THE EDUCATIONAL AND DIS-EDUCATIONAL ROLE OF PHYSICAL ACTIVITY: RISKS AND BENEFITS OVER THE LIFE SPAN

IL RUOLO EDUCATIVO E DISEDUCATIVO DELL'ATTIVITÀ FISICA: RISCHI E BENEFICI NELL'ARCO DI VITA

Patrizia Oliva
Università degli Studi di Catanzaro "Magna Græcia"
poliva@unicz.it

Federica Andricciola
Università degli Studi di Catanzaro "Magna Græcia"
federica.andricciola@studenti.unicz.it

Teresa Iona
Università degli Studi di Catanzaro "Magna Græcia"
iona@unicz.it

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ABSTRACT

Habitual physical activity provides both physical and psychological benefits, but if exercise is excessive, it can lead to many negative consequences and it can manifest itself into dysfunctional behaviors, such as exercise dependence. The main aim of this study was to examine the differences in eating behavior, mood-states and self-determined motivation between groups of exercise dependent (at risk vs. non-addicted-symptomatic vs. non-addicted-asymptomatic) persons.

L'attività fisica abituale ha benefici fisici e psicologici, ma se l'esercizio fisico è eccessivo, può avere molte conseguenze negative e può manifestarsi in comportamenti disfunzionali, come la dipendenza da esercizio. L'obiettivo principale di questo studio è stato quello di esaminare le differenze nel comportamento alimentare, negli stati d'animo e nella motivazione autodeterminata tra gruppi di persone dipendenti dall'esercizio fisico (a rischio vs. non dipendenti-sintomatici vs. non dipendenti-asintomatici).

KEYWORDS
Physical exercise, Emotional functioning, Exercise regulation, Eating behaviors

Esercizio fisico, Funzionamento emotivo, Regolazione dell'esercizio, Comportamento alimentare

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Introduction

Physical activity offers a significant opportunity for cognitive, social, individual, and emotional functioning. It promotes complex cognitive mechanisms such as problem solving, decision making, planning and, in addition, it boosts socialization processes through teamwork, cooperation, collaboration, contributing to personal and interpersonal growth (Hills, King, & Armstrong, 2007; Darvin, Cintron, & Hancock, 2017; Sone, Kawachi, Abe, Otomo, Sung, & Ogawa, 2017;). Furthermore, sports activity enhances autonomy through the experience of the sense of sacrifice, commitment and respect (Holt, Smedegaard, Pawlowski, Skovgaard, & Christiansen, 2019). Therefore, it is through sport that the adolescent humanizes himself as he trains his determination in compliance with the rules of others. Previous studies showed that physical activity improves positive moods - like vigor - and that it reduces negative ones- like anxiety, depression, anger and fatigue (Adams, 2001; Costa & Author, 2011; Author et al., 2014; Author et al., 2013; Chan, Liu, Liang, Deng, Wu, & Yan, 2019). Despite these many advantages, if exercise becomes excessive, it can lead to many negative consequences such as exercise dependence (Author et al., 2012; Author et al., 2013; Hausenblas & Symons Downs, 2002a; Marques, Peralta, Sarmento, Loureiro, Gouveia, & Gaspar de Matos, 2019).

Hausenblas and Downs (2002a), relying on the Diagnostic and statistical manual of mental disorders-IV-R (DSM-IV-R), described exercise dependence as an inadequate exercise pattern leading to clinically significant impairment or distress, as manifested by 3 or more criteria: (1) *Tolerance*, which refers to the need to increase exercise intensity, duration or frequency

to continue to receive the desired benefits from exercising; (2) *withdrawal*, which manifests itself by several symptoms (e.g. anxiety, fatigue) and amount of exercise is taken to relieve or avoid these symptoms; (3) *intention effects*, where the duration or amount of exercise is greater than was intended; (4) *loss of control*, which stands for the inability to cut down or control exercise, despite a desire to do so; (5) *time*. Excessive time spent to get or prepare for exercise; (6) *conflict*, which refers to the elimination or reduction in social, occupational, or recreational activities because of exercise; and (7) *continuance*, which is the persistence to exercise despite recurrent physical or psychological problems caused by exercise. Moreover, Hausenblas and Downs (2002a), distinguished individuals who are "at-risk" and have some symptoms "nondependent-symptomatic", and those who have no symptoms "non-dependent-asymptomatic" for exercise-addiction. However, few studies have examined the prevalence and correlates of exercise dependence symptoms applying DSM-IV substance dependence-type criteria (Author et al., 2013; Karademir, 2020).

Considering the critical physical, psychological, and social outcomes associated with exercise dependence symptoms, it is important that research contributes to a better understanding of the features, antecedents and consequences of this form of dependence (Adams, Miller & Kraus, 2003). Several studies (Blaydon & Lindner, 2002; Author et al., 2011; Ryan, Frederick, Lepes, Rubio, & Sheldon, 1997) suggest that the athletic environment usually encourages and legitimizes eating and exercise disorders in athletes. In this direction, a positive correlation has been established between exercise-addiction symptoms and problematic attitudes toward eating (bulimia or anorexia) (Lejoyeux, Avril, Richoux, Embouazza, & Nivoli, 2008).

Despite these research findings, it is necessary to further investigate these results by examining the relationship and mechanism between exercise and eating disorders (Cook & Hausenblas, 2008). An important key to understanding exercise dependence can be exercise motivation (Edmunds, Ntoumanis & Duda, 2006; Ogles, Masters & Richardson, 1995; Author et al., 2013). Motivation is a purely psychological factor, which has a strong relationship both with the ability to perform an activity on an ongoing basis and with the likelihood that performing it will provide tangible benefits and not become an unnecessary daily occupation.

Specifically, Deci and Ryan's Self-Determination Theory (SDT) (Deci & Ryan, 1985; 2000) is useful to understand the exercise dependence behavior. The most basic principle of SDT is the distinction between self-determined or autonomous forms of motivation relative and non-self-determined or controlling forms of motivation. Based on these distinctions, SDT proposes that three distinct forms of motivation exist: intrinsic motivation, extrinsic motivation and amotivation. Intrinsic motivation represents the prototype of self-determination, because a person is motivated to act for fun or enjoyment and satisfaction, inherent in the behavior itself rather than because of external contingencies. In contrast, extrinsic motivation embraces a variety of behavioral regulations that vary in their relative self-determination. In an increasing self-determination, these regulations are: *External* (specific external contingencies control the behavior of people, who behave to achieve a desired consequence, such as tangible reward or to avoid a threatened punishment), *introjected* (implies an external change that has been internalized but not totally accepted and consists in doing an activity because of internal pressures such as guilt or shame), *identified* (undertaking an activity because the value of a behavior is accepted

and considered useful) and *integrated* (pursuing an activity because it is congruent with the owns goals, values and other aspects of the self). Finally, SDT further proposes amotivation, which refers to the absence of both intrinsic and extrinsic motivation and represents a complete lack of self-determination and intention to behave. To sum up, intrinsic, integrated, and identified regulations are self-determined, whereas amotivation, external and introjected regulations are non-self-determined forms of motivation (Deci & Ryan, 2000).

SDT-based research shows that higher levels of self-determined motivation are related to several positive outcomes such as maintaining/enhancing health, psychological growth and well-being, and an absence of pathology and ill-being (Ryan & Deci, 2000). E. g., controlling forms of self-regulation are present more in the eating disorder group than individuals showing no symptoms of an eating disorder (Strauss & Ryan, 1987). Other research (Frederick & Ryan, 1993) shows that introjected regulations are related with body image motives and are a relevant factor for strenuous exercise behavior. Hamer, Karageorghis and Vlachopoulos (2002) demonstrate a correspondence between less autonomous forms of regulation and exercise addiction. Excessive exercisers seem to have higher introjected regulation of self-determined motivation than "healthy" exercisers (Fortier & Farrell, 2009; Author, Costa and Larcan, 2013) and even nondependent-symptomatic individuals score higher on all motivational regulation forms, compared to nondependent-asymptomatic athletes (Edmunds, Ntoumanis & Duda, 2006). Despite the important information gained from these studies, the relationship between motivation and exercise dependence is still unclear.

Therefore, the purpose of our study was to analyze psychological and behavioral factors associated with exercise dependence symptomatology. More in depth, we verified whether individuals classified as "at risk nondependent-symptomatic" and "nondependent-asymptomatic" for exercise dependence (Hausenblas & Symons Downs, 2002a) differ in terms of their eating behaviors, self-determined motivation and moods. In accordance with previous research, we hypothesized that "at risk" subjects have higher negative levels of eating behaviors, self-determined motivation and mood state than the others group.

Materials and Methods

Participants

From a total sample of 523 participants, 90 individuals (45 male and 45 female) who exercise regularly physical activity were selected for this study. By using the EDS-21 questionnaire, based on Hausenblas and Downs system classification (2002b) and adapted to Italian language (Author et al., 2012). Participants were classified as "at-risk" (n=30), "nondependent-symptomatic" (n=30) and "nondependent-asymptomatic" (n=30) for exercise dependence. EDS-21 was applied to individuals who had no health problems before the physical exercise. Participants were recruited from fitness centers in southern Italy regions. They were suitable to take part in the study if they were moderately active for at least an hour, no less than three times per week. All participants volunteered willingly (without remuneration) to join the research: after being informed that the study was an investigation of the

effects of physical exercise, written consent was given. Using a demographic questionnaire, we collected some personal data, namely age, gender, practice and BMI (see Table 1).

	At Risk				Symptomatic				Asymptomatic			
	Male (n=15)		Female (n=15)		Male (n=15)		Female (n=15)		Male (n=15)		Female (n=15)	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Age	35.53	8.347	35.47	11.59	35.47	8.42	35.60	11.71	35.20	8.61	35.33	11.73
BMI	25.20	2.762	21.42	2.15	24.86	1.72	21.77	2.61	25.02	2.650	21.78	1.93
Exercise Frequencies (Hours per week)	10.60	5.166	8.00	3.780	8.47	8.202	4.20	2.077	4.20	1.971	3.60	1.404

- **Table 1: Descriptive Statistics for Age and BMI**

Procedure and measures

All procedures conducted in studies involving human participants complied with the ethical standards of the institutional and/or national

research committee and with the 1964 Declaration of Helsinki and its subsequent amendments or comparable ethical standards.

Participants completed several questionnaires to measure: Exercise dependence, motivational regulations in exercise, mood states, and eating disorders.

Exercise dependence symptomatology: An adapted Italian version (back-translation) of Exercise Dependence Scale (EDS-21) was used (Costa, Cuzzocrea, Hausenblas, Larcan, & Author 2012) . Based on the DSM-IV criteria for substance dependence (APA, 1994), it includes 21 items, containing the following seven subscales: tolerance, withdrawal, intention effects, loss of control, time, conflict and continuance. Alpha values for the total score in the present sample were =.92.

Motivational regulations for exercise: An adapted Italian version of Behavioral Regulation Exercise Questionnaire-2 (BREQ-2) (Costa, Hausenblas, Author et al., 2013; Markland & Tobin, 2004) was used. It includes 19 items scored on a five-point scale ranging from 0 (not true for me) to 4 (very true for me) and the original version included five scales: Amotivation, External Regulation, Introjected Regulation, Identified Regulation, and Intrinsic Regulation. Alpha values for the present sample are: Amotivation = 0.68; External Regulation = 0.69; Introjected Regulation = 0.70; Integrated Regulation = 0.71; and Intrinsic Motivation = 0.84.

Mood State: The Profile of Mood States (POMS) (Farnè, Sebellico, Gnugnoli, & Corallo) includes 65-item scored on a five-point scale ranging from 0 to 4 and measures six subscales: tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, confusion-bewilderment.

Eating Disorder: Eating Disorder Inventory–2 (EDI-2) (Garner, Olmstead & Polivy, 1995) includes 91 statements, concerning various symptoms related to eating disorders. This self-report tool consists of 11 subscales: Drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, maturity fears, asceticism, impulse regulation and social insecurity.

Results

Dependence group differences were examined by multivariate analysis of variance (M.AN.O.VA.) and t-test with eating behaviors, mood-state and levels of self-determined regulation as measured variables, and groups made up of people who are exercise dependent as the design variable. A.05 significance level was allocated in all tests. All dates were transformed in sin-1 (Freeman & Tukey, 1950) to normalize the distribution.

Eating Disorder of exercise dependence groups

Table 2 synthesizes the means and standard deviations for groups on EDI-2 scales.

Table 2: Means and standard deviations for groups on Eating Disorder scales

	〈	At Risk		Symptomatic		Asymptomatic		Total		F	p	Partial Eta Squared
		M	SD	M	SD	M	SD	M	SD			
DT	.83	4.67	5.17	3.40	4.10	3.57	5.30	4.67	5.17	.59	.557	.013
B	.89	1.53	2.79	1.00	1.84	.47	1.11	1.53	2.79	1.80	.171	.040
BD	.91	6.73	5.31	5.57	4.84	3.77	5.12	6.73	5.31	4.96	.009	.102
I	.88	3.87	5.00	1.95	2.68	1.63	2.51	3.87	5.00	3.22	.045	.069
P	.74	4.73	4.63	3.63	2.53	3.57	2.64	4.73	4.63	.01	.985	.000
ID	.75	4.53	3.08	4.10	3.37	2.87	2.85	4.53	3.08	4.01	.022	.084
IA	.85	3.63	3.91	2.67	3.34	1.00	1.58	3.63	3.91	7.06	.001	.140
MF	.82	6.73	4.93	6.27	4.02	5.57	4.30	6.73	4.93	.53	.592	.012
A	.64	3.70	3.43	4.37	2.44	2.30	1.73	3.70	3.43	4.84	.010	.100
IR	.77	4.63	4.51	2.73	3.06	1.27	1.76	4.63	4.51	6.22	.003	.125
SI	.79	4.43	3.84	3.90	3.22	2.87	2.24	4.43	3.84	1.20	.306	.027

Significant main effects were found for groups who are exercise dependent in body dissatisfaction, $F(2,87) = 3.11$, $p = .050$, ineffectiveness, $F(2,87) = 3.23$, $p = .044$, interpersonal distrust, $F(2,87) = 3.458$, $p = .036$, interoceptive

awareness, F (2,87) = 7.71, p =.001, asceticism, F (2,87) = 4.59, p =.013, impulse regulation, F (2,87) = 9.50; p <.0001. Thus, the t-test analysis revealed differences between groups on examined measures. At-risk group was significantly higher on impulse regulation than nondependent-symptomatic one, t (58) = 2.09, p =.041. At-risk subjects displayed significantly higher scores in bulimia, t (58) = 2.22, p =.030, in body dissatisfaction, t (58) = 2.43, p =.018, in ineffectiveness, t (58) = 2.25, p =.028, interpersonal distrust, t (58) = 2.40, p =.019, interoceptive awareness, t (58) = 4.03, p <.0001 and impulse regulation, t (58) = 4.29, p <.0001, than asymptomatic exercisers.

At least, between nondependent groups, symptomatic individuals reported significantly higher interpersonal distrust, t (58) = 2.11, p=.039, interoceptive awareness, t (58) = 2.11, p =.039, asceticism, t (58) = 2.35, p =.022, impulse regulation, t (58) = 2.38, p=.020, than asymptomatic ones.

Motivational regulations of exercise dependence groups

Table 3 shows means and standard deviations of the five aspects of Motivational regulations for exercise (amotivation, external regulation, introjected regulation, identified regulation and intrinsic motivation) obtained by athletes who are exercise dependent.

Table 3: Means and standard deviations for groups on Motivational regulations for exercise

	⟨	At Risk		Symptomatic		Asymptomatic		Total		F	p	Partial Eta Squared
		M	SD	M	SD	M	SD	M	SD			
motivation	.72	.16	.32	.19	.46	.04	.15	.16	.32	1.117	.332	.025
xternal egulation	.83	.16	.34	.28	.47	.10	.23	.16	.34	1.682	.192	.037
ntrojected egulation	.70	1.23	.78	.73	.54	.34	.34	1.23	.78	17.721	.000	.289
dentified egulation	.75	3.18	.67	3.08	.62	2.77	.68	3.18	.67	3.231	.044	.069
ntrinsic Motivation	.89	3.50	.74	3.40	.62	3.44	.74	3.50	.74	.302	.740	.007

Data showed that significant differences among exercise dependent groups existed, more so in introjected regulation ($F(2,87) = 15.67$, $p < .0001$, and identified regulation, $F(2,87) = 3.68$, $p = .029$). Further analysis between groups revealed that at-risk subjects had significantly higher score in introjected regulation than symptomatic ones, $t(58) = 2.39$, $p = .020$, and higher levels in introjected regulation, $t(58) = 5.32$, $p < .0001$ and identified regulation, $t(58) = 2.57$, $p = .013$, than the asymptomatic group. Lastly, symptomatic subjects were greater in introjected regulation than in asymptomatic exercisers, $t(58) = 3.63$, $p = .001$.

Mood State of exercise dependence groups

Table 4 reports the descriptive statistics of the six scales of mood states (tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, confusion-bewilderment).

Table 4: Means and standard deviations for groups on Mood States

	〈	At Rysk		Symptomatic		Asymptomatic		Total		F	p
		M	SD	M	SD	M	SD	M	SD		
Tension/ Anxiety	.82	9.37	6.13	9.67	5.16	5.90	4.00	9.37	6.13	4.92	.009
Depression/ Dejection	.85	8.50	8.74	8.50	7.74	3.10	5.69	8.50	8.74	10.07	.000
Anger/ Hostility	.81	13.47	10.01	10.17	7.44	4.27	5.32	13.47	10.01	12.66	.000
Vigor / Activity	.75	21.10	6.35	20.03	7.34	20.20	6.93	21.10	6.35	.21	.812
Fatigue/ Inertia	.89	8.10	4.78	7.67	4.72	4.77	4.53	8.10	4.78	4.50	.014
Confusion/ Bewilderment	.83	8.20	5.44	8.50	4.42	6.30	4.50	8.20	5.44	1.84	.164

A further one-way multiple analysis of variance (M.AN.O.VA.) showed differences among groups on POMS scores; particularly, in tension $F(2,87) = 3.46$, $p=.036$, depression $F(2,87) = 3.18$, $p=.047$, anger, $F(2,87) = 10.03$, $p < .0001$, and fatigue, $F(2,87) =3.58$, $p =.032$.

Analyzing the data of the three groups separately with a t-test for equality of means, no statistical differences between at-risk and nondependent-symptomatic were found. However, both the groups showed a significant difference with the asymptomatic group. Specifically, exercise dependence at-risk subjects showed more tension, $t(58) = 2.27$, $p =.027$, more anger, $t(58) = 4.33$, $p <.0001$, and more fatigue, $t(58) = 2.17$, $p =.034$, than nondependent-asymptomatic. Nondependent-symptomatic subjects scored significantly higher in tension, $t(58) = 2.47$, $p =.019$, depression, $t(58) = 2.34$, $p =.023$, anger, $t(58) = 3.082$, $p =.003$, and fatigue, $t(58) = 2.32$, $p =.024$, than the asymptomatic group.

Discussion

The main purpose of the current study was to examine whether individuals classified as “at risk”, “nondependent-symptomatic” and “nondependent-asymptomatic” for exercise dependence (Hausenblas & Symons Downs, 2002a) differ in terms of their eating behaviors, self-determined motivation and mood state. In accordance with previous studies (Cook & Hausenblas, 2008) there seems to be a strong association between exercise dependence and problematic eating attitudes, but few studies examine this relation applying DSM substance dependence-type criteria to the problem of exercise dependence. Comparing the three groups on eating

behaviors, “at risk” and “symptomatic” subjects have higher scores on eating disorders than nondependent-asymptomatic ones. Data show that “at-risk” subjects have higher scores than “symptomatic” only on impulse regulation. Instead, higher points on eating behavior are clear with respect to the asymptomatic subjects. These results seem to confirm the relation between exercise addiction and eating behavior, but also suggest that eating attitudes are not discriminators in the development of exercise dependence behavior. Indeed, different researchers (Lejoyeux, Avril, Richoux, Embouazza, & Nivoli, 2008; Author et al., 2013; Zmijewski & Howard, 2003) reveal that only some of the exercise dependence symptoms are related with problematic attitudes toward eating. Although according to DeCoverley Veale (1987) to diagnose primary exercise dependence, an eating disorder must before be excluded. Future research should deepen this relationship and better understand the existence of differences between primary and secondary exercise dependence.

Concerning motivation, data show that introjected regulation is significantly different among all the three groups. In fact, “at-risk” group has significantly higher scores than “symptomatic” and “asymptomatic” groups, and “symptomatic” exercisers are more introjected regulated than asymptomatic ones. These results are consistent with previous studies showing that introjected regulation seems to be the strongest predictor of exercise dependence (Edmunds, Ntoumanis, & Duda, 2006; Fortier & Farrell, 2009). However, “at-risk” subjects also score significantly higher on the identified regulation than on the “non-dependent asymptomatic” group. This perspective is shared by Hamer, Karageorghis and Vlachopoulos (2002) who claimed that identified regulation is a positive predictor of exercise dependence. Also, this finding is congruent with those reported by Edmunds

et al. (2006) who found that some autonomous motivational regulations seem lower in asymptomatic subjects and by Fortier and Farrel (2009) who showed that “excessive” exercisers are significantly more identified regulated than all other exerciser groups. These findings underline the role of introjected regulation for the development of exercise dependence, but show the necessity to understand and further deepen the relations of the other types of exercise motivational regulation. Future evidence should explore the role of exercise motivational regulation, especially of identified regulation, in the development of exercise dependence.

The role of mood state is also under investigation, results show no significant difference in mood state between “at-risk” and “symptomatic” subjects. Instead, both groups have a significant difference with the “nondependent-asymptomatic” one. Specifically, both scored significantly higher in tension, anger and fatigue than in “asymptomatic”. Moreover, “symptomatic” exercisers are more depressed than asymptomatic ones. These results confirm several previous studies (Costa, Author, Cuzzocrea, & Larcan, 2013; Zmijewski & Howard, 2003) showing that individuals who report relatively more negative mood states in exercise have a higher possibility to show exercise dependence. But the relationship between mood state and exercise dependence is still unclear. Actually, Hausenblas and Downs (2002a) didn’t find differences between groups in mood state and suggest that mood disturbance may compare as withdrawal symptoms during exercise deprivation period. Future research should better understand this relationship and try to understand if mood states are affected by the exercise or exercise is an answer to the negative mood state (Zmijewski & Howard, 2003).

Conclusions

The findings of the present study offer support to previous research that has considered the examined factors to be a critical antecedent of the exercise dependence, and likewise suggest the importance to analyze dependence symptomatology in all the three groups based on the classification system proposed by Hausenblas and Downs (2002b). “At risk” subjects need to be examined more closely to grasp the complexity of their psychological patterns. This study has further identified several emotional and motivational mechanisms that may operate when one shows exercise dependence/addiction symptoms.

Although these results enrich the knowledge on sport and exercise, the investigation has several limitations that render it not exhaustive. Firstly, the small number of participants and the sampling method necessitates caution about the generalizability of the results. Secondly, though several theorists have argued that exercise dependence shares many aspects of addictive disorders (Ogden, Veale & Summers, 1997), the validity of DSM-IV dependence criteria have not yet been assessed in relation to exercise dependence; thus, it remains possible that scores on the various EDS-21 dimensions could be misinterpreted. Thirdly, no attempt was made to control for the athlete’s level of competition; it may be the case that the high scores in “at-risk subjects” reflect the consequence of striving for extreme competitive success rather than symptoms of exercise dependence/addiction. Finally, it was not possible to use age data to control for the uninteresting effect of age that, as SD-values showed, could have mediated the significant relationship between examined variables.

For this reason, future studies should recruit a wider sample of participants and test different types of physical activity, competitions and age levels. A more detailed understanding of psychological mechanisms, preferably through a longitudinal study, should be applied to determine the assessment of addiction and modification of psychological aspects, in order to reduce the potential risk of individuals regularly involved in physical activity.

Implications for educational practitioners

Regarding prevention, considering the high potential that physical and sport activity has in defining the trajectories, in a functional or dysfunctional sense, of growth especially for young people, it would be advisable to guide operators towards the construction and planning of prevention interventions and promotion of well-being, based on scientific evidence of efficacy. This is in order to encourage the development of individual and collective resources that allow young people to be educated, and to make conscious choices, increasing their ability to control and protect their health, because the individual is not at the mercy of external events but can intervene on the environment to change it.

The systemic approach, in this sense, looks at the developmental process as the result of the combination of multiple factors that act separately (individual and contextual factors) both in a process of continuous and dynamic interaction. This interpretative perspective seems to better explain the appearance and maintenance of many emotional and behavioral problems

that appear in adolescents, with particular reference to all those difficulties, manifested in the family, school and extra school contexts, which do not have an organic matrix, but originate within dysfunctional interaction contexts.

Therefore, the goal should not so much concern the identification of problematic behavior and the consequent therapeutic intervention, but it should encourage personal empowerment, i.e. the development of cognitive, emotional, and behavioral resources and skills in order to promote greater well-being. In particular, it is a priority to take an ecological perspective, which favors a multidisciplinary approach, translated into interdependent actions and interventions that are placed in various areas, in the name of that therapeutic alliance that involves several professionals. Consequently, it is necessary to rethink the educational and habilitative policy that envisages teamwork, so that the many threads that discomfort entails can be knotted, a network and alliance work that favors the choice of the most appropriate strategies to maximize the resources of each person, who even if very rarely has a precise diagnosis, nevertheless still requires understanding and inclusion by all.

Obviously, the discomfort expresses a condition of physical and mental distress caused by frustrating factors that prevent or slow down the growth process of the subject in developmental age. This may be because of the developmental tasks that the young person has to face during the transition to adult life; the constraints resulting from the environment and the lack of reference points; a series of family, social and personal problems that can lead to maladaptation and that constitute the main sources of risk. The central knot is linked to the need for fulfillment, to the ability to give meaning to life, to self-esteem, to the achievement of a full and mature identity. These are vital

goals for the subject's development and empowerment, but paradoxically they are challenged by the failures of educational agencies which, through their ineffectiveness, feed mistrust and insecurity in the adolescents, with the risk of bringing out real eating disorders or disorders related to substances or compulsive behaviors addictions (internet, gambling, shopping, physical activity).

There is a need to involve the families, local services, sport associations, and collaboration between teachers, operators and professionals in the socio-health area to build a support network aimed at promoting adolescents' care, showing -each in their own way - discomfort, dissatisfaction and self-determination frustration. It is only through networking that it is possible to take global responsibility for the individual, which is expressed in the identification of the individual's special needs, in the Life Implementation Project and in a whole series of rehabilitative / enabling, therapeutic and educational interventions, addressing the global dimension of the individual.

This is in the construction's direction of that well-being pedagogy, looking at implementing subjectivity as an effective safeguard supporting the difficulties and issues of social life. Ecological theory (Bronfenbrenner, Morris, 2006) underlines how harmonious development is determined by a continuous reference of influences that find in the individual characteristics, in the proximal processes, in the contextual variables and in the temporary person-environment influences a niche for self-determination toward individual self-design (Author et al., 2014).

In this perspective - even sport - particularly through the promotion of health and well-being, can likewise become a place to prevent discomfort and

enhance full life quality. Indeed, the appearance of dysfunctional behaviors, such as those of addiction or related to eating or body perception, depicts a signal that the educational and social processes adopted by the caregivers are failing and that, more in overall, the health of the system is being compromised. Precisely, because of this multifactorial nature, discomfort requires a systemic reading, which connects the personal history of the adolescent to the discomfort of the family, to the discomfort of the teacher, to the discomfort of the peer group, to the discomfort of the coach, to the dysfunction of the social system, etc…

Thus, it would be necessary to activate targeted and flexible help and support paths, placed within a circularity of dialogue with the adolescent, his family, school, leisure time agencies, which allow to define the respective areas of work, linking them to those of others.

As underlined, the role of sport is fundamental for adolescents' well-being; it is also here where warning signs and risk factors should be identified, actions aimed at reducing difficulties must be proposed, and solutions that help them in their tasks and performances must be identified. The aim is to improve this educational context by introducing greater flexibility, individualization and reflection on the actual level of competence and the potential for educability of the adolescent (Author et al., 2015).

Finally, we must not forget the centrality of parents in the intervention and support process. For instance, it is important to create a continuity path between extra-school (sport) and family, to ensure the adolescent empowerment and to arrange psychoeducational interventions, so that they are informed of the adolescent's difficulties, instructed to use specific strategies, and supported psychologically as they rarely have adequate

parenting and educational management skills, which risk becoming additional risk factors for the adolescent and adult well-being (Author et al., 2008).

Lastly, that is why sports education is necessary not only for the development of a critical approach to educational problems related to sport and the planning of multidimensional educational interventions that can be achieved through it, but also for the training of key educational figures who can carry out such interventions in society (Isidori, 2009).

Data availability

Data will be made available on request.

Declaration of Competing Interest

The authors declare no conflict of interest and no source of funding. The authors alone are responsible for the content and writing of this article.

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