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An integrative neutrosophic model focused on personality (inmfp) for the adequate management of the level of work stress

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Abstract. Stress is an inevitable way of adapting each individual to the challenges of the surrounding environment. When the adaptation is done in a negative way and produces physiological or psychological imbalances in the person, then stress is called distress. However, stress is not always harmful to the person, there is stress in situations of joy or happiness, which is known by eustress. In the work environment, distress can cause physical and mental health problems for workers and therefore damage to the dynamics of the job. This paper aims to propose an index of occupational stress measurement based on the Integrative Model Focused on Personality and the Neutrosophical Psychology Theory. The Integrative Model Focused on Personality considers personality as the result of a combination of dynamically interacting elements, while Neutrosophical Psychology understands personality traits as a triad (<A>, <neutA>, <antiA>), where A is a personality trait, antiA is its opposite, and the trait manifests itself in each person in an intermediate way between <A> and <antiA>, where <neutA> is an intermediate state of indeterminacy, where it is neither A nor antiA. Particularly, we explicitly consider the case in which the individual is identified in an intermediate state of stress and therefore has a risk to be conducted towards either the distress or the eustress.

Keywords: Workplace stress, eutress, distress, Integrative Model Focused on Personality, Neutrosophical Psychology Theory..

1 Introduction

It is well known that stress is a serious problem that has to be solved because it causes serious difficulties for those who suffer it. The word "stress" derives from the Latin word *stringo* (squeeze), and this from the Greek word *sfigo* (squeeze). This word was first used in the fourteenth century and thereafter it was used in different English texts like stress, stresse, strest, and straisse. One of the purposes is that people learn to differentiate that stress such as distress and eustress are ways of quantifying a healthy lifestyle, see [1].

There are normal situations of daily life that cause stress, but do not conduct to sickness. Other people who are stressed, when they perceive that an environmental stimulus threatens their own well-being they feel this incapacitates them to face the stimulus in an appropriate way. These are the labor risk factors to which each worker is exposed, which we will explain later, those are the psychosocial risks.

On the other hand, people are stressed by the presence of stressors that are the stimuli that overload the individual and produce a biological and psychological stress response. When a stimulus is considered threatening to the health and general well-being of the person, and when it also makes the individual feel that their ability to cope with it is reduced, then, he/she is in the presence of a stressor.

Positive stress or Eustress is an essential part of human life, in many ways we cannot avoid it. It helps us to be attentive and allows us to overcome the different situations with which we face daily. When the effects are not negative, then, the stress is positive. It helps the body to function properly and interact with its environment in an optimal way. Positive situations such as success, joy, love, creative work, can result in stress. The search for success may become in a competitive issue, which is why the promotion of an adequate work environment by changing to a positive attitude would generate maintenance factors for proper stress management.

In dangerous situations, some people develop an unsuspected force; they can jump over large obstacles or perform prodigious maneuvers. This happens due to the effect of stress, because the body produces a large amount of adrenaline in the bloodstream that promotes this unusual response.

Negative stress or distress is the most worrisome, especially if it becomes chronic, because the individual feels that the situation that causes stress exceeds its ability to overcome it. The individual feels permanently threatened, which can cause a physiological or psychological imbalance.

The most important issue is how people adapt to the different stressors they have to deal with. For a person to have a good response to stress, there exists many aspects in personality, attitude, way of thinking, the way to relate to other people, their way of distraction, their lifestyle, the work they do and other factors that can exist in the human being.

Workplace stress is based on the general concept of stress. This can be caused by many difficulties, such as adaptation to technologically changing environments, excessive workload, isolation, conflict of roles, ambiguity of roles, lack of autonomy, impediment to professional development, difficulties in the relationships with the administration or coworkers, to suffer for administrative bullying, adverse organizational climate, among others.

All these factors can cause psychological reactions of the labor type, such as irritability at work, absenteeism, depression, and can even cause diseases such as increased cholesterol, hypertension, diabetes, among others. Either way, distress in the workplace decreases employee performance, the proper functioning of the organization, and can even be the cause of an accident at work.

There are some theories to study stress such as PE fit theory, which considers the lack of adjustment between the person and the environment as stressor, the Cybernetic Theory considers the lack of balance as the stressor, while the Control Theory considers the perception of the person's control over the stressor as a stress moderator, see [2].

This research is based on the Personality-Focused Integrative Model (PFIM), specifically designed according to the idiosyncrasy of the Ecuadorian individual. The PFIM is characterized to study personality traits more than the models explained in the previous paragraph. Under this model, personality is understood not as the sum of elements, but as their integration of them to generate a new product, see [3-6].

The reason for which considering an Ecuadorian model and not assume others that already exist since two decades or more, is because we take into account that each human being has unique characteristics within its environment, which unfolds in a given context, influential factors such as culture, education and idiosyncrasy, such is the case of Ecuadorian people, their roots, their own characteristics such as immediacy, magical thinking, avoidance to commit to change.

When the Ecuadorian patient goes to the clinic, seeks: quick, concrete, specific solutions, to know what is happening to him/her or what is happening to us and, primarily, what should He/she do to solve it? "To look for a recipe."

This paper proposes a method to measure work stress with the help of the Neutrosophical Psychology Theory. Neutropsyche is the psychological theory that studies the soul or spirit using the neutrosophy and neutrosophic theories, that is to say, Neutrosophic Psychological Theory. It is based on a triadic of neutrosophic psychological concepts of the form (<A>, <neutA>, <antiA>), see [7].

Neutropsychic Personality is a neutrosophic dynamic open psychological system of tendencies to feel, think, and act specific to each individual, based on Neutrosophic Refined Memory: that restructures the division of memory into: consciousness, aconsciousness (which is a blend of consciousness and unconsciousness) , and unconsciousness. Aconscious is subdivided into preconscious, subconscious, semiconscious = semiunconscious, subunconscious, and preunconscious.

We base on the fact that stress is a dynamic process, where the intermediate, indeterminate state, at the midpoint between the two opposite poles of stress, which are eustress-distress, must also be identified. This intermediate point is transitory and it is important to determine which pole the workplace stress will tend to.

This paper consists of the following structure; Section 2 is dedicated to giving some notions of the Integrative Model Focused on Personality and the basic concepts of the Neutrosophical Psychology Theory. Section 3 explains the design of the proposed method. The conclusions of this paper are given in Section 4.

2 Preliminaries

This section describes the main features of the Personality-Focused Integrative Model in subsection 2.1. In subsection 2.2 the main concepts of the Neutrosophical Psychology Theory are presented.

2.1 Description of the Personality-Focused Integrative Model (PFIM)

The most supra-ordered aspects of all theoretical development reside in the meta-theoretical foundation. Constructivist epistemology fulfills this central role in this approach.

The common point of the current constructivist elaborations is given by the affirmation that knowledge is not the result of a mere copy of the pre-existing reality, but the effect of a dynamic and interactive process through which external information is interpreted by the mind that is progressively building explanatory models increasingly complex and powerful.

The model of integrative psychotherapy focused on the personality, without neglecting the principles of

causality that are evident in a large part of the psychic phenomena, takes as an epistemological basis the moderate or relative constructivism, validated in the perception of each individual as a human being with their own characteristics , biological or social that structure their psyche.

Considering that the psychological dynamics of people is framed in a multi-causality, which causes their well-being and discomfort to be mobilized in the same way, it makes necessary the construction and development of a model capable of agglutinating these variables that interrelates them to achieve an explanation and psychotherapeutic application more attached to its reality, which gives us the possibility of promoting the necessary changes, more limited to its problem, without losing sight of that particular worldview, which will mark a differentiation with a parallel vision, achieving a more therapeutic process effective and contributing to the patient. ([6]).

Then, from this starting point, stress will be addressed according to this typology, taking into account all those factors that shape and influence personality; the phenomena of relationship in the psychotherapeutic process, appropriate intervention techniques for each personality style; and using cognition in the constructive elaboration of the subject's reality.

The multidisciplinary vision brings a broad perspective to the knowledge process, in which it is contributed by philosophy, physics, biology, cybernetics among other disciplines. The basic idea focuses on the exploration of the multidisciplinary foundations of constructivism at a meteoric level, which aims to insert the constructivist proposal into psychology and psychotherapy, see Figure 1.

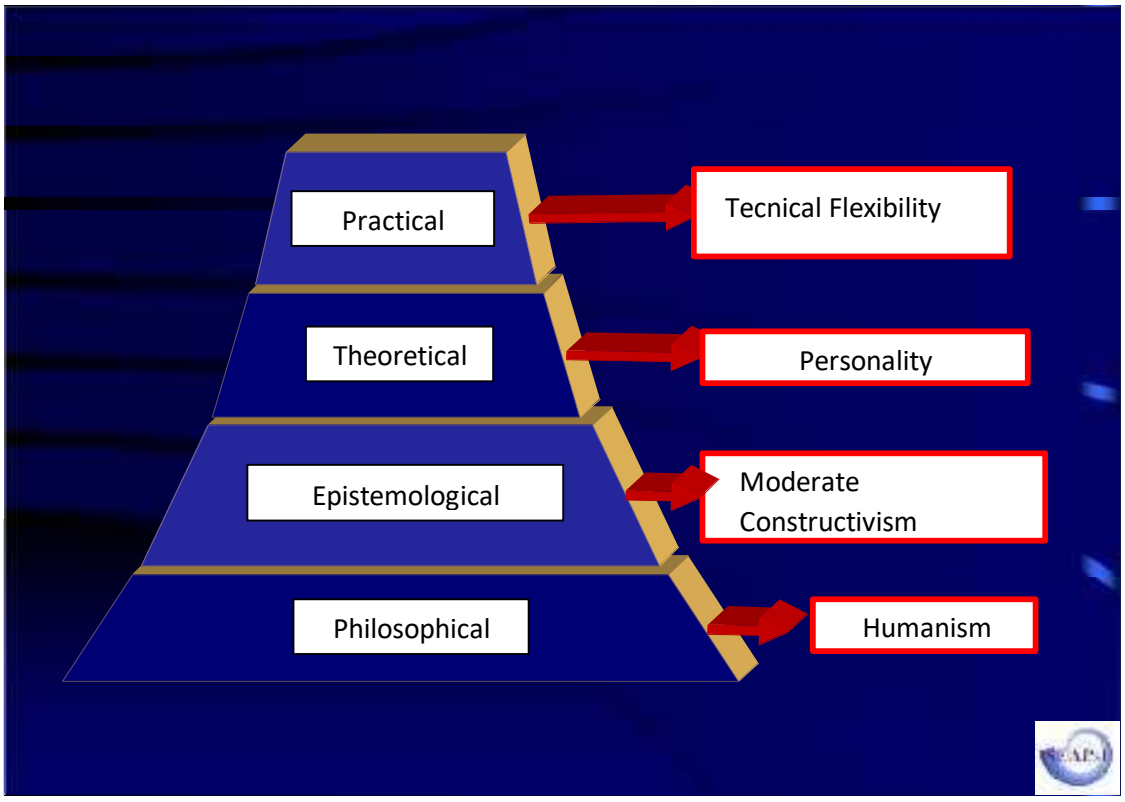

Figure 1: Levels of the integrative model

In the particular and singular perception of the world, elaborated on the basis of meanings through language, reality is constructed, the same that is determined and processed within the family and social context in which the individual develops, being a permanent process and constant exchange and interaction that modifies their behavior and attitude towards life over time. Integrative psychotherapy from this position allows us to get in touch with the patient in a more direct, warm way and closer to reality.

It helps us to discern more clearly and try an understanding approach to his/her lifestyle and the way of conceiving the world. This attitude of the therapist is the one that ultimately brings us closer to change and allows the differentiation of all the elements and factors acting during the therapeutic process; it broadens our perspective to approach its problem from a consensual perception of the human being, as a part and a whole, interacting permanently and also allows us to validate in a coherent framework, the use of a diversity of therapeutic tools from different approaches, considering them as complementary elements, applicable to each particular case, approaching us with greater certainty towards obtaining more effective achievements and results, always aimed at human well-being ([6]).

Personality is considered as an internal structure formed by biological, psychological and social factors that are in continuous interaction. This interaction makes each human being develop different ways of thinking, perceiving, acting and interacting with others.

We take personality as the fundamental axis of the model. Our model considers personality as a dynamically integrated structure of biological, psychological and socio-cultural factors that establish a way of perceiving, thinking, feeling and acting by granting individuality to the human being. We recognize personality as the integrative structure of psychic functions resulting from the interrelation of biological and socio-cultural factors that determine a peculiar and singular behavior in the individual.

Despite emphasizing the individuality of the subject in their psychic activity, there are constructions that are similar in individuals, a fact that is linked to the family social experience allowing group references that are valid in the exercise of assisting.

In this way we take cognition, affectivity, behavior and interpersonal relationships as basic axes of human behavior. Since these components are general for all subjects, these characteristics are present in all personalities, highlighting the fact that the predominance of a condition does not mark a perspective that excludes other factors. The bio-psycho-social appreciation of the model, which is present in the analysis of the origin of these processes, indicates in turn, primacy requirements in each subject, whether by predominance or deficit, allowing establishing general affinity groups in its expression.

What is appreciable is that a higher level of psychic equilibrium denotes the personalities that have predominance, while those with deficits maintain greater personal and social difficulties.

2.2 Basic Concepts of Neutrosophic Psychology Theory

In this subsection we summarize the main concepts and methods of the Neutrosophical Psychology Theory.

According to Smarandache in [7], Sigmund Freud divides memory into: conscious, preconscious, and unconscious. In the framework of this book, Smarandache defines a third state which he called "aconscious", which means: to be ignorant, impassive, indifferent, senseless, and unfeeling.

Thus, we can identify similarities between neutrosophic theory and neutrosophic psychology, especially the second one also represents psychological concepts in the form of a triple (<A>, <neutA>, <antiA>), one of them is described as follows:

1) Conscious, meaning things that we are currently aware of, it corresponds to <A>.

2) Unconscious, which comprises things that we are not aware of; they are hard to access because they are deep inside our mind. It is the opposite of conscious, corresponding to <antiA>.

3) Aconscious, which etymologically means away from conscious and unconscious, or neither conscious nor unconscious, but in between, or a mixture of conscious and unconscious, a vague buffer zone between them. It corresponds to <neutA> or Indeterminacy, as in Neutrosophy.

Consciousness, aconsciousness, and unconsciousness are the sources of positive, neutral (or blended), and negative emotions, thoughts, and behaviours throughout our lifespan.

In human behaviour, there exists a permanent interaction and discussion among conscious, unconscious, and aconscious. Sometimes people are mostly logical, sometimes they are mostly illogical, and others they are indifferent.

The triple (<A>, <neut A>, <antiA>) is there extended to the *discrete refined neutrosophic memory*, where ($<A>_1$, $<A>_2$,…,$<A>_l$; $<neutA>_1$, $<neutA>_2$,…,$<neutA>_m$; $<antiA>_1$, $<antiA>_2$, …,$<antiA>_n$) are defined based on the refined neutrosophy, see [7-9].

Smarandache in [7] cites Carl Jung who divides the unconsciousness into ([10]):

- Personal unconscious, which is specific to each individual, and comprises forgotten or suppressed conscious;
- Collective unconsciousness, which is characteristic to the whole human species, and comprises ancestral memories called "archetypes" (universal meaning images) and mental patterns as inherited psychic structures.

Smarandache adjoins the group unconscious, which is:

- Group unconsciousness, which is between the personal and collective unconsciousness. It is characteristic to a specific group that the individual belongs to, and has marked him/her mostly.

Equally, he extends the Jung's personal conscious and collective conscious to group conscious.

The aconsciousness, as an amalgam of consciousness and unconsciousness, is the indeterminate, ambiguous, vague zone where conscious and unconscious interfere. It is a transition space, or mediation between opposites.

The aconsciousness has a degree of conscious (c), and a degree of unconscious (u), where $c \in [0,1]$, and $0 \leq c + u \leq 2$.

In the neutrosophic psychology there is the following notation:

$$NL(\text{entity}) = (c,a,u) \quad (1)$$

Where c = degree of conscious (truth), a = degree of acounscious (indeterminacy): not sure if it is conscious or unconscious, or a blend of both, and u = degree of unconscious (falsehood), whereas, NL is the notation for

Neutrosophic Logic semantic.

NL(conscious) = (1, 0, 0); NL(acounscious) = (0, 1, 0); and NL(unconscious) = (0,a,1), where $a \in$ (0, 1], leaving room for indeterminacy (unknown, unclear).

Given U a universe of discourse, A, B, and C subsets, then the Neutrosophic Crisp Set of Type 2 satisfies the axioms: $A \cap B = \emptyset$, $B \cap C = \emptyset$, $C \cap A = \emptyset$, and $A \cup B \cup C = U$. Therefore, A, B, C form a disjoint partition of the universe of discourse U, see [11].

Refined Neutrosophic Crisp Set of Type 2 (and similarly for Types 1 and 3) is defined as: $A = A_1 \cup A_2 \cup \ldots \cup Ap$, $B = B_1 \cup B_2 \cup \ldots \cup B_r$, $C = C_1 \cup C_2 \cup \ldots \cup C_s$, with $A \cap B = B \cap C = C \cap A = \emptyset$, where p, r, s are integers ≥ 1, $p + r + s \geq 4$, and $A_i \cap A_j = \emptyset$ for $i,j \in \{1,2,\ldots,p\}$, $i \neq j$; $B_k \cap B_l = \emptyset$ for $k,l \in \{1,2,\ldots,r\}$, $k \neq l$; and $C_m \cap C_n = \emptyset$ for $m,n \in \{1,2,\ldots,s\}$, $m \neq n$.

The Neutrospsychic Crisp Personality considers a human person as a universe of discourse U, and three disjoint sets which are the following:

E = set of emotions of this person;

H = set of thoughts of this person;

B = set of behaviors of this person.

Therefore, $U = E \cup H \cup B$, with $E \cap H = \emptyset$, $H \cap B = \emptyset$, and $B \cap E = \emptyset$. Thus, $U = <E,H,B>$.

Also, a trait is measured by degrees of <trait> and degrees of <anti trait>, such that each person is classified in a range between these two opposites and it is dynamic. Additionally, he includes a middle position where there exists indeterminacy.

The most common pairs trait-anti trait, are the following:

- Extraversion – Introversion
- Conscientiousness – Unconscientiousness
- Perfectionism – Imperfectionism
- Sensitivism – Insensitivism
- Novator – Conservator
- Self Esteem – Self NonEsteem
- Agreeableness – Disagreeableness
- Openness to Intellect & Experience – Closeness to Intellect & Experience
- Inhibition – Disinhibition
- Flexibility – Rigidity
- Emotivism [Neuroticism (Hans Eysenck)] – Non-Emotivism
- Obsessionality – Nonobsessionality
- Cautiousness – Impulsivity
- Shyness – Boldness
- Honesty – Dishonesty
- Hostility [Psychoticism (Hans Eysenck)] – Nonhostility.

The *Neutrosophic Trait Operator* is the cumulative degree of individual x with respect to both the Trait and the antiTrait, and it is defined as:

$d_{Trait\ \&antiTrai}: S \rightarrow [-1, 1]$ (2)

Where, $d_{Trait\ \&antiTrait}(x) = d_{Trait}(x) + d_{antiTrait}(x)$.

To classify an individual as belonging to trait or anti trait, a threshold is defined and denoted by Thr for the trait, and antiThr for the anti trait, so that:

- If $d_{Trait\&antiTrait}(x) \geq +Thr$, then the individual is categorized as definitively belonging to the Trait,
- If $d_{Trait\&antiTrait}(x) \leq -antiThr$, then the individual is categorized as definitively belonging to the antiTrait.
- If $d_{Trait\&antiTrait}(x) \in (-\varepsilon, +\varepsilon)$, then the individual is categorized as been in a totally indeterminate state between the Trait and antiTrait.
- If $d_{Trait\&antiTrait}(x) \in (+\varepsilon, +Thr)$, then the individual is categorized as mostly belonging to the Trait.
- If $d_{Trait\&antiTrait}(x) \in (-antiThr, -\varepsilon)$, then the individual is categorized as mostly belonging to the antiTrait.

The way to use $d_{Trait\ \&\ antiTrait}$ is illustrated by Smarandache as follows:

"Assume a psychiatrist, after many sessions, neutrosophic questionnaires and observations measured with neutrosophic statistics, has gotten to the conclusion that George P.'s two temperament dimensions are estimated with a certain accuracy as:

- degree of stable (trait) is $d_{GP}(stable) = 0.2 \in [0, 1]$,
- degree of unstable (antiTrait) is $d_{GP}(unstable) = -0.5 \in [-1, 0]$;and
- degree of extroverted (trait) is $d_{GP}(extroverted) = 0.9 \in [0, 1]$,
- degree of introverted (antiTrait) is $d_{GP}(introverted) = -0.3 \in [-1, 0]$.

Then $d_{GD<stable>\&<unstable>}(x) = d_{GP}(stable) + d_{GP}(unstable) = 0.2 + (-0.5) = -0.3$, and $d_{GD<extroverted>\&<introverted>}(x) = d_{GP}(extroverted) + d_{GP}(introverted) = 0.9 + (-0.3) = +0.6$."

3 Method for measuring workplace stress

This section describes the design of the stress level measurement index in the work environment. First of all we establish the linguistic scale that we will use in the method, with its equivalent SVNN, see Table 1, according to the scale proposed in [12-13].

Linguistic term	SVNN
Extremely good (EG)	(1,0,0)
Very very good (VVG)	(0.9, 0.1, 0.1)
Very good (VG)	(0.8,0.15,0.20)
Good(G)	(0.70,0.25,0.30)
Medium good (MDG)	(0.60,0.35,0.40)
Medium(M)	(0.50,0.50,0.50)
Medium bad(MDB)	(0.40,0.65,0.60)
Bad (B)	(0.30,0.75,0.70)
Very bad (VB)	(0.20,0.85,0.80)
Very very bad (VVB)	(0.10,0.90,0.90)
Extremely bad (EB)	(0,1,1)

Table 1: Linguistic terms defined in [12-13] associated with a SVNN.

Let us remark that SVNNs are the simplest kinds of single-valued neutrosophic sets, therefore, the calculation based on them is the simplest one for classification, Most importantly, there exists scales which associate linguistic terms with SVNNs, see [12, 13], thus, the psychometrists can assess in the basis of the natural language, which is an advantage considering the difficulty to measuring in a numerical scale.

A scoring function $s: [0,1]^3 \to [0,3]$is defined in Formula 3, thus, a scoring function in [14] is used to sort the alternatives.

$$s(a_j) = 2 + T_j - F_j - I_j \quad (3)$$

Where a_j is an alternative evaluated with the SVNN (T_j, I_j, F_j).The definition of precision index is given in Equation 4.

$$a(a_j) = T_j - F_j \quad (4)$$

Let us note that $a: [0,1]^3 \to [-1,\ 1]$.

The first step of the index is to divide it into three different components, for each employee. The first component is based on the result of the Huber Stress Test applied to the worker, see [15].The possible test results are given below.

1. Stress level, given on the following scale:
1.1. Severe stress (B),
1.2. Moderate stress (M),
1.3. Acute stress (MDG),
To which we add,
1.4. Stress properly managed (VVG).

This test is evaluated according to the information provided by the subject on the physiological or psychological reactions he/she suffers. See that between parentheses we give the linguistic value in Table 1 associated with the Huber's Scale.

This part of the index will be called *Current State of Stress* (CSS) which is the state of stress the worker is currently in.

The second component of the index is called *Capacity to Overcome Stress Situations* (COSS), which consists in measuring the degree to which the individual has characteristics of his/her personality that will allow him/her to overcome a stress situation. These characteristics are:

2 Self-esteem, given on the following scale:
2.1. High self-esteem: it is equivalent to feeling confidently fit for life, feeling capable and valuable; or feel accepted as a person (G),
2.2. Low self-esteem: is when the person does not feel ready for life; feeling wrong as a person. (B),
2.3. Medium self-esteem: it is to oscillate between the two previous states, that is, to feel fit and useless, simultaneously right and wrong as a person, and to manifest these inconsistencies in behavior, act, sometimes sensibly, sometimes with thoughtlessness, thus reinforcing insecurity (M).
This measurement can be performed with the help of the Rosenberg test, see[16].

3 Assertiveness, given on the following scale:
3.1. Null or shyness (VVB),

3.2. Little or minimal assertiveness (B),
3.3. Regular or intermediate (M),
3.4. Assertiveness or security (G).
There are assertiveness tests such as the Behavioral Assertiveness Test (BAT), see [17].

4 Personality type test SEAPSI ([18-23]). The SEAPSI questionnaire consists of some phrases that identify the different types of personality where the individual must mark as they consider. The score observed according to the highest number of views will give us a pattern of the type of personality to which he/she corresponds. The personality types that are evaluated according to [6, 19] are:
4.1. With affective predominance (histrionic or cyclothymic) (M),
4.2. With cognitive predominance (paranoid or ananchastic) (G),
4.3. With behavioral predominance (impulsive or disocial) (M),
4.4. With interpersonal relationships deficit (schizoid, dependent, avoidant, schizotypal) (VB).
See that in these cases the evaluation was also included according to Table 1.
The third component of the index is related to the psycho-social environment.

5 Psychosocial Risk Card, which is given on the following scale, corresponds to the risks of suffering from environmental stress, let us call it *Environmental Psychosocial Stress Risk* (EPSR):
5.1. Work Stress (B),
5.2. Monotony (B),
5.3. Boredom (B),
5.4. Work fatigue (B),
5.5. . Comfort and work adequacy (G).

The method we propose in this paper is based on the Neutrosophical Psychology Theory, because stress is considered as the concept to be studied, it is considered that this is measured in a value located between two opposites denoted by <Eustress><Distress>. Additionally, the state in the medium of these opposites is considered and is here denoted by <NeutStress>, which is a transitional, intermediate, undefined form of stress; it is neither eustress nor distress.

We consider that each one of the elements that we have previously exposed and that have a G or better evaluation indicate a state of eustress, those evaluated by B or worse are indicators of existence of distress, while those evaluated as M indicate a state of <NeutStress>, they are those which also needs special attention, because that indicates there exists a transition towards a state either of distress or eustress.

If the worker is in the state of <NeutStress>, it could be predicted that he/she is going towards a state of eustress or reversible distress if the second and third components are favorable (valued as G or better), while the transition to distress would occur if the last two components are unfavorable (valued as B or worse).

Given these clarifications, below we describe the proposed method of measuring the stress level of a worker in a specific workplace:

1. The worker´s stress level is evaluated according to the CSS:
1.1. Its corresponding SVNN is set according to Table 1, and the crisp value of its index accuracy is associated.
2. The worker is evaluated according to his/her COSS, for this:
2.1. The Self-Esteem evaluation is carried out, its corresponding SVNN is set according to Table 1, and the crisp value of its index accuracy is associated.
2.2. The assertiveness evaluation is carried out, its corresponding SVNN is set according to Table 1, and the crisp value of its index accuracy is associated.
2.3. The SEAPSI Personality evaluation is obtained, its corresponding SVNN is set according to Table 1, and the crisp value of its index accuracy is associated.
2.4 It is calculated the mean of the crisp values obtained for the COSS.
3. The worker is evaluated according to his/her EPSR, the corresponding SVNN is set according to Table 1, and it is associated with the crisp value of the accuracy index.
4. The following criteria will be used to evaluate the worker:
4.1. The closer to 1 the value of CSS is, the better the worker´s stress condition is, or closer he/she is to the state of <Eustress>.
4.2. The closer to -1 the value of CSS is, the worse the worker´s stress condition is, or closer he/she is to the state of <Distress>.
4.3. The closer to 0 the value of CSS is, the more indeterminate the worker´s stress condition is, or closer he/she is to the state of <NeutStress>.
5. To predict the future possibility of getting out of a stress situation, in case the worker is in a stress situation at the present, or if the worker is in a state of <NeutStress>, we will have:
5.1. The closer to 1 the values of COSS and EPSR are, the worker is better able to tend to the state of <Eustress>.
5.2. The closer to -1 the values of COSS and EPSR are, the worker is better able to tend to the state of <Distress>.

5.3. The closer to 0 the values of COSS and EPSR are, the worker is in better potential conditions to tend to the state of <NeutSress>, which could be a state of great unpredictability.

The application of this index will be illustrated with an example, see Example 1.

Example 1:

Let us suppose we are interested to study the stress in worker X of Company Y. A psychologist of the enterprise apply to X the Huber Stress Test, the Self-esteem Test of Rosenberg, the Behavioral Assertiveness Test, the Personality type test SEAPSI, and the Psychosocial Risk Card.

The results are summarized in Table 2; see that the components of the index here proposed are also referred.

Index component	Test	Result	Evaluation according to Table 1
CSS	Huber Stress Test	Acute stress	MDG
COSS	Self-esteem Test of Rosenberg	Medium self-esteem	M
	Behavioral Assertiveness Test	Regular or intermediate	M
	Personality type test SEAPSI	Impulsive or dissocial	M
EPSR	Psychosocial Risk Card	Work fatigue	B

Table 2: Results of the test applied to worker X.

The equivalent SVNNs corresponding to the results in Table 2 are shown in Table 3, as well as the calculation of the accuracy index values, according to Equation 4, e.g., in accordance with the Huber Stress Test, X suffers of an 'Acute stress', which corresponds to the linguistic term MDG in the proposed method, and which is associated with the SVNN (0.60, 0.35, 0.40) in the Table 1, thus, applying the Equation 4 we have a(0.60, 0.35, 0.40) = 0.60-0.40 = 0.2. The other measures can be seen in Table 3.

Test	SVNN	a(Test result)
Huber Stress Test	(0.60,0.35,0.40)	0.2
Self-esteem Test of Rosenberg	(0.50,0.50,0.50)	0
Behavioral Assertiveness Test	(0.50,0.50,0.50)	0
Personality type test SEAPSI	(0.50,0.50,0.50)	0
Psychosocial Risk Card	(0.30,0.75,0.70)	-0.4

Table 3: SVNN and accuracy index values, according to psychological X´s evaluations.

The evaluation of the CSS is 0.2, which is closer to 0 than 1, thus X´s stress condition is closer to <NeutStress> than <Eustress>. COSS evaluation is the mean of {0, 0, 0}, which is 0, and EPSR is -0.4, which means psychosocial risks are favourable to the state <Distress>. Therefore, even though X's state is in a more or less comfortable stress situation, managers have to change the psychosocial risks, especially the causes of X's work fatigue. Mainly because inner X' conditions to overcome stress situations, evaluated as 0, are unpredictable.

Conclusion

This paper was dedicated to designing an index that measures the level of stress in the work environment by workers. The index is based on criteria of Personality-Focused Integrative Model and the Neutrosophical Psychology Theory. The index is divided into three components, the Current State of Stress, which measures the present state in terms of worker stress; Capacity to Overcome Stress Situations assesses the personality characteristics of the worker that would allow him/her to overcome a stress crisis in case of suffering of this, and finally the Environmental Psychosocial Stress Risk, which is the work situation external to the worker that are environmental generators of stress. The last two components allow predicting the behavior of the worker in a situation of workplace stress. This division of the index into three components allows establishing a more accurate idea of the current and future state of the worker in terms of stress. In addition, the indeterminacy, imprecise, or transitory state is explicitly taken into account, where the worker is not in either a state of eustress nor distress. In this intermediate case, the last two components would be those that would allow predicting, that the worker will either recover, or fall into a chronic distress or in an unpredictable state. The use of this index was illustrated with an example.

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