Is This What a Female Yogi Looks Like? A Content Analysis of Yoga Images on Instagram

Abstract

As yoga continues to increase in global popularity, idealized representations of a thin, athletic 'yoga body' have also become more prominent across commercial media. To examine how yoga is typically represented on social media, a content analysis of the posts of female yoga practitioners on Instagram was undertaken. Images were sourced using hashtags *#yoga*, *#yogabody*, *#yogapractice*, and *#yogawoman*, and 200 females per hashtag were then coded on demographic factors, body shape, activity, objectification, and practice of yoga. Results showed that over 90% of women in the images were coded as being under 40 years of age with the vast majority in their 20s. Almost three-quarters of women were perceived to be white, 100% appeared able bodied. More than 80% were classed as thin and/or athletic, while less than 15% displayed average levels of visible body fat. More than 50% of yoga poses were advanced while a quarter displayed potentially unsafe alignment. The findings demonstrate that the typical 'yoga body' on Instagram was perceived to conform to the young, thin/athletic ideal and that overall yoga is not being represented as an inclusive physical practice that can be adapted for women of diverse ages, body types, and abilities.

Keywords: yoga, thin ideal, body image, social media, Instagram, media representation

1. Introduction

Yoga is an integrative practice that incorporates physical movement, breathing exercises, and a meditative focus for the purposes of health and wellbeing (Salmon et al., 2009). While yoga is believed to have originated in Southeast Asia, its global popularity continues to grow and more contemporary forms of yoga have become accepted and are practiced within broad-ranging cultural contexts (Park et al., 2015; Salmon et al., 2009). For example, the number of Americans practicing yoga in 2016 had risen to over 36 million (Ipsos Public Affairs, 2016). In Australia, more than 2 million individuals have reported participating in yoga (Roy Morgan, 2016, 2018). Compared to various sports and other physical activities, yoga was rated as the fastest growing activity in Australia between 2008 and 2016, and considerably more popular than Pilates and aerobics (Roy Morgan, 2016, 2018). Yoga is particularly popular with women, who in Australia constitute more than 80% of participants (Roy Morgan, 2018).

Yoga is an activity that not only helps individuals to develop physical strength and flexibility, but which also encourages mindfulness of the body, breath, thoughts, and emotions (Salmon et al., 2009). These qualities of yoga have the capacity to promote a positive view of one's physical form and capabilities, known as positive embodiment (Cox & Tylka, 2020; Mahlo & Tiggemann, 2016; Menzel & Levine, 2011; Piran & Neumark-Sztainer, 2020). Further, a growing number of studies have shown yoga to be associated with decreases in negative body image factors such as self-objectification and body dissatisfaction (Alleva et al., 2020; Cox et al., 2016; Daubenmier, 2005; Impett et al., 2006; Prichard & Tiggemann, 2008) as well as increased positive body image factors including body awareness, appreciation, and satisfaction, and an overall positive embodiment (Alleva et al., 2020; Ariel-Donges et al., 2019; Daubenmier, 2005; Dittman & Freedman, 2009; Gammage et al., 2016; Halliwell et al., 2019; Impett et al., 2006; Lauche et al., 2017; Neumark-Sztainer

et al., 2018). These body image related benefits of yoga appear to be evident after both short-term (Gammage et al., 2016; Halliwell et al., 2019) and longer-term interventions (Alleva et al., 2020; Ariel-Donges et al., 2019; Impett et al., 2006), and have also been shown to last beyond the period of the intervention (Halliwell et al., 2019).

Yoga incorporates a range of physical and mental practices and it is the multifaceted nature of yoga that makes it an inclusive practice that can be adapted to suit individuals (Field, 2011). Therefore, it could be expected that media images of yoga practitioners may be more likely than other fitness related content to reflect positive body image messages such as body appreciation and positive embodiment through diverse representations. However, a content analysis of yoga magazine covers published between 2010 and 2015 found that female cover models were predominantly young (in their 20s and 30s), white, thin, with high levels of skin visibility on the top half of their bodies, and framed in an active manner (Webb, Vinoski, Warren-Findlow, Padro et al., 2017). Models within yoga magazine advertisements were also found to be predominantly white, young, and thin (Vinoski et al., 2017). These combined findings suggest that representations of a young and thin ideal featuring elements of objectification are also present within a yoga context, at least in the medium of print journalism.

An analysis of changes to models' attributes on yoga magazine covers over a 40-year period found that not only were recent cover models more likely to be thin, but they were also more likely to be posed actively (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017). While 'asana' or physical postures are an important element of yoga practice, Webb et al. reported that many of the poses featured were 'strenuous' in nature. This analysis did not code for specific poses, which means that the level of difficulty according to a yoga context cannot be determined. However, the findings suggest that in addition to a thin 'yoga body' there may also be an increasing trend for yoga to promote a 'functional ideal' through

performative demonstrations of physical strength and/or flexibility. When this is considered in combination with concerns about the modern-day efficacy of many advanced level yoga poses and also the risks associated with not receiving the appropriate instructions or preparation for yoga poses (Fishman et al., 2009; Sekendiz, 2020; Swain & McGwin, 2016), it is possible that an idealized representation of functionality in yoga may present an additional layer of harm to viewers in relation to physical risk. Furthermore, frequent comparison to highly skilled representations of yoga in the media may provide a barrier to women being able to truly appreciate their own functional capabilities.

The negative impacts of exposure to the thin ideal on women's body image are well established (for meta-analyses see Grabe et al., 2008; Levine & Murnen, 2009; Myers & Crowther, 2009; Want, 2009). Within the last fifteen years, women's exposure to idealized images has become far more pervasive with the introduction of social media platforms. For example, in Australia, close to eight out of ten people use social media, and over a third of users check social media more than five times a day (Sensis, 2018). Social media has also become a dynamic and highly accessible means by which individuals can share and track their own health and fitness journeys and those of others. A recent, particularly prominent health and fitness internet trend is the 'fitspiration', or 'fitspo' movement. The term is an amalgamation of 'fitness' and 'inspiration', and fitspiration content is intended to encourage healthful and positive behaviour in relation to diet and exercise (Holland & Tiggemann, 2017). A search of #fitspiration on Instagram in April 2020 returned over 18 million images, the abbreviated #fitspo more than 65 million. Given that Instagram is essentially a 'user-generated' platform, it could be anticipated that fitness related posts may reflect a more diverse range of body types and sociodemographic variables than seen in commercial media. However, two recent content analyses of the 'fitspiration' hashtag demonstrated that women in these posts also tended to conform to an ideal with 75.2 (Tiggemann & Zaccardo, 2018) to

86.6% (Deighton-Smith & Bell, 2018) of women in the images classified as thin and 45.7 (Deighton-Smith & Bell, 2018) to 56.2% (Tiggemann & Zaccardo, 2018) showing visible muscularity. The findings from these analyses highlight the general lack of body-diversity within fitspiration images on Instagram and suggest that these idealized images reinforce the message for users that only one body type is equated with fitness and health. In turn, exposure to idealized images that implicitly promote appearance-related reasons for exercise can reduce womens' motivation to begin and persist in exercise (Prichard & Tiggemann, 2008; Raggatt et al., 2018).

Given the extent of images featuring the thin and athletic ideal on the social media platform of Instagram (Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018) and yoga's growing popularity and alignment with fitness culture, it can be anticipated that idealized depictions of yoga have also carried over to social media. The frequency with which individuals access social media suggests that women may be more regularly exposed to yoga representation on social media than the magazine models analyzed in previous research (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017). Furthermore, it has been suggested that because social media platforms such as Instagram are user-generated, this gives viewers the impression that the subjects of posts are more relevant targets for comparison than women featured within traditionally commercial forms of media such as magazines (Fardouly & Vartanian, 2015). This may mean that for many women, their impression of what constitutes a typical yoga practitioner is predominantly informed by what they are viewing regularly on social media.

1.1. Aim

The current study aimed to provide an analysis of female yoga representation on Instagram, and to our knowledge is the first to do so. More specifically, considering that yoga has been shown to positively influence women's body image, the current study aimed to

identify the presence of factors which may act as potential barriers to participation, or which may interfere with the capacity for current practitioners of yoga to develop a positive view of their bodies. To achieve the aim, a coding guide was developed based on theory, previous content analyses (Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018; Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017; Webb et al., 2018), and variables specifically related to yoga.

1.2. Theoretical Framework

Three prominent theories within the body image literature informed the development of the coding guide: sociocultural theory, objectification theory, and body conceptualization theory. According to sociocultural theory (Thompson et al., 1999), a major contributing factor to body image dissatisfaction is the thin body type currently held as an idealized standard within western cultures; a standard that excludes many women. Furthermore, considering that cultural expectations are communicated through mass media, women find themselves continually exposed to the thin ideal within their daily lives (Grabe et al., 2008; Groesz et al., 2002; Levine & Murnen, 2009). Objectification theory (Fredrickson & Roberts, 1997) proposes that there is also a western cultural tendency for women to be sexualized and objectified through the visual inspections and evaluations which are commonplace within interpersonal encounters. Many media images are also manipulated so that certain body parts are emphasized in order to immediately direct the gaze to the body in an objectifying manner. Body conceptualization theory (Franzoi, 1995) states that while some individuals conceive of their body as an ‘object’ (separate body parts to be viewed), an additional way of viewing and presenting the body is as ‘process’ (i.e., functionality, what the body can ‘do’). Franzoi suggests that an individual’s dominant orientation tends to influence not only how they present themselves in images, but also how they interact with and perceive images of others, and which aspects of themselves and other individuals they focus on to determine their

alignment with culturally determined beauty ideals. Franzoi reported that women tend to exhibit a greater tendency to hold an 'object' orientation than men. This could be due to the prevalence of objectification in women's lives in general and the influence of idealized media on women's processes of self-objectification (Franzoi, 1995).

Combined, these theories provided a framework for determining the extent to which the images of yoga on Instagram analyzed for this study conformed to the objectified and idealized beauty standards seen in other forms of media. In addition, in order for the findings of the analysis to inform inclusive and realistic future yoga representation in online spaces, the coding guide extended from previous analyses of yoga content in magazines (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017) by incorporating categories to measure the alignment of the images with typical yoga practice in regular community settings. These additional codes included: location of practice, specific yoga pose type, and level of difficulty.

1.3. Hypotheses

Based on the findings from previous content analyses of fitspiration on Instagram and yoga in magazines (Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018; Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017; Webb et al., 2018), it was expected that idealized 'yoga bodies' in functionally idealized poses would also be present on social media. More specifically, it was predicted that females associated with yoga on Instagram would be predominantly under 30, white, thin with visible muscularity, high levels of bare skin, wearing yoga/sports attire which revealed the top halves of their bodies, and in active, advanced yoga poses. Four separate metadata tags ('hashtags') were included in the analysis and while results are reported for the whole sample, differences between the hashtags were also considered to determine whether certain

features were more or less prominent when using specific search terms (for example, yoga practice vs yoga body).

2. Method

2.1. Sample

A research specific Australian Instagram account was created for the purposes of the analysis and all images used for coding were sourced from Instagram on 5th June 2019 using a mobile device. The term 'yoga' was entered into Instagram's search bar, and the 'tags' tab was selected to view a list of yoga related metadata tags (hashtags). Four hashtags were selected from this list in order to capture images that aligned with the aims of the study. These included *#yoga* and *#yogapractice*, which were the first two tags on the list at the time of image selection. Both *#yoga* and *#yogapractice* contain numbers of posts in the millions and therefore were considered likely to provide broad, general representations of yoga practice. More specific tags were also selected from the list: *#yogabody* (in line with the suggestion of Webb, Vinoski, Warren-Findlow, Padro et al., 2017 that a 'yoga body' stereotype has recently emerged) and *#yogawoman* in order to determine the types of images posted purely from a female perspective. A search was then performed for each hashtag and using the 'recent' filter provided by Instagram in order to capture the most current data, images were saved until the sample size had reached 200 women per hashtag. Only publicly available images were accessed. The sample size of 800 women is based on previous analyses of social media content which have coded between 600 (Cohen et al., 2019; Tiggemann & Zaccardo, 2018) and 1000 images (Deighton-Smith & Bell, 2018).

To reach the intended sample size of 800 women (200 per hashtag) a total of 1,157 images were accessed. Of these images, 340 were excluded as they did not contain the presence of at least one female (e.g., images of men or quotes) or they were group images including more than 8 individuals. Groups larger than 8 were excluded as greater numbers of

individuals within the frame reduced the level of visible detail required for accurate coding. In images of groups with less than 8 members, each individual was coded separately. Based on previously published content analyses, the focus of the current study was the analysis of still images, therefore videos (*n* = 77) were also excluded. Most of the excluded images came from *#yoga* (52.6%) which demonstrates the breadth of content that this particular tag covers and provides further support for the inclusion of tags more specific to the aims of the current study. The final total sample size was 800 women across 740 images (*#yoga* = 176 images, *#yogabody* = 187 images, *#yogapractice* = 183 images, *#yogawoman* = 194 images).

2.2. Procedure

2.2.1. Development of Coding Guide

A coding guide was developed based on the theoretical framework of sociocultural theory (Thompson et al., 1999), objectification theory (Fredrickson & Roberts, 1997), and body conceptualization theory (Franzoi, 1995); as well as previously published analyses of yoga magazine covers (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017) and fitspiration on Instagram (Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018). Full descriptions of the different levels of each coding variable are given in Table 1.

2.2.2. Coder Training

Prior to data coding, the lead and second co-author discussed the guide and trained with a small sample of 10 images from each hashtag. Any disagreements were discussed so that a consensus could be reached, and the coding guide was further refined. The lead author then coded the entire sample; the second co-author coded a subset of the sample (10% from each hashtag). Inter-reliability was calculated for all categories except the specific yoga variables. Yoga variables were coded only by the lead author who is a qualified Hatha yoga teacher with 18 years of yoga practice experience, 12 years of yoga teaching experience, and

additional qualifications in yoga therapy, and sport and exercise science. As demonstrated in Table 1, high levels of reliability were found across all variables included in the reliability analyses, and therefore the lead author's codes were used.

2.2.3. Coding

Images were first coded as to whether they were of a group (more than one individual), headshot (from the chest upwards), or selfies. Of the original 1,157 still images, 72 were group images. Selfies are photos taken by the self, typically taken at arm's length (Couture Bue, 2020) but for this study photos taken in the mirror were also included. Images were then coded for perceived age range along with perceived race/ethnicity which was dichotomized to white and non-white based on findings from Webb, Vinoski, Warren-Findlow, Padro et al. (2017) and Webb et al. (2018). Following Vinoski Thomas et al. (2018) coders also noted whether there were any visible representations of a perceived physical disability within the image (e.g., visible prosthetic or use of an assistive device). Basic appearance characteristics were coded using subjective rating scales based on but extended from Tiggemann and Zaccardo (2018). These codes were body tone/muscularity and body type/physical build, which was determined by levels of visible body fat in combination with muscularity.

With regard to physical activity, female's activity was coded as either active or non-active, in line with body conceptualization theory and previous content analyses (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017). Extending from previous research, if women were coded as active, then coding subsequently indicated whether the activity was yoga or 'other' physical activity. Images were also coded for variables associated with the presence of objectification including whether a single body part was the main focus of the image, whether the model posed in a sexually suggestive manner (as outlined by Coltrane & Messineo, 2000; Ghaznavi & Taylor, 2015; Tiggemann & Zaccardo, 2018), and also the level of skin exposure and cleavage present. Given that the current content analysis was also focused on determining the extent

to which the images represented typical yoga practice within regular community settings, coding categories expanded on those used in yoga magazine content analyses (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017) by including attire type, perceived location, yoga pose type, and pose difficulty. In previous analyses (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017), type of attire was considered to represent objectification and coded as skin revealing or form-fitting. However, form-fitting 'activewear' may be considered a cultural norm while practicing yoga, and therefore the current study included more specific categories relevant to examining whether the attire is typical of yoga practice. Categories included: nude, swimsuit, typical form-fitting fitness attire, and atypical fitness attire.

In relation to pose type, the current study extended from previous research by including yoga specific categories (e.g., seated, standing, balance, backbends) and also by coding poses for difficulty (beginner, intermediate, advanced). Pose type and difficulty were determined by the lead author using a combination of industry experience and the consultation of various texts related to class sequencing and pose categorization (for example Stephens, 2012; van Leeuwen, 2013) as well as Yoga Journal's online resource of poses (https://www.yogajournal.com/poses/poses-by-level). Yoga poses were also analyzed for potential physical risks. This was determined as poses which the lead author would either not condone in a class setting or which they considered may necessitate adjustment due to the demonstration of potentially unsafe alignment.

Table 1

Coding Variables with Descriptions and Levels

Variable	Levels of variable (with definitions)	% agreement	Cohen's Kappa
Perceived age	<20s, 20s, 30s, 40s, 50s, 60s, >60, unable to determine	86.3%	.803
Perceived race	White, non-white, unable to determine	95.0%	.893
Group image	• Presence of 2 to 8 individuals in non-yoga activity • Presence of 2 to 8 individuals in yoga class or partner yoga • More than 8 individuals in activity besides yoga • More than 8 individuals in a yoga class	N/A	N/A

All over body tone/muscular definition	• Little to no visible definition (incl. partial definition e.g., only one visibly defined muscle) • Visible definition (definition of multiple muscle groups clear) • High-level definition (multiple muscle groups clear and highly developed musculature present) • Unable to determine (loose clothes, shadowed image, cannot see more than 50% of full form)	92.5%	.863
Body type/physical build	• Very thin (visible bone structure but not due to position of body e.g., yoga backbend) • Thin (slight to slender frame with no visible fat stores, and little to no visible muscular definition) • Thin/Athletic ('athletic ideal' – lean frame with little to no visible fat stores but visible muscularity) • Athletic (medium frame with some levels of visible fat and also visible muscularity) • Average (medium frame with moderate level of visible fat) • High level of visible fat • Unable to determine (loose clothes, shadowed image, cannot see more than 50% of full form and the 50% visible doesn't include abdomen, waist, hips)	91.3%	.857
Body conceptualization (action)	• Active yoga pose • Non-active yoga pose (glamour pose but still yoga related e.g., sitting on yoga mat or using mudra i.e., hand gesture) • Active non-yoga pose • Non-active non-yoga pose (i.e., not related to yoga or other physical activity)	95.0%	.890
Yoga pose category	• Supine and floor supported (including inverted postures that are not balance poses) • Seated • Standing • Balance • Backbend	N/A	N/A
Yoga pose difficulty	• Easy/beginner • Medium/general • Advanced	N/A	N/A
Potential risk of injury	Whether female is posed in a way that would not be taught or recommended in a typical class and which may increase risk of physical harm (e.g., hyperextension through lumbar spine, compression of cervical spine etc.).	N/A	N/A
Objectification:	• Face visible/not visible • Specific body part is main focus of image (is image framed in a way that draws gaze to a body part) • Model is posing in sexually suggestive manner (i.e., sultry gaze, winking, arching back separate to what is required for yoga backbend) Amount of skin exposure: • Bare arms (from shoulder) • Bare legs (from mid-thigh) • Bare midriff (more than 50% of section from pelvic rim to underbust visible)	100% 100% 98.8% 100% 100% 100%	1.00 1.00 .916 1.00 1.00 1.00

	• Cleavage: (no cleavage visible at all, typical levels of cleavage visible i.e., what one would expect to see in typical active pose, clear presentation i.e., cleavage appears intentionally highlighted)	100%	1.00
Attire	• Underwear • Swimsuit • Form-fitting sports/yoga attire • Atypical attire (not sports/yoga or not typical for yoga practice i.e., leggings and bikini top, jeans, evening wear) • Nude	98.8%	.968
Location	• Beach or water (natural setting only) • Green (i.e., 'green' nature as clear focus of background) • Travel landmark (i.e., clear travel destination or clearly on trip) • Non-specific outdoor (i.e., not clearly green or beach/natural water, may also be a built-up environment) • Home (presence of items which make it clear that it is a home environment i.e., books/lounge) • Gym (presence of items which make it clear that it is a gym environment i.e., weight rack) • Yoga Studio (presence of items which make it clear that it is a yoga studio i.e., mat, yoga related paraphernalia) • Non-specific indoor (no clear indicators of above indoor environments)	97.5%	.968

2.3. Data Analysis

Images were coded directly into IBM SPSS Statistics version 24. Descriptive analyses (frequencies and percentages) were conducted to establish the quantities of each variable across the whole sample as well as per hashtag, and chi-square analyses were used to determine whether there were differences between hashtags for each variable. Chi-square analyses were only performed for categories that did not violate the assumption of cell counts less than 5, to maintain appropriate levels of statistical power (Howell, 2011). Significance was not tested for cell counts less than 5, as differences across hashtags in categories with very low (or zero) instances were considered to have little practical significance. Significant chi-square results (alpha level set at .05) were further analyzed using standardized residuals and Cramér's V as a measure of effect size, following the protocol of Field (2016).

3. Results

3.1. Preliminary Analyses

Descriptive analyses for each variable across the whole sample (N = 800) as well as per hashtag is shown in Table 2. A small percentage (9.5%) of the total images were headshots which were included in the sample, but which were only coded for perceived age and race/ethnicity. There were less headshots in *#yogabody* than in *#yoga* and *#yogawoman*, $\chi^2(3) = 16.40$, $p = .001$, V = .143. Relatively few (6.5%) of the overall number of images were selfies, though there were more of these in *#yoga* than in other hashtags, $\chi^2(3) = 30.40$, $p = < .001$, V = .195.

3.2. Sociodemographic Attributes

The vast majority of women in the images were perceived to be under 40 years of age (93.2%) with close to three quarters perceived to be in their 20s. Most of the women (70%) were perceived to be white. There were no differences between the four hashtags in the most frequently categorized age groups (20s and 30s), $\chi^2(3) = 4.15$, $p = .246$. However, there were less women of color in *#yogawoman* than other hashtags, $\chi^2(3) = 18.66$, $p = < .001$, V = .162. There were no clear visible indicators within the images of the presence of a physical disability.

3.3. Muscularity and Body Type

Just over three quarters (76.2%) of the women's bodies in the images were either not visibly toned or demonstrated only partial tone (i.e., one muscle group). In relation to body type, the majority of women were considered thin (63.0%) with smaller numbers distributed across the other categories: very thin (3.2%), thin/athletic (16.3%), athletic (6.4%), average (10.5%), and high levels of visible fat (0.6 %). There were no differences in the main categories of body tone (little to none and visible definition) across hashtags, $\chi^2(3) = 5.80$, $p = .122$, or in body type/build categories (very thin, thin, thin/athletic, athletic, and average) across hashtags, $\chi^2(12) = 11.63$, $p = .476$.

3.4. Body Conceptualization, and Objectification Attributes

The vast majority of women were in active poses (81.1%), with most of these being yoga poses (67.8%). Within *#yoga,* there were less active yoga poses and more non-active non-yoga poses than in other hashtags, $\chi^2(9) = 45.79$, $p = < .001$, V = .145. Most women's faces were visible (69.4%), though women in *#yoga* were less likely to have their face averted than in other hashtags, $\chi^2(3) = 10.66$, $p = .014$, V = .115. Few images had a clear focus on a specific body part (5.7%) or were presented in an objectified way (7.0%). There were no differences across hashtags in the frequencies of women presented in a sexually suggestive pose, $\chi^2(3) = 0.33$, $p = .955$. However, there were less images in *#yogapractice* which focused on a specific body part than other hashtags, $\chi^2(3) = 20.12$, $p = <.001$, V = .167.

The highest levels of skin exposure were seen on the upper body, with the majority of women displaying bare arms (78.9%). There were no differences across hashtags for arm exposure, $\chi^2(3) = 7.91$, $p = .048$, V = .105, leg exposure, $\chi^2(3) = 6.30$, $p = .098$, or midriff exposure, $\chi^2(3) = 2.87$, $p = .413$. Most women in the sample were posed so that no cleavage was visible (76.4%), and there were also no differences in this variable across hashtags, $\chi^2(6) = 3.36$, $p = .763$.

3.5. Yoga-specific Attributes

The most frequent type of poses seen were balance poses, which represented more than a third of all poses depicted (37.9%). There were more balance poses in *#yogabody* than other hashtags, and more floor-based poses in *#yogapractice*, $\chi^2(12) = 28.26$, $p = .005$, V = .129. Over half (54%) of the yoga poses depicted were advanced, and pose difficulty appeared to be equally represented across hashtags, $\chi^2(6) = 6.64$, $p = .356$. More than a quarter (26.8%) of the yoga poses were considered to show a potential risk of physical harm. There were also no differences in risk across hashtags, $\chi^2(3) = 1.34$, $p = .721$.

In terms of clothing and image setting, more than 70% of women were in sports/yoga attire, and locations were varied with outdoor locations (55.8%) represented slightly more frequently than indoor locations (44.2%). There were no differences in either the main categories of attire (swimsuit, sports/yoga, atypical) or location (excluding gym) across hashtags; $\chi^2(6) = 11.56$, $p = .072$ and $\chi^2(18) = 18.04$, $p = .453$ respectively.

Table 2

Observed Frequencies Across Different Hashtags for all Coding Guide Variables

Variable (sample size)	**Across all hashtags** *n* (%)	***#yoga*** *n (%)*	***#yogabody*** *n (%)*	***#yogapractice*** *n (%)*	***#yogawoman*** *n (%)*
Age range [a] (*N* = 800):					
<20s	4 (0.7)	1 (25.0)	1 (25.0)	1 (25.0)	1 (25.0)
20s	391 (71.7)	110 (28.1)	102 (26.1)	103 (26.3)	76 (19.4)
30s	113 (20.7)	35 (31.0)	30 (26.5)	20 (17.7)	28 (24.8)
40s	25 (4.6)	1 (4.0)	6 (24.0)	10 (40.0)	8 (32.0)
50s	7 (1.3)	1 (14.3)	1 (14.3)	2 (28.6)	3 (42.9)
60s	2 (0.4)	1 (50.0)	0	1 (50.0)	0
>60s	3 (0.6)	3 (100.0)	0	0	0
Unable to determine	255 (31.9)	48 (18.8)	60 (23.5)	63 (24.7)	84 (32.9)
Ethnicity [a] (*N* = 800):					
White	500 (70.0)	117 (23.4)	115 (23.0)	123 (24.6)	145* (29.0)
Non-white	214 (30.0)	70 (32.7)	53 (24.8)	60 (28.0)	31* (14.5)
Unable to determine	86 (10.8)	13 (15.1)	32 (37.2)	17 (19.8)	24 (27.9)
Headshot (*N* = 800)[b]	76 (9.5)	29 (38.2)	8* (10.5)	14 (18.4)	25 (32.9)
Selfie (*N* = 800)	52 (6.5)	29* (55.8)	6 (11.5)	5 (9.6)	12 (23.1)
Group images (*N* = 72):					
Non-yoga activity < 8	17 (23.6)	12 (70.6)	4 (23.5)	1 (5.9)	0
Yoga class or partner yoga < 8	33 (45.8)	8 (24.2)	12 (36.4)	11 (33.3)	2 (6.1)
Non yoga activity >8	2 (2.8)	0	0	2 (100.0)	0
Yoga class >8	20 (27.8)	7 (35.0)	4 (20.0)	8 (40.0)	1 (5.0)
Body tone/muscularity [a] (*N* = 724): Little to no visible muscularity	475 (76.2)	116 (24.4)	141 (29.7)	121 (25.5)	97 (20.4)
Visible muscularity	137 (22.0)	30 (21.9)	33 (24.1)	33 (24.1)	41 (29.9)
High-level muscularity	11 (1.8)	6 (54.5)	1 (9.1)	1 (8,1)	3 (27.3)
Unable to determine	101 (14.0)	19 (18.8)	17 (16.8)	31 (30.7)	34 (33.7)
Body type/physical build [a] (*N* = 724): Very thin	22 (3.2)	6 (27.3)	10 (45.5)	4 (18.2)	2 (9.1)
Thin	430 (63.0)	99 (23.0)	122 (28.4)	109 (25.3)	100 (23.3)
Thin/Athletic	111 (16.3)	26 (23.4)	29 (26.1)	24 (21.6)	32 (28.8)
Athletic	44 (6.4)	14 (31.8)	7 (15.9)	11 (25.0)	12 (27.3)

Average levels of visible fat	72 (10.5)	19 (26.4)	16 (22.2)	19 (26.4)	18 (25.0)
High levels of visible fat	4 (0.6)	1 (25.0)	2 (50.0)	0	1 (25.0)
Unable to determine	41 (5.7)	6 (14.6)	6 (14.6)	19 (46.3)	10 (24.4)
Action (pose type; *N* = 724**):**					
Active yoga pose	491 (67.8)	94* (19.1)	135 (27.5)	142 (28.9)	120 (24.4)
Non-active yoga	32 (4.4)	10 (31.3)	4 (12.5)	10 (31.3)	8 (25.0)
Active non-yoga pose	96 (13.3)	18 (18.8)	31 (32.3)	21 (21.9)	26 (27.1)
Non-active non-yoga pose	105 (14.5)	49* (46.7)	22 (21.0)	13 (12.4)	21 (20.0)
Objectification					
Face visible (*N* = 800)	555 (69.4)	157* (28.3)	132 (23.8)	135 (24.3)	131 (23.6)
Body part focus (*N* = 724)	41 (5.7)	10 (24.4)	10 (24.4)	1* (2.4)	20 (48.8)
Sexually suggestive pose (*N* = 724)	51 (7.0)	12 (23.5)	15 (29.4)	13 (25.5)	11 (21.6)
Skin exposure (*N* = 724)**:**					
Bare arms	571 (78.9)	132 (23.1)	161 (28.2)	151 (26.4)	127* (22.2)
Bare legs	123 (17.0)	23 (18.7)	32 (26.0)	28 (22.8)	40 (32.5)
Bare midriff	307 (42.4)	65 (21.2)	86 (28.0)	85 (27.7)	71 (23.1)
Cleavage (*N* = 724)**:**					
Not visible	553 (76.4)	126 (22.8)	146 (26.4)	149 (26.9)	132 (23.9)
Normal visible	163 (22.5)	42 (25.8)	45 (27.6)	35 (21.5)	41 (25.2)
Purposeful	8 (1.1)	3 (37.5)	1 (12.5)	2 (25.0	2 (25.0)
Yoga pose category (*N* = 724):					
Supine/floor supported	131 (23.1)	22 (16.8)	30 (22.9)	52* (39.7)	27 (20.6)
Seated	73 (12.9)	13 (17.8)	17 (23.3)	23 (31.5)	20 (27.4)
Standing	77 (13.6)	13 (16.9)	19 (24.7)	22 (28.6)	23 (29.9)
Balance	215 (37.9)	49 (22.8)	79* (36.7)	44 (20.5)	43 (20.0)
Backbend	71 (12.5)	13 (18.3)	16 (22.5)	18 (25.4)	24 (33.8)
Not applicable	157 (21.7)	61 (38.9)	31 (19.7)	27 (17.2)	38 (24.2)
Pose difficulty (*N* = 724):					
Easy/beginner	107 (18.8)	17 (15.9)	26 (24.3)	30 (28.0)	34 (31.8)
Medium/general	154 (27.2)	26 (16.9)	48 (31.2)	43 (27.9)	37 (24.0)
Advanced	306 (54.0)	67 (21.9)	87 (28.4)	86 (28.1)	66 (21.6)
Not applicable	157 (21.7)	61 (38.9)	31 (19.7)	27 (17.2)	38 (24.2)
Injury risk (*N* = 523)[c]	140 (26.8)	24 (17.1)	37 (26.4)	40 (28.6)	39 (27.9)
Attire (*N* = 724)**:**					
Underwear	2 (0.3)	1 (50.0)	1 (50.0)	0	0
Swimsuit	27 (3.7)	3 (11.1)	9 (33.3)	7 (25.9)	8 (29.6)
Sports/yoga attire	535 (73.9)	128 (23.9)	138 (25.8)	151 (28.2)	118 (22.1)
Atypical attire	158 (21.8)	38 (24.1)	44 (41.9)	28 (17.7)	48 (30.4)
Nude	2 (0.3)	1 (50.0)	0	0	1 (50.0)
Location (*N* = 724)**:**					
Beach or Water	86 (11.9)	16 (18.6)	26 (30.2)	22 (25.6)	22 (25.6)
Green	111 (15.3)	29 (26.1)	32 (28.8)	28 (25.2)	22 (19.8)
Travel landmark	42 (5.8)	8 (19.0)	15 (35.7)	14 (33.3)	5 (11.9)
Non-specific outdoor	165 (22.8)	36 (21.8)	49 (29.7)	44 (26.7)	36 (21.8)
Home	66 (9.1)	19 (28.8)	16 (24.2)	15 (22.7)	16 (24.2)
Gym	7 (1.0)	5 (71.4)	1 (14.3)	0	1 (14.3)
Yoga Studio	58 (8.0)	14 (24.1)	15 (25.9)	16 (27.6)	13 (22.4)
Non-specific indoor	189 (26.1)	44 (23.3)	38 (20.1)	47 (24.9)	60 (31.7)

[a] In the categories of age, ethnicity, body tone/muscularity and body type/physical build the percentage reflects only the proportion of images that were able to be coded (i.e., numbers of 'unable to be determined' for these variables were not included in the calculations). [b] Headshots were only coded for age, race/ethnicity, and whether face was visible; this explains the difference in sample size between these variables and others. [c] Only images of yoga poses were coded for potential injury.

* denotes significance at the .05 level (i.e., the value was significantly different to the value given in other hashtag categories).

4. Discussion

The current study was the first to provide a content analysis of yoga related content on Instagram and overall, the findings showed that the women in the images typically appeared to be under 40, white, thin, and in active poses. A lack of body diversity was observed, and yoga was typically represented as a practice for highly skilled individuals, with few differences found in the frequencies of coded variables across all four hashtags. Both the perceived young age of women in these images, and the representation of yoga as a predominantly white woman's activity are consistent with previous analyses of yoga magazine content (Vinoski et al., 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017), and general fitness content on Instagram (Tiggemann & Zaccardo, 2018) and in magazines (Wasylkiw et al., 2009).

The age diversity of the yoga community including the increase in participation rates of women over 35 in Australia and over 50 in America (Ipsos Public Affairs, 2016; Roy Morgan, 2016) was not reflected in the images of the current study. While a narrow representation of the age of yoga practitioners may, if it continues, serve to dissuade older women from participating in the future, these findings are likely more a reflection of the current typical age of Instagram users (under 35; Aslam, 2020). However, the low representation of women of color (of any age) in these images is a more concerning finding. In particular, there were significantly fewer women of color in images tagged with

‘*yogawoman*’ than other hashtags. While the difference was considered small, this suggests that this tag was even less ethnically diverse than others. This sense of exclusion may serve to deny access to many current or aspiring yoga practitioners and thus perpetuate the ongoing cycle of racial discrimination already observed across health and physical fitness related media (Dworkin & Wachs, 2009).

The current study showed most women to be thin, with a small percentage perceived to have average levels of visible body fat, and even fewer women considered to demonstrate high levels of visible body fat. An overrepresentation of thinness is consistent with previous analysis of fitspiration content and yoga magazines (Boepple et al., 2016; Deighton-Smith & Bell, 2018; Tiggemann & Zaccardo, 2018; Vinoski et al., 2017; Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017). However, most of the women in the current sample were also categorized as having little visible muscular definition, which differs from previous analyses of fitspiration content (Tiggemann & Zaccardo, 2018) and yoga magazine media (Webb, Vinoski, Warren-Findlow, Burrell, & Putz, 2017; Webb, Vinoski, Warren-Findlow, Padro et al., 2017).

There are several possible explanations for the differences observed between the current findings and those of previous studies. First, in the case of advertiser-driven yoga magazine content, it may be of financial benefit to feature bodies that are both thin and lean or muscular, as appearing ‘fit’ or ‘athletic’ has been shown to be a desirable current ideal for many women (Bell et al., 2016; Benton & Karazsia, 2015; Homan et al., 2012; Tod et al., 2013). Second, it may be that ‘fitspiration’ is generally more indicative of the athletic or muscular ideal than yoga (Deighton-Smith & Bell, 2018; Simpson & Mazzeo, 2017; Tiggemann & Zaccardo, 2018). However, it is also not uncommon for fitspiration content to feature women who appear more thin than muscular. Boepple et al. (2016) found that 98% of the women featured on fitspiration websites were thin while only 24% were also considered

muscular. Finally, it is also possible that the results may have been due to coding differences between the current study and previous analyses of fitspiration on Instagram and yoga in magazines. The current study intentionally used a strict categorization to attempt to clearly discern a thin form from the 'leanness' mentioned in previous literature. Only 'overall body tone' was included within the category of visible muscular definition in the current study, which may have produced more conservative findings than previous research. For example, a model may have exhibited visibly toned arms along with a typically thin form, or it may have been difficult to determine the level of tone of additional muscle groups due to clothing or the positioning of the body. When considering that individuals with low levels of body fat framed in physically active poses tend to produce the appearance of muscular definition commonly attributed to a 'fit body' (regardless of the fitness related pursuits of the individual), it may be beneficial for future research to apply more strict categorization when differentiating between thin and athletic ideals. Further, given that previous research has found that the athletic ideal only appears to be damaging to women's body image when paired with thinness (Homan et al., 2012), it is particularly important for future research to be clear on what constitutes each of these ideals.

To summarise the overall results in relation to body size and shape, the current study's findings reflect that representations of the 'yoga body' on Instagram are closely related to the thin ideal. This narrow representation may be particularly damaging for women's body image in the context of yoga, as while yoga has become more commercially popular as a physical practice, its foundation as a practice for holistic wellbeing appears to still be the dominant intention and experience of many yoga practitioners (Park et al., 2015; Park et al., 2016). In their analysis of yoga magazine covers, Webb et al. (2017) found that approximately one-third of cover captions were related to psychological health and wellbeing; while the majority of images paired with the captions were considered idealized

(white, thin, under 40). This type of 'mixed messaging' may implicitly suggest that health, and the personal fulfillment commonly associated with yoga, is only possible if one fits the thin ideal.

The images coded in the current study were also problematic from a practical yoga perspective, in that many poses were not particularly representative of what is offered in a typical yoga class or what constitutes a typical personal yoga practice. More than half of all yoga poses depicted were advanced, likely because these could be considered the most aesthetically pleasing to the viewer. Indeed, many of the yoga poses had been modified (e.g., legs split, head turned, or dropped back) to improve the visual appeal of the image, which may be a unique feature of Instagram. However, these adjustments also meant that many of the poses demonstrated potentially unsafe alignment such as poor weight/load distribution and hyperextension through various sections of the spine (Fishman et al., 2009). This may encourage practitioners' impatience in their practice and a lack of care for their safety, both of which run counter to what has been considered the traditional goals of yoga. Recent epidemiological studies have shown that the growth in yoga participation rates has coincided with a substantial increase in the number of individuals reporting to emergency rooms with yoga related injuries in both Australia (Sekendiz, 2020) and the United States (Swain & McGwin, 2016). The types of injuries most commonly observed (strains and sprains) are considered consistent with individuals engaging in activity which is beyond their physical capabilities. These findings emphasize the importance of the realistic representation of yoga practice within media in order to minimize the risk of injury and also to promote yoga as a safe, long term physical pursuit.

On a final note, it is encouraging that a lower frequency (less than 10%) of objectifying attributes were found within these images of yoga in comparison to fitspiration websites (Boepple et al., 2016) and fitspiration content on Instagram (Deighton-Smith &

Bell, 2018; Tiggemann & Zaccardo, 2018). Webb et al. (2018) also noted a minimal presence of objectified elements in *#curvyyoga* on Instagram. This suggests that perhaps yoga practitioners on Instagram do not see the practice as an opportunity to present themselves for evaluation in an objectified manner, but rather that the 'body as process' aspect of yoga has potential as an alternative way of framing and viewing the physical form. Overall, though the differences were small, there were significantly more non-active non-yoga images in *#yoga* than other hashtags and less of a focus on specific body parts in *#yogapractice*. Combined, these findings suggest that perhaps *#yoga* captures images that may only be broadly associated with yoga, and which may present the viewer with more of an 'object' perspective, while *#yogapractice* demonstrates more of a focus on the functional aspects of practice.

4.1. Implications and Future Directions

Overall, idealized and narrow representations of yoga are concerning as they are a poor reflection of yoga as an inclusive practice which may be adapted to accommodate beginners and the natural physical changes associated with age, as well as to cater for individuals with acute or chronic physical or mental conditions, and people with disabilities (Field, 2011; Salmon et al., 2009; Vinoski Thomas et al., 2018). In this way, a lack of diverse representation may further marginalize individuals who are already excluded from many fitness pursuits but who might find a sense of belonging in the practice of yoga (Neumark-Sztainer et al., 2018; Vinoski Thomas et al., 2018). Physical activity spaces (including gyms and yoga studios) that have successfully fostered inclusivity have been shown to use a framework of celebrating diversity, encouraging community, and focusing on health (Neumark-Sztainer et al., 2018; Pickett and Cunningham, 2017a, 2017b). Considering that the spaces where women find themselves with increasing regularity are online spaces, perhaps providers of health and fitness related social media content (including Instagram 'influencers' and business owners) could be encouraged to use this framework when posting

content. Such consideration may serve to develop more inclusive online spaces with the ultimate goal of minimizing the negative impacts of idealized images on body image and increasing long-term engagement in health-related activities. In a yoga context, diverse representation may also maximize the capacity of yoga to improve positive body image (Cox & Tylka, 2020). Work in this space has already begun through social media movements such as '*The Yoga and Body Image Coalition*' with their hashtag: #thisiswhatayogilookslike (http://ybicoalition.com/about/).

4.2. Limitations

Instagram is accessible globally and has approximately more than 100 million new posts each day (Aslam, 2020). Consequently, caution must be taken when generalizing the results of the current study as large daily volumes of new information render Instagram a dynamic online environment. Furthermore, only publicly available images were used for the current study, and as Instagram users tend to follow both public and private accounts the current study may not fully reflect an individual's typical feed. An additional challenge associated with analyzing images in this constantly changing context was that it became apparent during coder training that certain body shapes have emerged that were not easily reflected by the existing coding categories from previous research. For example, thin women in active poses with perceived muscle tone as a result of very low body fat, as well as women who demonstrated thin upper bodies and narrow waists with relatively disproportionately muscular buttocks and thighs. While the coding categories in the current study were expanded to attempt to account for these differences, further efforts should be made to increase the sensitivity of such protocols. An additional limitation that must be noted is that the majority of the coding was done by one of the authors. While this is not uncommon in the literature (for example Cohen et al., 2019; Simpson & Mazzeo, 2016; Tiggemann & Zaccardo, 2018) and while the current study used an iterative process to refine the coding

guide along with reliability analyses, future studies would benefit from the inclusion of additional coders. In addition, it is acknowledged that the primary authors' particular yoga experience and additional training may have influenced the coding of yoga-related variables such as pose difficulty. However, industry experience was required to accurately code these variables, and effort was made to enhance ecological validity through the consultation of additional resources to confirm coding categories. A further limitation is related to the use of only English language hashtags. Future research would benefit from an exploration of images using tags in various languages, and also using platforms known to have high usage rates in countries where English is not the primary language (e.g., TikTok). Finally, while the current analysis only investigated 'still' images, videos are becoming increasingly popular on Instagram (including within temporarily available 'stories') and therefore further attention to the content of videos is warranted. It is plausible that videos may allow practitioners a greater opportunity to demonstrate the consecutive stages towards their pose which may reduce the degree of 'functional idealization'. Alternatively, videos may provide even more of a performative platform for high levels of skill than a still image.

4.3. Conclusion

Yoga, as an embodying activity that can be adapted to the individual, has the capacity to promote positive body image and foster inclusive online environments. However, the findings of this study demonstrate that yoga related content on Instagram displays many characteristics associated with idealized media (including youth, thinness, and a lack of racial diversity) and also depicts the practice of yoga as performative, mostly advanced, and often acrobatic. Further, some aspects of idealized imagery including objectification and a lack of racial diversity may be more prevalent according to the wording used in hashtags. Overall, these idealized representations of yoga are not an accurate reflection of how yoga is typically delivered and practiced in the community. An inability to relate to and identify with yoga

practitioners in popular media may serve to deny many individuals the benefits of practicing yoga and a sense of belonging within both online and physical yoga communities.

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