between identification of one’s own figure (actual) and the figure chosen as the desirable self-image» (Forrest and Stuhldreher, 2007), is linked with a variety of psychopathological states and behaviours (Puhl and Heuer, 2010, Sutter et al., 2015), such as depression (Stice et al., 2000), anxiety (Bennett and Stevens, 1996), eating disorders (Gardner et al., 2000, Stice, 2001) and poor quality of life (Ganem et al., 2009). Raggatt et al. showed that individuals who access fitspiration contents are characterized by high psychological distress linked to body image (Raggatt et al., 2018). Robinson et al. (Robinson et al., 2017) highlighted that displaying athletic and muscular fitness-idealised images to females with an average age of 20.60 years old, can lead to greater body dissatisfaction than displaying traditional thin ideal images, while Prichard and colleagues (Prichard et al., 2018) suggested that young women (mean age = 21.55) with higher self-objectification showed higher levels of body dissatisfaction in response to fitspiration images. Similarly, Prichard et al. (Prichard et al., 2020) revealed that exposure to fitspiration posts, in a group of 108 women, aged 17–25 years, significantly correlated with more severe negative mood and body dissatisfaction.

Preoccupation for body image and physical appearance represents a core characteristic of Body Dysmorphic Disorder (BDD) and also of Muscle Dysmorphia (MD) (Cuzzolaro, 2018), which is considered by the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM5) as a subgroup of BDD. Of relevance, clinical features of such conditions seem to overlap with certain themes promoted by fitspiration, such as appearance preoccupation and intense drive for muscularity (which may lead to large amount of time dedicated to lifting weights, excessive attention to diet, inappropriate use of supplements) (Cuzzolaro, 2018). Subsequently, certain fitspiration-related factors such as body objectification and the importance of physical appearance over health and wellbeing may be considered as elements potentially representing contributing factors for the development of clinically relevant body image disturbances.

An assimilable, though different, concept that comes along is that of body objectification, indicating that most of the attention is given to body specific parts, as arms, buttocks, legs, chest or abdomen, rather than to the body as a whole, and the face is often omitted from the picture (Carrotte et al., 2017, Deighton-Smith and Bell, 2018, Tiggemann and Zaccardo, 2018). Concerning this, activities on social

media platforms based mainly on pictures and visual contents can be associated with greater control over one’s own appearance which, in turn, is linked to greater self-confidence, that acquires even more relevance when it comes to adolescents and young adults (Cataldo et al., 2020, Boursier et al., 2020).

### 3.3. Appearance related anxiety and depressive symptoms, self-esteem

Among fitspiration users fitness is rarely viewed as a healthy and functional instrument or as a way to improve physical performance (Pilgrim and Bohnet-Joschko, 2019), but rather it is mainly viewed as a mean to get in shape, look good and reach a beauty ideal (Raggatt et al., 2018, Simpson and Mazzeo, 2017), with this possibly leading to feelings of frustration, dissatisfaction and mood swings (“It makes me not enjoy things like going to the beach and like taking photos on holiday because you don’t look like the photos on Instagram”, “When I see fitness accounts where all the girls are like svelte and toned, I’m like oh, it’s hard to love me when I look like this” (Easton et al., 2018)).

The fitspiration-related pressure to obtain unrealistic and unobtainable body shapes reportedly contribute to generate a sense of inadequacy as individuals fail to meet such targets (Raggatt et al., 2018, Ratwatte and Mattacola, 2019). Fat loss is considered the result of personal success and strictly connected to worthiness (Ratwatte and Mattacola, 2019). Qualitative analyses and experimental studies reported that fitspiration exposure can increase short-term negative mood and decrease self-esteem (Tiggemann and Zaccardo, 2015, Easton et al., 2018, Carrotte et al., 2017, Prichard et al., 2020), which may lead to distorted and harmful beliefs about own body (Easton et al., 2018, Carrotte et al., 2017), and exacerbate cognitive mechanisms related to appearance comparison and psychological distress (Yang et al., 2020).

A recent work by Taylor and colleagues on adolescents (mean age = 12.19 years) physical activity reported that an external motivation to exercise, such as appearance, was significantly associated with greater levels of internalizing problems, including depressive and anxious symptomatology (Taylor et al., 2020).

### 3.4. Excessive control of eating habits

The concern towards eating healthy food and other behaviours promoted by fitspiration posts, such as restrictive eating, calories tracking, and fasts, can lead to inadequate nutrition, with consequent impairment of daily functioning (Tiggemann and Zaccardo, 2015, Easton et al., 2018, Ratwatte and Mattacola, 2019, Blackstone and Herrmann, 2018, Turner and Lefevre, 2017). Evidence indicated that fitspiration contents recall topics from thinspiration phenomenon: calories counting, meal-

tracking, dietary restrictions and intermittent fasting are commonly recommended among the trend promoters (Ratwatte and Mattacola, 2019). Boepple and Thompson reported a robust overlap of their contents: 21 out of 50 fitspiration sites contained thinspiration-like messages (Boepple and Thompson, 2016). Moreover, Jennings and colleagues (Jennings et al., 2020) carried out a linguistic analysis of pro-anorexia and fitspiration contents, exploring the differences in their cognitive and emotional influences; results showed that fitspiration posts promoted greater social comparison processes than pro-anorexia and control posts. In addition, the research of Holland and Tiggemann (Holland and Tiggemann, 2017) underlined that women who posted fitspiration images had higher scores of disordered eating, drive for muscularity and compulsive exercise compared to women who posted travel photos, while Raggatt et al. (Raggatt et al., 2018), in their cross-sectional online survey, reported that the 17.7% of fitspiration users were classified as at high-risk of an eating disorder.

### 3.5. Use of enhancing drugs

Consumption of dietary supplements without medical supervision is often promoted by fitspirational celebrities on social media (Pilgrim and Bohnet-Joschko, 2019, Ratwatte and Mattacola, 2019), and studies have suggested that a large percentage of individuals referring to fitness clubs use substances and supplements (defined as performance and image-enhancing drugs - PIEDs), often in absence of medical supervision (Corazza et al., 2019, Mooney et al., 2017, De Luca et al., 2017).

These products include a wide range of vitamins, minerals, herbals or enzymes which often are sold with misleading information on the support of weight-loss/muscle gain and are perceived by users to be safe and essential to achieve a fit and toned body (Mooney et al., 2017, Bersani et al., 2015, McVeigh et al., 2012). They are potentially associated with both short-term and long-term psychiatric side effects, as well as with doping and addiction phenomena (Mooney et al., 2017, Bersani et al., 2015, McVeigh et al., 2012).

### 3.6. Quality of life

When the physical activity becomes not just a priority but a compulsive behaviour, the social sphere can be negatively affected due to interpersonal conflicts or isolation (Lichtenstein et al., 2017). In a qualitative study conducted by Easton and colleagues on young adults, aged 18-25, participants who considered themselves slightly overweight reported feelings of exclusion and misfit and feelings of hideousness ("If you're bigger, it can make you feel horrendous, it can make you feel completely alien and that you shouldn't look like that") (Easton et al., 2018). Subsequently, the impairment on a social level could trigger on its turn psychological distress and behavioural manifestations (Lichtenstein et al., 2017), leading to decreased quality of life through all the issues discussed above.

## 4. Conclusions

The transition from adolescence to adulthood represent a very sensitive phase, during which the young person undergoes through a succession of rapid and major changes with regards to physiological mechanisms (Das et al., 2017, Cataldo et al., 2020), maturation of brain structures, physical modifications, increased social autonomy, the development of one's identity (Clay et al., 2005, Forrest and Stuhldreher, 2007), and one's own body image (Voelker et al., 2015, Forrest and Stuhldreher, 2007). Within this set of adjustments, hormonal variations influence as a cascade effect the composition of the body, especially with regards to fat body mass (Das et al., 2017). Hence, it is important to follow appropriate eating support during this stage, in order to provide the organism with a proper calories and nutritional intake. At the same time, alimentary patterns might be influenced by individual characteristics, like metabolism, personal beliefs or attitudes, and external factors, such as culture, family, and peers (Stang and Story, 2008).

According to several studies, propensity to interact with social media is especially high at the age of 12-13 years (Wilksch et al., 2020), with users mainly looking for health and fit information (Ahola Kohut et al., 2018). Under the light of these considerations, social media can represent a variable that needs to be taken into account when it comes to both feedbacks from social groups and personal beliefs. In fact, the exposure to contents promoting hard-to-reach image standards in people whose body is going through a settling phase could reinforce underlying dysfunctional beliefs or attitudes towards one's own body image, nutritional habits and physical activity.

The reviewed data suggest that fitspiration trends expose young people to self-objectification and unsafe behaviours, enhancing the risk of developing psychopathological symptoms as well as clinically significant conditions such as eating disorders, mood and anxiety disturbances, EA, substance misuse, BDD or MD (Boepple and Thompson, 2016, Holland and Tiggemann, 2017). Certain fitspiration-related themes such as "self-worth measured in centimetres", exposure to unsupervised supplement intake, perception of pain as pleasure, or excessive control of eating habits, should receive special attention as it is possible that they represent elements contributing to the development of clinically meaningful psychiatric conditions.

Of relevance, the identified fitspiration themes associated with psychopathological risks are not specifically related to one specific DSM5-defined condition, but rather to a wide spectrum of disturbances, each having repercussions on the others. Our review thus suggests the importance to develop comprehensive studies analysing the complexity of body image and appearance phenomena in relation to trans-diagnostic disorders (Raggatt et al., 2018, Simpson and Mazzeo, 2017). In this context, we find potential in a dimensional rather than categorical approach, recently developed through the Research Domain Criteria (Biondi et al., 2018, Insel et al., 2010).

Suggestions for future studies on the topic include: (i) research should not be limited to common hashtags such as #fitspiration or #fit-spo, but it may be broadened to additional aspects of body image; (ii) the emergence of new platforms where users can share short videos, such as Tik Tok (with several millions of users) should be taken into consideration; (iii) protocols aimed at increasing the knowledge on the field among healthcare providers and at developing specific forms of intervention for preventing mental health outcomes related to social media trends may be encouraged; (iv) focus on social media celebrities ("influencers") concerning specific topics, such as physical activity or healthy food, with the double aim to have a more detailed frame of the fitspiration phenomenon.

Due to the potential negative consequences that fitspiration can have on adolescents, it is important to develop interventions specific for this age supporting the positive aspects of fitspiration, such as improving health, physical performance, and wellbeing, and reducing the pressure related to body image. As stated by Bell et al. (Bell et al., 2019), physical activity in adolescence can be motivated by intrinsic reasons, like amusement, competition or social factors, regardless of physical appearance; a focus given to such aspects may contribute to reduce the negative impact that appearance-related reasons to engage in exercise activities can induce.

## CRedit author statement

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IDL: Investigation (search of literature and analysis of results); Writing – Review and Editing

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GE: Conceptualization; Writing – Review and Editing

OC: Conceptualization; Methodology; Supervision; Writing – Review and Editing; Funding Acquisition; Coordination.

## Compliance with ethical standards

**Ethical approval.** This article does not contain any studies with human participants or animals performed by any of the authors.

**Informed consent.** For this type of study, formal consent is not required.

## Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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