



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Content analysis of the impact of COVID-19 on weight and shape control behaviors and social media content of U.S. adolescents and young adults

Jane C. Schmid^a, Kelsey L. Rose^b, Nicole L. Hadler^c, Xochitl Amaro^a, Abby Frank^c, Erin Wilkie^a, Tammy Chang^d, Kendrin R. Sonneville^{a,*}

^a University of Michigan, School of Public Health, United States of America

^b Boston Children's Hospital, United States of America

^c Community High School, United States of America

^d Department of Family Medicine, Michigan Medicine, Institute for Healthcare Policy and Innovation, University of Michigan, United States of America

^e Department of Mental Health Services, Naval Medical Center San Diego, United States of America

ARTICLE INFO

Keywords:

Weight/shape control behaviors
Disordered eating
COVID-19
Pandemic
Social media
Dieting

ABSTRACT

Objective: The current study examines impacts of the COVID-19 pandemic on weight/shape control behaviors among adolescents and young adults in the U.S., and perceived changes to related social media content.

Method: A sample of youth (14–24 years) from MyVoice, a national text-message-based cohort, provided open-ended responses to questions on changes in eating and exercise habits due to concern about weight/shape, and social media content related to weight/shape, during the pandemic. Responses were collected using a secure online platform and analyzed using content analysis.

Results: Among respondents ($n = 939/1153$, response rate = 81%), 40.0% adopted behaviors for the purpose of weight/shape control during the pandemic. Nearly half (49.2%) reported seeing posts about weight/shape on social media during the pandemic.

Discussion: Findings from this study indicate that weight/shape concerns among adolescents and young adults in the U.S. may have increased due to the COVID-19 pandemic, with social media content as a potentially contributing factor.

1. Introduction

The COVID-19 pandemic brought a multitude of changes to everyday life and induced feelings of fear, stress, and anxiety across the general public (Vindegaard & Benros, 2020). Individuals with pre-existing mental health conditions, however, were likely most susceptible to the negative psychosocial impacts of the pandemic (Fiorillo & Gorwood, 2020; Termorshuizen et al., 2020; Vindegaard & Benros, 2020). Emerging literature suggests that individuals with current or previous eating disorders were at risk of worsening symptoms or setbacks in their recovery (Fiorillo & Gorwood, 2020; Phillipou et al., 2020; Termorshuizen et al., 2020). An increase in dietary restriction and binge eating was seen in a control group of Australian adults with no previous history of self-reported eating disorder behaviors in an April 2020 survey (Phillipou et al., 2020), and an increase in disordered eating during the pandemic was observed in a population-based sample (Simone et al., 2021). Taken together, these studies suggest that the pandemic could

have contributed to disordered behaviors in those without a diagnosed eating disorder.

Situational factors associated with the pandemic may have precipitated disordered eating (Simone et al., 2021). General levels of stress and emotional distress are key risks for disordered eating (Cooper et al., 2020), and viewing distressing COVID-related content on the news may also have contributed to disordered eating behaviors (Rodgers et al., 2012). In addition, many states implemented some form of a lockdown to control viral spread, which included limiting time spent outside one's home and/or with others. During this time, social media use, which was already ubiquitous among young adults, surged (Singh et al., 2020). There is already a known association between social media use and eating concerns (Rodgers & Melioli, 2015; Sidani et al., 2016), perhaps due to the perpetuation of the 'thin ideal' and stigmatization of fatness on these platforms (Chou et al., 2014). While this content is not unique to the COVID pandemic, discourse related to how the pandemic would impact body weight and related buzz words, such as the "quarantine 15"

* Corresponding author.

E-mail address: kendrins@umich.edu (K.R. Sonneville).

<https://doi.org/10.1016/j.eatbeh.2022.101635>

Received 31 August 2021; Received in revised form 28 April 2022; Accepted 4 May 2022

Available online 6 May 2022

1471-0153/© 2022 Elsevier Ltd. All rights reserved.

or the “COVID 19”, adapted from the “freshman 15” phrase alluding to gaining 15 pounds during one’s freshman year in college, emerged (Pearl, 2020).

Although adolescents and young adults are most vulnerable to disordered eating behaviors (Hudson et al., 2007), no qualitative studies to date have examined the impact of situational factors related to the COVID-19 pandemic on weight and shape control behaviors in a community-based sample of youth. The aim of this study was to evaluate impacts of the pandemic on weight/shape control behaviors among adolescents and young adults in the U.S, as well as perceived changes to social media content related to weight/shape.

2. Methods

Data came from MyVoice, a large text-message-based cohort of youth (ages 14–24) in the United States (DeJonckheere et al., 2017). MyVoice participants were recruited to meet benchmarks based on weighted samples of the American Community Survey. Participants provided consent online with a waiver of parental consent for minors. This study was approved by the University of Michigan Institutional Review Board.

MyVoice participants are sent questions weekly and are compensated \$1 for responding to the questions. On September 25, 2020, MyVoice participants were sent open-ended questions related to the pandemic, including, “Since the pandemic, have you changed your eating or exercise habits because you were worried about your weight/shape? Tell us about it.” and “What have you seen people posting on social media about weight/shape during the COVID-19 pandemic? What do you think about these posts?”. See <https://hearmyvoicenow.org/questionbank/> for full question set; please contact the corresponding author for data requests. Responses were collected using a secure online platform. The responses to the questions analyzed in the present study were examined via content analysis individually by three members of the study team; lists of themes were generated individually, and then discussed among the three investigators until a consensus was reached. A codebook, with definitions and examples, was created by the three aforementioned investigators using this list of themes, which four coders (two coders per question) used to assign codes to each response. Upon completing the codebook, coders were sent the responses and instructed to code the first 25 responses to their assigned question to assess any confusion or necessary clarification regarding the codebook. After clarifying some material in the codebook, coders proceeded with coding the entire question set. Question 1 coders (the question on changes in weight and shape control behaviors) had 88% agreement on the first 25, and 71.4% agreement overall. Question 5 coders (the question on social media content changes) had 77% agreement on the first 25, and 70.2% agreement overall. The primary author reconciled coder disagreements. Summary statistics were calculated for participant demographic information and code frequencies. We conducted a post-hoc analysis examining the bivariate association (chi-square) between exposure to social media content related to weight/shape and engagement in weight/shape control behaviors.

3. Results

Of the 1153 MyVoice participants who were sent the question set, 939 participants responded to at least one (response rate = 81.4%); however, response rates for each question varied due to drop-off throughout the question set. We analyzed responses to two of the five questions sent to participants in the present study. The question “Since the pandemic, have you changed your eating or exercise habits because you were worried about your weight/shape? Tell us about it.” received 866 responses (response rate = 75.1%) and the question “What have you seen people posting on social media about weight/shape during the COVID-19 pandemic? What do you think about these posts?” received 843 responses (response rate = 73.1%). Demographic characteristics of the 939 respondents are shown in Table 1.

Table 1
Demographic characteristics of respondents.

Self-reported characteristic	n (%)
Gender	
Female	446 (47.6%)
Male	415 (44.3%)
Transgender, nonbinary, or other	77 (8.3%)
Race/Ethnicity	
Non-Hispanic American Indian or Alaskan Native	6 (0.6%)
Non-Hispanic Asian	133 (14.2%)
Non-Hispanic Black	82 (8.7%)
Non-Hispanic Native Hawaiian or other Pacific Islander	2 (0.2%)
Non-Hispanic White	607 (64.6%)
Non-Hispanic Other	10 (1.1%)
Hispanic or Latinx	28 (3.0%)
Multiracial/multiethnic ^a	71 (7.6%)
Age	
14–17	337 (35.9%)
18–21	398 (42.4%)
22–24	204 (21.7%)
Parental educational level	
Less than high school	50 (5.3%)
High school graduate	86 (9.2%)
Some college or technical training	121 (12.9%)
Completed associates or technical degree	79 (8.4%)
Completed bachelor’s degree or higher	606 (64.5%)
Qualified for free or reduced lunch	348 (37.1%)

^a 6 individuals identified as being of more than one racial identity that included being of Hispanic/Latinx descent. These individuals have been placed under the Hispanic or Latinx category rather than Multiracial/multiethnic.

Among the 866 respondents to the question on changes in behavior, 40.0% (N = 346) indicated a change in diet and/or exercise for the explicit purpose of weight or shape control, 57.3% (N = 496) reported no change in behaviors due to weight/shape concerns, and 2.7% (N = 24) did not indicate either a “yes” or “no” response to the question. Most of the 57.3% who reported no change did not give any additional information beyond a “no” answer, rendering the authors unable to generate subthemes in this category. Subthemes for those who reported changing their dietary and/or exercise habits for the explicit purpose of weight or shape control emerged (outlined in Table 2); among the 40.0% (N = 346) who made changes, 53.5% (N = 185, 21.4% of total question sample) reported changes consistent with attempting to achieve either an energy balance or deficit, such as eating less/dieting, exercising more, and balancing food intake with activity (e.g. “I’ve tried eating less

Table 2
Major themes and subthemes of responses, n (%).

Question: “Since the pandemic, have you changed your eating or exercise habits because you were worried about your weight/shape? Tell us about it.” (N = 866 respondents)	
Theme: changes made for weight/shape control	346 (40.0%)
Subtheme: attempting to achieve an energy balance or deficit	185 (21.4%)
Subtheme: eating more	8 (0.9%)
Subtheme: unsuccessful attempts/cycling between new and old habits	35 (4.0%)
Subtheme: unspecified	118 (13.6%)
Theme: changes in overall attitude/concerns	163 (18.8%)
Subtheme: described body changes during the pandemic	22 (6.0%)
Subtheme: desire for body change/fear of weight gain	126 (14.5%)
Subtheme: pre-existing negative body image/disordered eating	12 (1.4%)
Subtheme: concern of how others will look in relation to themselves	3 (0.3%)
Question: “What have you seen people posting on social media about weight/shape during the COVID-19 pandemic? What do you think about these posts?” (N = 843 respondents)	
Theme: viewed social media content related to weight/shape	415 (49.2%)
Subtheme: body positivity/acceptance	76 (18.3%)
Subtheme: weight gain/eating more	103 (12.2%)
Subtheme: attempts to change body/behaviors	236 (28.0%)

food and working out more” – White female, age 16), 10.1% (N = 35, 4.0% of total question sample) indicated either unsuccessfully attempting to adopt behaviors, or cycling between attempts to adopt new behaviors and their normal behaviors (e.g. “It varies. I’ll start taking care of my body for a few weeks then fall back into unhealthy habits creating a vicious cycle” - White female, age 20), and 2.3% (N = 8, 0.9% of total question sample) indicated eating more for the purpose of gaining weight. The remaining 34.1% (N = 118, 13.6% of total question sample) were unspecified or did not fall into one of these categories; these unspecified responses were mainly simple “yes” answers without additional information given. Responses of 1–2 words are very common in this cohort due to the SMS text method of data collection, which led to about one-third of “yes” responses being unable to be categorized into a subtheme.

In addition to the responses that directly addressed whether or not they had made changes to their eating or exercise habits due to concerns about weight/shape, some respondents also indicated changes in overall attitudes/concerns regarding weight and shape, whether or not changes were made (N = 163, 18.8%). Subthemes also emerged here (outlined in Table 2): 6.0% (N = 22) of the total sample of N = 866 shared that they had experienced body changes during pandemic (e.g. “Yes I got bigger and didn’t like that so I started to workout and lose weight” – Latino male, age 16), and 14.5% (N = 126) expressed a desire for body change or fear of weight gain (e.g. “I was worried about gaining weight so I made sure to stay the same or lose weight.” - White, Hispanic female, age 18). A small portion (N = 12, 1.4% of total sample) described pre-existing disordered eating habits or body image issues (e.g. “My eating disorder has come back little by little these past 6 months” – White female, age 17), and 3 participants (0.3% of total sample) expressed concern over how others will look in relation to themselves (e.g. “Recently I thought about what it will be like to see my friends good and I need to look good.” – White female, age 19).

Content analysis of responses to the prompt on social media content related to weight/shape during the pandemic (N = 843) revealed 49.2% (N = 415) of participants saw this type of content after the onset of the pandemic, 29.3% (N = 247) reported either not seeing, or seeing no change in, social media content on weight/shape during the pandemic (“I haven’t really seen anything...at least nothing unusual” – White

male, age 23), and 4.6% (N = 39) reported not using or deleting social media. The remaining 16.9% (N = 142) did not fall into any of these categories. Three subthemes for the 49.2% (N = 415) who reported seeing changes in social media content related to weight/shape emerged (outlined in Table 2). 18.3% (N = 76, 9.0% of total question sample) reported seeing body positivity/acceptance content; 24.8% (N = 103, 12.2% of total question sample) reported seeing content related to weight gain/eating more, and 56.9% (N = 236, 28.0% of total question sample) reported seeing content on attempts to change body/behaviors (e.g. posts on exercise, diets, etc.). Within each of these themes, a few clear feelings on the content emerged (see Table 3). Of the 18.3% who saw body positive content (N = 76), 35.5% (N = 27) perceived it as motivational or inspirational; 21.2% (N = 16) perceived it as reassuring or comforting. Of those who saw content on weight gain and/or eating more (N = 103), 23.3% (N = 24) indicated it elicited negative feelings (e.g. shame, guilt, or perception as toxic); 14.6% (N = 15) found it reassuring or comforting. Of those who saw content about attempts to change one’s body/behaviors (N = 236), 31.4% (N = 74) indicated it elicited negative feelings; 25% (N = 59) found it motivational or inspirational. A full summary of reported social media themes and elicited feelings with example quotes are presented in Table 3. In a post hoc analysis, we found that 42.8% of individuals who reported seeing social media content related to weight/shape reported engaging in dietary and/or exercise habits for the explicit purpose of weight or shape control, compared to 40.5% of individuals who did not report seeing this content; this difference was not statistically significant (p = 0.54).

4. Discussion

The results of the present study provide unique insight into the effects of the COVID-19 pandemic on weight and shape control behavior in the general adolescent and young adult population in the U.S., as well as trends in social media messaging regarding weight and these behaviors. Specifically, more than one-third of participants adopted behaviors for the purpose of weight and/or shape control during the pandemic. Many also expressed a fear of weight gain and/or a desire to change their body. Nearly half of participants reported seeing changes in social media content regarding weight/shape during the pandemic, most

Table 3
Social media content regarding weight/shape and associated feelings among 415/843 (49.2%) of participants who reported seeing this content.

Social media content themes (n = 415)	Feelings towards social media content (N = 309)					
	Motivational or inspirational	Negative feelings (e.g. shame, guilt, or perception as toxic)	Reassuring or comforting	Neutral	Skepticism	Other feeling or no feeling shared
Body positivity, acceptance, or neutrality 18.3% (n = 76)	35.5% (n = 27) “There have been people posting about not defining yourself by your body, as well as to use the newfound time to improve yourself. I find them a positive role model”	1.3% (n = 1) “It drives me nuts because the people who are posting about body image always meet the typical expectation of beauty and good body image”	21.2% (n = 16) “I follow a lot of body positive accounts who have been really inclusive and comforting”	9.2% (n = 7) “Mainly body positivity posts, I have no strong feelings for them”	3.9% (n = 3) “A lot of body positivity. I agree to some extent: you shouldn’t feel bad about a few pounds or a loss of muscle mass, but maybe not when it’s extreme.”	28.9% (n = 22) “They are very body positive”
Weight gain/eating more 24.8% (n = 103)	0% (n = 0)	23.3% (n = 24) “I’ve seen a lot of people worrying about weight gain and getting out of shape, it makes me sad and a little more self-conscious”	14.6% (n = 15) “Mostly about how that have gained a little bit of weight too and that makes me feel less alone and embarrassed about my weight gain”	21.4% (n = 22) “I’ve seen people posting about gaining weight during the pandemic, which I think is fine”	11.7% (n = 12) “A lot of people have been using the pandemic to make excuses for being unhealthy or obese”	29.1% (n = 30) “I’ve seen people posting that they’re gaining weight”
Attempts to change body/behaviors 56.9% (n = 236)	25.0% (n = 59) “I have seen people showing workout routines, and I think they are good motivation.”	31.4% (n = 74) “I saw some people saying there’s ‘no excuse’ for being out of shape now with all the free time. I don’t agree with that, and think it can be harmful.”	0.8% (n = 2) “I think they’re trying to do the same as me and lose weight before everything goes back to normal.”	12.7% (n = 30) “Seeing many people work out and I don’t think much about them”	3.0% (n = 7) “I’ve seen a lot about weight loss products but it’s a lot of spam really”	27.1% (n = 64) “I’ve seen a lot more people talking about their bodies and what they’re doing to make them look better.”

of which related to attempts to change one's body and/or behaviors.

Findings from our study align with previous research that suggests weight/shape concerns among adolescents and young adults in the U.S. may be heightened due to the COVID-19 pandemic, with social media content as a potentially contributing factor (Almeida et al., 2011; Pearl, 2020). Among the 40.0% who reported changing their eating or exercise habits due to weight/shape concerns during the pandemic, a range of weight/shape control behaviors were reported. This finding is concerning, given the well-established link between dieting and eating disorder onset (Stice et al., 2011), specifically weight-suppression dieting (Chen et al., 2021). Further, previous research has established a link between social media use and disordered eating, and, more specifically, has shown that viewing appearance-related content is associated with heightened concerns about one's body (Rodgers & Melioli, 2015).

There are limitations and strengths to the present study. While the cross-sectional nature of the question set precludes us from examining temporal or causal relationships, the body of literature on social media's influences on disordered eating behaviors is well-established; therefore, the changes in social media seen by some of our sample may be related to risk factors for disordered eating in the present or future. Though the data is cross-sectional, the open-ended nature of MyVoice questions captures youth opinions and experiences that quantitative data often cannot. Additional strengths of data collected via text messages may include greater disclosure, variation in responses, participant convenience, and accuracy of responses (Schober et al., 2015). While MyVoice is not nationally representative and social media-based recruitment may create bias, the sample is diverse in terms of gender, geography, race/ethnicity, and socioeconomic background.

Additionally, perceived changes in viewed social media content may have been influenced by one's personal relationship with food, as certain social media content may be more memorable for those with current eating pathology, or may be presented with or seek out more social media content related to weight/shape than those without current eating pathology. Participants were not asked about pre-pandemic disordered eating or body image concerns, which could have also influenced responses; similarly, we do not have a baseline of participants' pre-pandemic behaviors or perceptions. Due to our use of SMS messaging to collect participant responses, responses were generally brief and did not provide the type of in-depth accounts that would be collected through interviews or focus groups. As such, we could not determine the severity of the behavior changes made for the purpose of weight/shape control and whether they should be characterized as disordered eating behaviors.

Concerns about body changes and/or weight gain during COVID are possibly reinforced by social media content about pandemic weight gain (e.g. "things talking about the quarantine 15 and posts like those really just freak me out" – White female, age 19) and promotion of weight/shape control behaviors (at-home workouts, diets/meal plans, etc.) reportedly seen by our participants. One-quarter of participants in our study reported seeing social media that was focused on changing one's body/behaviors, including weight loss, exercising in a home-friendly way, cooking at home/changing diet habits, "glow ups"/before and after posts, and body manipulation (waist training, plastic surgery, etc.). This content can perpetuate the thin ideal, which has been found to elicit feelings of pressure to control one's body, potentially manifesting in the use of weight/shape control behaviors (Pearl, 2020), although we did not see a statistically significant association between exposure to this content and engagement in dietary and/or exercise habits for the explicit purpose of weight or shape control. This null finding may be due to misclassification related to our qualitative coding or may be a function of our cross-sectional assessment that would fail to capture a lagged/temporal association between social media content and the onset of behaviors. Other participants reported the presence of body positivity/acceptance on social media and generally felt inspired/comforted by this, while others indicated they had deleted social media. These findings are in line with previous research findings that not all adolescents

and young adults are equally vulnerable to COVID-19 related changes in social media content as shown in previous studies of media exposure and eating disorder risk (Levine et al., 2009; Mazzeo & Bulik, 2009). Additionally, body positive content may confer a protective effect (Cohen et al., 2020). Further, some social media, such as discussion forums, may provide a source of support and comfort for those with active eating disorder symptoms (Nutley et al., 2021).

Findings from the present study suggest that U.S. adolescents and young adults may be engaging in more weight/shape control behaviors after the onset of the COVID-pandemic and that many were exposed to weight/shape control social media content during the pandemic. Previous research has implicated social media in the etiology of weight/shape control behaviors, although there is likely variability in individual risk and impact, especially given the potential wide variety of social media content seen and the potential for some platforms/content to have a positive effect. Future research should explore how to mitigate potential long-term impacts of situational factors specific to the COVID-19 pandemic, as well as how specific social media content affects body satisfaction and eating disorder risk.

CRediT authorship contribution statement

The authors of the manuscript titled Content analysis of the impact of COVID-19 on weight and shape control behaviors and social media content of U.S. adolescents and young adults have no conflicts of interest, financial or otherwise, to disclose.

Statement 1: Role of Funding Sources.

MyVoice is a member of the American Association for Public Opinion Research (AAPOR) Transparency Initiative (TI). MyVoice is supported by the Michigan Institute for Clinical & Health Research, the University of Michigan MCubed program, and the University of Michigan Department of Family Medicine.

Statement 2: Contributors.

Author Schmid conducted literature searches on previous research. Authors Schmid, Chang, and Sonnevile developed and refined the question set, and participated in the data collection process. Authors Schmid, Sonnevile, and Rose individually created the list of themes, which were then compared and used to create a list all three agreed upon – this list was then used to create the codebook. Authors Amaro, Hadler, Wilkie, and Frank used the codebook to code individual responses to the questions. Author Schmid wrote the first draft of the manuscript. All authors have reviewed and approved the final manuscript.

Statement 3: Conflict of Interest.

All authors have no conflicts of interest to disclose.

Statement 4: Acknowledgements.

Thank you to Marika Waselewski for assistance in obtaining and cleaning the dataset.

Declaration of competing interest

The authors have no conflicts of interest to disclose. The views expressed in this article reflect those of the author and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government.

References

- Almeida, L., Savoy, S., & Boxer, P. (2011). The role of weight stigmatization in cumulative risk for binge eating. *Journal of Clinical Psychology, 67*(3), 278–292. <https://doi.org/10.1002/jclp.20749>
- Chen, J. Y., Singh, S., & Lowe, M. R. (2021). The food restriction wars: Proposed resolution of a primary battle. *Physiology & Behavior, 240*, Article 113530. <https://doi.org/10.1016/j.physbeh.2021.113530>
- Chou, W. Y., Prestin, A., & Kunath, S. (2014). Obesity in social media: A mixed methods analysis. *Translational Behavioral Medicine, 4*(3), 314–323. <https://doi.org/10.1007/s13142-014-0256-1>

- Cohen, R., Newton-John, T., & Slater, A. (2020). The case for body positivity on social media: Perspectives on current advances and future directions. *Journal of Health Psychology*. <https://doi.org/10.1177/1359105320912450>, 1359105320912450.
- Cooper, M., Reilly, E. E., Siegel, J. A., Coniglio, K., Sadeh-Sharvit, S., Pisetsky, E. M., & Anderson, L. M. (2020). Eating disorders during the COVID-19 pandemic and quarantine: An overview of risks and recommendations for treatment and early intervention. *Eating Disorders*, 1–23. <https://doi.org/10.1080/10640266.2020.1790271>
- DeJonckheere, M., Nichols, L., Moniz, M., Sonnevile, K., Vydiswaran, V. V., Zhao, X., & Chang, T. (2017). MyVoice national text message survey of youth aged 14 to 24 years: Study protocol. In , 6. *JMIR research protocol*.
- Fiorillo, A., & Gorwood, P. (2020). The consequences of the COVID-19 pandemic on mental health and implications for clinical practice. *European Psychiatry*, 63(1), Article e32. <https://doi.org/10.1192/j.eurpsy.2020.35>
- Hudson, J. I., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, 61(3), 348–358. <https://doi.org/10.1016/j.biopsych.2006.03.040>
- Levine, M. P., College, K., Kristen Harrison, P. D. M. P. L., College, K., Kristen Harrison, P. D. M. P. L., College, K., & Kristen Harrison, P. D. (2009). Effects of media on eating disorders and body image. In *Media effects: Advances in theory and research* (3rd ed., pp. 490–515).
- Mazzeo, S. E., & Bulik, C. M. (2009). Environmental and genetic risk factors for eating disorders: What the clinician needs to know. *Child and Adolescent Psychiatric Clinics of North America*, 18(1), 67–82. <https://doi.org/10.1016/j.chc.2008.07.003>
- Nutley, S. K., Falise, A. M., Henderson, R., Apostolou, V., Mathews, C. A., & Striley, C. W. (2021). Impact of the COVID-19 pandemic on disordered eating behavior: Qualitative analysis of social media posts. *JMIR Ment Health*, 8(1), Article e26011. <https://doi.org/10.2196/26011>
- Pearl, R. L. (2020). In , 28. *Weight Stigma and the “Quarantine-15”* (pp. 1180–1181). The Obesity Society.
- Phillipou, A., Meyer, D., Neill, E., Tan, E. J., Toh, W. L., & Rossell, S. L. (2020). Eating and exercise behaviors in eating disorders and the general population during the COVID-19 pandemic in Australia: Initial results from the COLLATE project. *International Journal of Eating Disorders*, 53, 1158–1165.
- Rodgers, R. F., Franko, D. L., Brunet, A., Herbert, C. F., & Bui, E. (2012). Disordered eating following exposure to television and internet coverage of the March 2011 Japan earthquake. *The International Journal of Eating Disorders*, 45(7), 845–849. <https://doi.org/10.1002/eat.22031>
- Rodgers, R. F., & Melioli, T. (2015). The relationship between body image concerns, eating disorders and internet use, part I: A review of empirical support. *Adolescent Research Review*, 1, 95–119.
- Schober, M. F., Conrad, F. G., Antoun, C., Ehlen, P., Fail, S., Hupp, A. L., & Zhang, C. (2015). Precision and disclosure in text and voice interviews on smartphones. *PLoS One*, 10(6), Article e0128337. <https://doi.org/10.1371/journal.pone.0128337>
- Sidani, J. E., Shensa, A., Hoffman, B., Hanmer, J., & Primack, B. A. (2016). The association between social media use and eating concerns among US young adults. *Journal of the Academy of Nutrition and Dietetics*, 116(9), 1465–1472. <https://doi.org/10.1016/j.jand.2016.03.021>
- Simone, M., Emery, R. L., Hazzard, V. M., Eisenberg, M. E., Larson, N., & Neumark-Sztainer, D. (2021). Disordered eating in a population-based sample of young adults during the COVID-19 outbreak. *International Journal of Eating Disorders*, 54(7), 1189–1201. <https://doi.org/10.1002/eat.23505>
- Singh, S., Dixit, A., Joshi, G. J., & Gunjan Author links open overlay panel. (2020). *Is compulsive social media use amid COVID-19 pandemic addictive behavior or coping mechanism?*. 54 *Asian Journal of Psychiatry*.
- Stice, E., Marti, C. N., & Durant, S. (2011). Risk factors for onset of eating disorders: Evidence of multiple risk pathways from an 8-year prospective study. *Behaviour Research and Therapy*, 49(10), 622–627. <https://doi.org/10.1016/j.brat.2011.06.009>
- Termorshuizen, J. D., Watson, H. J., Thornton, L. M., Borg, S., Flatt, R. E., MacDermod, C. M., & Bulik, C. M. (2020). Early impact of COVID-19 on individuals with self-reported eating disorders: A survey of ~1,000 individuals in the United States and the Netherlands. *The International Journal of Eating Disorders*, 53(11), 1780–1790. <https://doi.org/10.1002/eat.23353>
- Vindegard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity*, 89, 531–542. <https://doi.org/10.1016/j.bbi.2020.05.048>