

## Article

# Teachers' Knowledge and Experiences after the Implementation of an Eating Disorder Prevention Program in the Physical Education Classroom

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**Abstract:** Since psychological and social factors are especially prominent among the multiple causes of eating disorders, we argue that school, a meeting place among equals and thus a locus for the transmission of values and attitudes, can play an important role in preventing these disorders. This article's main objective is to verify whether the physical education (PE) class can become an arena for transferring and learning that prevent eating disorders, analyzing teachers' perceptions of the program development "Psychology for Nutrition and Physical Activity in the Prevention of Eating Disorders" (P-NAF) and specifically: (1) analyzing what teachers know and believe about preventing eating disorders; (2) analyzing the relationship between PE sessions and the acquisition of skills for the prevention of eating disorders; and (3) verifying whether the strategies proposed in the program P-NAF help teachers develop skills for the prevention of eating disorders. We conducted semi-structured interviews with physical education teachers (six women and six men) from five educational institutions in southern Spain. We organized their responses into four blocks: (1) self-esteem, (2) social skills, (3) satisfaction with body image, and (4) nutrition. The results show that physical education teachers are poorly trained in eating disorders, in their detection, as well as their treatment. In particular, there is little communication between health professionals and teachers to provide the information needed to develop effective intervention programs. However, after participating in the Psychology for Nutrition and Physical Activity program, the teachers improved both their knowledge and educational tools when it comes to transmitting that knowledge. We conclude that this program is effective in its objectives and that it should be presented more widely to physical education teachers who work directly with young people.

**Keywords:** teachers; physical education; prevention; eating disorders; program



**Citation:** Monserrat, M.; Arjona, Á.; Checa, J.C.; Tarifa, J.; Salguero, D. Teachers' Knowledge and Experiences after the Implementation of an Eating Disorder Prevention Program in the Physical Education Classroom. *Educ. Sci.* **2024**, *14*, 467. <https://doi.org/10.3390/educsci14050467>

Academic Editor: Kendall Hartley

Received: 16 January 2024

Revised: 16 April 2024

Accepted: 25 April 2024

Published: 27 April 2024



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## 1. Introduction

Eating disorders (EDs) are considered a set of serious disorders related to food intake (prolonged food restriction, binge eating, obsession with weight and body image, weight loss, etc.) that are also considered a multifactorial disease [1,2], and recent research has demonstrated the importance of self-esteem, social relationships, self-perception, and emotion management in the prevention or the emergence of these disorders [3]. Although physical problems can be based on poor nutrition [1,4], we cannot work toward prevention or mitigation without considering social and psychological factors. And it is here that family and school can play an important role in prevention [5,6].

School is a place for the transmission of knowledge, skills, and behavior. Consciously or unconsciously, educators tend to teach a set of values [7]. Furthermore, a quality education implies not losing sight of the highest values and skills to which students should aspire as members of the society to which they belong [8]. What, how, and when to teach is subject to the teacher's decision based on academic freedom within the framework

of established principles, as well as the training, experience, and motivations of each teacher [9]. For this paper, nothing matters more than the skill of transmission, particularly the transfer of ideas about health. The transference of skills that improve the health of students to everyday life has been a national goal in Spain since the implementation of the General Organic Law of the Educational System (LOGSE) in 1990 [10] as updated in 2006 (LOE) [11]. It instructs that students should learn: “To know and accept how our body and the bodies of others function, to respect differences, to improve body care and health habits and to incorporate physical education and the practice of sports to allow personal and social development. To know and value the human dimension of sexuality in all its diversity. To critically value social habits related to health, consumption, care of living things and the environment, contributing to its conservation and improvement” (I, p. 177). In the Organic Law for the Improvement of Educational Quality (LOMCE) [12,13], the guidelines are expanded to include “disease prevention” (p. 39). Schools have responded with curriculum changes, progressively including topics related to the prevention of eating disorders.

Physical education (PE) classes are already venues for the transmission of important life skills, including goal setting and problem-solving, as well as fostering cooperation and assertiveness [14,15]. Recent studies have explored the value of teaching life skills in a framework that combines implicit (indirect) approaches with explicit instruction and are developing an explicit/implicit continuum that can be adapted to teaching the skills (emotional intelligence, conflict resolution, self-control, teamwork, etc.) that prevent eating disorders [16].

The training of PE teachers and their role are essential [17]. Knowledge of eating disorders goes well beyond the eating behavior itself. In addition to their typology, causes and consequences, and signs and symptoms, teaching about prevention requires specific training in the different mental health aspects: self-esteem, perception, and body image or relationship with food [2,3]. The main objective should be to motivate and implement prevention activities, but this is hampered, as some studies show, by a lack of teacher training, poor relationships, and a lack of communication between educators and health professionals [18], as educational establishments lack health personnel. Therefore, our work responds to the need for teacher training to help the development of social and educational policies aimed at the preparation of effective interventions.

The main objective of our research is to verify whether the PE class can become an arena for transferring and learning that prevents eating disorders and teachers’ perception of the development of the program “Psychology for Nutrition and Physical Activity” in the prevention of Eating Disorders” (P-NAF), and the specific objectives are the following: first, to analyze what teachers know and believe about preventing eating disorders. Second, to analyze the relationship between PE sessions and the acquisition of skills for the prevention of eating disorders (self-esteem, social relations, and lifestyles). Third, to verify whether the strategies proposed in the program “Psychology for Nutrition and Physical Activity in the Prevention of Eating Disorders” (hereafter P-NAF) help teachers develop skills for the prevention of eating disorders.

## 2. Materials and Methods

The present work is part of a broader research project called Food Culture, Health and Sustainability in Almería Schools, carried out in the academic year 2022–2023, using both quantitative and qualitative methods. In the quantitative phase, a questionnaire was administered to students before and after they applied to the P-NAF program [19,20] in order to detect their risk of suffering from eating disorders [3]. Those results indicated that the P-NAF program led to improvements in the students’ responses. The P-NAF program aims to propose classroom activities for the prevention of eating disorders, specifically anorexia and bulimia nervosa. It was introduced in secondary schools in Almería (Spain), and 605 students participated as an experimental sample, during a trimester of the year 2022/2023. The results show that after the development of the program, there was a

reduction in the scores in the index Sick, Control, One Stone, Fat, Food (SCOFF), which measures the risk of suffering from anorexia nervosa and/or bulimia nervosa [19,20].

The faculty's philosophical alignment with the project and gathering of qualitative information among their students were essential to the quality of our investigation. We went beyond quantitative results with an interpretative ontology aimed at gaining a better insight into the socially constructed realities of physical education teachers after the implementation of the P-NAF program. We believe in the physical education classroom as a locus for the promotion of health and the prevention of certain diseases, including eating disorders, and that new attitudes and life skills can be learned. Our participants concurred on the development of the sessions and the topics worked on and expressed different points of view, as can be seen in Section 3. We recognize that they all have their own ideologies, values, and lived experiences, which shape their individual interpretations and construction of meaning.

### 2.1. Participants

Based on the information needs detected in the first questionnaire [19] showing that 11.7% of adolescents are at high risk of an ED, the variables that predict the variability in the danger of manifesting an ED are the following: physical self-conception and family relationships. Later, the results were presented to the schools, and we wanted to know the role of physical education teachers in the detection and prevention of EDs. The teachers who agreed to participate, voluntarily, work in five different educational centers. Among the characteristics of the participants, we highlight that there were six women and six men. All of them had completed a degree in physical education and seven of them had also completed a postgraduate teacher training program. The teachers averaged 36 years of age (SD = 5.3), had been teaching for an average of eight years (SD = 4.3), and had worked at their current school for an average of five years (SD = 1.2) (see Table 1).

**Table 1.** List of teachers participating in the semi-structured interviews.

Interview Code	Sex	Age	Teaching Experience (in Years)	Type of School
1	Female	37	4	Public
2	Male	26	1	Public
3	Female	31	12	Private
4	Male	25	2	Private
5	Female	43	7	Public
6	Female	45	18	Public
7	Male	47	12	Public
8	Female	30	7	Private
9	Male	34	6	Private
10	Female	29	3	Public
11	Male	50	20	Private
12	Male	37	9	Private

Source: Own elaboration.

### 2.2. Instrument and Selection Variables

We conducted semi-structured interviews because we could adapt them to the specific personality of each participant. Unlike structured interviews which take each interviewee through an identical sequence, unstructured interviews allow us to work with the interviewee's own words and unique ways of feeling and experiencing [21].

We configured the interviews first by sociodemographic data: age, years teaching PE; years in the center where they are currently working, and academic training, and secondly, we constructed four blocks of questions for the prevention of eating disorders in the physical education classroom: (1) self-esteem; (2) social skills; (3) satisfaction with body image; and (4) nutrition (see Appendix A).

We shared with all interviewees the interview schedule, the main research objectives (listed above), sample questions, and indications they could follow in order to generate analytically comparable sets of data.

### 2.3. Procedure

We received approval from the ethics committee of the University of Almería (UAL-BIO2022/038, 24 April 2023) and each interviewee provided informed consent in advance for the type of interview and its audio recording. The interviews were conducted by all researchers, with meetings held at regular intervals (every 15 days) to discuss the conducting of the interviews (when necessary) and to clarify any ambiguities with the interview questions. The duration of the interviews was determined by each teacher's disposition to discuss and/or explain the questions we posed. On average, the interviews lasted 40 min (range: 30 to 50 min), unfolding in a quiet and comfortable office space at the teaching center of each interviewer's school.

After a literature review, we formulated interview questions that dealt with the development of skills necessary for the prevention of eating disorders (anorexia and bulimia nervosa), such as self-esteem [5,22], body perception [23], and peer relationships [24]. We also formulated questions about the type of activities that teachers carried out to prevent these disorders and the state of their knowledge about them. Above all, after observing the positive results in the students [19,20], we wanted to find out whether applying the P-NAF was considered by the participating teachers an effective program of PE that could be developed in the PE classroom to decrease the risk of developing eating disorders. More specifically, the program reduces scores in the SCOFF questionnaire [20]. The interview was semi-structured to ensure that, on the one hand, we obtained the information we needed, and, on the other hand, we allowed the interviewee to explain themselves more fully and to provide further information that they considered of interest, which is a distinguishing mark of qualitative research [25].

### 2.4. Data Analysis

The interviews were transcribed verbatim and resulted in 74,875 words of data. We used NVivo software (version 14, QSR international Pty Ltd. 2018) to store, manage, and analyze all interview transcripts. The work of Nebot Ibáñez [26] inspired our thematic analysis by showing how eating disorders are not just about food and eating behavior but also strongly related to genetic (epigenetics hormones and metabolism), emotional (stress and motivation), and social factors (socioeconomic status, lifestyle, cultural, ideal of beauty, and relationships) [27,28].

In the first stage of the analysis, the researchers most experienced in qualitative studies (J.C.O. and A.A.G., as a sociologist and anthropologist have used qualitative techniques in their ethnographies) listened to all of the audio recordings and read all the transcriptions. They then assigned labels to each text fragment that referenced ideas about the development of skills in the PE classroom and/or the transfer of such skills in the prevention of eating disorders (anorexia and bulimia nervosa). The labels were designed with three levels of information: what was said (descriptive), the possible implicit meanings and implications of what was said (analytical), and last, the relationship(s) between what was said and the possibility of its transfer. Based on the findings of the analysis, we identified the main themes for further analysis and used them to generate the central codes for data processing.

Once the main themes were established, we reread the interviews in case some relevant data had been overlooked. In addition, we generated an open discussion among the researchers on data codes, themes, and location, in which each researcher could voice his or her point of view. Working through many compelling arguments about the organization of our data, we were able to reach a strong consensus in the end, corresponding to the blocks and topics presented in Section 3. We believe that this agreed strategy greatly increased the reliability of our qualitative analysis [29].

Finally, it should be noted that the assertions of the docents, in some questions about eating disorders, are based more on their opinions than clinical knowledge.

### 3. Results

After the thematic analysis, we constructed four blocks of interest for the prevention of eating disorders in the physical education classroom: (1) self-esteem; (2) social skills; (3) satisfaction with body image; and (4) nutrition. For each topic block, we considered three subtopics: (1) perception and knowledge of the situation; (2) classroom practices; and (3) changes produced or observed after participation in the P-NAF program.

Each of the general topics and inherent subtopics are discussed in this section.

#### 3.1. What Teachers Know and Believe about Preventing Eating Disorders

##### 3.1.1. Self-Esteem and Eating Disorders

Teachers identified those with lower confidence and self-esteem as apparently more vulnerable to peer group pressure.

*“When you notice that no one wants to be with you, you try to do everything you can to fit in, even if it means harming your health” (interview 1)*

*“I observe that the students with high self-esteem are more self-confident and in the face of difficulties are the ones who do not lose their self-esteem” (interview 6)*

##### 3.1.2. Social Skills

Several teachers indicated how they included the development of social skills in their course planning.

*“Last year, we completed a 3-week program on resolving conflicts within a group. We found this to be beneficial for their future employment prospects, particularly when they have to work as part of a team” (Interview 2)*

##### 3.1.3. Satisfaction with Body Image and Eating Disorders

Most teachers' answers linked self-esteem to body image, explaining that young people feel better about themselves when they conform to the beauty standards of their peers. And while nobody explicitly related self-esteem issues to eating disorders, a few teachers implicitly connected the importance of students' body image to the risk of developing an eating disorder.

*“It seems that dieting and weight loss is fashionable nowadays. Many students express their motivation for being slim” (interview 2)*

*“The other day a student told me openly that she hadn't eaten since breakfast the previous day and she felt fine, she liked the feeling of an empty stomach” (interview 6)*

*“I believe that the main issue with eating disorders is the desire to be thin” (interview 9)*

##### 3.1.4. Diet and Eating Disorders

Programs aimed at promoting healthy eating are being implemented in schools, such as encouraging the consumption of fruit during breaks and/or workshops organized by public entities. Nevertheless, the teachers pointed out that these initiatives have not achieved the desired results because they observed that students did not consume the products suggested by the programs, and they did not obtain the result of massive consumption. In the interviews, teachers always emphasized the importance of healthy eating, but none explicitly related that to eating disorders.

*“Most kids come to the center without eating breakfast” (interview 4)*

*“What's not normal is that they only consume sugary snacks like chocolate and processed pastries. They're addicted to sugar” (interview 8)*

### 3.2. Relationship between PE Sessions and the Acquisition of Skills for the Prevention of Eating Disorders

#### 3.2.1. Self-Esteem and Eating Disorders

Self-esteem, in almost every case, tended to be related to body perception. The teachers agreed that adolescents are very concerned about their body image, more so than their other personal qualities. Regardless, none alluded specifically to a relationship between self-esteem and eating disorders.

*“Part of the center’s students reorganize according to beauty and popularity standards” (interview 4)*

*“Before, it was just the girls, slim, tall, with long, straight hair—they all wanted to be like that. But now it’s the boys too, every year more muscular bodies at younger ages, the same short hair, and so on” (interview 10)*

#### 3.2.2. Social Skills

In their discussion of social skills (verbal expression, advocacy, breaking toxic relationships, and the ability to make requests) taught in the classroom, none related them to the skills that are correlated with eating disorders in the existing literature. Here, we see teachers’ limited knowledge about the preventive practices of EDs and the possibilities of developing them in the classroom. Most teachers incorrectly believed that eating disorders were simply related to food and the desire to be thin.

*“The physical education class aims to improve physical abilities, promote teamwork, sportsmanship, and group interaction. Healthy eating is sometimes discussed, but I have not seen any influence on dietary habits” (Interview 3)*

*“We can help to improve eating habits when we participate in healthy eating programs” (interview 5)*

#### 3.2.3. Satisfaction with Body Image and Eating Disorders

Several teachers noted that while this subject is traditionally associated with females, more and more males are exhibiting similar traits.

*“Before, mostly girls wanted to be slim. Now boys are obsessing about it too” (interview 11)*

*“Nowadays, it doesn’t matter if you are a boy or a girl, everyone wants to have a perfect body” (interview 3)*

#### 3.2.4. Diet and Eating Disorders

In addition, when most teachers refer to eating habits, they highlight the importance of family and early adherence.

*“If they don’t eat well at home and never did, we are not going to pretend to teach them at school” (interview 12)*

*“Parents nowadays don’t have time to cook and, students end up getting used to eating fast food every day” (interview 1)*

*“We should do workshops for parents, to see if that would make a difference” (interview 3)*

### 3.3. Changes after the Strategies Proposed in the Program “Psychology for Nutrition and Physical Activity”

#### 3.3.1. Self-Esteem and Eating Disorders

The teachers interviewed concurred in observing that they had not explicitly addressed self-esteem in their physical education classroom but that participation in the P-NAF initiative had given them ideas for developing activities that could establish connections between the manifestation of eating disorders and social factors such as peer pressure and social media usage.

*“If the school and the family collaborate to enhance the children’s self-confidence, we can make headway” (interview 11)*

*“By conducting activities in which they take turns as group coordinators, giving them the chance to lead, I have seen improvements in their relationships with their peer group and with themselves, offering the possibility of being able to lead and organize” (interview 1)*

*“During an after-game activity, each person was asked to note their teammates’ positive aspects, and I observed that this practice was unusual among young people. It may be beneficial to use this technique more often” (interview 7)*

*“The other day, for instance, we were engaged in an activity, and empathy surfaced spontaneously. A student considered frail or of low self-esteem was helped through the exercise by peers. A young woman used words of encouragement and reassurance that, as I saw it, felt great to the weaker student” (interview 12)*

### 3.3.2. Social Skills

The work carried out on social skills in the physical education classroom through the P-NAF program shows how important this subject area is for the personal growth of students, beyond facilitating teamwork.

*“During this activity, where students take turns leading, you realize that some students use an excessively authoritarian style, while others are more relaxed. This form of interacting with others can have a heavy impact on whether or not other students choose to approach you” (interview 8)*

*“Throughout the P-NAF program, we focused heavily on improving social relationships, above all on improving group identity and cohesion, and I think this has been very interesting” (interview 10)*

*“After the matches, I noticed new friendships forming that were not present before. I believe that PE class can be a very supportive place to improve social skills” (Interview 9)*

### 3.3.3. Satisfaction with Body Image and Eating Disorders

Some teachers reported that focusing on being satisfied with one’s own body in the P-NAF program had a positive impact on enhancing empathy and group cohesion.

*“Everyone has something about their body that they don’t like. Sometimes we think that it only happens to us and putting it on the table helps to make it visible and to share with others” (interview 5)*

*“It is difficult for students to share their fears or shortcomings but doing it in a relaxed atmosphere and in a playful way helps them realize that we all have something that we don’t like about our body” (interview 7)*

### 3.3.4. Diet and Eating Disorders

In the P-NAF program, we worked little on nutritional recommendations because this was already being carried out in the health promotion programs at the centers. However, despite efforts, the teachers noted that the desired results are not being achieved and are concerned about attitudes on the part of students about food.

In this regard, the teachers were able to observe how P-NAF working with behavior, rather than knowledge alone, could lead to improvements.

*“We are always telling them what to eat, but we don’t explain why. In the end, the more information they have the better” (interview 10)*

*“Knowing what can happen to your body when you don’t eat certain nutrients creates more awareness than just being told that X is good for you” (interview 9)*

*“The program taught me to encourage healthy habits by raising awareness” (interview 11)*

To conclude this section, we want to share the thoughts and opinions of teachers who now advocate for a subject that was once considered of little importance in academic curricula. The great majority ended their interviews in excitement, even amazement, as they realized the immense potential that their classes could have in helping students feel better about themselves, their peers, and their overall health.

*“In the end, the PE class will end up being the most important”* (interview 6)

*“These classes make it easy for the teacher to establish trusting relationships with the students and for the students to feel free to express their needs”* (interview 5)

#### 4. Discussion

Derived from positive results in the prevention of anorexia and bulimia nervosa obtained after the implementation of the P-NAF program in young adolescents [20], the main objective of the present study was to investigate the perception of teachers in the development of this program, specifically as physical education could contribute to the prevention of eating disorders and whether what was learned in the classroom could be transferred to other areas of life. We specifically wanted to find out whether physical education offered the possibility of generating scientifically proven skills that reinforce the prevention of this type of pathology.

For a better analysis of the situation, we carried out a division of the thematic axes that our interviewees would associate with eating disorders [5,24], each of them answering the questions of the specific objectives: (1) what the interviewees know and/or believe about the subject; (2) how they think the PE classroom can help in obtaining skills for the prevention of EDs; and (3) what strategies have been learned from the implementation of the program. Regarding self-esteem (the first thematic axis), the teachers observed the strong influence of body image on self-esteem among young people, and they expressed the importance of working to unlink this association by promoting other aspects of personality. Studies [30] show that today, body image is so important to young people’s self-esteem that they ignore aspects and virtues that are not related to body image, as we can see on social media and in Internet use [31]. Furthermore, self-esteem is not usually worked on explicitly in the PE curriculum. Though there are numerous studies linking continuous and collective sports practice (teams) to improve self-esteem [32–34], the teachers in our study were unaware of the possibilities that their classrooms could offer for working on it explicitly in the prevention of EDs.

Social skills and social relations (the second thematic axis) are normally taught in physical education classes as an inherent part of sports practice. Teamwork, managing victory or defeat, promoting sportsmanship, etc., are aptitudes valued by all of the teachers interviewed. However, a lack of knowledge regarding the benefits of these aptitudes in preventing eating disorders was common among all interviewees, since none had been used as prevention tools. Knowledge of the P-NAF program helped them establish more direct and explicit connections in the classroom, as well as helping to prevent eating disorders, as research has demonstrated [35].

The relationship that the interviewees identified at the beginning of the program was between eating disorders and satisfaction with body image (the third thematic axis); however, although they related self-esteem to body image, none showed knowledge or an ability to relate eating disorders and self-esteem. This is probably because students are so visibly concerned with idealized physical patterns that they grant higher status to those who possess them, tossing aside the existence of virtues other than physical appearance [36]. Some studies [37,38] reveal the significant role that society plays in this regard and the necessity of creating change. Overall, the physical education class has shown itself to be a positive space for implementing the P-NAF program on enhancing awareness and acceptance of one’s own body. We should not forget that PE classes are about more than just sports. They can serve as platforms for learning, creativity, and improving self-knowledge [39].

Our last thematic axis concerned nutrition. Campaigns to promote healthy eating in schools are common, but the interviewees did not establish any relationship between these campaigns and the prevention of eating disorders. When the P-NAF program taught them about the importance of eating habits as a weapon in the prevention of eating disorders, they saw possibilities of intervention that they could implement in their schools, as other studies have found [40].

In addition to how teachers perceive each thematic axis, the study revealed that the teachers did not know how these themes related to the prevention of eating disorders. The literature highlights several potentially useful skills for preventing such disorders [41], which can be included in PE classes. Beyond basic sports education and physical fitness, these classes can serve as a vehicle for developing life skills, such as those required to prevent eating disorders. After the implementation of the P-NAF program, future interventions should keep up with the new attitudes and risks perceived by teachers in their classroom practice in order to meet the health goals of each educational stage.

Furthermore, highlighting the benefits of the P-NAF program in the development of life skills, the teachers in our study learned about the relationship between those skills and the prevention of non-communicable diseases such as eating disorders. This included learning new concepts, as well as applying them beyond the classroom and cross-sectionally, as part of school policies. Some teachers also highlighted a need to improve the image of PE as a health-promoting subject. This may help counter the widespread belief that PE is of little use in adult life. The actual transfer of skills to social life will enhance the importance of PE [42].

Similar to research on exercise and the prevention of eating disorders [43], the teachers in our study emphasized that students could develop the skills targeted in the program through both implicit (via sports practice) and explicit (via intentional teaching) means. It is here that the student's role comes into play in terms of learning and the outcomes achieved. Based on the quantitative data and our students' behavior, we observed that the risk of developing eating disorders decreased after implementing the P-NAF program [20]. Therefore, we can conclude that the development of skills, both implicitly and explicitly, was effective.

These favorable outcomes were noted by the teachers we interviewed, results that, above all, come from the diverse range of approaches provided by the experts who participated in the creation of the P-NAF curriculum. This program cultivated various abilities that had an indirect impact on the prevention of eating disorders by fostering self-esteem, enhancing social connections, and promoting positive body image, among other methods. Therefore, future prevention and intervention initiatives that focus on enhancing learners' well-being through physical education should implement the techniques (already mentioned) in real situations. These initiatives should also support the transference of those skills outside school and those managing them should receive help and guidance from health institutions to enrich the interventions.

Although some teachers mentioned the importance of planning and developing eating disorder prevention skills in the class, it is important that they also evaluate its implementation. Therefore, it is necessary to have procedures that reflect, both before and during class, whether the activities achieved the proposed objectives, the extent of such learning, etc., in case modifications are needed in this regard. There are questions such as: has the planning been adequate? Have there been enough activities for the development of each one? Do I observe progress in the students? Such questions can help to direct future actions in the right direction.

Regarding the relationship between the practice of physical activity and the prevention of eating disorders, the academic literature is scarce and outdated [44–46]. In addition, most health recommendations for the practice of physical education are based on physiological mechanisms such as the stimulation of neuroplastic processes, endorphin production, etc. [43], leaving aside the learning of skills entirely. In addition, all investigations refer to benefits being obtained when the PE experience is satisfactory, and this finding has a bearing

on our research since the P-NAF program presents itself as playful, entertaining, and easy to implement. Therefore, the improvement in the learning of skills was achieved not only by internalization but also thanks to the way in which internalization is achieved [47].

## 5. Conclusions

The present work suggests including transversal themes (implicit and explicit) as well as specific sessions aimed at preventing eating disorders in PE classrooms. This can be achieved if there is adequate teacher training that does not simply saturate them with explicit concepts (well covered by the P-NAF program). Adequate planning and interest in the subject matter are, of course, critical, and it is just as important that students enjoy the sessions. Finally, teachers must take into account the life context of the students with whom they work, so that they can closely adapt the sessions to their needs.

More specifically, our study reveals that:

1. There is little knowledge on the part of the PE teachers regarding the detection of risk factors as well as preventive actions for eating disorders.
2. PE teachers have transferable skills that can aid in the prevention of eating disorders. Specifically, working on nutritional habits, satisfaction with body image, self-esteem, and social skills has been shown to be positive in preventing anorexia and bulimia nervosa.
3. The basic competencies necessary for addressing social relations, self-esteem, and body perception are already covered in the PE curriculum. To employ them effectively in the prevention of eating disorders will only require specific knowledge and training.
4. The P-NAF program offered supportive and easily applicable intervention strategies in the classroom.

The P-NAF program offers interdisciplinary knowledge transfer that favors practice aimed at the prevention of anorexia and bulimia nervosa in adolescents in the classroom. Based on everything we have demonstrated, physical education should be a mandatory subject for adolescents, and teachers should incorporate skills development alongside sports and recreation in their course planning. Always taking into account the student profile, we propose that preliminary “research” be carried out in the classroom that is more than a mere diagnostic assessment of the sport or activity to be undertaken during the school year. It should also serve to identify potential health problems (if any) so that we can work toward preventing their occurrence.

While the present study is limited by the small number of participants, future studies will be scaled up with the recruitment of new participants, a larger number of educational facilities, and the implementation of novel qualitative methodologies to further triangulate the information. However, it offers highly valuable information beyond the results after the administration of a pre- and post-intervention questionnaire on adolescent EDs, i.e., it obtains information on how PE teachers have got to know and internalize the concepts as well as their feedback on the application in class (aspects necessary to carry out real and effective interventions). The team is currently working on the development of interdisciplinary strategies that go beyond the physical education classroom, carrying out joint actions between the educational center and the figure of the nurse/school. In addition, future lines of research will aim to analyze more precisely the social and psychological factors associated with both prevention and once the disease has already manifested. In summary, through the present research, we have discovered how combined methodological work (quantitative and qualitative) can help improve the perception of the problem as well as evaluate effective intervention strategies; therefore, it will always be included in the future.

**Author Contributions:** Conceptualization, M.M. and J.C.C.; methodology, M.M., Á.A. and J.C.C.; software, M.M., Á.A. and D.S.; validation, M.M., J.T., J.C.C. and D.S.; formal analysis, J.C.C. and M.M.; investigation, M.M., J.T., J.C.C., Á.A. and D.S.; resources, M.M., J.T., J.C.C. and D.S.; data curation, M.M. and Á.A.; writing—original draft preparation, M.M., Á.A., J.C.C. and D.S.; writing—review and editing, J.C.C. and M.M.; visualization, D.S. and J.T.; supervision, Á.A.; project administration, Á.A. and D.S. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by University of Almería, grant number TRFE-SI-2022/001.

**Institutional Review Board Statement:** The study was conducted in accordance with the Declaration of Helsinki, and approved by the Bioethics Committee of the University of Almería (protocol code UALBIO2022/049 24 April 2023).

**Informed Consent Statement:** Informed consent was obtained from all individuals involved in the study.

**Data Availability Statement:** Access to the initial data is provided in the annex. Other data regarding completed interviews is restricted due to the need to protect confidential information due to the disclosure of personal data.

**Conflicts of Interest:** The authors declare no conflicts of interest.

### Appendix A. Interview Schedule: Division by Blocks

First Block. Secondary research objectives: (1) to explore the key skills worked on in physical education and how they relate to preventing eating disorders and (2) to observe changes after the application of the P-NAF program. Guidelines for interviewers: “Now I would like to talk about the skills that students need to cope with the demands and challenges of everyday life”. Questions: (1) “What are the skills worked on in the PE class?”; (2) “Do you find that the requirements for achieving these skills vary among your students?”; (3) “Tell me if you think that any of these skills can help in the prevention of eating disorders?”; (4) “As a PE teacher, do you think you have any knowledge and abilities that will help you teach the skills listed above?; (5) “After implementing the P-NAF program, has your perspective on working on eating disorders in the PE classroom changed?” Instructions: encourage the teachers to elaborate on their answers. Ask the teachers if they can think of other life skills that their students might need. Additional suggestions: “Can you elaborate a little more? What do you mean by that? What are the implications?”

Second Block. Secondary research objectives: (3) to study the profile of students whom teachers consider to be more likely to suffer from eating disorders and (4) to observe whether the working protocols of the P-NAF program help detect the risk of eating disorders. Guidelines for interviewers: “You have been teaching and working with adolescents for several years and probably have your own ideas about who are the most vulnerable students. I would like to hear your views on strategies and ideas to prevent eating disorders and what you think of the P-NAF program in this regard. Questions: (1) “What type of student profile do you think is most at risk of suffering from eating disorders?”; (2) “Can you talk about any activities that you have carried out in the physical education classroom with the intention of preventing eating disorders?”; (3) “Do you think that the physical education classroom offers opportunities to work on the prevention of eating disorders?”; (4) “Are there any strategies in the P-NAF program designed to prevent the risk of suffering from eating disorders?”; (5) “Are there any strategies in the P-NAF program that you think can help ameliorate this risk?”. Prompts: (1) “What activities conducted in the program did you observe as having a direct relationship with the detection and prevention of eating disorders?”; (2) “After completing the program, did you observe whether some activities previously developed in the physical education classroom could be used in the area of prevention?”; (3) “Do you think that some activities you have already conducted could be adapted and become part of the P-NAF program?”.

Third Block. Secondary objectives of the research: (5) to explore the relationship between self-esteem and eating disorders. Guidelines for interviewers: “self-esteem in

adolescents is typically studied by psychologists, but we would like you, as a PE teacher, to tell us if you believe that self-esteem can be improved in your classes". Questions: (1) "Do you complete any special self-esteem-building activities in your class?"; (2) "What type of activities do you think help to develop self-esteem in young people? How do you carry them out?"; (3) "Do you think that these activities help to prevent eating disorders?". Prompts: Encourage the teachers to look at the academic curriculum: "Perhaps we can revisit the skills you discussed earlier and see which ones are part of the academic curriculum".

Fourth Block. Secondary research objectives: (6) to study the influence of social relationships on the risk of developing eating disorders. Guidelines for interviewers: "In school, adolescents spend many hours with the peer group; we would like to know how you perceive the influence of these relationships on the behavior of adolescents". Questions: (1) "Do you think that peers have an influence on students' self-esteem?"; (2) To what extent do you think that self-esteem, social relationships, and eating disorders are related?"; (3) "Do you think that having good social skills allows students to establish healthy relationships with their peers?". Instructions: Encourage the teachers to analyze the relationships they observe among their students in different school settings.

Fifth Block. Secondary research objectives: (7) to explore the habits that can influence the risk of developing eating disorders; (8) to observe whether PE can help to improve these habits; and (9) to analyze whether the application of the P-NAF program improves teachers' perception of physical education as a factor contributing to change. Guidelines for interviewers: "now we are going to talk about how physical education can facilitate healthy habits among students. We are also going to analyze whether this is an implicit process (activities conducive to the development of healthy habits) or an explicit process (an active attempt made to teach these skills)". Questions: (1) "Do you believe that certain lifestyle habits correlate with the onset of eating disorders?"; (2) "Do you think that students develop healthy habits through PE? Why?"; (3) "Do you believe that a student's acquisition of healthy habits is due to their participation in activities or due to the effort of and tasks provided by the teacher?"; (4) "Can you provide examples of activities from your PE class that encourage healthy habits in young people?"; (5) "How can we improve activities aimed at preventing eating disorders? Explicitly or implicitly? Why?".

Sixth Block. Secondary research objectives: (10) to explore whether the life skills that students develop in physical education are used in other contexts and (11) to analyze how to transfer skills that can prevent eating disorders. Guidelines for interviewers: "a feature of life skills is that people can use them in different contexts. We can now explore if the abilities listed earlier are applicable in other areas of a student's life". Questions: (1) "Can you explain how students can apply the life skills listed earlier to other areas of their lives?"; (2) "Do you believe that skill transfer happens automatically, or do we need to take steps to facilitate it?"; (3) "Can you give any examples of how you might help students transfer the skills they have learned in PE to other contexts?". Prompts: Ask them about the skills they mentioned before and the ones we highlighted. "Why do teachers think that a specific life skill can be transferred to a different setting?".

Seventh Block. Secondary research objectives: (12) to explore how the curricular requirements of PE can help to develop skills for the prevention of eating disorders and (2) to examine if the P-NAF program has created opportunities for prevention activities. Guidelines for interviewers: "now we are going to think about how physical education can facilitate the development of skills for the prevention of eating disorders. In this regard, we want to know if the P-NAF program has improved your understanding of how to prevent eating disorders". Questions: (1) "Can you explain how students can develop prevention skills through PE?"; (2) "Do you think these new abilities can be used in other aspects of life?"; (3) "Do you think students will know how to do so?"; (4) "Can you give some examples?". Prompts: We can suggest that they think about what actions could be taken in the PE class or how to adjust the curriculum for the prevention of eating disorders. "What else could be taught alongside physical education? What actions can the school

take to prevent eating disorders? Do your personal background, education, priorities, or experiences affect your approach to EDs?''.

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