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PhD Thesis Summary

Cognitive Behavioral Coaching: development and testing of an intervention program, a theoretical and practical approach for organizational environment

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Chapter I. Theoretical background

Relevance of the research

Interventions in the organizational environment to optimize employee behavior and improve both individual performance and staff's quality of life have taken magnitude in recent years. Several key concepts have attracted attention from researchers, concepts closely related to efficiency and performance of organizations: emotional distress, job satisfaction, burnout. Research has shown the importance of emotional distress in the development of some psychological or physiological disorders that can lead to depression, decreased job satisfaction, burnout and generally lower quality of life for the employees. The effects, as well as direct (absenteeism, turnover of staff) and indirect (reduced productivity, reduced quality) costs incurred by them and have become an important point in the agenda of any organization and in that of researchers in psychology. Among the theoretical approaches that are the basis for intervention models in the organizational environment Rational Emotive Behavior Therapy (REBT) stands out. According to ABC theory and model, underlying REBT, being placed in various life situations people will experience undesirable events (A), events to which they will have rational and irrational cognitions (B). These cognitions to the event will determine answers or consequences from the person at emotional, behavioral and cognitive levels (C), rational cognitions being responsible for the adaptive consequences, while irrational cognitions will generate dysfunctional responses and consequences. Furthermore, once generated, these consequences will become in turn activating events (A) leading to the occurrence of side effects through secondary rational and irrational cognitions; customers are encouraged to dispute these cognitions (D) and replace them with more functional, adaptive ones (E) (David, D. in Ellis, A., David, D., Lynn, S.J., 2010). This model was extended (David, 2003) including unconscious processing of information. This way, although sometimes cognitions are not consciously accessible, they are represented in the implicit memory system rather than in the explicit memory system, considering emotions as being post cognitive, involving cognitive and computational mechanisms either at an conscious or

unconscious level (David, 2010). Thus, starting from what has been stated above, REBT distinguishes itself from other explanatory theories in regards to the production of emotions by introducing the qualitative difference between these; rational cognitions are closely related to functional, adaptive emotions, while irrational cognitions are in close contact with dysfunctional cognitions, not having a quantitative difference between these, their functionality depending largely on subjective experience, cognition and consequences. The literature is increasingly rich in studies that highlight the strong relationship between distress and irrational cognitions in the organizational environment, which in turn led to an increased interest in developing programs based on the principles of this theoretical approach (DiLorenzo et al., 2007, Grant, 2001; Sporrle, 2006). However, literature review reveals the lack of intervention programs aimed at changing cognitions as a mechanism to control irrational emotional distress in the organizational environment. Moreover, although specialized studies reveal significant links between emotional distress, burnout, and job satisfaction, these are less investigated in terms of the relationship with irrational cognitions which, according to REBT, modulates the behavioral and emotional response of the individual. The present research meets these needs by setting objectives to respond to questions regarding the role of irrational cognitions in modulating the response to emotional distress in the organizational environment and by clarifying the relationship between these and concepts which are extensively studied in terms of organizational psychology, with high impact on the competitiveness of the organization and overall organizational health.

Rational/irrational cognitions and Rational Emotive Behavioral Therapy in the organizational environment.

Recent studies have highlighted the close relationship between distress, job satisfaction, burnout and quality of life, and especially the existence of bidirectional relationships between them, all having an influence on performance, particularly important in the life and economy of an organization. Evaluating and measuring employee performance is both qualitatively and quantitatively and is a very effective tool for management. Therefore, modification and control factors that can influence the performance becomes a key issue within any company. The evaluation and measuring of employee performance is done both qualitatively and quantitatively and it represents a very effective management tool. Therefore, the modification and control of the factors that can influence the performance become a key issue in any company. Based on recent data from the literature, both from the clinical and organizational environment, in terms of the relationship emotion-cognition-behaviors, increasingly more studies address the issue of work-related stress, job satisfaction and other key concepts from the organizational environment in connection to the presence or absence of irrational cognitions, results confirming the strong relationship between these components and irrationality (Smith et al., 1984, Harris et al., 2006,

DiLorenzo et al, 2007; Sporrle, 2006). These approaches are based on the ABC model developed by Ellis (1962, 1994). REBT distinguishes itself from other explanatory theories in regards to the production of emotions by introducing the qualitative difference between these; rational cognitions are closely related to functional, adaptive emotions, while irrational cognitions are in close contact with dysfunctional cognitions, not having a quantitative difference between these, their functionality depending largely on subjective experience, cognition and consequences. These irrational cognitions may appear linked to their own performance, to other people, circumstances and life situations, and can cover more content areas, such as affiliation, approval, success, comfort, justice and control. In counterbalance to these irrational cognitions we have rational cognition: desire opposed to absolute requirements; moderate evaluation of negative situations rather than awfulizing, tolerance rather than intolerance, accepting the possibility of mistake in the overall evaluation of people and self (David et al., 2002). David (2002) develops a model of REBT through the conceptual framework of cognitive evaluation theory (appraisal) in the formation of emotions. In fact, this concept has always been an explicit part of Ellis's theory, and the association between the components of these theories and irrational cognitions were reported by many researchers (Ellis, 1994, Ziegler, 2001). According to the proposed model there is a significant overlap between REBT and the model proposed by Lazarus in forming emotions (Lazarus, 1991, Smith & Lazarus, 1993). The evaluative component of this theory can be analyzed at two levels of depth (Smith et al., 1993): the molecular level - which refers to specific information processing and the macro-level which refers to the relations between the basic contents. According to the model, there are six evaluative components organized into three categories: primary assessment, secondary assessment and re - evaluation (Smith et al. Al., 1993 in David et al., 2002). The first two components of the primary evaluation are motivational relevance and motivational congruence. This refers to the relevance for and consistency with the purposes of the person. This is identical to the description from REBT of the relationship between person and environment. This description incorporates the individual's goals, the environment's constraints and opportunities and how they interact. In the secondary evaluation four components are described in relation to the coping resources and options: responsibility, coping potential focused on problems, coping potential focused on emotions and expectations of the future (Smith et al., 1993 in David et al. , 2002). In terms of REBT, certain components may overlap this model. Irrational cognitions can be regarded as dysfunctional secondary evaluative processes, and rational cognition can be viewed as adaptive secondary evaluative processes. Re-evaluation refers to changes in evaluations based on new information either from the environment or the person. This is equivalent to the REBT distinction between the primary and secondary process of emotions' formation (David et al., 2002). At a general level of analysis, these six primary and secondary components of the evaluation can be combined in different ways to generate emotions. These combination rules can be analyzed in terms of basic relational content, referring to the central component underlying emotion (David et al., 2002). For instance, anxiety, in the framework of cognitive evaluation theory, is a combination of low motivational

congruence, high motivational relevance and reduced potential for emotional coping. From the perspective of REBT, anxiety involves personal relevance of an event, incongruency with the absolute requirements and cognitive processes such as awfulizing and frustration intolerance. We briefly presented some arguments that show that REBT can be included in the cognitive evaluation theories in forming emotions, thereby explaining the growing interest and increasing results in using REBT as a conceptual framework for addressing the emotions issue in the organizational environment. David, Schnur and Belloiu (2002) investigated the contribution of evaluation, irrational cognitions and attributions in producing emotional distress, showing that the evaluations explain much of the variation of functional (anxiety, sadness, sorrow and anger) and dysfunctional (anxiety, depression, guilt and anger) emotions. Also, in the organizational environment it was highlighted the strong relationship between irrational cognitions and emotional distress, Sporrle (2006) showing that the relationship is kept in an organizational context as well, and that rational cognitions will generate adaptive emotions while the irrational ones will generate dysfunctional emotions, all these results confirming the applicability of REBT in the organizational environment. Apart from these results, several features of REBT make it particularly useful as a conceptual framework and perfectly adaptable to an organizational environment. Thus, REBT distinguishes between practical problems (to be rejected by others, failure in a task, etc.), and emotional problems, which constitute the focus of the intervention. According to REBT dysfunctional emotions will interfere with the individual's skills to achieve a task, with his/her efforts to acquire new skills to achieve his/her goals, with the ability to make a decision. Another reason why focusing on the emotional issue is paramount is the fact that people will not always have the ability and opportunity to change the opposing events in their lives. Focusing on the practical problem would only mean to empower customers with certain coping strategies to deal with or change some negative events, but not all life situations can be changed. Then, in terms of people, they are seen as largely responsible for their own problems so that they will be encouraged to fight these problems and change their thinking and fight the emotional problems following the ABCDE model described above. Therefore, first occurs the identification of the stressful event or situation for the person, followed by the identification of the cognitions and attitudes in general and the distress generating specific ones. Once identified their dispute takes place and their replacement with more rational, healthier ones. I summarized these series of steps in REBT type intervention to show again some of the attributes that make REBT a technique that can be easily implemented in a complex environment such as the organizational one, in approaching emotional problems that employees face: distress, job satisfaction, burnout, etc.

Cognitive behavioral coaching in the organizational environment

To prevent and control stress at work a wide variety of techniques and intervention programs are used, including counseling, stress management, reorganization of the working environment, reorganization of the working hours etc. (Cooper & Cartwright, 1997). Furthermore, based on the results of the specialized literature the idea of using coaching

type programs to control and reduce emotional distress in the organizational environment has been advanced (Busch & Steinmetz 2002, Hearn 2001, Jones 1996, Meyer 2003). Coaching can be included in the category of relations with learning purposes, along established methods such as counseling, psychotherapy, consulting or training (Higgins & KRAM, 2001, Ratiu & Baban, 2010), and, even if it is based on these, is very different from them. Thus although both psychotherapy/ counseling and coaching have as a central element the customer's behavior changes, the environments and conditions of application are very different: the overall aim in therapy is to make customers feel better, while in the organizational environment often the aim is to help clients be more efficient at work. To meet the specific demands of the organizational environment, human resources psychologists have successfully adapted a number of clinical and psychotherapeutic counseling models to the particularities and needs of this environment. Models based on cognitive behavioral theories capitalize on established clinical models adapted to the needs of the organizational environment. Out of the clinical oriented approaches, Rational Emotive Behavior Therapy (REBT) was successfully adapted to the organizational environment, as evidenced by the special attention given in the last 30 years, from this point of view, to the "rational emotive training," a model developed based on REBT. Since the 1970s, CBT / REBT was successfully implemented as a strategy for solving various problems in the organizational environment. However, we can only talk about systematic use since the 1990s when CBT / REBT applications have lightly diversified: interventions for changes at the organizational level, conflict resolution training, career counseling. Dominic Di Mattia (1993) show that the rational emotive behavior approach is appropriate to the organizational context because of its preventive valence, of its short duration psycho-educational character and because of its focus on solutions. When applied correctly, the REBT process manages to improve customer's rationality of interpretations, critical thinking and argumentative skills. These changes will allow the customer to rise and then to replace unrealistic expectations, and no doubt these changes will be reflected in the quality of his/her performance (Ellis, 1994). Ellis repeatedly stated that one of the long-term benefits of a REBT type intervention is to reduce mental rigidity, in other words the increase of the flexibility of thinking, which can become one of the most powerful resources in an organization. When radiographing REBT type coaching, Kilburg (1996) identifies some of its immediate benefits, such as: enlarging the area of adaptive behavior, increasing flexibility and efficiency of thinking, improving social and psychological skills, tolerance enhancement and increase of the area of emotional responses, increase of the resilience and stress management skills, etc.. In the specialized literature, whenever a program incorporates REBT coaching principles and coaching techniques, it is called Rational Emotive-Behavioral Coaching (REBC) (Kirby, 1993). It is a way to suggest the specific of the program in relation to other forms of coaching, and in relation to the therapeutic paradigm that has been extracted and developed from. In this regard it is observable that in the process of adapting REBT to the specifics of an organization, there have been some lexical cosmetics imposed (as shown above) both by the context of the program application and by the particular target audience. In coaching, as in REBT type

therapy, diagnosis and intervention focuses explicitly on the system of implicit or explicit beliefs of the individual. More specifically, the specialist will work with customers to identify and dispute all the unreasonable expectations that have a negative impact on their performance. For this purpose the ABCDE model of individual change (described above) is used (Ellis, 1993; Neenan & Dryden, 2000). As a result of a restructuring at the cognitive level, the emotional and behavioral consequences of the client change, first qualitatively which, according to REBT theory, through practice, is gradually internalized, which provide means for continuous improvement. Regarding the effectiveness of coaching programs in the organizational environment research studies are relatively few in number and contradictory in opinions. A number of existent studies (mostly case studies) have shown that the effect of coaching on reducing distress is significant (Ascenta, 2005, Hearn, 2001, Richard, 1999 in Gyllensten & Palmer, 2004). In a qualitative study Wales (2003) found that one of the benefits of coaching programs was to reduce the level of distress. Also in this direction, Grant (2001) in a study testing the effectiveness of cognitive, behavioral and cognitive-behavioral interventions shows that all three are effective in reducing anxiety. In contrast to these results a quantitative study conducted in 2003 by Compasspoint Nonprofit Services (Gyllensten & Palmer, 2004) shows that the effects of coaching programs on distress are very small. However, a qualitative analysis (interview) within the same study shows that participants respond that the program was helpful in controlling distress.

All these results raise many questions regarding the theoretical approach, programs' efficiency, their competence, but also they are encouraging for further research in order to obtain clear answers to the questions above.

Chapter II. Research aims and methodology

Theoretical implications

The last decades have brought an increased interest in terms of finding the explanatory mechanisms that are the basis of generating distress in both the clinical as well as the organizational environments. Regarding the organizational environment, the study of stress was closely related to the study of performance and key concepts for the organizational environment, concepts related to efficiency and performance optimization, such as burnout, job satisfaction, quality of life. Although, as shown in previous pages, these concepts have been studied from the perspective of organizational environment, and both the causes and consequences are analyzed from this perspective, recent studies emphasize their growing implications beyond the specific organizational and professional life, trying to finding those mechanisms that lead to the generation of these dysfunctional processes. Relations between them are many and complex, and the current results presented in the literature do not allow to draw clear-cut conclusions. For example, often burnout has been used to express distress, dissatisfaction, depression, etc. (Maslach 1993). Burnout has been the subject of

many research studies in relation to other concepts such as job satisfaction or depression. Moreover, evidence regarding its relationship with depression were brought from clinical trials (Freudenberger, 1981 in Maslach, 1993), showing that depression is often accompanied by feelings of guilt, whereas burnout accompanies feelings of anger, and while in the case of burnout symptoms are closely related to working conditions, in the case of depression there is a generalization of symptoms. If the case of the relationship with job satisfaction, research has shown that it's negatively correlated with burnout (Maslach, 1993). A new direction of research with promising results in terms of addressing these mechanisms in the organizational environment comes from the cognitive behavioral paradigm, specifically Rational Emotive Behavioral Therapy. Studies based on this paradigm have shown strong links between irrational cognitions and stress, burnout, job satisfaction and quality of life (DiLorenzo et al., 2002; Sporrle, 2006, Palmer, 2004). The general objective of this paper is to investigate in a systematic manner the relationship between irrational cognitions and distress in the organizational environment, as well as the relationship between irrational cognitions and key organizational concepts a closely related to the concept of stress, namely: burnout, job satisfaction and quality of life. The results presented in the literature on interventions to control stress in the organizational environment show that cognitive behavioral intervention techniques are most effective and most commonly used (Ong et al., 2004). But these programs often contain a mixture of techniques aimed at reducing the intensity of stress and its consequences. However, these programs are quite general and do not target the specific components, which does not allow the extraction of clear and valid conclusions on the factors that influence stress and its consequences. Based on these considerations, the general objective of this paper is to develop a theoretical-applicable model of intervention in the organizational environment to change the levels of distress, burnout, job satisfaction and quality of life based on identification and modification of irrational cognitions of the staff through an intervention program based on the REBT principles outlined in previous sections. To achieve this objective, the research was organized by setting specific intermediate targets. Thus, the first objective of the study is to evaluate the effectiveness of cognitive behavioral intervention techniques in modulating stress response and to identify potential factors that are closely related to it (study1).

Methodological developments

Once proven the efficiency of cognitive behavioral intervention and especially of interventions based on REBT, we intend to study in the next study the relationship between irrationality distress, job satisfaction, burnout and perceived quality of life. Previous studies on the subject (Sporrle, 2006) beyond the positive results achieved in the relationship between irrational cognitions, distress and job satisfaction, have also obtained results indicating the specificity of these cognitions and hence the need for appropriate tools for their evaluation. So the next step in our approach was to adapt and calibrate a scale for assessing irrational cognitions in the organizational environment (study 2). Once adapted the tool for assessing irrational cognitions, we have continued the experimental approach by

analyzing the relationship between irrational cognitions and stress, burnout and job satisfaction through a mediation analysis to highlight the link and the mechanism underlying these relationships. (study 3).

Practical applications

Having clarified these relationships, the next step was building and testing an intervention program, a program that is based on REBC principles that are oriented towards changing the irrational cognitions aimed of the organizational environment staff. Given the diversity and specificity of the organizational environment, our approach was divided into two interventions in different environments: teacher educators, employers in the state system in Romania and an intervention in a private company, service providers. (study 4a and 4b).

Chapter III. Original contributions

The studies presented next seek the specific objectives described in the previous section.

Study 1 - is a quantitative meta-analysis of the specialised literature made to highlight the efficiency of cognitive behavioral intervention programs in the distress control intervention in the organizational environment, analyzing their effectiveness in reducing the level of distress directly evaluated, its consequences and effect in reducing irrationality. Distinction was also made in this general category between programs developed based on REBT, comparing their efficiency with the rest of cognitive behavioral programs.

Once underlined the effectiveness of such REBT programs in reducing distress and irrationality, the next step represented by the study no. 2 was to adapt a instrument specific for assessing irrational cognitions to the organizational environment. Once validated and calibrated the scale for assessing irrational cognitions, we went to the next step, namely the analysis of relations between irrational cognitions, distress, burnout and job satisfaction by analyzing patterns of mediation between them (Study 3).

Corroborating our own results with those in the literature we had the basis to build an intervention program created to reduce irrationality, based on the REBT principles set out above, the efficiency of the program being tested in two different conditions, presented in the studies 4a and 4b.

Study 1. A meta-analytical study on the effects of cognitive behavioral techniques for reducing distress in organizations

Objectives

The present paper investigates the interventions based on a cognitive behavioral approach (CBT and REBT) designed to reduce the level of emotional distress and its organizational consequences, through modification of people's beliefs. Therefore, the aims of the present study are to conduct a multi level analysis:

1. A quantitative estimate of the overall effect size of CBT based intervention techniques in controlling and modulating the responses to different distress agents in occupational settings (there is a growth in the number of studies using cognitive behavioral approach as twelve more studies were published since Richardson and Rothstein's meta-analysis published in 2008).
2. A quantitative estimate of the overall effect size of REBT based intervention techniques
3. Analysis of effect sizes by method of evaluating distress (i.e., distress versus its consequences).
4. Analysis of the effect sizes on measures of irrationality (as one of the key mechanisms of distress).

Method

Our goals were addressed using meta-analytic techniques according to the published procedures (Hunter & Schmidt, 1990), with available data from the published literature. The studies included in the present paper were identified through a computer search using the following databases: Medline, PsychInfo, PsychLIT, Science Direct. The search was conducted for studies in English using the following keywords: "irrational beliefs", "irrational beliefs and distress management", "CBT and distress management", "REBT and distress management", "irrational beliefs and occupational distress". Based on this search algorithm, we identified 36 studies that circumvented the chosen keywords. Next, we analyzed the references in order to include other relevant studies for our purpose. Six more studies were included in our preliminary analysis, adding up to a total of 42 studies retained for analysis.

Inclusion criteria were as follows: 1. Experimental studies which investigated the effects of cognitive behavioral intervention on emotional distress 2. The studies had to focus on populations without clinical symptoms 3. The intervention method had to be well defined as based on CBT and/or REBT intervention techniques 4. The studies had to include a control group 5. Reported sufficient data (e.g., means, SD, and/or inferential statistics) to allow for calculation of effect sizes.

For the purpose of the present study, the method sections of published studies had to be carefully screened to determine that the authors were specifically describing a cognitive behavioral intervention on irrational beliefs. Based on these criteria we selected and retained 23 studies to be included in our meta-analysis. Out of these, only one study had reported follow-up results. Therefore, we included in the present paper only post intervention measures from 23 selected studies .

All studies included a control group, were conducted on participants with no identified clinical symptoms, and belonging to different types of organizational environments. In some studies, the participants were not part of a specific organization (unemployed at the time or students) but we included the results in our analysis because the

intervention program was designed to reduce work related distress. The studies selected described the intervention method as based on cognitive behavioral approaches for developing the intervention program. After these standardized methods, 23 mean effect sizes were calculated. Overall, effect sizes were based on the report of 1282 subjects. To protect against the possibility that studies with larger number of dependent variables would have influence on the final overall estimate of the impact of cognitive behavioral intervention, effect sizes were calculated as the mean effect for each paper. We calculated an overall effect size for the 23 studies included. A second set of analyses were conducted in order to calculate the effect size for REBT (for this category we included the studies that described the intervention as being based directly on REBT or that specifically described the procedure according to REBT principles (Ellis, 1994)). In order to assess the effectiveness of the intervention programs in reducing the level of irrationality, we calculated the mean effect size from the studies, which included evaluations of irrational beliefs.

The effectiveness of the interventions throughout the studies was assessed through different evaluations of distress. Since various outputs were reported, we coded them under the following categories: 1. direct evaluations of emotional distress, 2. Consequences of emotional distress (e.g., self-esteem, indifference, absenteeism, and burnout). Coding was done by two trained specialists in Psychology. An inter-rater agreement ($k = 0.93$) was obtained. Effect sizes were calculated according to published procedures (Hunter & Schmidt, 1990). Briefly, mean differences between the cognitive behavioral intervention and control groups were calculated for each study and then divided by SD of the control group. The strength of the various effect sizes were interpreted using Cohen's d criteria (i.e., 0.2-0.5 = small; 0.5-0.8 = moderate; higher than 0.8 = large). To estimate the overall effect of cognitive behavioral interventions the 95% confidence interval (CI) was calculated. If the 95% CI included zero, there would be no significant effect of the intervention. Next, effect sizes and 95 % CIs were calculated for each outcome category. CIs were assessed for the inclusion of zero to test the significance of the individual category effects, and a between group analyses of variance (ANOVA) was conducted to determine if the categories differed from each other. Taking into consideration that the decrease in emotional distress is a positive outcome, in our analyses the „-“, sign will be considered in favor of intervention.

Results

The meta- analysis revealed a significant benefit of cognitive behavioral interventions in reducing distress in organizational settings.

Analysis of this data shows a large mean effect size due to cognitive behavioral interventions. Based on this, we obtained a large average effect size $d = -0.92$, 95% CI (-1.32 to -0.64) .

Because bias can be introduced into effect size calculations through variations in individual study sample size, we run another analysis, this time correcting for study sample size based on published procedure (Hunter & Schmidt, 1990). Specifically, both the mean difference and the variation of difference were adjusted for variation in the study sample

size (D and VarD, respectively). Results indicate a large weighted effect size (D = -0.81, VarD = 0.24) while the 95% CI shows that D differs significantly from zero (-1.72 to -0.45).

Analysis of these results shows that cognitive behavioral interventions are effective both for reducing the level of irrationality and the level of distress evaluated either directly or through its consequences. We did the analysis again for correction of d for each category. For irrationality, a corrected D = -1.6, Var D = 0.4 and 95% CI (-2.35 to -0.85) emerged.

This is a significant effect size, which confirms the effectiveness of cognitive behavioral interventions in reducing the irrationality. For direct evaluations of distress we obtained D = -0.73, VarD = 0.04, 95% CI (-1.23 to -0.55). For evaluation of emotional distress consequences we obtained D = -0.69, VarD = 0.02, 95% CI (-1.12 to -0.33). These values show the effectiveness of the cognitive behavioral interventions on distress, with a larger effect size when the outcome was evaluated directly. An ANOVA approach failed to reveal any differences in effectiveness (F [1, 78] = 1.52, p > 0.05) based on the outcome categories. Rather, the examination of the effect sizes and CIs for each category revealed that cognitive behavioral interventions had significant effects on every outcome in the expected direction. These results support the view that there is a broad beneficial impact of cognitive behavioral interventions with population in organizational settings across outcome categories. The same pattern of results was found among unadjusted effect sizes. In the next step, we run a separate analysis isolating the studies based (or including a core component) on REBT theoretical framework and CBT based intervention programs. We found a total of 8 studies that circumvented our inclusion criteria, being included in REBT based category.

We calculated the effect size for each category (REBT based and CBT based) intervention programs. For CBT based programs (based on 15 mean effect sizes) the mean effect size calculated according to the described procedure was d = -0.73, 95% CI (-1.41 to -0.55), while for REBT category (based on 8 mean effect sizes) was d = -1.16, 95% CI (-1.65 to -0.68). The range of d values (based on Cohen 'criteria) indicates a difference between the two categories. In the case of REBT based intervention programs a strong effect size emerged, while in the case of CBT based intervention programs, the effect size fell only into the moderate range. A further analyses using ANOVA was conducted yielding a significant difference between the two categories (F [1, 21] = 4.57, p < 0.05). The difference between the two effect sizes is maintained even after correcting d for variation in the study sample size. For CBT based intervention programs we obtained D = -0.52 (moderate effect size), Var D = 0.1, and 95% CI (-0.68 to -0.35), while for the second category, REBT based intervention program, we obtained D = -1.14 (strong effect size), Var D = 0.11, and 95% CI (-1.59 to -0.69). Thus, the results show the efficiency of both types of intervention in reducing distress, with a stronger effect in favor of REBT based intervention programs.

Discussions

Distress responses and interventions on distress are hot topics in current research. However, approaches are heterogeneous and so are various distress response measures. On one hand, we have approaches coming from a clinical perspective, where the subjects are patients identified with different clinical symptoms. On the other hand, we have approaches from an organizational perspective, where we will find differences regarding the specific nature of the organization and the personal characteristics of the participants included in the study.

Measures of distress response also differ between the two categories of approaches. While in clinical environment distress is evaluated mainly directly, through the modifications in anxiety level, depression etc., in the organizational environment, distress can be evaluated both directly and indirectly, through evaluation of the effects of distress on behaviors like absenteeism, indifference, fatigue, burnout etc.

Given this rich literature on the topic, as well as the heterogeneity of approaches and distress measures, we conducted a quantitative meta-analysis of studies discussing CBT based interventions on distress in organizational settings. Analysis of the results revealed the fact that cognitive behavioral interventions have a significant effect in reducing distress. Indeed, the overall mean effect size (calculated for all the studies) indicates a strong effect of cognitive behavioral interventions on reducing distress ($d = -0.92$). This is in accord with the previous results obtained by Richardson and Rothstein (2008), ($d = 1.16$). For a more detailed analysis, we coded the results into two categories based on an inter-rater agreement ($k = 0.93$): direct evaluation of emotional distress and evaluation of distress through its consequences. In both cases, the mean effect size was significant ($d = -0.73$, though in the case of evaluation through its consequences the effect size is slightly smaller, $d = -0.69$).

Given the numerous reports in the literature show strong correlations between irrationality and various measures of distress in organizational settings (DiLorenzo et al., 2002; Grant, 2001; Sporrle, 2006), we ran a separate set of analyses including only the measures of irrationality. We obtained a strong mean effect size on this category ($d = -1.6$), showing the effectiveness of these types of interventions on reducing the level of irrationality among people from different organizational settings. However, the need for future studies that will look more thorough into the specific mechanisms that govern this relation, still remains.

Another distinction in our study was made by categorizing the studies into those based on CBT and those based on REBT theoretical framework. The reasons of this analysis were explained in the introduction. On both categories (CBT and REBT), we obtained significant effect sizes. Even though the general effect size on general CBT category was in the “strong” category ($d = -0.81$), after separating the studies between REBT based and other CBT based, the strength of the effect sizes fell into “moderate” category ($d = -0.52$) for CBT programs and remained in the “strong” category ($d = -1.14$) for REBT programs. The strong effect size for REBT is supporting the results reported in the literature regarding the strong correlations between irrationality and distress. The mean effect size of CBT category, situated in the moderate range) is consistent with the previous

meta-analyses (van der Klink et al., 2001; Richardson & Rothstein, 2008). Richardson and Rothstein (2008) showed that single-mode cognitive-behavioral interventions have a stronger effect size than cognitive-behavioral interventions with more components (e.g., including relaxation, assertiveness training etc). This could explain the smaller (but still significant) effect size obtained at CBT category in our analysis, given the fact that most of the studies included in this category reported more than one component in the structure of the program. However, even the studies in the REBT category contained a core REBT component along with other techniques. Therefore, maybe this difference could be explain by Ellis' argument that REBT targets more core beliefs (i.e., irrational beliefs) as compared to general CBT, and thus it is faster and sometimes more efficacious; however, future studies should directly investigate this supposition, by directly comparing REBT and CBT in organization settings, in the same experimental design.

As most meta-analytic research, the present study has some limitations. We excluded a number of studies where the method of intervention was not clearly defined, keeping only those where the intervention was explicitly described as being based on cognitive behavioral principles. However, we have done this explicitly, arguing our decision (see also below the file-drawer analysis). Another limit of the present study is the wide range of settings from where data was collected. Even though the overall effect size is in favor of CBT/REBT based intervention programs, the intervention procedure differed across the studies according to the aim of the study and the characteristics of the population included in the study. This led to various measures of distress across the studies included in our meta-analysis. We tried to overcome this limit by categorizing the results based on the method of evaluation emotional distress. Nevertheless, there is a wide range of measures to evaluate distress in the literature making it difficult to combine the studies. On the other side, it can support the generalizability of the results and their robustness across distress evaluations methods. The third limit is referring to follow up measures. Because only one study reported follow up measures, we were not able to include this data in our research. Consequently, our analysis is based only on post-intervention measures. Finally, another limit of our analysis is that because of the wide diversity in organization's characteristics and participants, we did not include socio-demographic analyses in our study.

As with any meta-analysis, there is what is referred to as the file-drawer problem. Investigators who obtained no significant results may have not published their findings, thus biasing the sample of studies in the expected direction. To overcome this limitation, we calculated the number of studies with effect sizes of zero according to published procedures (Hunter & Schmidt, 1990). In this case, 1194 studies with no effect should be published to cancel the results presented here.

In summary, CBT programs are efficient in approaching emotional distress in organizational settings. Out of these, REBT based intervention programs seems to be the most efficient, as supported by a mean effect size situated in the "strong" range according to Cohen's criteria. However, even if the mean effect size for CBT based intervention programs, after removing studies based on REBT, decreased into the "moderate" range, it remained significant. Overall, CBT interventions are efficient in reducing distress and its

job related consequences, with a more accentuated effect when the program is based or includes a core component of REBT. Such findings strongly support the development of future programs that emphasize more the importance of REBT and irrational cognitions by including them as a core component of the intervention. Indeed, the findings suggest that effective interventions should focus more on modification of core irrational beliefs as precursors of dysfunctional emotions in order to modulate the response to stressors in organizational environment.

Taken these results into consideration and combining these with the findings reported in the literature regarding the relation between irrationality and distress, future studies should explore more the interactions between irrationality and distress in organizational setting. In addition, specific programs, based on REBT theoretical framework, can be designed towards modification of irrational beliefs and evaluation of the impact of irrationality on distress and other constructs like performance, motivation, perceived quality of life, constructs which we know that are strongly correlated with distress. This can be the base of a comprehensive model of intervention in organizations with implications and benefits at both individual and organizational level.

Study 2. Developing of viable measures for Employees Rational and Irrational Beliefs

Objectives

Employees Rational and Irrational Beliefs Scale (E- RIBS) was developed by Gavița, DiGiuseppe & David, , based on the view of IBs and RBs as non-polar opposites (DiGiuseppe, Leaf, Exner, & Robin, 1988). E – RIBS takes into consideration recent priming methodology (i.e., Articulated Thoughts in Simulated Situations; ATSS–Davidson, Robins, & Johnson, 1983; David, Szentagotai, Kallai, & Macavei, 2005); Our objective for the present research is to investigate the psychometric characteristics of the instrument for Romanian population.

Method

Participants

720 participants were included in the study. 450 were women (61.21 %) and 270 were men (38.79%). Participants come from four different organizations – education, communication, army and services. Mean average age is 44.

Instruments:

- Employees Rational and Irrational Beliefs Scale - ERIBS)
- General Attitudes and Beliefs Scale, Short Version, GAB –SV
 - Irrationality was assessed with General Attitudes and Beliefs Scale, Short Version; GABS– SV (Lindner, Kirkby, Wertheim, & Birch (1999)/translated

and adapted for Romanian population. The scale is focused on evaluations of the four contents: achievement, approval, comfort, and fairness. One of the subscales is addressing rationality while the sum of the scores of the others offer a global score of irrationality.

- Emotional Distress Profile, PDE
 - To assess emotional distress we used PDE (Emotional Distress Profile). PDE is a scale that consists of 39 items which assess functional and dysfunctional negative emotions from categories such as: fear, depression/sadness, and also positive emotions. It was constructed and validated on Romanian population by Opris and Macavei (2005) based on the items of Profile Mood Disorder, short version (see DiLorenzo, Bovberg, Montgomery, Vladimarsdottir & Jacobsen, 1999).

Results

To explore the factorial structure of the scale was used exploratory factor analysis technique with Varimax rotation. To determine the factorial model were examined three elements: (1). Eigenvalue > 1, (2). At least three items loading > 0.3, (3). To correspond to theoretical constructs. The result analysis revealed a model with nine factors of which only three contain at least three items with loading greater than .30. We continued with a constrained factor analysis, Promax rotation. To determine the factorial model were examined three elements: (1). Eigenvalue > 1, (2). At least three items loading > 0.3, (3). To correspond to theoretical constructs. The results showed that a certain number of items are overlapping regarding factor number 2 and 3. In order to eliminate this situation, we continued with a constrained factor analysis with two factors, Promax Rotation with the same criteria for analysis. We obtained a two factor model with items loading more than 0.3 and explaining 30.52 of the total variance.

Internal consistency was examined, for both irrational and rational factors and the global score ($\alpha_{\text{global}} = .79$; $\alpha_{\text{rational}} = .78$; $\alpha_{\text{irrational}} = .80$). Also general score is significantly correlated with the score for both sub-scales ($r_{\text{total-irrational}} = .8$; $p < .001$; $r_{\text{total-rational}} = -.69$; $p < .001$)

In order to examine the validity of the construct we correlated the general score with the scores from GABS (Irrational beliefs) and PDE (emotional response). Results showed significant correlations for both constructs E-RIBS vs. GABS-SV (N = 680, $r = .43$, $p < .001$) and E-RIBS vs PDA (N = 680, $r = .33$, $p < .001$).

Discussions

Although the scales for the assessment of irrational cognitions are used in clinical practice and research over many years, in organizational practice this does not happen because there is no specific tools and features developed for this environment. And this perhaps because studies of irrational cognitions in organizational environment are few and relatively recent. Therefore, having a valid instrument in order to evaluate irrational cognitions specific for

organizational environment is a major step forward for future researches. This will allow us to have a better measure when we approach irrational cognitions from the perspective of an organizational psychologist.

Study 3. Relations among Irrational Cognitions, Emotional Distress, Job Satisfaction and Burnout. A mediation analyses.

Objectives

We propose in this research two models to describe the relationships between irrational beliefs and emotional distress on a part, and job satisfaction or burnout on the other part. The first model (see Figure 1) states that irrational beliefs will lead to emotional distress which in turn will lead to a low level of job satisfaction. In this case, emotional distress functions as mediator in the relationship between irrational beliefs and job satisfaction. In the second model (see Figure 2), irrational beliefs will lead to emotional distress which in turn will lead to a high level of burnout. Also, in this case emotional distress functions as a mediator between irrational beliefs and burnout.

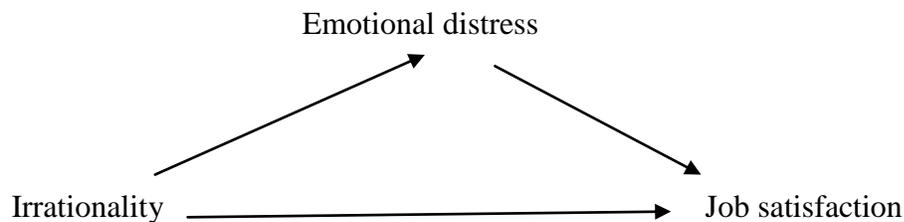


Figure. 1 A proposed model of the relation among Irrational beliefs, Emotional distress, and Job satisfaction

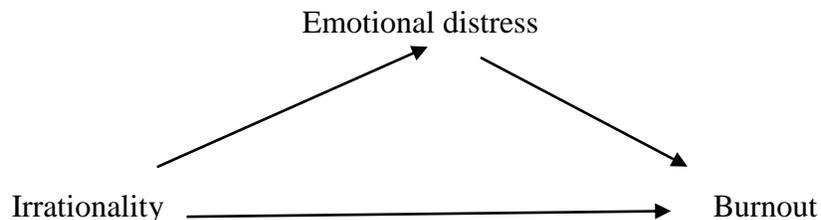


Figure. 2. A proposed model of the relation among Irrational beliefs, Emotional distress, and Burnout

While the available data strongly support the relations between these variables, none of the studies examined the mediation mechanism among them. Thus, our objective is to clarify this research question, whereas irrational beliefs will directly lead to reduced job satisfaction and high levels of burnout, or this is done through the maladaptive emotions that follow irrational beliefs.

Method

Participants

Participants were recruited from a large company (energy distribution) in Romania. All of them held a higher degree (at least bachelor degree) and the level of work difficulty is in the same range (office work). A total of 80 employees participated. Due to incomplete responses, we eliminated 18 of them. The remaining 62, from which 36 are women and 26 are men, had an average age of 38.3.

Measures

- E-RIBS
 - Irrationality was assessed with E-RIBS – Rational Irrational Beliefs Scale for Employees. The scale is focused on evaluations of three contents: achievement, approval and comfort. One of the subscales is addressing rationality while the sum of the scores of the others offer a global score of irrationality. An alpha cronbach of 0.79 was reported.
- Emotional Distress Profile, PDE
 - To assess emotional distress we used PDE (Emotional Distress Profile). PDE is a scale that consists of 39 items which assess functional and dysfunctional negative emotions from categories such as: fear, depression/sadness, and also positive emotions. It was constructed and validated on Romanian population by Opris and Macavei (2005) based on the items of Profile Mood Disorder, short version (see DiLorenzo, Bovberg, Montgomery, Vladimarsdottir & Jacobsen, 1999).
- Job Descriptive Index, JDI
 - In order to assess job satisfaction we used JDI–Job Descriptive Index. The Job Descriptive Index is designed to measure employees' satisfaction with their jobs. The JDI is a “facet” measure of job satisfaction, meaning that participants are asked to think about specific facets of their job and rate their satisfaction with those specific facets. The JDI is comprised of five facets, including satisfaction with: coworkers, the work itself, pay, opportunities for promotion, and supervision.
- Maslach Burnout Inventory
 - The Maslach Burnout Inventory (Maslach & Jackson, 1986) is one of the most used measures of burnout. This 22-item, 6-point anchored Likert scale

has three components: emotional exhaustion -the depletion of emotional resources, leading workers to feel unable to give of themselves at a psychological level-; depersonalisation -negative, cynical attitudes and feelings about clients; and reduced -personal accomplishment-evaluating oneself negatively, particularly with regard to work with clients.

Procedure

Participants completed a set of questionnaires containing an irrationality scale, an emotional distress scale, a job satisfaction scale, and a burnout scale, at one time and returned it to research personnel.

Data analyses

After examining correlations among irrationality, emotional distress, job satisfaction, and burnout we conducted a series of mediation analyses. In order to examine whether irrationality incrementally predicts job satisfaction and burnout over and above emotional distress, we used a single mediator model of analyses (MacKinnon, 2008) where irrationality is the independent variable, emotional distress is the mediator, and job satisfaction respectively burnout are the dependent variable. For our analyses we used the method described by Baron and Kenny (1986).

According to Baron & Kenny (1986), when a variable carries a influence of an independent variable to a dependent variable it is called a mediator. When testing the influence of a mediator into a given relation, we can consider results being consistent with a mediation model if: a. the independent variable (predictor) will significantly influence the mediator variable, b. the predictor will significantly affects the dependent variable, while the mediator is not present, c. the mediator has a significant effect on the dependent variable, and d. the effect of the predictor on the dependent variable is reduced (when we have - partial mediation) or reduced to zero (complete mediation), upon the addition of the mediator to the model.

Results

Bivariate correlations between irrationality, emotional distress, job satisfaction, and burnout are presented in Table 1. There were significant correlations between the variables.

Table 1

Bivariate correlations among irrational beliefs, emotional distress, job satisfaction and burnout

	IR	ED	JS	BR
IR	1	.697**	-.865**	.375**
ED	.697**	1	-.620**	.268*
JS	-	-	1	-.309*
BR	-	-	-	1

Note. IR -

Irrationality

ED - Emotional Distress

JS - Job

Satisfaction

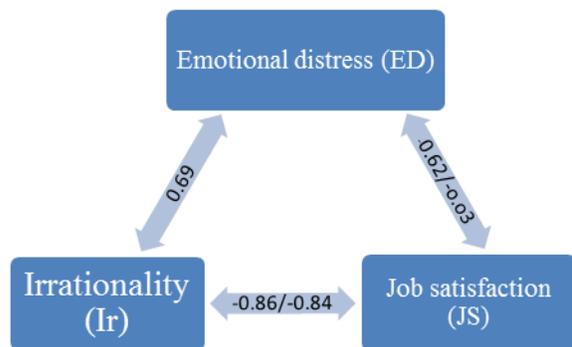
BR - Burnout

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

To analyze the direction of the relation among variables separate regression analyses following Baron and Kenny's (1986) procedures were conducted. In the examination of the first model (see Figure 3) the results proved to be inconsistent with the mediation. For the second model (see Figure 3), the results are similar (inconsistent with the mediation).

A: Irrationality (Ir), Mediator – ED, DV – Job satisfaction (JS)



B: Irrationality (Ir), Mediator – ED, DV – Burnout (BR)

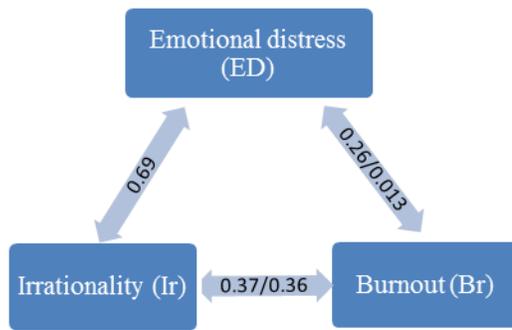


Fig. 3 Mediation diagrams for models testing the interrelations among Irrational cognitions, Emotional distress, Job satisfaction and burnout. Values presented are standardized parameter estimates. Values above line reflects bivariate relations; values below lines reflect multivariate relations accounting for other predictors in the regression equation.

Taken together, these results are supporting the fact that irrationality is a good predictor for job satisfaction and burnout, and that this relation is not mediated by emotional distress. In other words, irrationality influences directly the level of burnout and job satisfaction and not through emotional distress, answering this way to one of the questions raised by the previous studies in the field.

Discussions

According to the REBT, irrational beliefs are illogical, rigid, and inconsistent with reality. As a result of holding irrational beliefs, people acquire unhealthy emotions, dysfunctional behaviours, and psychological disturbance. Through disputation of their irrational beliefs, people can develop more rational and realistic ways of thinking that will produce greater acceptance of the self and others.

This study used REBT as the theoretical framework for analyzing the relations between irrational beliefs, emotional distress, job satisfaction, and burnout in organizational settings. Previous studies showed that irrational beliefs are central determinants of maladaptive emotions. Also, evidence was provided for a relation among irrational beliefs and job satisfaction, raising the question upon the nature of the relation. In the same line of argumentation, there is data in the literature showing the strong relation between job satisfaction and burnout. Based on these findings, we postulated that irrational beliefs will influence job satisfaction and burnout, through the mediation effect of emotional distress. We found that irrationality, emotional distress, job satisfaction, and burnout in organizational settings are related to each other. More than that, through a mediation analysis, we showed that the relation between irrationality and job satisfaction respectively burnout is a direct one, not being mediated by the emotional distress. Indeed, as shown by the statistical analyses, even though there is a strong relation between emotional distress

and job satisfaction respectively burnout, when we use emotional distress as a mediator of the relation between irrationality and job satisfaction, respectively burnout, it loses its predictable value. This is confirming the important role of irrationality in determining job satisfaction and burnout. These findings could be of great significance for organizational environment where job satisfaction and burnout represents key concept in the well being of an organization. Thus, these findings could be use as a starting point in developing new ways of intervention at organizational level in order to control these key aspects of a well being of an organization.

An important limitation of this study is that the analyses were made on the global scores of irrationality, job satisfaction, and also burnout rather than on more specific measures (e.g., specific measures of irrational beliefs in organizational context). Future studies should investigate these relations using more specific measures.

REBT based interventions in organizational settings.

Study 4.a Effectiveness of a Rational Emotive Behavioral Coaching of a program to reduce irrationality in organizational environment and the mediator effect of irrationality on emotional distress, job satisfaction, burnout for employees in educational system

Objectives

- Evaluating the efficacy of an REBC intervention in organizational setting aimed to reduce the level of irrationality.
- Evaluating the mediating effect of irrational beliefs modification on emotional distress, burnout, job satisfaction.

Hypothesis

1. *REBC intervention is efficient in reducing the level of irrationality of employees in an organizational setting*
2. *Modification of irrational beliefs will mediate the effect on job satisfaction, burnout and emotional distress level*

Method

Participants

80 participants, educators from Cluj and Alba county. The experimental group consisted of 40 educators from 15 kindergardens in Cluj and Alba.

Instruments

- *Employees – Rational and Irrational Beliefs Scale (E-RIBS)* - Irrationality was assessed with E-RIBS – Rational Irrational Beliefs Scale for Employees. The scale is focused on evaluations of three contents: achievement, approval and comfort. One of the subscales is addressing rationality while the sum of the scores of the others offer a global score of irrationality. An alpha cronbach of 0.79 was reported.
- Emotional Distress Profile, PDE -To assess emotional distress we used PDE (Emotional Distress Profile). PDE is a scale that consists of 39 items which assess functional and dysfunctional negative emotions from categories such as: fear, depression/sadness, and also positive emotions. It was constructed and validated on Romanian population by Opris and Macavei (2005) based on the items of Profile Mood Disorder, short version (see DiLorenzo, Bovberg, Montgomery, Vladimarsdottir & Jacobsen, 1999).
- Job Descriptive Index, JDI - In order to assess job satisfaction we used JDI– Job Descriptive Index. The Job Descriptive Index is designed to measure employees' satisfaction with their jobs. The JDI is a “facet” measure of job satisfaction, meaning that participants are asked to think about specific facets of their job and rate their satisfaction with those specific facets. The JDI is comprised of five facets, including satisfaction with: coworkers, the work itself, pay, opportunities for promotion, and supervision.
- Maslach Burnout Inventory - The Maslach Burnout Inventory (Maslach & Jackson, 1986) is one of the most used measures of burnout. This 22-item, 6-point anchored Likert scale has three components: emotional exhaustion -the depletion of emotional resources, leading workers to feel unable to give of themselves at a psychological level-; depersonalisation -negative, cynical attitudes and feelings about clients; and reduced -personal accomplishment- evaluating oneself negatively, particularly with regard to work with clients.

Procedure

The intervention program was structured in group sessions of four hours each, from between March and April 2011 focusing on emotions, rational and irrational cognitions, inferential cognitions and behaviors. Participants from both experimental and control group were evaluated before and after intervention.

Results

Although the initial assessment was designed to include the quality of life in our analysis, due to a large number of missing data, it was not included in this study. We have considered several directions for data processing and interpretation. Thus, the program was evaluated in the first phase in terms of irrational cognitions change. In the second phase was intended to evaluate the mediating effect of this intervention on the level of emotional distress, burnout and job satisfaction. Results will be analyzed by following these two steps. Since the JDI (job satisfaction assessment questionnaire) allows, in addition to the score of satisfaction with work in general, to calculate sub-scores regarding various aspects of job satisfaction, we will perform the interpretation of the results for each scale in part.

Pre-Intervention Analysis.

Result of to experimental and control group were compared, for all variables taken into account to reveal any differences between them. Results showed that between experimental and control group there were no difference in pre-test, when any of the variables were considered.

Post-test intervention analysis.

Further comparisons were made at the time of completion of the intervention groups to test its effectiveness. The results revealed significant differences between the experimental group in both moments of assessment, pre-test and post-test, confirming the hypothesis, namely that the intervention program is effective in reducing the irrationality of employees ($F(1,78) = 14.54, p = .01$). Also comparisons between experimental and control group in post-test, revealed significant differences between the two groups ($F(1,78) = 17.14, p = .01$). Regarding the control group, analysis revealed no significant difference between the results at the two times of assessment ($F(1,78) = 1.23, p > .05$). The average calculated effect size confirms this difference ($d = -1.25$), as it is a strong effect size according to Cohen's criteria.

Emotional distress, job satisfaction and burnout

The results revealed significant differences between the experimental group in both moments of assessment, pre-test and post-test, confirming the hypothesis, namely that an intervention program designed to reduce irrationality will lead to lower emotional distress ($F(1,78) = 11.72, p = .01$), job satisfaction ($F(1,78) = 11.56, p = .01$) and burnout ($F(1,78) = 7.63; p = .01$). The average calculated effect confirms these differences ($d_{\text{emotional distress}} = -0.86; d_{\text{burnout}} = -0.69$ and $d_{\text{job satisfaction}} = 0.83$), being a strong effect size Cohen's criteria.

Regarding the scores for the other five dimension of job satisfaction the results shows significant differences between experimental group in post test as oposed to the pre test evaluation and also between experimental and control group in post test evaluation except *Promotion and Actual salary* where analysis showed no differences between experimental and control group.

Evaluating the mediator effect of the irrationality on emotional distress, job satisfaction and burnout on the site.

To verify that the mediator variable, irrationality, influence the dependent variable directly or through the independent variable, in other words whether the effect of the independent variable on the dependent variable is accomplished through a mediator variable, we analyzed the results obtained through Sobel statistical test.

scores and significance thresholds are provided in Table 1. Further, where the result is significant, we proceeded to calculate the effect size for mediation according with the procedures described in the literature (McKinnon, 2008).Results are presented in table 1.

Variable	Z	p	Mediator effect (%)
Emotional distress	2,94	p < .05	43%
Actual work	2,22	p < .05	23.67%
Promotion	0,47	p > .05	-
Actual salary	1,27	p > .05	-
Coleagues	2,47	p < .05	47%
Boss	2,07	p < .05	29.5%
Work in General	2,97	p < .05	31.35%
Burnout	2,93	p < .05	34.3%

Table 1: Z scores and the size oof mediating effect (%).

Analysis of the results reveal the mediating effect of irrationality on the variables except salary component and promotion opportunities. Once highlighted the mediated effects of irrationality, we calculated the size of the mediator effect (McKinnon, 2008) that put out the actual percentage of the dependent variable explained by the effect of irrational beliefs modifications.

Study 4b. Effectiveness of a Rational Emotive Behavioral Coaching of a program to reduce irrationality in organizational environment and the mediator effect of irrationality on emotional distress, job satisfaction, burnout and quality of life.

Objectives

- Evaluating the effectiveness of an REBC intervention program in organizational setting, aimed to reduce the level of irrationality.
- Evaluating the mediating effect of irrational beliefs modification on emotional distress, burnout, job satisfaction and quality of life

Hypothesis

3. *REBC intervention is efficient in reducing the level of irrationality of employees in an organizational setting*
4. *Modification of irrational beliefs will mediate the effect on emotional distress, job satisfaction, burnout and quality of life levels.*

Method

Participants

60 participants, from a private company – service providers in communications.

Instruments

- *Employees – Rational and Irrational Beliefs Scale (E-RIBS)* - Irrationality was assessed with E-RIBS – Rational Irrational Beliefs Scale for Employees. The scale is focused on evaluations of three contents: achievement, approval and comfort. One of the subscales is addressing rationality while the sum of the scores of the others offer a global score of irrationality. An alpha Cronbach of 0.79 was reported.
- *Emotional Distress Profile, PDE* -To assess emotional distress we used PDE (Emotional Distress Profile). PDE is a scale that consists of 39 items which assess functional and dysfunctional negative emotions from categories such as: fear, depression/sadness, and also positive emotions. It was constructed and validated on Romanian population by Opris and Macavei (2005) based on the items of Profile Mood Disorder, short version (see DiLorenzo, Bovberg, Montgomery, Vladimarsdottir & Jacobsen, 1999).
- *Job Descriptive Index, JDI* - In order to assess job satisfaction we used JDI– Job Descriptive Index. The Job Descriptive Index is designed to measure employees' satisfaction with their jobs. The JDI is a “facet” measure of job

satisfaction, meaning that participants are asked to think about specific facets of their job and rate their satisfaction with those specific facets. The JDI is comprised of five facets, including satisfaction with: coworkers, the work itself, pay, opportunities for promotion, and supervision.

- Maslach Burnout Inventory - The Maslach Burnout Inventory (Maslach & Jackson, 1986) is one of the most used measures of burnout. This 22-item, 6-point anchored Likert scale has three components: emotional exhaustion -the depletion of emotional resources, leading workers to feel unable to give of themselves at a psychological level-; depersonalisation -negative, cynical attitudes and feelings about clients; and reduced -personal accomplishment- evaluating oneself negatively, particularly with regard to work with clients.
- *Satisfaction with Life Scale - SWLS (Diener, E., 1985, 1993)* – SWLS- was developed to assess the perceived quality of life in general, the scale not assessing specific areas such as health or financial issues but still allowing the integration and weighting them according to the preferences and importance of each of these domains.

Procedure

Experimental approach has begun by including participants in the experimental and control group. Participants are employees of companies working in telecommunications (Internet and television services) with employees nationwide. Employees included in the study are all from the same location of the company. Level of education is at least secondary education. The program was conducted over a period of 2 months (June-July 2011), with a total duration of 12 hours. At the end of the program post-test evaluation of both experimental and control group took place.

Results

Although the initial assessment was designed to include the quality of life in our analysis, due to a large number of missing data, it was not included in this study. We have considered several directions for data processing and interpretation. Thus, the program was evaluated in the first phase in terms of irrational cognitions change. In the second phase was intended to evaluate the mediating effect of this intervention on the level of emotional distress, burnout and job satisfaction. Results will be analyzed by following these two steps. Since the JDI (job satisfaction assessment questionnaire) allows, in addition to the score of satisfaction with work in general, to calculate sub-scores regarding various aspects of job satisfaction, we will perform the interpretation of the results for each scale in part.

Pre-Intervention Analysis.

Result of to experimental and control group were compared, for all variables taken into account to reveal any differences between them. Results showed that between experimental and control group there were no difference in pre-test, when any of the variables were considered.

Post-test intervention analysis.

Further comparisons were made at the time of completion of the intervention groups to test its effectiveness. The results revealed significant differences between the experimental group in both moments of assessment, pre-test and post-test, confirming the hypothesis, namely that the intervention program is effective in reducing the irrationality of employees $F(1,58) = 10.11$; $p = .01$). Also comparisons between experimental and control group in post-test, revealed significant differences between the two groups ($F(1,58) = 7.42$; $p = .01$). Regarding the control group, analysis revealed no significant difference between the results at the two times of assessment ($F(1,58) = 1.29$, $p > .05$). The average calculated effect size confirms this difference ($d = -1.25$), as it is a strong effect size according to Cohen's criteria.

Emotional distress, job satisfaction, burnout and quality of life.

The results revealed significant differences between the experimental group in both moments of assessment, pre-test and post-test, confirming the hypothesis, namely that an intervention program designed to reduce irrationality will lead to lower emotional distress ($F(1,58) = 13.75$; $p = .01$), job satisfaction ($F(1,58) = 7.37$, $p = .01$), burnout ($F(1,58) = 6.37$; $p = .01$), quality of life ($F(1,58) = 8.43$; $p = .01$). The average calculated effect size confirms these differences ($d_{\text{emotional distress}} = -0.95$; $d_{\text{burnout}} = -0.78$, $d_{\text{job satisfaction}} = 0.95$), being a strong effect size Cohen's criteria while and $d_{\text{qualityoflife}} = 0.55$ is a medium effect size but still significant.

Regarding the scores for the other five dimension of job satisfaction the results shows significant differences between experimental group in post test as oposed to the pre test evaluation and also between experimental and control group in post test evaluation except *Actual salary* where analysis showed no differences between experimental and control group.

Evaluating the mediator effect of the irrationality on emotional distress, job satisfaction and burnout on the site.

To verify that the mediator variable, irrationality, influence the dependent variable directly or through the independent variable, in other words whether the effect of the independent variable on the dependent variable is accomplished through a mediator variable, we analyzed the results obtained through Sobel statistical test.

scores and significance thresholds are provided in Table 1. Further, where the result is significant, we proceeded to calculate the effect size for mediation according with the procedures described in the literature (McKinnon, 2008).Results are presented in table 1.

Variable	Z	p	Size of mediating effect (%)
Emotional distress	3,26	< .05	35%
Actual work	2,95	p < .05	27.62%
Promotion	0.49	> .05	-
Actual salary	1,71	p > .05	-
Coleagues	2,22	p < .05	37.13%
Boss	1,98	p < .05	30.11%
Work in General	2,24	p < .05	33.62%
Burnout	2,89	p < .05	29.27%
Quality of life	2,43	p < .05	31.5%

Table 1: Z scores and the size oof mediating effect (%).

Analysis of the results reveal the mediating effect of irrationality on the variables except salary component and promotion opportunities. Once highlighted the mediated effects of irrationality, we calculated the size of the mediator effect (McKinnon, 2008) that put out the actual percentage of the dependent variable explained by the effect of irrational beliefs modifications.

Chapter IV. Conclusions and discussions

Current research through its objectives and methodology brings important contributions regarding the relation among irrational cognitions and emotional distress, job satisfaction, burnout and quality of life in organizational settings and also regarding the interventions aimed to control and modulate individual response.

Theoretical contributions

Critical review of the literature highlights the role and importance of emotional distress in the organizational environment both in terms of the person and health of organizational systems. Also, it was highlighted the relationship between emotional distress and other factors as equally important for both organization and person. Although these factors are presented separately, they are acting interdependently with effects on human health and the organization (factors such as burnout, job satisfaction, quality of life). Furthermore, we were able to prove that the relation among irrational cognitions and job satisfaction, burnout is a direct one and not mediated through emotional distress. As for the interventions in organizational settings we brought important clarifications regarding the effectiveness of different types of programmes, being highlighted the efficiency of REBT based intervention programmes as compared with other types of interventions.

Methodological contributions

We validated an instrument for evaluating irrational cognition in organizational settings, instrument tailored for these specific requirements. The results led to an instrument with two factors which allow us to calculate a score of rationality and a global score of irrationality. The psychometric characteristics of the instrument are satisfactory, being the first instrument of such sort.

Practical contributions

By developing and implementing an intervention program designed to change the irrational cognitions of employees we brought an important contribution in terms of designing practical interventions in the organizational environment.

At the same time emphasizing the irrational cognitions mediated effects of the distress, job satisfaction, burnout and quality of life's employees we have highlighted the importance of building and implementing intervention programs built around the principles of Rational Emotive Behavioral Therapy in order to intervene effectively in controlling and modulating employees response to different stress factors facing every day. Further researches are necessary in order to bring more clarification upon the mechanism underlying these relationships.

Limits and future directions

The limits of this paper are derived mainly from the characteristics and availability of the participants enrolled in the study and also the characteristics of the particular organizational setting in which the intervention took place.

The first limit comes from the diversity of organizational environments nationwide, which will have effects on the employees and the nature of problems which they are facing every day. We tried to limit this inconvenient by including two different organizations (private sector and state owned company). Even so, further studies are necessary in which more companies should be included in order to increase the validity of the results. Another limit of the present research is that there are no follow up data to be analyzed, again due to the limited accessibility to the employees (due to organizations rules and procedures). Again, further studies are necessary in order to evaluate the long term effect of the intervention.

Nevertheless, the results presented are encouraging and shows us the direction of the future researches in order to create and implement more efficient intervention programs which in turn will lead to healthier and happier employees and also better work environments.

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