



“Excessive exercise” in eating disorders research: problems of definition and perspective

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Introduction

While the association between exercise behavior and eating-disordered behavior (EDB) has been of interest to researchers for decades (see [26]), the status, and definition, of “excessive exercise” as an EDB remain unclear. Here, we reflect, with the benefit of hindsight, on the problems of definition and perspective that beset this field of inquiry.

Excessive exercise in diagnostic criteria for ED

Uncertainty as to the status of excessive exercise as an EDB is evident in the history of efforts to refine diagnostic criteria for bulimia nervosa (BN) and variants of this condition [22]. Reference to excessive exercise as a method of weight control is included in DSM-III-R [2] and DSM-IV [3] criteria for BN, but not in DSM-III criteria for the diagnosis of “bulimia” [1] nor in ICD-10 criteria for BN [31]. Excessive exercise is included, however, among the various examples of “inappropriate compensatory behaviors” in the proposed ICD-11 criteria for BN [10].

The DSM-5 Eating Disorders Working Group had initially proposed to delete reference to the use of non-purging weight-control behaviors in the diagnosis of BN altogether, such that this diagnosis would be reserved for individuals who employed purging behaviors to compensate for episodes

of binge eating (see [22]). Subsequently, following feedback from commentators, the Working Group resolved to retain reference to the use of both purging and non-purging behaviors in the diagnostic criteria for BN [4]. The status of excessive exercise in relation to variants of BN also remains uncertain. Thus, in both the DSM-III-R Eating Disorder Not Otherwise Specified (EDNOS) category and the DSM-5 Other Specified Feeding or Eating Disorder category, there is reference to variants of BN involving the use of purging behaviors in the absence of binge eating but not those involving excessive exercise (or extreme dietary restriction) in the absence of binge eating.

Excessive exercise has never been included as a diagnostic criterion for anorexia nervosa (AN) in either the DSM or ICD, although its occurrence among individuals with this disorder is highlighted in the text of successive editions of the DSM relating to the diagnostic features of AN and it is included among the “essential features” for the diagnosis in the proposed ICD-11 guidelines. The latter reference likely reflects the accumulation of evidence that excessive exercise, in one form or another, is present in the majority of individuals with AN receiving specialist treatment (e.g., Sawyer et al. 2016).

Problems of definition

Agreed-upon operational definitions of terms such as “excessive” remain elusive. In the DSM-IV text relating to BN, it is noted that “exercise may be considered to be excessive when it significantly interferes with important activities, when it occurs at inappropriate times or in inappropriate settings, or when the individual continues to exercise despite injury or other medical complications” (p.546).

Also in DSM-IV, a frequency criterion is introduced requiring that “the binge eating and inappropriate compensatory behaviors occur, on average, at least twice a week for 3 months”, while in DSM-5 (and ICD-11), these behaviors must occur on average, at least once a week for

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a period of 3 months (1 month in ICD-11). In theory, these criteria also apply to the diagnosis of binge-eating disorder (BED), which requires the absence of regular inappropriate compensatory behaviors.

These issues are not merely academic. For one, the operational definitions chosen influence estimates of prevalence derived from epidemiological studies and, in turn, impact arguments for or against resources for clinical, public health and research initiatives [25]. Estimates of the prevalence of the non-purging form of BN in particular have been found to vary widely depending on the operational definition of “regular excessive exercise” (and “regular extreme dietary restriction”) employed [22]. In some recent, otherwise rigorous epidemiological studies, failure to assess excessive exercise suggests that estimates of the prevalence of both BD and BED need to be interpreted with caution (e.g., [15]).

Arguably, the frequency criterion suggested in DSM-5 (and ICD-11), i.e., at least once a week, is unduly liberal. Thus, in one recent study employing this definition, almost one-third (31.3%) of adolescent girls reported either regular excessive exercise or regular fasting (“skipping at least two meals in a row to prevent weight gain”) [17]. In research conducted by the first author and colleagues, “regular excessive exercise” has been defined as “driven exercise on average at least 5 times per week”, a definition consistent with that initially suggested by Fairburn and Cooper when using the Eating Disorders Examination to assess this behavior [13]. As would be expected, prevalence is relatively low when using this more stringent definition (e.g., [24]).

Uncertainty surrounding the status of excessive exercise as an EDB in classification schemes and in the academic literature also influences how this behavior is viewed by health professionals and the public, which is in turn linked to help-seeking behavior [8]. For example, young women with bulimic-type EDs are more likely to believe that they have, and seek treatment for, an ED if purging behaviors are present [14, 25]. Considerably less is known about the factors that predict awareness of, or help-seeking for, EDB among individuals whose exercise behavior is primarily intended to build muscle or leanness [21, 28].

Since excessive exercise is not included among the diagnostic criteria for AN in either the DSM or ICD, estimates of the population prevalence of AN are not impacted by the choice of operational definition in the same way as they are for BN. Uncertainty as to the status of excessive exercise as an EDB may nevertheless influence the way in which this behavior is viewed by individuals with AN and variants of this condition and those with whom they interact, including health professionals. For example, where excessive exercise, but not purging, is present, the early signs of AN may be more likely to be overlooked or

ignored, particularly given the ego-syntonic nature of this presentation (see [27]).

Problems of perspective

Uncertainty as to the status of excessive exercise within the ED field is magnified when considering inter-disciplinary perspectives. Among exercise physiologists, for example, terms such as “exercise dependence” or “exercise addiction” are favored. From this perspective, there is no doubt that exercise behavior can be “pathological” in the absence of EDB [5, 25] and whether and to what extent ED symptoms might occur among individuals with such conditions is a secondary concern [30].

The most conspicuous differences of perspective concerning the status of excessive exercise are those between researchers in the ED field and those in the obesity field (with the acknowledgment that these fields overlap, in theory if not in practice). Because increasing levels of physical activity is a key component of efforts to combat the “obesity epidemic”—an unequivocally desirable outcome—the suggestion that exercise might somehow be “excessive” or “pathological” is problematic. It is therefore not surprising that excessive exercise—as opposed to levels of physical activity—is typically not assessed in obesity prevention trials. Similar issues arise in relation to dietary intake/restriction (see [6]).

Such differences might explain why progress in developing health promotion and prevention programs that seek to reduce the occurrence and adverse effects of both EDs and obesity remains limited, despite repeated calls for such programs over the past two decades [9, 16, 23]. In a recent review of the impact of strategies for preventing obesity and risk factors for EDs among adolescents [19], a total of 15 studies addressing “shared risk factors for obesity and eating disorders”—as opposed to studies addressing only “energy balance”—were identified. Even in these programs, excessive exercise is typically omitted from the list of “unhealthy weight-control” behaviors assessed (e.g., [18, 29]).

Of course, some exercise is likely to be better than none among individuals who are obese and/or who have EDB, in most cases. The point is uncertainty and disagreement as to status of excessive exercise remain a barrier to the development of programs seeking to incorporate health promotion and prevention messages for both EDs and obesity. Given that EDB are more common among overweight and obese individuals than “normal-weight” individuals [20], given that obesity is common among individuals with BED and increasingly common among individuals with BN [7], and given that the population prevalence of both overweight and obesity and EDB—and of the combination of these conditions—continues to increase [12], a siloed

approach is regrettable [9]. The role of health promotion and prevention programs targeting individuals with EDB who are obese may be particularly important given the absence of treatments that are effective in reducing both body weight and EDB [11].

Conclusion

The status of excessive exercise as an EDB continues to be a challenging issue for ED research, for efforts to develop prevention and health promotion programs that target both ED and obesity, and for inter-disciplinary collaboration more generally. Clearer delineation of the issues of definition and perspective involved will, it is hoped, facilitate efforts to address these issues and provide an incentive to greater collaboration moving forward.

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Compliance with ethical standards

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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

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

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