

Organizational stress in sports, the theoretical framework of the problem, proposals for measuring stress through different models of mathematical quantification

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Abstract: *The main objective of this paper is the analysis of organizational stress in a sports organization, establishing the theoretical framework of the problem, concrete transposition of stress analysis on a sports entity / organization by identifying stressors, diagnosing this organization from this perspective, having as a diagnosing tool the measurement of organizational stress index by different mathematical quantification models: the least squares mean, the average of perfect squares, mathematical regressions (eg polynomials of different orders, exponential, logarithmic, linear), interpolation polynomials, etc., in order to apply some stress control methods and techniques to minimize the negative influence on sports performance.*

Keywords: *organizational stress, sports stressor, mathematical quantification*

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I. Introduction :

A phrase often heard nowadays is related to organizational stress. Sometimes overlapping the concept of occupational stress, organizational stress is that category of mental stress that acts within organizations and is caused by specific stressors. Organizational stress acts intensely and with specific manifestations. In the case of this paper we will take into account the organizational and occupational stress of sports. In previous years there was a tendency to ensure a high level of physical and mental health for all athletes / coaches, sports managers. Even if sports organizations tried for a while to ignore this problem by analyzing the costs arising from the problems of sports organizational stress (medical leave-breaks for physical recovery, absenteeism, accidents, poor sports performance, relative quality of performance, etc.) they have reached the conclusion that it is more effective and less expensive to minimize or combat high levels of sports organizational stress.

Sports organizational stress involves those intense emotional reactions to the action of stressors, which put the athlete or group of athletes in the situation of not being able to manage and solve training tasks, to achieve sports performance, to feel overwhelmed by the scale of events around them. Thus, the feeling of helplessness in fulfilling and achieving sports performance, solving the problems they face will appear, and the pressure felt by the individual will lead to the unwanted effects of sports organizational stress.

In any approach to organizational stress research, four major aspects are taken into account:

- defining and measuring stress;
- correlations between stress and work / family relationships;
- stress-professional sports career relationship (athlete / coach);
- aspects of the social and family environment in the occurrence and management of the phenomenon of sports stress.

All these aspects must be analyzed in relation to the respective sports organization / entity, to the particular organizational climate of the case, to the organizational culture and the specifics of the production activity. The

communication style present in the organization and the leadership style are also important, because the impact of each component is not identical in all sports organizations that have the same profile, much less those that differ in sports specialties and orientations.

Organizational sports stress is the sum of organic and mental reactions due to the action of one or more stressors, from the training / competition environment, and which produce negative effects in the short or long term, depending on the severity of the action and how it is perceived by members of the sports organization / coaches.

Iamandescu presents a model of organizational stress in general, taken from researchers Theorell and Karasek, conceived as a three-dimensional situational complex. This model takes into account:

- the amplitude and quality of the requests (pleasant-unpleasant, safe-threatening);
- the possibilities of control and decision on sports tasks (active-passive);
- social support (assimilated to a filter that can mitigate the impact and negative effects of stress).

For a better understanding of the phenomenon, the first two aspects are viewed as perpendicular axes, the combination of extreme values offers four possible quadrants (situations).

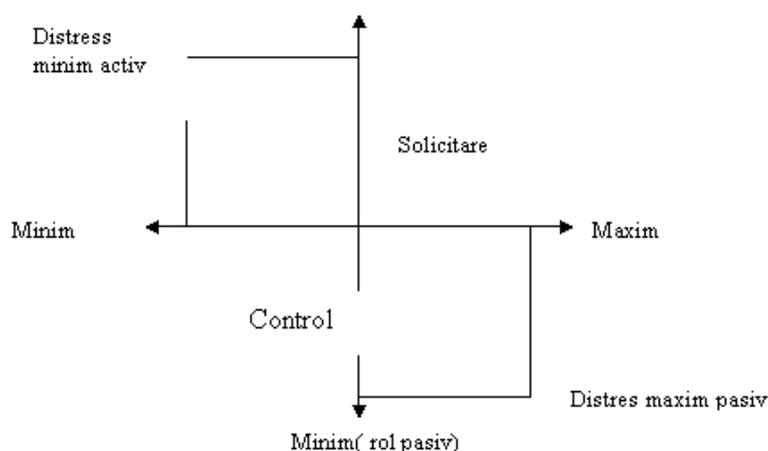


Figura 1. Model stres profesional – Theorell , Karasek ,
modificat după Siegrist –preluat din Iamandescu(2002)

In this paper, in the analysis of sports organizational stress, attention must be paid to all its components. As the sports organization is based on the individual (athlete / coach), and the relationships between individuals (athletes / coaches) of the same sports organization if necessary, groups as sports teams and, finally, the entire sports organization, we talk about sports organizational stress on all these levels.

a) individual stress. Here we consider the type of personality (A or B, extrovert versus introvert), emotional reactivity, behavioral and attitude characteristics, as well as his cognitive style and intellectual abilities, perception of reality, sports, etc. Moise proposes an analysis of the individual on two axes: eustress-distress and adaptation-mobilization, generating four different situations.

- individual with eustress on the adaptation dimension. The person conforms to the situation, tends to prevent conflicts, the adjustment to the environment is positive, its effects the same;

- individual with stress on the mobilization dimension. The person is characterized by the attitude of a fighter, he does not give up what he thinks ensures his success;

- individual with distress on the size of inadequacy. The person experiences frustrating situations, somehow manages to adapt and will experience the feeling of isolation and disappointment;

- individual with distress on the size of demobilization. The person is characterized by giving up and running, he does not want to face the stressful situation, because he feels that he does not have energy and motivation.

b) relational stress. When a relationship between two or more athletes / coaches is characterized by stress, the analysis is considered from their point of view. It can be colleagues at the training / competition place or people in a team with a given sports task, but with different concepts and ideas for achieving it. When these dissensions are present we speak of relational stress.

c) group stress. The analysis of this type of stress includes both the individual characteristics of athletes / coaches and the relationships between them. In the study of any group phenomenon we start from the micro level. Every athlete / coach reacts in a way that characterizes him; similarly different groups react differently to the action of stressors in the sports organization.

d) organizational stress. This type of stress acts at the level of sports organization and has the starting point in those listed above. But the sports organizational stress is not strictly the sum of these components, other elements act besides these: leadership style, sports organizational culture, communication style practiced in sports organization, etc.

Stressors in the sports organization.

Sports organizational stress does not appear suddenly, but is the result of the combined action of some factors, called stressors or simple-organizational stressors.

Stressors are different depending on the specific sport, the sports device (the position held in the sports team), but also their action is perceived differently by different people occupying the same type of position. What is uncomfortable for one, for the other can be a stimulating factor, depending on personal characteristics, as we presented earlier.

If Selye considers any event or situation with adaptive requirements as a stressor, Iamandescu proposes an organization of them in three main categories:

1) conditions of organizational environment, ie noise, pollution, congestion, etc., which can be improved by the intervention of ergonomics as a science;

2) relational conditions, which can generate distress in conflict situations. But they can also generate stress in the case of warm, friendly, supportive relationships, characterized by positive communication.

3) conditions related to the general character of work (sport in our case). Iamandescu places here the overload, but also the possibility of ameliorating the organizational stress through the relationship between the decision-makers, the nature of the request and the social support.

Tosi shows that the organization (in this paper we consider only the approach to sports, not a generalized one) or its characteristics are the basis of organizational stressors and proposes to classify them into four broad categories, depending on why namely generates them:

1) organizational level (we will nuance the specifics of sports). Managers / coaches in our case are affected by the role conflict and its ambiguity, as a result of responsibilities related to efficiency, meeting deadlines, overwork and responsibility for others. In the case of athletes / coaches, the role conflict is created in relation to the requirements of superiors and the resources made available to meet and, as far as possible, to exceed sports performance.

2) the complexity of the organization. In the case of large sports organizations (sports clubs with a multitude of specialties for example) problems arise due to the multitude of tasks / performances to be performed, sports organizational communication and complicated relationships within the sports organization.

3) organizational change. In the situation of changing the environment, there is uncertainty and insecurity for keeping the place as an athlete / coach in the sports organization, the new conditions are elements of stress due to the degree of novelty and frequent changes.

4) the border role. If the position held by an athlete / coach / sports manager is a border, his role is also the one of a border. By overlapping with other roles, rounded to others, or by complete non-coverage, the psychic stress due to this fact appears.

The main cause of organizational sports stress is the action of stressors role conflict and role ambiguity, followed by role overload / underload, responsibility for others, organizational policies, lack of participation, working conditions, sports career development and planning, sports organizational climate, sports organizational culture, sports organizational structures, group stressors, family stressors, individual stressors.

Next, we analyze, in turn, each organizational stressor and its characteristics.

1) Role conflict. Each individual-athlete / coach / sports manager in the sports organization holds a position and fulfills the role required by it. According to Floru, the role is defined as "the group of activities that a certain person performs according to the position he holds". Together with the other members of the organization, through the activity they perform, they contribute to the fulfillment of the goals of that sports organization. In this way each role intersects other roles, forming a whole, meaning the set of roles in the organization. Role conflict, Gordon argues, occurs when there are different expectations about that role. The athlete / coach fulfills his / her task, and the sports manager requests it for something else, apart from the established ones. Floru completes and enunciates the role conflict as that situation in which the individual who fulfills a role, will be subjected to the pressure of complementary requirements, sometimes even contradictory and incompatible with each other, all with a certain intensity and orientation. Person connects the occurrence of role conflict with the contradiction between the requirements of the organization and the moral values of the individual.

There are many conflicting situations that may arise. For example, a conflicting situation is when the athlete / coach has to execute two orders given by different superiors (head of the sports team and the head of the sports department), provisions that are contradictory, each waiting for the execution of the requirement. A similar situation occurs in the case of capable athletes / coaches / sports managers, who are loaded with a lot

tasks, from divergent fields, so that the person in question no longer knows what his place and role in the sports organization is. Following this idea, Kahn and colleagues define role conflict as a "simultaneous manifestation of two or more sets of pressures, which will conflict with another set of activities (and which are almost impossible to perform)." Practically, all the definitions of the role conflict underline the pressure felt by the athlete / coach / sports manager subjected to multiple, contradictory requirements, drawn by different people, his superiors in the hierarchy of the sports organization.

In the case of role conflict, Tosi identifies two subcategories:

- the intrasender conflict involves contradictory requirements issued by a single person. The manager / coach / team captain asks for increased performance and results, but does not provide the necessary support.
- intersender conflict involves conflicting requirements from different people. The execution of one requirement conflicts with the execution of the other, usually generated by different managers / coaches / team captains who do not consult with each other.

In addition to the above, Gordon adds three other forms of role conflict.

- inter-role conflict, when the expectations of different roles conflict. The service requires the individual overtime, but the family wants to be with them longer.
- personal-role conflict, when the expectations related to a certain role contradict the norms and moral values of an individual. An example is working on holidays (Christmas, Easter, Peshah, Ramadam, etc.).
- overloading the sports role, when the requirements and expectations related to its fulfillment are in contradiction with the possibilities and resources of the athlete / coach / sports manager concerned. This is the case for students at sports universities who work full time, but must also be present at courses and get high marks in exams.

Even if the role conflict cannot be excluded from the sports organization, the rate of its occurrence and the intensity of its action can be reduced. This moderation is definitely necessary, because a person experiencing a role conflict associates it with a low level of job satisfaction, high levels of interpersonal tension, decreased confidence and respect for the sports organization, increased anxiety due to the job itself.

2) The ambiguity of the role is the second organizational stressor (we will nuance only it in sports field, we will not generalize it) in importance. This stressor affects between 35% and 60% of athletes / coaches / sports managers. It got here due to the growing specialization of sports, creating real problems for sports organizations. This stressor is compared to a weather phenomenon: fog. If it is foggy, it is not visible well due to clouds (objective causes), if it is clear, it is not visible well due to subjective causes (psychological or physiological).

Some researchers define the ambiguity of the sports role through the state of uncertainty that athletes / coaches / sports managers feel at their place in the sports organization, in connection with the sports performance expected by others regarding the performance of profile tasks, the steps necessary to achieve them, as well as the behavior of the athlete / coach / sports manager and its consequences. It has been observed that a person who experiences a high level of role ambiguity does not have a plan of conduct, meant to get him out of this impasse. As a conclusion, the goals are achieved effectively provided that the possibility of predicting future events is reduced (the degree of uncertainty and the unknown is reduced).

New athletes / coaches / sports managers are the ones who experience the ambiguity of the role more acutely, either they do not receive enough information related to the place of activity and the rules of behavior, or they are unclear information related to the organization. This aspect appears either that information is simply missing (no one was concerned about this aspect) or is not intentionally offered to the new athlete / coach / sports manager. It happens especially in the case of rules not written or known by all athletes / coaches / old sports managers, and when it is violated, the reproaches are meant to "put in its place" a new athlete / coach / sports manager, with very good references, which aroused little jealousy among colleagues (a way to show "you're not that special").

The ambiguity of the role is felt differently by different employees. Some like unregulated style and uncertainty. There are also employees who want a structured atmosphere with the help of the rules and who have the possibility to make predictions related to the events of the sports team / organization. The one who does not know very clearly his tasks, who does not know what expectations others have of him, the control and evaluation criteria, is the athlete / coach / sports manager who will experience the feeling of ambiguity of the role. The ambiguity of the role experienced at individual level derives from the objective ambiguity, but the acute notes are due to the individual characteristics and interpretations, of the personality traits. The ambiguity of the role generates nervous tension and anxiety, which increase as the level of ambiguity increases.

An additional factor in accentuating nervous tension and anxiety is related to the pressure exerted by the sports organization, especially the demands on mistakes and their sanctioning. If the sports organization / entity has high demands on mistakes, the aversion of the athlete / coach / sports manager to the ambiguity of the role will increase. If the sports organization proves to be permissive with small mistakes, especially unintentional ones, and sanctions less drastically, then the athlete / coach / sports manager also tolerates the

aspect of role ambiguity better. It is natural, because in a sports organization with a higher degree of freedom granted to athletes / coaches / sports managers, the level of ambiguity is high, but also better tolerated by athletes / coaches / sports managers.

The ambiguity of the role also appears in relation to the hierarchical lines, between the team captains / coaches / sports managers, when the responsibilities and the area of responsibility are not clear (the job description is inconclusive, confusing).

The ambiguity of the role is of two types:

- a) of task, when the athlete / coach / sports manager does not know very clearly what he has to do;
- b) in connection with the evaluation, when the athlete / coach / sports manager does not know what the evaluation criteria are that will be applied or does not receive the necessary feedback.

Both the ambiguity of the role and the role conflict generate high levels of inner tension, anxiety, deep feeling of uselessness, intensely lived emotions, going as far as the feeling of threat. Job dissatisfaction is high, creating the premises for unwanted and useless reactions to the individual / athlete in question. In the case of sports specialties, in which the ambiguity of the role cannot be eliminated (sports specialties that involve a high degree of freedom, for example), the sports manager has the duty to support those involved in this situation.

Kahn and co-workers believe that any individual involved in a task must possess six kinds of information, which clarifies his role and what is expected of him. These are:

- 1) information regarding what is expected from the person concerned in connection with the assumed role;
- 2) skills and knowledge necessary to perform the assumed role, the ability to interact with others, according to the requirements of the role;
- 3) information about what it means to fulfill the role and what it implies not fulfilling it;
- 4) information about what behaviors is desirable for that role and what sanctions apply to behaviors that do not conform to the role;
- 5) knowledge of one's own behaviors that are rewarded or sanctioned, but also of the behaviors of others to be rewarded or, conversely, to be sanctioned, depending on the context;
- 6) knowing the concrete behaviors that satisfy the personal needs of the person in question, the attitudes in accordance with his desires and needs.

When all these are known, analyzed and weighed, and the athlete / coach / sports manager considers that he can operate with them without difficulties, neither the ambiguity of the role nor the conflict related to its exercise should appear. In the case of experiencing both the role conflict and the ambiguity of the role, the effects felt will be much more intense than those experienced and generated by only one of the two stressors. The combined action of the two stressors leads to experiencing high levels of stress, job dissatisfaction and feelings of worthlessness. But, as the meta-analysis made by Jackson and Schuler showed, it confirmed what the researchers knew, and in addition they noticed that the action of the two stressors correlates poorly with sports performance / low sports results and absenteeism.

3) Overload / underload of the role is a stressor that acts universally in the sport organizational environment. It depends on the organization of the activity at the level of sports organization, as well as its character. The role overload exists when an athlete / coach / sports manager has to perform several tasks in a short time and feels the pressure exerted by him. It is specific to both managers and those in subordinate positions. The situation of a capable athlete / coach / sports manager is well known, who is given more to do, precisely because he is capable. The person in question suffocates in his activity due to the multitude of tasks and risks not being able to cope, his freedom being reduced to the limit of endurance.

Overload is not felt equally by all athletes / coaches / sports managers. It is the role of ergonomics as a science to regulate the aspects related to the organization of work-sports activity in our case. It was observed that sports activity in optimal conditions and medium intensity does not cause negative reactions, allows the recovery of labor for the next day and leaves time and energy to the athlete / coach / sports manager to deal with personal and family problems. Deverenco states that one reason for experiencing role overload is also due to technological progress. This requires rapid improvement and adaptation to new technologies, sometimes implemented on the go, without giving enough time to the athlete / coach / sports manager to get used to them.

Tosi identifies two types of overload:

- a) quantitative, occurs when the employee is new and has many tasks to perform or, due to erroneous selection, when the athlete / coach / sports manager does not correspond to the position as professional training;
- b) qualitative, when the tasks are too difficult to perform.

Overexertion also occurs when sports tasks to be solved are not related to each other and require the distribution of attention in too many places, creating discontinuity and overtime to perform sports tasks. Overuse is a stressor that requires the athlete / coach / sports manager to adapt and experiencing it is associated with increased alcohol consumption, as a refuge, and cigarettes, low motivation, low self-esteem, ulcers, heart

problems and high cholesterol, mental and behavioral disorders (most common in the case of coaches and sports managers).

Underloading the role appears in the conditions in which the athlete / coach / sports manager has professional-sports training far beyond the needs of the role or when his abilities and skills are used to a minimum. It is characteristic of routine sports, in which human intervention is minimal (heads of departments within large sports organizations, clubs, universities with a sports profile, etc.). These activities are characterized as boring and monotonous and therefore create predispositions to incidents, because it reduces the vigilance of individuals. In the end, the athlete / coach / sports teacher / sports manager leaves this job, precisely due to the fact that his potential is used only to a small extent.

4) Responsibility for others is a stressor that acts mainly in the case of coaches and sports managers. In addition to the responsibility in making the right decisions, with the potential to develop the sports entity and human resources, the sports manager also lives the dilemma of choosing between responsibilities and unpopular measures that must sometimes be taken to avoid losing the sports team / athlete or even collapse. Any decision made by a manager has a great influence on the lives of athletes, with profound implications on their families as well. At the same time, the manager / coach has the obligation to mediate conflicts between different categories of athletes. It is a duty of service, but also a natural human desire to have a non-conflicting environment at the place of training / competition / field. Therefore, even if stress arises in connection with non-personal factors in the first place (budgets, increased performance and results, increasing the public portfolio, etc.), sports managers / teachers will have health problems such as hypertension, ulcers, psychological problems such as anxiety and tension felt at the training / competition / field. These are associated with increased consumption of cigarettes or medications, in some cases.

5) Sports organizational policies appear as an organizational stressor in the case of those people who, due to their personality characteristics, cannot adapt to the existing sports organizational environment. These people are characterized mainly by the need for achievements, but do not want to have the power, by the inability to cooperate and collaborate with others.

In a sports entity, each athlete / coach / sports manager depends on the others in fulfilling his / her tasks, the delay due to one athlete / coach / sports manager has a negative impact on the others. The impact of this organizational stressor is not the same in all sports organizations and does not mainly affect certain categories of athletes.

6) Lack of participation is an organizational stressor that mainly affects subordinates, especially those excluded from making decisions regarding their place of training / competition / field, along with the role conflict and its ambiguity. These people have the feeling that they have no control over what happens at their place of training / competition / field, that their opinion is not taken into account. Increasing participation in decision-making is the most effective way to minimize the action of this stressor, otherwise there is a decrease in motivation for work and a decrease in performance and results.

7) The conditions in sports activity are an organizational stressor that is taken into account by all researchers. When we talk about them, we mainly refer to noises, too high or too low temperatures, insufficient lighting, insufficient air ventilation, radiation, pollution, etc. Improving the conditions at the training / competition / field increases performance, prevents the large flow of staff, reduces the risk of accidents and illnesses, reduces the stress felt at the training / competition / field (football played on an impeccable field is very different from the one played on a field full of water or mud when it rains). Improving the training / competition / field conditions is the responsibility of sports organizations, which appeal to ergonomics as a science to find the best way for the sports organization and athletes / coaches / sports managers.

8) Sports career development and planning become stressful when they are related to job security, promotions, transfers and opportunities at work, especially when the time of retirement of the athlete is approaching. At every change that takes place in the sports organization, every athlete / coach / sports manager asks questions about job security, opportunities related to promotion or transfer to a better paid position, a better future, etc. Non-promotion, as well as promotion too fast, induce stress at work. In the first case, it may be an underload of the abilities of the athlete / coach / sports manager, while the second case may generate overload, with all the features discussed above. In the etiology of this stressor, Stora discovers two sources:

a) stress correlated with different stages of the career (we will nuance it only for the case of sports entities). Each stage has its trials, for example the beginning phase is characterized by intense competition to demonstrate the potential of sports, professional sports and sports management, for a higher income, for a higher status.

b) stress relating to the frustrations generated by the professional-sports status. This source is related to the real possibilities of promotion, but also to the social and cultural changes of the society.

9) Sports organizational climate means the sports environment, the sports organization where the training / competition activities take place and which accumulates feelings, attitudes and behaviors related to what happens in that organization and which can be measured by the perceptions of athletes / coaches / sports

manager on them. It can refer to the whole organization or only to a sector of it, but whatever happens there, it affects the entire sports organization (here we have in mind especially the big sports clubs, universities with a sports profile). Athletes / coaches / teachers / sports managers may feel satisfaction or frustration, depending on their perception of actions related to their training place / competition / department / etc . The sports organizational climate, like other organizational stressors, does not act on its own, but in tandem with other stressors and adds to the organizational stress felt by athletes / coaches / teachers / sports managers. It also affects different people in the same place of activity. The organizational climate is also responsible for positive feelings: team spirit, supportive element, intimacy. In the case of sports entities, all people perfectly know the team spirit and self-help that athletes and, in general, those involved in the field give each other.

10) Organizational culture is defined by Nystrom as "a synthesis of values, norms, beliefs and assumptions adopted by a group of individuals working in an organization. Like the organizational climate, the organizational culture is different from one organization to another "(we will consider the aspect of sports organizational culture especially-we will not generalize in the analysis). Researchers have identified four types of organizational cultures:

a) the tough or "macho" type. There is feedback in the sports organization, but also a high risk of stress, because the members are in competition, they react quickly, under the pressure of time.

b) the guy who works hard. There is a risk of overloading at work.

c) the betting type, which "bets" the sports organization. There is a more acute feeling of uncertainty about the organization and security of the place of sports.

d) the type of process, which is based on procedures. Athletes / coaches / teachers / sports managers have a very structured life.

Organizational culture generates organizational stress when the individual cannot adapt to its characteristics. A submissive, gentle individual / athlete will find it very difficult or not at all to adapt to the harsh type of culture, while an athlete who feels comfortable in macho culture will feel bored or underworked in a procedure-based sports organizational culture.

11) Organizational structures become sources of organizational stress depending on the openness they have or not to the exercise of control. Athletes who have had greater freedom in exercising the activity will feel confined to a bureaucratic sports organization (sports universities).

12) Group stressors. As individuals are distributed in departments, services and offices, there are delays and lags in the general activity of the sports organization (we have in mind very large sports entities: very large clubs, universities, ministry of sports). Hence the different frictions between members of different departments, frictions that generate organizational stress. Among the stressors acting here are the lack of group cohesion, inadequate support and intra- and intergroup conflicts. These issues create problems where the cooperation and collaboration of several groups is needed to accomplish the same task and is associated with high levels of job dissatisfaction.

13) Tensions within the family are not a proper organizational stressor. They favor the outbreak and / or amplification of organizational stress. They have a greater impact associated with the role conflict and its ambiguity, primarily increasing the time allocated to work tasks, to the detriment of the time spent with the family.

Other stressors of an organizational sports nature are shift work (an athlete takes on another role in the team), frequent changes at the training place / competition / department and technological changes that are too fast. It is associated with decreased motivation for sports, metabolic disorders, increases in blood glucose, decreased efficiency of the mind and overload in the case of frequent technological changes, due to the time required to acquire them.

The discussion of the action of stressors in the sports organization must be extended because they are stressors that act mainly in certain sports. At the level of managers appear:

- diversity, complexity and novelty, aspects that characterize the entire activity of managers, together with the responsibility for others;

- overloading the role by solving multiple tasks, sometimes divergent, in a short period of time;

- care for the future of the sports entity (club, university, etc.); if the current problems are many, there is too little time for future plans;

- the pressure due to the changes in the environment leads to quick choices, sometimes insufficiently elaborated, which create stress at the level of the manager who made that decision;

- excessive centralization of authority overloads the person of the sports manager. Delegating tasks would be a solution;

- extension of the training program, as a result of overload.

As for subordinates, the most common stressors are:

- incompatibility with the type of manager (the desire to retaliate in case of inappropriate or abusive behaviors conflicts with the desire to keep their place in the team / sports entity);

- over-delegation is a stressor that mainly affects young subordinates, who want to prove that they are capable, to establish a reputation, and find themselves caught in the trap of excessive tasks taken over from the boss and who can no longer put a stop to them;
- difficult, unsuitable working conditions. They are found in the case of those who carry out their sports activity in extreme cold or heat, etc.;
- the fear of not losing the place in the sports entity / team, either as a result of aging or as a particular possibility, which would upset the entire career of the athlete and his family;
- arbitrary, incoherent dispositions on the part of the superior create cognitive inconsistencies due to the illogical side of the situation, on the one hand, and the fear of not being “caught in the eye” by the same boss, if he does not execute them, on the other;
- lack of professional training necessary for the place in the sports entity, as well as the necessary physical skills. It occurs when employment or promotion was made on other criteria than the professional ones.

Although these organizational stressors act on all athletes / coaches / sports managers, whether they are in a leadership position or in a subordinate position, however the most affected are the young. They will experience more intensely the role conflict and its ambiguity, but also the experience of group conflict (inter and intragroup), if the group they belong to is not as valuable as when they are set aside in the decision-making process, precisely because they are too young, because they do not have the necessary maturity, because they must first let the older and experienced ones, etc.

The effects and consequences of sports organizational stress

Sports organizational stress is impossible to eradicate, but can be maintained within certain reasonable limits. An average level of stress acts beneficial for the organization and for the individual, creates the premises for competition between athletes / coaches / sports managers and motivation for better results. This level is not the same for everyone, with some individuals being able to withstand higher levels of stress than others.

The way in which the effects of sports organizational stress are managed is established, mainly, by the management of the sports organization (it's just a problem generated by it) and then by the other social actors in sports, social, political, geographical, etc. Stress affects both the members of the organization, individually, and the sports organization itself.

The effects of stress at the organizational level translate into absenteeism, increased number of days of physical recovery and increased funds for their payment, incidents or even accidents at the training / competition / field, with all their implications, low performance, low quality of sports performance and the deterioration of the reputation of the athlete respectively of the sports entity, which will lead to the decrease of the client-public portfolio.

At the individual level, the effects of organizational stress translate into health and behavior problems, with decreased work power, lack of motivation, impaired self-image, apathy, feelings of worthlessness. These people will be tempted to seek refuge in alcohol, tranquilizers, and, if the situation degenerates, they will lose their place in the sports entity. There are financial problems in the family, tensions and even the threat of divorce.

The effects of organizational stress can be classified into five broad groups:

- subjective effects (indisposition, apathy, anxiety, nervousness, increased fatigue, loneliness, decreased self-confidence);
- behavioral effects (increased impulsivity, excess coffee, cigarettes, alcohol, food, predisposition to accidents);
- cognitive effects (poor attention, poor concentration on the task, low reduced decision-making capacity, hypersensitivity to criticism);
- physiological effects (increased pulse and blood pressure, increased blood sugar, dry mouth, cold sweats);
- organizational effects (absenteeism, low performance at the place of sports activity, low performance, isolation).

Anxiety as an effect at the organizational level is due to the feeling of vulnerability experienced by athletes / coaches / sports managers as a result of decisions of superiors, decisions that are perceived as incorrect and whose effects affect them without being able to defend themselves. Internal competition, conflicts between athletes, groups, leadership, are other elements that can trigger and maintain anxiety.

A consequence of organizational stress is frustration, that state of deep dissatisfaction that both athletes and management staff affected by organizational stress experience. In this case, their behavior will be affected, from non-involvement, redemption, to verbal, emotional and, if it degenerates, physical aggression.

The first solution would be to involve the athlete's psychologist, the sports entity, if any. If the sports organization does not employ a psychologist, it is necessary to turn to an outside counselor. The solutions identified by it are applicable at both individual and organizational level.

The effects of organizational stress and their consequences are experienced differently by individuals, and the type of personality they have is important. Type A will feel the organizational stress more acutely,

precisely because it is characterized by impulsivity, tendency to aggression, they like to work under the pressure of time. These people assume multiple tasks in the same time frame (overload), are more competitive and more prone to hierarchical advancements than those in type B personality. Type B is characterized by a calm approach to sports tasks, works without time pressure and has no hostile manifestations. There are authors who claim that they have also identified an intermediate personality type, AB, but there are most who claim that you cannot mix the two personality types without having health problems. Other authors believe that they have identified a character trait that relieves stress and that they have called a character trait. It is found in strong individuals and involves three qualities:

- a) agreement- are devoted to sports, work, family, fundamental values;
- b) control - exercises great control over one's life and events;
- c) challenge - consider any potentially negative event as a challenge for self-improvement and self-improvement.

From what is presented, it is noted that the study of organizational stress is not limited to identifying stressors and their action, but must identify those additional factors that have the potential to influence athletes / coaches / teachers / sports managers of individuals in general in the sports area.

Study material

The research area includes the entire active population of a sport organizational entity, for example 334 employees, of which 77 management factors. The questionnaires were completed correctly and in full by 52 employees, management factors and 102 employees / sports staff. The rest of the questionnaires were not taken into account, being partially completed or without demographic data, so statistically invalid. This is a shortcoming of self-applied sociological questionnaires.

Working methods and tools

The working method is not the usual statistical one. It is preferred to analyze the data using the I.N.C.D.P.M. and for this, organizational stress is declared as a risk variable. The principle of the method consists in creating functional matrices, as a working support, of type $\mathbb{E}(m, n)$, where m = number of rows (number of athletes), and n = number of columns (number of items). With the help of the XY Scatter functions from Excell, the trendline package, regression laws, different variation laws are obtained. The Organizational Stress Inventory Questionnaire can be used as a data collection tool. It includes a battery of 7 socio-psychological tests, each with a certain number of items (questions / statements). After dividing the athletes / individuals that make up the sports organization into two specific categories - athletes (performers) / coaches-sports managers (decision makers) - the O.S.I. it has been adapted according to their level of understanding and specificity. For athletes (performers) The O.S.I. has 128 items in total, with easy item formulation. For sports coaches-managers (decision makers) there are 132 items, the 4 additional ones concerning aspects of the management activity and were added to the chapter- Sources of tension at the place of activity.

Whereas in another paper I analyzed chapter I of the O.S.I. we will analyze and exemplify concretely for chapter II: "How do you assess your current state of health?"

In Chapter II, he analyzes the state of health as assessed by the respondents-athletes, so in a subjective way, which is not proven with official medical data. From here, it results that there is the possibility that some of the respondents guarantee your own health with more resources than in reality, but there is also the possibility that some of them consider themselves more affected, according to personal assessment. Chapter II, entitled "How do you assess your current state of health?" has the following rating scale:

- 1 = I don't know, I don't realize
- 2 = never
- 3 = very rare
- 4 = sometimes
- 5 = frequent

The chapter has two parts: A- analyzes the emotions, behavior and response of the athlete to their experience at the current place of sports activity, and B- the presence of obvious physical problems. It is known that stress causes palpitations, dizziness, high blood pressure, digestive problems, general fatigue, mental fatigue, as well as anxiety and / or anger, in case of prolonged exposure to stressors.

The scores obtained for the 12 items in part A and the 6 items in part B are presented in table 1. The order of presentation of the items respects the order in the text battery of the sports organizational stress questionnaire.

	Item 13	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 20	Item 21	Item 22	Item 23	Item 24
Val 1	28	10	7	11	9	8	15	20	22	10	8	6
Val 2	17	31	11	43	37	24	54	13	23	31	11	32
Val 3	22	34	18	26	31	31	15	19	22	34	14	22
Val 4	28	24	38	20	23	36	15	21	28	24	40	33
Val 5	7	3	28	2	2	3	3	29	7	3	29	9

Table 1a. Section A. Chapter II. Athletes (performers)

	Item 25	Item 26	Item 27	Item 28	Item 29	Item 30
Val 1	16	17	16	14	13	11
Val 2	27	45	51	48	44	21
Val 3	24	18	15	19	14	25
Val 4	19	15	17	17	29	22
Val 5	12	3	5	4	14	16

Table 1b. Section B. Chapter II. Athletes (performers)

As a cumulation of data by sections, the table is presented:

	Cap 2 A	Cap 2 B	Total
val 1	154	87	241
val 2	324	236	560
val 3	288	115	403
val 4	330	120	450
val 5	125	54	179

Table 1c. Centralized values chapter II. Athletes (performers)

The graphical rendering of the data collected for Chapter II uses, in turn, the same polynomial regressions, of degree 4, respectively of degree 2, as laws of variation.

In Fig.2a the graph of part A, it is observed that the respondents are practically divided into two groups: those who do not experience behavioral problems (value 2 on the assessment scale) and those who admit that they sometimes have these problems (value 4 on the assessment scale). The absolute maximum point of the graph is in $x_{Max} = 4$ on the abscissa (on the ordinate $y_1 = 330$ points cumulated) with a local maximum in $x_{max} = 2$ on the abscissa and close value on the ordinate $y_2 = 324$. Behavioral outbreaks are more often experienced by respondents than affecting health, according to their self-esteem. The absolute maximum of part B of the graph is at point $x_{Max} = 1.5$ on the abscissa and states that the vast majority of respondents have not experienced health problems in the last period. Since the confidence coefficients are maximum, $R = 1$ for each graph plotted when using the polynomial regression of degree 4 as the law of variation, the graphical rendering is considered absolutely faithful to the studied phenomenon, both for part A and for part B.

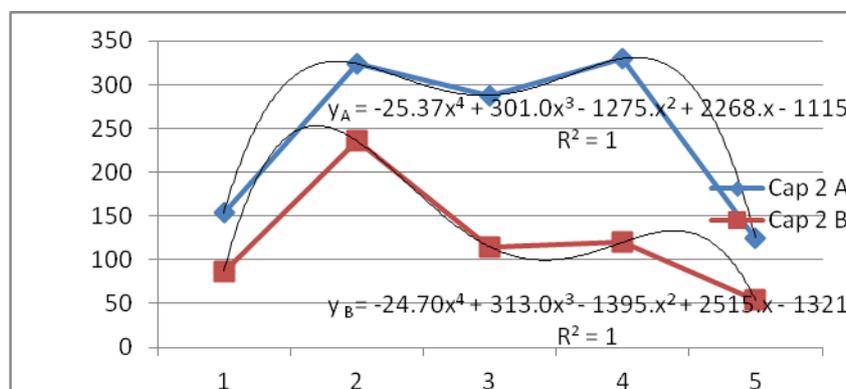


Figure 2a. Chapter II. How do you assess your current state of health. Athletes (performers)

Analyzing the graph in fig.2b, the different rendering is observed, as a result of using grade 2 polynomial regression as a law of variation. For part A of chapter II there appears an absolute maximum point in $x_{Max} = 3$, and for part B an absolute maximum in $x_{Max} = 2.5$; the realities of the collected data are flattened,

the phenomenon losing its magnitude. The confidence coefficients in this case are $RA = 0.9252$ for part A and $RB = 0.7238$ for part B. There are fairly good confidence coefficients in the absence of the maximum possible, but it is not recommended to use these variation laws with these reliable coefficients, with those with maximum coefficients being preferred.

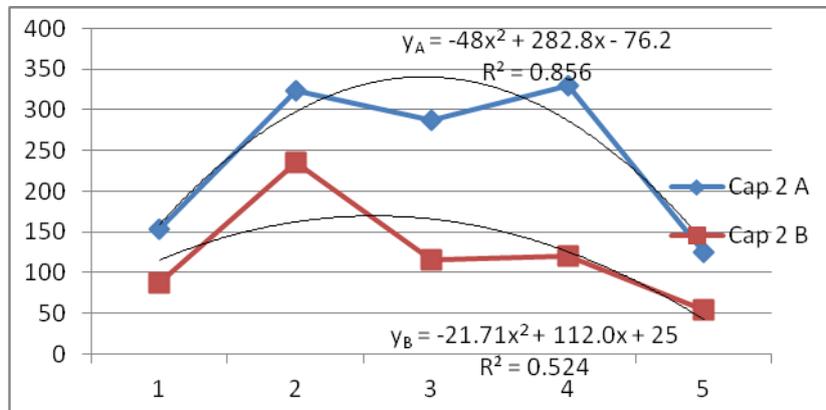


Figure2b.Chapter II. How do you assess your current state of health. Athletes (performers)

Among the items selected for a more careful analysis is item 10 of Chapter II (item 22 in the numbering of the questionnaire). It tries to capture the onset / existence of depression and anxiety and asks respondents to answer the question "Do you experience long periods of sadness or melancholy that you simply cannot explain?" It is known that depression and anxiety set in after a long experience of feeling unhappy, frustrated or insecure.

Analyzing the data, it is observed that a large number of respondents / athletes very rarely or sometimes experienced periods of sadness or melancholy that they cannot explain, together 63%. Even if the phenomenon is not experienced very often, it is sometimes present. But a percentage of 24% sometimes experience these states, as can be seen in Fig.3a. Prolonged sadness and melancholy warn of the presence of a high level of stress, which those concerned manage with difficulty or not at all. On the other hand, the specificity of sports activity can produce these symptoms as a result of stress caused by specific sports conditions. In addition to these sources of stress, there are also social and economic problems. It is known that the sports sector has undergone extensive transformations, mainly massive restructuring-reductions similar to extinction without exaggeration, which have only apparently solved the problems of cost reduction. The expenses with the payment of the athletes almost entirely disappeared and the social ones appeared: the reduction of the athletes' incomes and of the purchasing power, the decrease of the living standard, etc. These problems do not appear directly in the analysis of the questionnaire, but their effects increase the level of stress experienced by respondents / athletes, as stressors of an individual nature. This statement correlates positively with one of the working hypotheses, the one in which the existence, among other stressors, of those of an individual nature is mentioned.

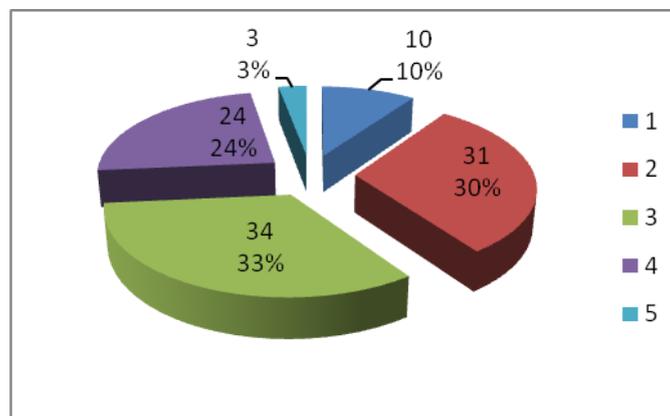


Figure 3a Chapter ii a. do you happen to live long periods of sadness or melancholy that you simply cannot explain?

Analyzing the data provided by the responses of employees in the category of athletes / performers, it is noted that the behavioral changes that they experienced, according to the data in Part A of Chapter II, are not in the sphere of depression and anxiety, but probably target explosive behaviors, such as anger, verbal aggression, etc. The graph in fig.3b has the absolute maximum point $x_{Max} = 2.5$ on the abscissa which suggests that the respondents / athletes are in the normal area, without stress, while the one in fig.3c has the absolute maximum point $x_{Max} = 3$ on the abscissa, slightly shifted to the area of experiencing depression.

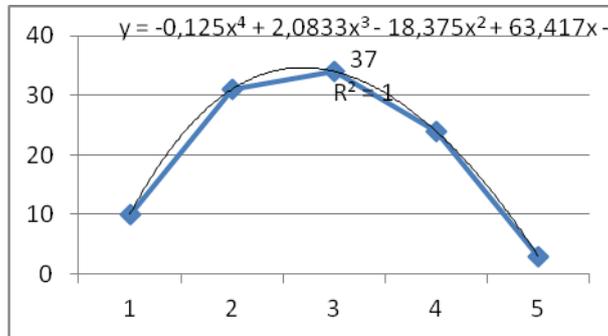


Figure3b. Chapter II. Do you happen to experience long periods of sadness or melancholy that you simply cannot explain? Athletes (performers)

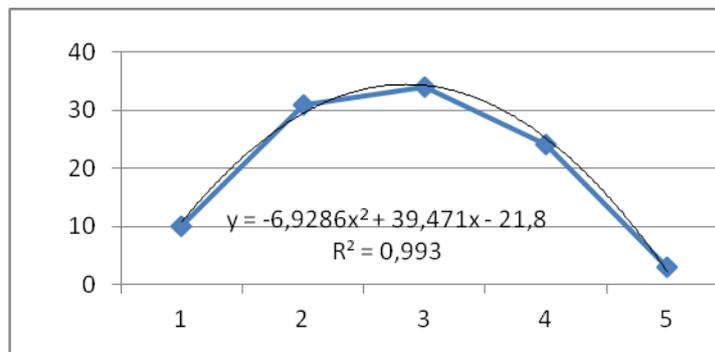


Figure3c. Chapter II. Do you happen to experience long periods of sadness or melancholy that you simply cannot explain? Athletes (performers)

The graph in fig.3b and fig.3c expresses the 2 laws of variation deduced with the help of grade 2 and grade 4 polynomial regressions. The grade 4 one, having the confidence coefficient $R = 1$, is considered a law of faithful variation, almost absolute. Instead, the graph of the law of variation deduced with the help of grade 2 polynomial regression, although it has a coefficient $R = 0.9964$ (also very good) lower than the law of grade 4 variation, shows us with great precision, the maximum or the area of absolute maximum for the analyzed values.

The study of the graph of the law of variation deduced with the help of the polynomial regression of order 4 shows us in portions the tendencies of local maximum and minimum, the increase and decrease of the values on the analyzed value areas.

Next, in the analysis of health and of obvious physical symptoms, item 1 of part B (item 25 in the O.S.I. chronology) asks respondents to assess the state of increased fatigue "Fatigue or the feeling of "can no longer ". The rating scale is identical to that on Part A.

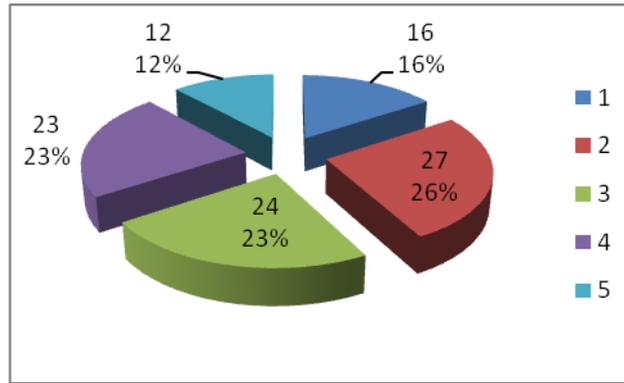


Figure4a. Chapter II B. Fatigue or the feeling of "I can't anymore"

The fact that 26% of respondents say they have never felt this sensation, apparently indicates good health. But a percentage of 23% of them say that sometimes they had this state of overwhelm and just as many say that they very rarely felt it. At first glance, it seems that the health is good, but it can be the fear of not being considered unfit by the sports management and removed from the sports organization.

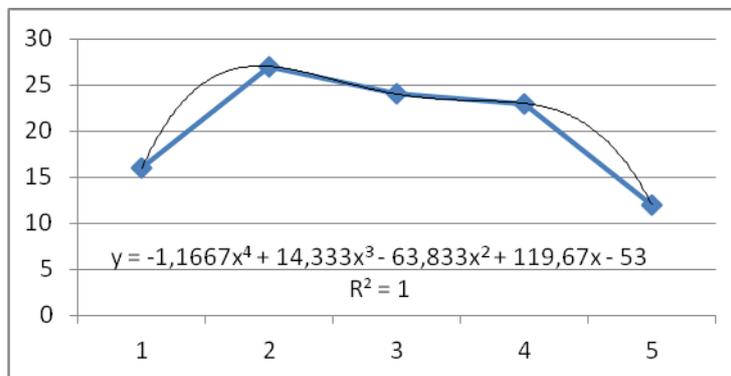


Figure4b. Chapter II B. Fatigue or the feeling of "I can't anymore" Athletes (performers)

The graph shown in Fig. 4b shows a local maximum point $x_{max1} = 2$ on the abscissa, which indicates that the appreciation "I never felt this" is the majority. But the number of those who chose "sometimes" gives a local minimum in $x_{min} = 3$ on the abscissa and becomes an inversion point to a local maximum $x_{max2} = 4$ on the abscissa. The graph that has as a law of variation the polynomial regression of degree 4 has a confidence factor $R = 1$, maximum possible, so it is faithfully reproduced and correlates positively with the third working hypothesis of the study

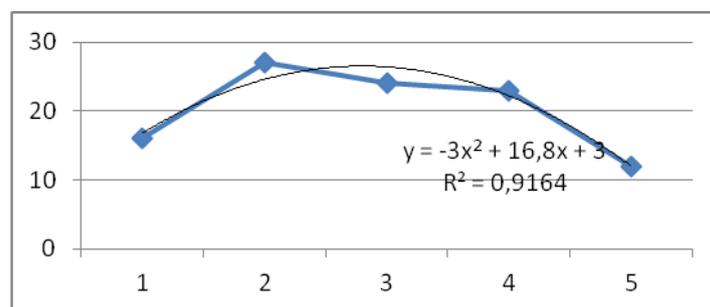


Figure4c. Chapter II B. Fatigue or the feeling of "I can't anymore" Athletes (performers)

The graph in fig.4c shows stopping the respondents / athletes in the middle area of the scale, the value $x_{Max} = 3$ being the absolute maximum. The graphical representation by a law of variation expressed by a second grade polynomial regression has a confidence factor $R = 0.956$, which is very high and, in the absence of a higher one, would be acceptable. The graphical expression of the phenomenon is not as accurate as in the case illustrated in fig.3b.

Calculating the organizational stress index according to the I.N.C.D.P.M. we have:

$$OSI_{capII} = \frac{241 \times 1 + 560 \times 2 + 403 \times 3 + 450 \times 4 + 179 \times 5}{241 + 1120 + 1209 + 1800 + 895} = \frac{241 + 2240 + 3627 + 7200 + 4475}{5265} = \frac{17783}{5265} = 3,378$$

As it can be seen, the stress index far exceeded the maximum accepted value of 2.5. There is stress related to health, a concern that proves the existence of problems that affect both the athlete and the sports organization.

6.1. Conclusions

A first conclusion that emerges at the end of the study is that the athletes of the analyzed sports entity are subject to high values of sports organizational stress, group and individual. This stress is generated both by the specific conditions of sportsmanship and especially by the special problems that this sector has been facing for several decades.

Analyzing the large number of answers that are located in the middle zone (value 3) the conclusion that is required is that there are mostly athletes who have been working for a long time in this branch of activity and a state of indifferent acceptance of things, apathy. The fact that they have a long history in the current position has a positive aspect, if we take into account the qualification and sports experience required in the field. But at the same time it has a big disadvantage: the installation of routine state, indifference, apathy. This state predisposes to lack of reaction, appropriate and timely, not only in the field of team relationships (organizational, intergroup) and personal, but also in the speed with which decisions are made in tense moments in the sports process. A low reaction speed predisposes to incidents at the place of activity, with material and health costs of those involved, leading to serious accidents, with significant effects.

Following the analysis of the data provided by the field research, all three working hypotheses of the study are confirmed:

- athletes of the sports entity experience high levels of organizational stress due to the cumulative action of several stressors - of individual, group, intergroup and organizational nature, illustrated by a stress index greater than 2.5 according to the I.N.C.D.P.M . method;
- the staff / athletes of the analyzed sports entity feel the stress differently, depending on the freedom to decide on some aspects of the place of activity (sports categories - decision makers / coaches / sports managers and athletes / performers);
- the possibility to mathematically model the data collected from the field through the O.S.I. with the help of the laws of variation expressed by mathematical regressions; in the alternative, the higher the degree of regression, the higher its confidence factor and the graph generated by this law is as accurate as possible or absolutely faithful to the maximum confidence factor (R = 1).

6.2. INPUT

The contribution to this study is the way data is processed. Using the I.N.C.D.P.M. allows the mathematical quantification of the level of organizational stress as a risk factor. According to the scale of assessment of the battery of tests, from 1 to 5, it is estimated that up to half is the level of eustress, that beneficial component of organizational stress. Any value over 2.5 obtained with the given mathematical relationship is considered alarming and requires intervention. The higher the index, between 2.5 and 5, the more severely affected the organization is. Intervention measures are required as quickly as possible, in accordance with the rules.

Another personal contribution is the mathematical modeling of the phenomenon of sports organizational stress using variational calculus. The obtained graphs are not continuous functions, but are step functions with distinct values. In this case the polynomial regression laws become interpolation polynomials. And yet, the human being is not discontinuous in its emotional functioning, so mathematical regressions remain valid as a method. The human scale of appreciation of any aspect of life has no steps, but presents itself as a continuum between extremes. So the fractional values of the graphs can very well describe the reality of the person's internal feelings, of the athletes participating in this study.

The abandonment of standard methods of statistical analysis does not imply less scientific rigor but on the contrary. The methods used in engineering can also be successfully applied to the social sciences, such as psychology.

The amount of data processed in this way is still modest, further studies are needed to process the data in this way, in order to generalize and conclude at the level of micro- and macro-sports organizations. This is a limitation of this study. The general legitimacies that can be obtained as conclusions of these processes must be rigorously documented and based on multiple researches, in order to be taken into account.

6.3. Recommendation

A seemingly natural measure would be to change the athlete, but it is totally inapplicable, from several points of view:

- very high costs with the training and preparation of new sportswomen, often including the lack of human resources as such;
- loss of useful experience of those who have worked and know the details of the sports process;
- high cost in units of time for the implementation of such measures;
- firstly, the incorrect application of such measures from a human and social point of view.

As a possible measure to apply would be to offer shares within the sports entity, where such a thing is possible (football clubs for example) knowing that any athlete is more involved when working for him (or for him). This issue needs to be discussed with sports management staff, because too many shares bought by a large number of shareholders could be a brake on the implementation of anti-popular measures in the short term, but which could save the sports entity in the long term.

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