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Moving from Knowledge to Action: A Qualitative Study of Elite Coaches' Capacity for Early Intervention in Cases of Eating Disorders

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ABSTRACT

This study investigates elite coaches' attitudes toward eating disorders (ED), knowledge about ED, and early intervention skills when confronted with possible ED in their female athletes. We interviewed 18 coaches in Sweden responsible for athletes representing national teams in the three sports categories most at risk for ED: aesthetic, weight class, and endurance. The interviews revealed that, although most coaches knew athletes with ED, they did not perceive ED as a problem in their sport. The majority of coaches cited difficulties in identifying ED symptoms, especially symptoms associated with bulimia nervosa. Coaches also described several barriers in approaching the athletes, including the athletes' denial of ED, lack of female colleagues on the team and the lack of easily accessible resources for treatment referral on both the national sports federation and the club levels. This study reveals that elite coaches have insufficient capacity to identify ED and conduct early intervention, resulting in delayed treatment.

Key words: Attitudes, Early Intervention, Eating Disorders, Elite Sport Coaches, Sport Nutrition

Reviewer: Linda Smolak (Kenyon College, USA)

INTRODUCTION

Not all athletes are at elevated risk for developing eating disorders (ED), but for those who are, early intervention by coaches can be crucial. High prevalence rates of ED have been documented in aesthetic, endurance, and weight class sports [1-4]. High prevalence rates may be a result of specific demands placed on athletes. For example, success in aesthetic sports such as rhythmic gymnastics requires a low body weight and lean appearance, which may lead to pressure to maintain a thin figure from judges, coaches, and parents. In a study of female figure skaters competing in pair skating and ice dancing, all skaters, though lean, reported trying to lose weight [5]. In response to the question "Do you think that there are pressures associated with figure skating to lose weight or maintain a below average weight?" 92.7% of figure skaters responded "yes". The same pattern occurred in a study of elite rhythmic gymnasts, members of the Norwegian national team [6]. Likewise, in endurance sports, where leanness is deemed key to optimal performance, and in weight class sports, where an athlete's body weight determines her/his classification in competition, dieting and disordered eating practices are highly prevalent [3].

Gender is one risk factor for ED among athletes, with female athletes especially at risk [7-9]. Another risk factor is the level of performance, with athletes at the highest levels of competition being at the highest risk [10-12]. Factors that contribute to risk, both environmental (e.g., the intense pressure to be thin) and attitudinal (e.g., persistence, perfectionist tendencies), are common in elite athletes [13]. Collectively, as female athletes performing on elite levels in aesthetic, endurance, and weight class sports have been found to engage in disordered eating behaviors and attitudes more frequently than non-elite athletes in the same sports, and more frequently than elite athletes in other sports [10], continuous research is needed to provide guidance for an optimal approach to early identification and intervention in cases of ED.

Coaches play an important role in the early identification of ED. While inappropriate coaching behavior could precipitate or exacerbate disordered eating attitudes and behaviors in susceptible athletes, most researchers agree that coaches do not cause ED and that the role of coaches in the development of ED should be seen as part of a complex interaction of factors [14]. However, due to daily and intensive contact with athletes, coaches are in a unique position to identify the early signs of ED and direct athletes to professional help. As early detection and referral for professional assistance has been associated with a more successful treatment outcome, coaches play a critical role in preventing ED from escalating [15].

Despite the importance of their gate-keeping role, coaches' attitudes and practices concerning ED and weight-control behaviors remain understudied. The few existing studies indicate that coaches have a limited knowledge of nutrition, weight-related issues, and ED. Coaches report a lack of confidence and knowledge in identifying ED [16-18], and tend to provide weight recommendations based on performance and appearance, rather than being attentive to unhealthy weight control behaviors [19-20]. Instructively, an early, Norwegian-based study of elite female athletes and their coaches found that few coaches considered ED a problem in their sport [21]. A newer U.S. study surveying a large sample of head coaches and trainers from National Collegiate Athletic Association (NCAA) found that although most coaches identified symptoms ED as problematic, many of them were still not effective at identifying athletes with these conditions [12]. More than 25% of the coaches indicated that they learned one of their athletes had ED only after they stopped coaching her or him. It is essential to examine, then, what main barriers hinder coaches from correctly identifying an athlete with ED and taking actions to approach the athlete and make appropriate referrals. To

identify and examine these barriers, an inductive qualitative analysis, emphasizing coaches' own narratives and allowing for theory to emerge from the data, would be most conducive [22]. However, so far, no study has qualitatively examined coaches' approaches to identifying ED and performing early intervention. Thus, the aim of this study was to expand the current understanding of coaches' ED-related attitudes and practices, with particular attention to identification and intervention at the early stages of disordered eating behaviors. We therefore chose to focus on coaches who work with those athletes most at risk for disordered eating: females competing at the highest levels of their sport (the top five in Sweden) and representing three sport groups that have been shown to be at highest risk for ED (aesthetic, weight class, and endurance sports). Through examining how coaches handle the early stages of eating disorders in their athletes, this study is positioned to elucidate potential barriers to and facilitators of early intervention, and inform athletic programs for ED prevention.

METHOD

DATA COLLECTION AND QUESTIONNAIRE

The study was conducted as part of the first author's postgraduate studies, and is based on her Master's thesis in Sports Psychology [23-24]. Data were collected through a semi-structured interview format, with all interviews conducted individually and in-person. The first author, a registered dietician with several years' experience of counseling and interviewing clients, conducted all interviews face-to-face. Throughout the research process, she received additional training and supervision from two senior researchers (the study's fourth and fifth authors).

The interview questions were tested in a pilot study with five elite coaches – three from Norway, one from the US, and one from Canada – who were not included in the final study sample. The pilot study led to a few minor word changes in the interview script. The final 5-page questionnaire included questions about the coaches':

- attitudes about the importance of weight in their sport
- recommendations concerning the types of weight-loss methods they would suggest to athletes
- beliefs about the percentages of athletes who should regulate their weight
- attitudes towards the importance of having knowledge about nutrition, ED and weight control as a coach, athlete or parent
- main sources of information about nutrition, ED and weight control
- early intervention skills when confronted with possible ED

This article will focus on data collected through the questions on knowledge, attitudes, and early intervention skills related to ED.

PARTICIPANTS

The study was targeted at coaches from the aesthetic, weight class, and endurance sports groups, where athletes are at highest risk for eating disorders. All sports associations representing the chosen sport groups were contacted and asked to provide the names of the coaches responsible for the top five Swedish female athletes in these fields during the year (2001) before the beginning of the study. The study sample was limited to coaches living or competing in Sweden's three largest cities – Stockholm, Gothenburg, and Malmö. Twenty-eight coaches met the inclusion criteria: a) being involved in one of the chosen sport groups,

and b) being an elite coach, defined as responsible for coaching at least one of the top five female athletes in their sport during the previous year. Ten coaches declined participation, saying that time constraints prevented them from attending an interview. Therefore, a total of 18 coaches participated in the study. While some coaches who worked within a sports club also coached some high-level athletes who were not top tier, most coaches worked only with elite athletes. For the purposes of this study, the coaches were asked to focus their responses only on their elite athletes. The research study was reviewed and approved by the institutional review board of the first author's university.

DATA ANALYSIS PROCEDURES

All interviews were recorded with a digital tape-recorder, transcribed, and analyzed using interpretive phenomenological analysis [25]. Thus, the data were analyzed according to the following steps, as suggested by Cohen and Manion [26, p. 285]: a) the digital recordings were transcribed verbatim; b) the transcribed recordings were read closely to identify the underlying themes that emerged in each interview; c) the underlying themes that related to one another were grouped into larger thematic groups; d) all answers were grouped by the interview question they addressed, so that the underlying and general themes could be studied in relation to the questions from which they emerged; and e) each of the themes was studied in the interview context, to identify which themes were unique to certain interviews, and which extended across the sample. The final analysis aimed to explore how the research questions were answered, and to assess any differences related to sport group or the coaches' age, gender, and athletic and coaching experience. In addition, the interview segments concerning bulimia nervosa were tested for inter-rater reliability, with parallel coding conducted by a postdoctoral researcher in health psychology. Inter-rater reliability was obtained.

RESULTS

STUDY SAMPLE

Eighteen elite coaches from the three sport groups were interviewed: aesthetic sports (n = 5; diving, figure-skating, artistic gymnastics, and rhythmic gymnastics), weight class sports (n = 7; wrestling, boxing, taekwondo, and lightweight rowing), and endurance sports (n = 6; swimming, canoeing, and orienteering). The sample included fourteen men and four women (mean age = 42 years; age range 24-60 years). Sixteen of the coaches had previously competed as athletes at the national or international level. Mean coaching experience was 17 years (range = 4-30 years). Eight of the coaches had been responsible for national teams either at the time of the study or earlier. The athletes trained by these coaches ranged in age from 7 to 35 years.

ATTITUDES TOWARDS ED

Minimizing the Problem

Two thirds of the coaches (5 out of 6 endurance coaches, 6 out of 7 weight class coaches, and 2 out of 5 aesthetic coaches) did not consider ED to be a problem in their sport. They held this attitude despite the fact that the majority of them reported they knew athletes with ED who were involved in their sport. Moreover, most coaches reported personally having coached an athlete with ED, and, notably, one third of the total sample reported currently coaching athletes with ED.

To assess the coaches' attitudes toward awareness-raising about ED, they were asked to rank three categories of information in order of importance for ED prevention: ED, nutrition,

and healthy weight management. The majority of coaches endorsed information on nutrition as the most important. ED information was ranked second, and healthy weight management was ranked as the least important. Five coaches ranked ED information as the least important. In addition, most coaches explained that increasing athletes' knowledge of nutrition as early as possible during the athletic career was the most important tool in preventing ED. As one weight class coach explained:

> I think it is extremely important to have control over nutrition – to know a lot about it. To have it as number one, then the others follow (…). I can easily see if somebody is eating in a wrong way and then I point it out, that you maybe shouldn't eat these kinds of things. But then I always get this response: "Yes, but *you* eat like this." I reply, "Yes, but I'm not fit anyway." I just try to explain to them that you actually become what you eat and when you are in top form, it is extremely important to eat the right food. I think that you can kill some of these eating disorders if the athlete learns more about the importance of nutrition. (Weight class coach, VC)

Like other coaches, this coach seemed to reduce ED to its nutrition-related aspects. The trajectory s/he described, from receiving information on nutrition, to practicing healthy eating, to succeeding in one's sport, implied that ED was the result of "eating in a wrong way", to which one can be immune as a "top form", nutritionally-aware athlete. However, while this coach, like others, emphasized the importance of nutritional knowledge for athletes, s/he did not problematize the potentially compulsive effects that such focus on 'correct' nutrition ("you are what you eat") can have on some athletes.

COACHES' KNOWLEDGE ABOUT ED

Symptoms Visible in Athletes

The coaches were asked to list the symptoms of anorexia nervosa (AN) and bulimia nervosa (BN). The accuracy and breadth of the participants' listings of symptoms were measured against DSM IV [27] diagnostic criteria and clinical presentation indicators for ED. The physical symptom most often reported for both AN and BN was change in body weight. For AN, this change was described alternately as low body weight, weight loss, unusual body form, weight fluctuations, or lower muscle mass. For BN, lower muscle mass, often in combination with physical weakness, was most commonly identified. Among the behavioral symptoms of BN most frequently named by coaches were binge eating, vomiting, and going to the restroom or "disappearing" after eating. Unusual eating behavior was the most frequently cited symptom for both disorders. Coaches also cited unusual mood-related behaviors (e.g., acting worried, aggressive, moody, or irritated), as signaling a possible ED:

> She didn't feel well. Most of all she had this passing glance. I could never meet her eyes. She lost her temper often, and got angry with me for simple things. Irritated. She was disappearing from me. She wasn't honest any more. And this is how I discovered it. Then I simply asked her. We were standing in a corridor when I just asked like this: "How are you *really* feeling?" (Weight class coach, VG)

Notably absent from this quotation is the mention of eating practices and body weight. While the coaches recognized unusual eating practices and weight loss as the top physical symptoms of ED in theory, in this coach's account, the telltale sign *in practice* was the athlete's "passing glance" – her evasiveness. Such behavioral indicators may indeed have increased importance

within an elite sports environment, where changes in weight may be subtle, or where unusual eating could be easily conflated with the dietary practices normative within the sport.[1] Overall, knowledge of symptoms of AN and BN was not related to past coaching experience with an athlete suffering from AN/BN, or to the total years of coaching experience.

Bulimia Nervosa as a 'Hidden' Disorder

While the coaches produced an extensive list of symptoms for AN, their collective list for BN was only about a third as long. While this list was not inaccurate, its brevity was telling. Six coaches (three aesthetic, two endurance and one weight class) said their knowledge of BN was very limited. Five other coaches (one aesthetic, two endurance and two weight class) pointed out that BN was much more difficult to discover than AN. In fact, twelve coaches could name only one or two symptoms of BN. The lack of dramatic weight-loss was cited as making BN particularly difficult to detect:

> Bulimia is much, much harder to discover, I think. It is difficult to see because they don't lose weight in the same way. What I see as warning signs are people who exercise and exercise and exercise. And they claim that they eat well. And you see that they eat food, but in spite of that they are extremely weak in relation to how much they exercise because they don't develop any lean tissue. So they become flaccid, soft. Almost sluggish in the body. And then this quite *hysterical* relation to food and body. You notice that once you get to know a person little more. If you talk more. (Weight class coach, VA)

In the absence of visible weight-loss, coaches had to attend to other bodily and behavioral indicators in order to identify BN early. As the above quotation illustrates, these indicators were often subtle and required pointed observation and high levels of awareness. Notably, coaches had to transcend the ambiguities associated with these indicators. Coach VA described how observations of physical indicators (e.g., weakness, loss of lean muscle mass) were triangulated with behavioral indicators (e.g., excessive exercise, unusual attitudes to food). In some cases of BN, however, neither physical indicators nor disordered eating practices were easily observable. As one aesthetic coach explained, it was a general change in behavior that alerted to possible disorder:

> Bulimia is probably more problematic. How did I discover that? She was very unstable in her behavior; that was it. But how did I catch it? I think she came to me and told me, actually. Yes, I think that eventually she came herself, yes, that was it. You couldn't see it at all on the body, absolutely not. But in her behavior; out of balance, unexplained outbursts, irritations. I think that she gave the explanation herself when I was wondering how it was with her (Aesthetic coach, AD).

In this coach's account, it was the observation of a set of general indicators – moody behaviors – that led to the athlete's acknowledgement of her specific disorder. Significantly, while this case highlights the difficulty that coaches face in identifying BN among athletes, it also underscores the importance of an early intervention even with non-specific signs of possible disorder.

[1]It is important to note that these normative dietary practices, while not constituting ED by themselves, are nonetheless harmful. The toll these practices take, and their possible links to the development of ED, have been discussed elsewhere [28-30].

Risk Factors

The coaches cited psychological make-up as the most important risk factor for ED among athletes. The most frequently mentioned psychological elements were perfectionism, ambition, impatience, and high degrees of self-directed pressure to succeed. Other elements they mentioned included fear of failure, and the need to please and fulfill others' demands. When asked about possible triggering factors *within* the sports environment, the coaches cited the sport itself as the most important risk factor for ED. Among risk factors *outside* the sport environment, demands from family and societal ideals were most frequently cited. However, even when the sport itself was implicated in fostering disordered eating, coaches had qualified the sport's triggering effects by appealing to notions of psychological risk. For example, an aesthetic coach described gymnasts as predisposed to ED, their sport notwithstanding:

> If you think how it looks in gymnastics... You see: they stand on the floor. Five girls on the floor to everybody's judgment. It is a very vulnerable position. At the same time they are trained to do that. And it starts with that: they want themselves to be put in this position, they want to show up, they want to act. So this shouldn't be it (the cause for ED). But if you happen to have a predisposition towards some direction... Often it is not only one thing. I have noticed that these girls are usually ambitious in all aspects in life, not only within their sports, but also in school. Yes, this is how it is. Very driven. And then many factors can go wrong. Not so much is needed to make it go wrong (Aesthetic coach, AD).

According to this coach, ED was not the direct result of participating in a sport with exact body image ideals. Rather, it was the predisposed athlete's own personality that acted as a double-edged sword, driving her to choose gymnastics and excel in it, and, in parallel, putting her at risk for eating disorders. In this coach's framing, ED were enabled by numerous factors in a complex network of risk. However, while this coach described gymnastics as central to the development of ED – placing athletes center-stage, to be judged not only on athletic performance, but also on their bodies – ultimately, s/he argued the cause lay in individual ambition. Thus, in locating (and predating) this 'risky' ambitious personality beyond the sports environment, this coach discursively lessened the role of the sport in fostering ED.

The coaches' emphasis on personality as a risk factor for ED was not mistaken in and of itself: indeed, the characteristics the coaches cited – most notably perfectionism and its manifestations (e.g., fear of failure) – have been implicated in the clinical literature on risk for eating disorders [31-32]. The coaches' centering of risk in individual personality was problematic, however, in minimizing the attention they paid to the triggering role of the sport environment. Although studies that examined sports in relation to ED risk have produced mixed results, several meta-analyses have suggested that athletes of varying competition levels may be at elevated risk for eating disorders. Notably, Smolak et al. [10] found that some groups of athletes, at the elite and competitive university levels, were at higher risk for ED than their non-athlete peers, while Hausenblas and Carron [7] found that high-school athletes, particularly those taking part in aesthetic sports, were at higher risk for ED (their competition level notwithstanding). While meta-analyses such as these cannot isolate the effect of the sport itself as a risk factor, their results do suggest that participation in sports might have a catalyzing role in the development of eating disorders, underscoring the importance of attending to risk prevention in the sport environment.

EARLY INTERVENTION SKILLS

Approaches to Early Intervention

The coaches were asked, "when you suspect an athlete of engaging in ED behaviors, how do you react?" Eight coaches based their answers on hypothetical situations as they had no experience of confronting an athlete with ED, and 10 coaches reported on actual experience. Most coaches (n = 11) answered that they would contact the athlete and tell her they had observed symptoms of ED. Of these coaches, two coaches, both from aesthetic sports, said they would refer the athlete to a specialist if they deemed the condition serious enough. One coach said s/he would leave the responsibility for seeking professional help to the athlete herself. Two coaches, both from endurance sports, said they would tell the athlete to seek professional help. One coach described a case in which no professional help was sought, since the athlete denied the problem. The coaches also described different strategies for deciding when to contact the parents; most coaches would talk to the parents *after* meeting with the athlete (if the athlete was over 18 years old). However, one coach said s/he would talk to the parents before meeting with the athlete and one coach said s/he would confront the athlete and the parents at the same time. Another coach said s/he would allow the athlete to tell her parents about the problem independently.

Approaches to early intervention in a situation of a possible eating disorder were linked not only to knowledge, but also to resources available at the sport club. This coach, whose club had no infrastructure for supporting cases of possible ED, envisioned an effective intervention as a one-on-one confrontation with an athlete:

> I would sit down with the person concerned and simply ask her in a straightforward manner: What the hell are you doing? Now you should tell me the truth. And tell her about what can happen to the body. What is it you are running the risk for? I'm very straightforward in this way (Weight class coach, VA).

In this coach's hypothetical scenario, there were only two actors: coach in the role of speaker/healer, and athlete in the role of compliant listener. The solution to the problem, as this coach envisioned it, would be brought about through confrontation and reasoning – all that would be needed is for the athlete to understand the damage she might be doing to her body. In contrast to the scenario described above, this aesthetic coach, whose athletic club had infrastructure for managing ED cases, envisioned a broader intervention plan:

> I would confront the athlete immediately and explain to her that I have paid attention to this and that. That she would know that I know. And I would make her to talk to me. I would tell her that I would talk to her parents too. Then I would… well, it depends how far it has gone, but, if I discovered that it was advanced, I would contact our medical committee that we have in our federation. They have an emergency plan to help athletes that get into these problems. It is such a huge and challenging problem and I could offer help and support, but I couldn't take the responsibility for … I couldn't be the one to cure it (Aesthetic coach, AC).

Notably, this coach placed ED within a wide context of roles and relationships, recognizing his/her own key role as gatekeeper and mentor, but not assuming sole responsibility. With the sport federation's "emergency plan" in mind, this coach was able to position his/her involvement as part of a network of parents and medical staff. Indeed, such an approach – recognizing and empowering multiple actors – was key to successful early interventions.

Returning to the example of Weight Class Coach VG (p. 347), once this coach confronted the athlete, s/he broadened her action to include the athlete's parents, teammates, and club, recognizing the role that each had to play in facilitating the athlete's recovery:

> The others on the team had noticed that, but they were in some way loyal to her. Although they saw that she didn't feel well, but they also thought about themselves, that if she falls out, the team falls out. But in that case we had to do something about it. [So what happened with that conversation? What did you decide upon?] First of all we came to the conclusion that we would stop everything. We (the entire team) stopped competing; we stopped dieting; we stopped everything. Now it was important to come back as a human being. Everything else was not important (…). I called the parents and they came. The father had understood that something was crazy. The mother, she… yes… I didn't really know what she thought. But I told them how it was, that I had stopped our participation in the competition and she was not feeling well. She needed help and that the first help she could get from me. And then they understood and then it was resolved. The parents, me, the club, everybody helped. So we went through all that together (Weight class coach, VG).

As the above example illustrates, in cases where early intervention was successful – leading to prompt treatment and recovery – a multidimensional group of actors was involved. Although the intervention group did not necessarily work together at the same time, the involvement of parents and teammates alongside sports club professionals and medical staff provided numerous angles of support in enabling early intervention and the transition to professional treatment.

Barriers to Early Intervention

The coaches listed several barriers to early intervention, including the athlete's denial, the athlete's parents' denial or lack of cooperation, and the coach's own uncertainty about medical referral and procedures for barring the athlete from training or competition. With regard to athletes' denial of ED, many coaches, especially from the weight class category, said it was difficult to defuse this denial because ED were difficult to distinguish from weight changes regularly observed in weight-class sports. Some male coaches also said female coaches were needed on the team to facilitate the detection of ED and early intervention, suggesting that women would be in a better position to identify ED and communicate with female athletes. The majority of coaches reported that they did not know of any club or athletic association strategies or policies for handling ED. This question was also asked directly of their respective sport federations. Two sport federations reported that they had programs concerning ED: The Swedish Gymnastic Federation and The Swedish Orienteering Federation.

Knowledge about ED and infrastructural capacity were critical in enabling the coaches to defuse athletes' denial and refer them to treatment promptly. Of the coaches who had confronted an athlete with ED, four coaches described cases that led to early professional intervention, and four coaches described cases that led to no further intervention. In those cases that did not lead to professional intervention, coaches reported a lack of confidence in the face of denial:

> I contacted the parents first. [First, without talking to her?] Yes, I did that. I asked if they had observed anything. And they hadn't… no, they had not seen anything. I said

> that I was not sure myself if it was anything. But they became observant of this anyway. Then I said that they should come back to me, if they wanted me to talk to her and they did that after a while. But then, this I remember well, she denied all of it. Or denied… Well, I didn't say it was an eating disorder, but that I only had observed that she had lost weight and I asked if there was something wrong, if the training was too hard, or if there was something else, if she felt pressure from the swimming, from me or something like this. No, it was nothing, she answered. She ate as usual and so on. (…) She got sick, she got injured; it was a lot going on. And then it came out that she had anorexia. She was admitted to the hospital and so on. It went very far (Endurance coach, UE).

With no support or policy provided by the sports club, this coach was left with sole responsibility for planning and implementing early intervention – a responsibility for which s/he was not prepared. And, lacking in knowledge and skills to negotiate with the athlete, this coach's ability to follow up on this attempt at early intervention was compromised, such that the athlete's condition deteriorated before she finally received help.

DISCUSSION

Athletic coaches' lack of recognition of ED as a serious problem has been previously documented [18, 21]; the present study, however, goes further, demonstrating that coaches' attitudes toward and knowledge about ED are linked with their reduced capacity for early intervention. The interviews reveal that, in spite of frequent encounters with ED among athletes, some elite coaches lack appreciation of the severity of ED, sufficient knowledge of symptoms, and skills for early intervention; in particular, the coaches' reduced capacity for early intervention is exacerbated by the lack of necessary infrastructural support within the athletic environment. These findings are alarming given the crucial role of early intervention in the successful management of ED. Clinical guidelines recommend early and immediate referral in cases of suspected ED [15]. One fundamental rationale for immediate referral is that, without intervention, an apparently mild case of disordered eating can progress to a full-blown eating disorder. Moreover, early intervention has been shown to increase treatment success [15]. However, as this study found, many coaches lacked capacity to carry out early intervention.

Among the barriers to early intervention, the affected athletes' stated denial about having ED was the factor cited most often by coaches; indeed, the link between delayed referrals and athletes' denial of their own ED has been indicated in the literature [33]. Significantly, the present study found that athletes' denial became a barrier when coaches lacked the capacity to address and defuse it, and that the coaches' capacity to defuse denial was influenced by both their knowledge of ED symptoms and their access to adequate support resources in the sports club. Those coaches who did not have adequate knowledge of ED symptoms easily questioned their own observations in the face of athletes' statements of denial. However, on its own, thorough knowledge of ED did not automatically enhance coaches' capacity to act: many coaches said it was uncomfortable and difficult to talk with their athletes when they observed symptoms of ED. As this article demonstrated, support at the sports club level and access to a multidisciplinary team that included medical expertise in ED enabled coaches to conduct early intervention (see also [15]). For many of the coaches who participated in this study, however, this type of infrastructural support was absent. While a study of US coaches working with university athletes showed that top division coaches reported having "more resources available for preventing and treating athletes with eating

disorders" than other coaches [34], this was not paralleled in the present study. Many of the coaches interviewed, despite working with athletes of whom many were on the Olympic level, said they felt alone in their everyday management, and viewed resources at the national level as not easily accessible. The authors of the present study suggest, then, that in addition to providing access to medical expertise, sports clubs can support coaches by facilitating networking between coaches and increasing communication between national level resource providers and micro-level users. The formation of a social network through which coaches could communicate with one another, as well as with national level sports club resource providers, about ED prevention and early intervention could enhance coaches' capacity to act in cases of possible ED, while increasing access to sports club resources and the breadth of expertise upon which they could draw. In addition, continuing education training at the sports club level – including, for example, early intervention role playing exercises – could enable coaches to translate their knowledge into early intervention skills, while bringing together coaches, sports club leaders, and resource providers.

An unexpected finding of this study was the surprisingly low priority that most coaches ascribed to ED information compared to nutrition information, with many coaches stating that solid knowledge of nutrition and weight regulation precluded the need for increasing athletes' knowledge about ED. This was especially puzzling given that most coaches accurately acknowledged the complex nature of ED and cited multiple factors that contribute to the development of ED, which mirrors prior findings [29]. Indeed, no coach cited lack of sufficient nutrition knowledge as a risk factor for ED. We suggest that this finding should be viewed in the wider context of the athletic environment, where coaches' deprioritizing of knowledge related to ED parallels the lack of sufficient support structures and policies concerning ED within sports clubs and associations. It is possible that coaches would have perceived ED information as more helpful and important if it were provided within a comprehensive skills- and capacity-building program for ED prevention.

The study has some limitations. Not all eligible coaches participated in the interviews, reportedly due to scheduling conflicts, although the participation rate of 64% is relatively high. However, if the coaches deliberately avoided participating in the study due to other reasons, such as unwillingness to discuss the research topic, this makes the results more conservative. Another limitation is the large age-range of athletes (7 to 35 years) coached by some of the participants. As ED symptoms and effective intervention strategies differ between children and adults, this may have affected the coaches' knowledge of ED and their attitudes toward early intervention; however, we attempted to minimize this limitation by focusing the study on elite senior athletes – a group all coaches had in common.

Given the multidimensional character of early interventions directed at athletes with ED, studies that explore the experiences of affected athletes, their parents and teammates, are needed for the further delineation of successful early interventions. Moreover, as the data were collected in 2002, an additional study would be needed to assess more recent trends. It is important to note, however, that the study's participants could be identified easily within Sweden's small elite athletic milieu in the years immediately following the study. A delay in publication therefore allowed to maintain confidentiality and minimize risk. Given the lack of more recent studies of equivalent aims and methodology, this study is positioned to fill a significant gap in the literature, especially as there is no current evidence that suggests improvement in coaches' capacity for early intervention in ED cases.

CONCLUSION

The results of the present study demonstrate that, in practice, elite coaches are insufficiently prepared for early intervention in cases of ED. These findings are particularly striking as the participating coaches were drawn from those sports categories where disordered eating behaviors and attitudes are most prevalent. With their regular and intensive monitoring of athletes, coaches are uniquely positioned to identify athletes' ED and be the first to intervene. As early intervention can increase the success of treatment for ED, it is essential that coaches have the knowledge and skills to facilitate early intervention, that they have access to sufficient infrastructural support to enable successful intervention, and that they be addressed as key agents of successful prevention and intervention. Thus, in light of the current study's findings, emphasis should be placed on developing and delivering programs to build coaches' capacity for action in cases of ED, ensuring access to multidisciplinary expertise and infrastructural support at the sports club level, and facilitating communication between coaches and the providers of support resources at the national level.

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