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APPLICATION OF A THEORY-BASED EXERCISE PROMOTION PROGRAM (RACE) FOR ADULTS IN THERAPY FOR SUBSTANCE USE DISORDERS: A LONGITUDINAL INTERVENTIONAL STUDY

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Abstract

One of the main goals of substance use disorders (SUDs) treatment is the attainment and maintenance of abstinence, by promoting the adoption of new healthy behaviors, utilizing a wide variety of interventions and strategies. Sport is an example of a health-related behavior that is applied in SUDs treatment, with varied effects. The present study describes the implementation and influence of a 5-week endurance training program (RACE), and prepare participants to take part in a non-professional 10K race, based on self-determination and goal-setting theories. The objectives of the intervention were: (a) to train individuals in treatment for SUDs, to set goals and work to attain such goals within a sport context (b) to enhance the participants to transfer such skills into SUDs treatment, using the same techniques and processes and (c) boost participants' self-confidence so that they may indeed attain their goals. The participant of the RACE program was 14, with average previous substance use of 15 years, following 3.5 months of treatment of SUDs. The results revealed a significant positive relationship between goal achievement and self-confidence improvement (d=3.33) and treatment attendance. The follow-up assessment also revealed that the RACE program worked positively not only to strengthen the participants to develop goal-setting skills (M=8.55, SD=.69) but also to transfer the goal-setting strategies in their therapeutic process (M=8.69, SD=.85). Results further supported the idea that sport can be a safe environment for the training of behavioral-change and motivational strategies in the treatment of SUDs.

Keywords: self-confidence, SDT, goal-setting, skill transfer, SUDs, physical activity

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INTRODUCTION

Substance use disorders (SUDs) have come to be one of the gravest issues modern societies are called upon to face, a phenomenon explained under a variety of psychological, biological, sociological, financial as well as psycho-social theories (WHO, 2019; West & Brown, 2013). It is a generally accepted assumption that SUDs treatment is a process of behavioral change through which addicted persons are supported in their efforts to regain their physical and psychological health and wellbeing (NIDA, 2017). A critical factor conditioning the success in changing addictive behaviors is the reinforcement of motivation. In that context, two motivation strategies likely to play a decisive part in the SUDs treatment are the goal-setting and the self-determination theories (Kelly & White, 2011; Ryan & Deci, 2008).

Goal-setting theory is a crucial behavior-changing strategy and motivation enhancement (Locke & Latham, 1990). The impact of goals is not only beneficial to a person's performance, but also becomes a catalyst in helping interpret one's life, as goals being fundamental ingredients of one's experiences, affecting the welfare (Latham & Locke, 2007). The goal-setting process fundamental factors are: (a) how important the goal is for the person and (b) the confidence a person has to attain a goal. Other critical variants are the choice and the endorsement of the goals, the effort, the perseverance and, the strategy implemented towards achieving such goals (Latham & Locke, 2015).

Moreover, an ongoing feedback flow is a sine-qua-non condition for progress monitoring purposes and to evaluate performance by reference to the goal, hence allowing to the reconsideration of the strategy adopted for goal attainment, leading to better levels of performance (Locke, 1996). Last but not least, self-monitoring is seen as yet another efficient technique for behavioral change, most when it is associated with goal-setting and feedback (Michie et al., 2009).

Self-determination theory (SDT) is a critical theory likely to considerably contribute to the reinforcement of motives. A fundamental component under the SDT is the concept of innate psychological needs of autonomy, competence, and relatedness. SDT sustains that the goal achievement is conditioned by the degree to which people will ultimately be able to cater to fundamental emotional needs as that of autonomy and the need to feel they can cope (Ryan & Deci, 2000). Moreover, the attainment of common goals in a group of people is positively conditioned by the development of relationships amongst the persons as well as through the fostering of a sense of "belonging" to a group (Ryan & Deci, 2002). The SDT is directly linked to the goal-setting theory, as the development of a context which induces autonomy and enhances competence, is critical of importance when it comes to the processes of internalization and fulfillment of a goal (Koestner & Hope, 2014).

Another factor also to considerably affect persons as to the formulation and further attainment of goals is self-confidence, by that meaning, a positive expectation one nurtures, of the capacity to achieve the goals has eventually set (Bandura, 1986). Successful attainment of goals is likely to improve the level of self-confidence, all the more if such performance is the result of competence rather than the effect of fortuitous or other external circumstances (Bandura, 1994). On the other hand, persons lacking in self-confidence expected to develop doubts as to their capacity to achieve a goal. Such behav-

ior is indeed typical in persons suffering from SUDs, as their addiction results from a failure of strategies and skills to deal with immediate urges, the latter being the fundament of the addictive behavior (EMCDDA, 2013; Leary et al., 1995).

Systematic reviews and meta-analyses provide evidence that multi-component goal-setting interventions are generally effective in promoting physical activity behavior (McEwan et al., 2016), and that goal-setting is an effective technique that can be considered a fundamental component of successful behavior-change interventions (Epton, Currie & Armitage, 2017). Additionally, a meta-analysis of SDT interventions indicated a positive effect on motivation, behavior, physical, and psychological health (Ntoumanis et al., 2020).

Under such a perspective, all of the above mechanisms appear to be constituted efficient strategies for the enhancement of well-being and have being considered as a sine-quanon ingredient of any modern therapeutic approach, in a wide variety of recovery contexts (Epton et al., 2017; Ng et al., 2012; Scobbie, Dixon, & Wyke, 2011). In light of the above, fostering a favorable context within which the enhancement of motivation shall be promoted by way of these mechanisms, may just rise to become an efficient strategy of the SUDs treatment (SAMHSA, 1999; Webb, Sniehotta & Michie, 2010).

More and more studies in sport and physical exercise context support the efficiency of such strategies in the development of a psychological model for motivation enhancement. Furthermore, an application of such strategies within a sport context should also be expected to foment an important framework for the acquisition of skills that may also be transferred in other fields of life (Gucciardi & Gordon, 2011). As of lately, the application of these strategies within a sport and physical activity context has been tried towards dealing with reducing the consumption of alcohol (Manthou et al., 2016; Theodorakis et al., 2015) or quitting smoking (Angeli et al., 2018; Hatzigeorgiadis et al., 2016), with positive and encouraging outcomes. Still, the research is limited as to how such strategies – applied within a sport context – may contribute to SUDs treatment, associated with the misuse of illegal drugs. Sport-based interventions that have, to this day, implemented in SUDs treatment are mostly meant to delve into the aspects of physical health, rather than utilized as a psychological model to enhance motivation (Wang et al., 2014). Thus, what this particular study is attempting is to compensate for this gap in the literature by applying such behavior-chance strategies, in a sport context, for the support of individuals with SUDs towards their staying in therapy.

METHODS

The intervention was carried out within a residential Therapeutic Community (TC) program in KETHEA (Therapy Centre for Depended Individuals), Greece (www.kethea.gr). The TC based program is an intensive and comprehensive treatment model focusing on the person as a whole (De Leon, 2000; Vanderplasschen et al., 2014). Treatment, in a TC context, is considered a gradual and ongoing process of cognitive change through therapeutic interventions. TC participants, among other interventions, are encouraged to change their lifestyle, take responsibility for their behavior and, set goals for their well-being (NIDA, 2020).

Study Design

This study has been designed on a longitudinal intervention, case-study. Under this study, we designed an intervention (RACE), implemented in a SUDs treatment context, to promote physical activity, based on the theories of goal-setting and SDT. The RACE (Relatedness, Autonomy, Competence, Education) program aimed to prepare individuals under the SUDs treatment (participants) to take part in a no-professional 10km road race. The RACE program was a 5-week (meso-time) endurance training program, with 3 sessions of 75 min/week, with a variation of intensity and distance. The objectives were (a) to train individuals in SUDs treatment on goal-setting strategies within a sport' context; (b) to train such persons to transfer goal-setting skills into SUDs treatment, and (c) to boost participants' self-confidence. The techniques used in the RACE program were drawn from The Behavior Change Technique Taxonomy (v1) (Michie, et al., 2013). The RACE program was implemented by a sport trainer with experience in SUDs treatment.

The core design of RACE program was based on the three psychological needs under the SDT as well as on training on skill transfer. More specifically:

Relatedness: the techniques used to towards catering to the need for the development of important relationships with others were (a) supportive interaction and feedback within similar training teams, established based on the skills and competences (social support / unspecified); (b) training program supervised by the specialized trainer as well as the trainer's active participation in the training sessions (social support/practical) and (c) participants at the beginning and the end of each training session shared their emotional state with the other team members and the trainer. This mutual-help process encouraged participants to share their feelings and experiences (social support/emotional), as well as encourage and support each other during the feedback processes. An important parameter is that the trainer participated equally in this process acting as an example to the participants and influences their behavior (credit source, role model).

Autonomy: The main technique utilized towards catering to the need for autonomy was the provision of choice, concerning for to (a) the weekly target in kilometers (Km/Week) of each participant (b) the number of training sessions the participants would be participating in over the week; (c) the degree of intensity in the execution of each training and (d) which persons the participant would choose to execute training together.

Competence: The techniques utilized to cater to the need for competence was (a) the graded task, implying that each participant would be expected to gradually raise one's training goal (Km/Week), for each consecutive week (focus on past success); (b) recording participants' performance on a weekly basis, in terms of how many kilometers the participants actually run and what the strategies had taken towards achieving their goals (self-monitoring) and (c) based on feedback on the experience of pursuit of a previous goal as well as on the performance over every separate week, the participant would set new goals for the following week (review behavior goals).

Education

One of the fundamental objectives under this program was to educate the participants in the process of goal setting as well as on how to transfer such skill into the therapeutic

process. The technique utilized for such purpose has been that of educating the participants on the skill of setting small-scale, attainable yet also challenging, short-term, weekly kilometer-wise goals, the idea being to evaluate the level of achievement of such goals through self-monitoring and feedback from both the trainer and the peers. Participants were simultaneously encouraged to link and eventually incorporate the skill of goal setting in the process of treatment for SUDs they happened to be attending, both at the micro-time level (i.e. during the training sessions) and meso-time levels (5 weeks of participation in the program) and further on, after the completion of the program and then one month later.

Recruitment and Screening Process

Participants in the RACE program were clients of a residential TC program. There had been three selection criteria which applied: (a) SUDs treatment participation; (b) severe SUDs, according to TCU DRUG SCREEN 5, and (c) ability to participate in physical exercise, according to the PAR-Q. Fourteen persons ended up participating in the RACE program. The participants were all informed of the design of the research, the confidential and voluntary character, and they sign an informed consent.

DATA COLLECTION

Data collection took place at seven different Time Points (TPs). The first set of data (TPbaseline) having been the participants' screening assessment and the 3K baseline race. The second set of data was collected at five TPs, the TP_1, referred to the beginning of Week 1, with all participants being called upon to fill out the "Weekly Monitoring Goal-Setting Form". Such was also the process that followed the consecutive four TPs (TP_2, TP_3, TP_4, TP_5). The third set of data, consisting of the "One-month Follow-Up Assessment Form", was collected one month after the 10K race (TPfollow-up).

ASSESSMENTS

Weekly Goal-Setting Monitoring Form

A self-reporting form was developed for the needs of the study, aiming at having the participants report on the weekly goals as well as on their degree of self-confidence to achieve them. Participants had to fill out the form at the beginning of the week by answering specific questions – both of the open-ended and the closed type. More specifically, by way of such form the participants reported on:

(a) *Training Goal Distance.* Participants defined the overall goal in kms they had set to attain by the end of each week (Goal), choosing one out of the 10 predefined options, ranging from 7km to 16km per week. On his part, the trainer maintained a record of the kms/week actually covered by the participants (Performance).

(b) *Self-Confidence in achieving training goals*. Under this rubric, participants were expected to gauge to what extent they were confident they would achieve their distance goal. Answers were given on a Likert scale from 1 (for *not at all sure*) to 10 (*totally sure*).

(c) *Motivational strategies for achieving the goal*. Using free text, participants answered an open-ended question asking them what strategies they would follow to achieve their previously stated training goal. They were instructed to list up to 3 strategies.

(d) *Self-confidence in the implementation of strategies*. The participants were asked to report on how confident they were, that they would actually apply the strategies described under the previous module. Answers were given on a Likert scale from 1 (for *not at all sure*) to 10 (*totally sure*).

(e) *Weekly SUDs treatment Goals.* Participants used free text to answer an open-ended question asking them which their treatment goals would be for the week ahead.

(f) *Goals for life.* Finally, after the first week, they were asked to provide comments as an answer to the question "*how the procedure of exercise training as a preparation to achieve the 10km race participation helped you to achieve your SUDs therapy goals?*". Participants were to answer this particular question after they had finalized the training sessions of the previous week. Such a question had been included in the Weekly Goal-Setting Monitoring Form and as such was meant to retrospectively assess the experience carried away during the training sessions for a given week (micro-time) by reference to the participants' treatment goals.

One-month Follow-up Assessment

A self-reporting tool was developed, to assess the way the goal-setting process was being linked to therapy after completion of the RACE program. Such assessment eventually included:

a. Four items assessing the factor: Frequency of goal setting use during and after the end of the participation of the RACE program. More specifically, participants were asked: (i) how often they used goal setting during the RACE program for their training goals (for duration and intensity), (ii) how often they made the connection between training goals and SUDs treatment goals, during the RACE program, (iii) how often they have set goals for self- improvement in general (e.g. improve their dietary habits, or decrease number of cigarette smoking) during the RACE program, and (iv) how often they had used goal setting to help them to do their best they can. Answers were given on a Likert scale from 1: Never to 10: Always. All the above items were computed to calculate the Factor: Frequency of goal setting use.

b. Four items assessing the factor: Perceived Helpfulness of (i) how much the RACE program helped them to achieve their exercise training duration and intensity goals, (ii) how much the RACE program helped to set their SUDs treatment goals, (iii) how much the RACE program helped to connect the training related setting goals to the SUDs treatment goals, (iv) how much the RACE program helped to set goals to achieve personally meaningful goals (after the RACE program) (v) how much the RACE program helped to train their self's for the completion of the SUDs treatment. Answers were given on a Likert scale from 1: Not at all to 10: Very much. All the above items were computed to calculate the Factor: Perceived Helpfulness.

c. One open-ended question to answer by free text, asking them to give examples and describe in what ways their participation in the RACE goal setting exercise program was useful to their SUDs treatment process until now.

PROCEDURE

The choice of a non-professional 10K race was based on the fact that such races do not promote competition. The individual runs its race, without necessarily feeling anxious and under pressure to achieve a certain time or place. Thus, the individual, during the preparation, puts its own performance goals, does its best, and focuses on the progress, without comparing itself to others (Cyprya ska & Nezlek, 2019).

Before the RACE program was implemented, the trainer informed in detail all the participants about the purpose of the intervention. Subsequently, all participants filled the TCU DRUG SCREEN 5 and PAR-Q assessment tools and then were asked to sign a consent form. The specific population is typified by high rates of withdrawal and non-compliance with the treatment process (ASAM, 2015). For this reason, the trainer, wanting to achieve as much commitment and compliance as possible by the participants, used an oral Behavioral Contract. The Behavioral Contract between the participants and the trainer determines the expectations, design, obligations, and the consequences of non-compliance with the program. The use of a Behavioral Contract is widely used and has significant implications for clients' involvement in SUDs treatment (Houmanfar et al., 2008; Martin & Pear, 1999). Nevertheless, during the RACE program, the Behavioral Contract had to be redefined by dealing with deviant behaviors.

Because participants did not have any previous running experience, 2 days before the first training session, they run a 3K baseline race at a moderate-intensity pace (TPbaseline). The aim was for the participants to formulate a realistic assessment of the components (pace, stamina requirements) of a running race. This experience served as a guide to personalize their future training sessions and help the participants and the trainer to determine the parameters of each training session. At the beginning of each week of the RACE program, all the participants filled the Weekly Monitoring Goal-Setting Form and submitted it to the trainer. For the first week, participants set their week distance goal based on the 3K baseline race. For each week thereafter and after evaluating their performance over the previous week, having received the appropriate feedback from the trainer, they determined their training goals for the next week.

There were two, 15 min, group meetings in each training session, one at the beginning and one at the end. During the initial meeting, the trainer informed the participants about the exercises and the parameters (intensity, distance, etc.) that the training session included. Furthermore, he discussed with the participants about positive thinking strategies they could use during the training, aiming to empower them to complete the training session. Moreover, in this meeting, the participants had the opportunity to share with the group and the trainer, the psychological state they are in, influenced by their therapeutic process (anger, frustration, joy, etc.) as well as the goals they set for the training session. Then, the participants performed the training session, adjusting the parameters according to their personal goals and competencies. This, during the RACE program, resulted in the distribution of participants in smaller stable groups. The trainer performed with the participants in all the training sessions, equally, and sharing his emotions and difficulties he encountered. At the end of every training session, each participant discussed with the other group members and the trainer, the emotions felt during the training, the difficulties encountered, and what strategies resorted to overcome them.

Prior to the 10 k running race, participants set a goal referent to the pace at which they meant to run the race, eventually selecting those people that were willing to make a go for it. Their choice was influenced by their previous experience preparing with other participants as well as their perceived capacity to run the race. During the 10K running race, there were such predominant features observed as a discipline to the agreed pace, concentration on the competition, and the support expressed by other members of the group.

The *One-Month Follow-Up Assessment* was carried out within the TC. During this meeting, all participants were originally encouraged to share their overall experience and emotions triggered by the intervention (namely both as of the preparation and during the race itself). It's also important to underscore the presence of the participants' therapists in the meeting. The aim of having therapists present at the meeting was on one hand for them to had an update on the impact such sport experience has actually had upon the participants' treatment process, whereas on the other to underscore the efficiency of sport as an alternative context of treatment and support. Then, without the presence of the trainer and the therapists, all participants completed the assessment anonymously.

RESULTS

The participants in the RACE program were 14 (n=14), 12 men and 2 women, with an average age of 33.3 years (min 23-max 41). In Europe, women make up about a quarter of all people with severe SUDs, and about 20% of them participate in specialist SUDs treatment (EMCDDA, 2017). The participants' average previous experience with substance use was 15.5 years. The main substance use was heroin (64.3%) followed by cannabis (21.4%). The average time of stay in SUDs treatment at the TPbaseline was 73 days. Regarding the severity index of SUDs, the results showed that it is particularly severe (M=8.7).

It is worth observing that 42.9% had been participating in a SUDs treatment program for the first time, whereas 28.6% of them affirmed having tried it once in the past, which suggests that the majority of the participants had not in the past been exposed to behaviour-changing strategies. What is more, 78% of the respondents have been shown to consider that their substance-use-induced disorders are a grave problem whilst all of the participants mentioned how important it was for them to participate in a SUDs treatment program.

Weekly Monitoring Results

All of the participants were able to complete the RACE program. An itemized reflection of participation and performance outcome has been outlined in Table (1). Over a term of five (5) weeks, participants attended an average of 2.5 training sessions per week as well as completing an average of 191.2 min of exercise per week, having run an average of 15.29km per week. Their average performance at the 10km race was $M=67.8$ min ($SD=9.6$).

Data in Graph 1 shows that in increasing the number of kilometers they had meant to run week after week (Goal) as well as the distance they actually covered (Performance), the participants boosted their feeling of self-confidence (Graph 2) to achieve more challenging

TABLE 1: EXERCISE PERFORMANCE RESULTS AND DEGREE OF ADHERENCE

Frequency of Training Sessions/Week	*N*	*Mean*	*Std. Deviation*
Week1	12	2.42	.515
Week2	14	2.79	.426
Week3	14	2.71	.469
Week4	14	2.79	.426
Week5*	14	1.93	.267
Total		2.52	.420
Goal (km/week)	*N*	*Mean*	*S.D.*
Week1	12	8.75	1.76
Week2	14	9.57	1.98
Week3	14	12.00	2.63
Week4	13	13.92	2.39
Week5*	12	14.75	1.96
Performance (km/week)	*N*	*Mean*	*S.D.*
Week1	12	11.67	2.70
Week2	14	14.50	2.59
Week3	14	16.36	2.95
Week4	14	18.50	3.00
Week5*	14	15.43	2.13
Total		15.29	2.67
Total Training (min/week)	*N*	*Mean*	*S.D.*
Week1	12	187.5	39.16
Week2	14	208.9	31.93
Week3	14	203.5	35.16
Week4	14	208.9	31.93
Week5*	14	144.6	20.04
Total		190.7	31.64
Race Time	14	67.8	9.65

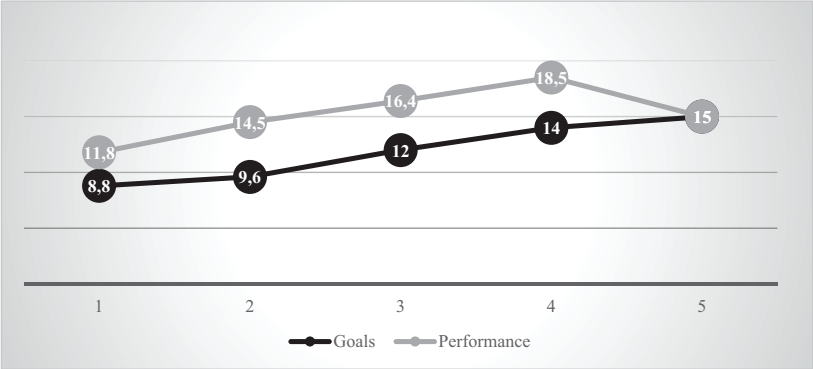
(*) There were 2, instead of 3 training sessions hosted in Week 5, the 3rd session eventually coinciding with the participation in the race.

goals. The mean value shift between TP_1 and TP_5 is slight, its Effect Size being of d=.18.

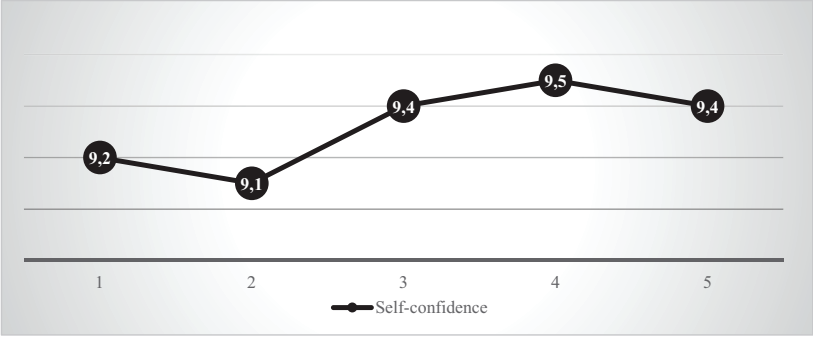
Amongst the Motivational strategies the participants mentioned: "*To be committed to the training sessions", "To be disciplined", "to concentrate on my breathing", "to remain committed to my goal", "to lose weight", "to reduce cigarette smoking", "to follow the team", "to be self-confident"*.

In Graph 3, the rate of self-confidence amongst participants relevant to their behavior is shown to have gradually improved. The mean value shift between TP_1 and TP_5 is considerable, its Effect Size being *d*=3.33.

GRAPH 1. TRAINING PERFORMANCE/GOAL



GRAPH 2. SELF-CONFIDENCE OF ACHIEVING TRAINING GOALS



GRAPH 3. SELF-CONFIDENCE IN THE IMPLEMENTATION OF STRATEGIES

Goals for life

When it comes to the evaluation of the link between participating in the SUDs treatment program and the RACE program, a thematic analysis has been used to identify common experiences that come up repeatedly. It is worth noting that, at the micro-time level, the participants had causally linked their experience from the RACE program to their treatment and their life, eventually establishing a parallel between the two experiences. More specifically, in answering the corresponding open-ended question, respondents are quoted observing that "[...] *those two goals are totally interlinked [...] running that 10km and my attempt at therapy...", "[...] my endeavor to attain one goal also enhances the other...", "[...] preparation for the race is bound to keep the body and the mind clean, so that I remain drug-free, as well...", "[...] this is one of those things that have been keeping me in the Therapeutic Community...".* Yet another positive result consists in the fact that participation in the RACE program helped further embed amongst the participants, their self-perception, as they are quoted observing: "[...] *I feel better in my skin...", "[...] I feel healthy...", "[...] this has been keeping me activated...", "...I feel more self-confidence and find it easier to concentrate...*", "[...] *it feels nice when I run [...] I have been doing something for myself...*". One should also insist on the fact that such experience seems to have positively impacted upon them, in terms of enhancement of the degree of motivation amongst the participants, as the latter is quoted observing: "[...] *it has been giving me strength...", "[...] I need to reach the finish line in both cases...", "[...] if I make it through the 10km run race, I will get a boost of strength and self-confidence..", "[...] it's part of the new identity I have been busy building...", "[...] it helps me in formulating my thoughts...helps me remain focused on my goal...", "[...] makes me persevere even more in pursuing my goal...", "...step after step, I am on my way to achieving the 10km goal".*

FOLLOW-UP RESULTS

Finally, one month after completion of the program, participants were asked to fill out the: *One-Month Follow-Up Assessment* (Table 2).

Judging from the results at the meso-time level, the intervention has worked out positively, as it helped participants develop goal-setting skills (M=8.55, SD=.69). When asked about the transfer of the goal-setting process, participants declared to have utilized their sport experience in their SUDs treatment (M=8.69, SD=.85) in terms of setting their therapeutic goals. Correlation statistics (Table 3) showed that the goal-setting process, during the program, was positively related to the participants' enhancement (r =.863, p <.01) on setting their treatment goals.

The participants seem to think quite highly of the degree of their participation in the RACE program actually helped them to their treatment. Judging from the thematic analysis of the answers given by participants to the relevant open-ended question, it appears they have actually experienced a boost to their sense of self-efficiency, as one reads in telling statements such as: "[...] it improved my disposition and self-confidence.... [...] I have been able to come to grips with how I function [...]", "[...] it's helped me to stay aboard, not quit and to feel stronger...", "[...] it has helped me to acknowledge my weaknesses and to work on them", "[...] it has taught me to operate consistently,

TABLE 2: ONE-MONTH FOLLOW-UP ASSESSMENT

How often goal setting was used during the RACE program	*N*	*Mean*	*S.D.*
Achieve the training goals (duration & intensity)	13	8.46	1.12
Connection between exercise and SUDs treatment goals	13	9.00	1.08
Self- improvement in general	13	8.46	.77
Do the best you can	13	8.31	.94
Frequency of goal setting use rate (Compute)	13	8.55	.69
Perceived helpfulness of goal setting uses during the RACE program	*N*	*Mean*	*S.D.*
Achieve exercise training goals	13	9.00	1.08
Setting SUD treatment goals	13	8.54	1.19
Connecting the training goals to the SUDs treatment goals	13	8.77	1.16
Setting goals to achieve personally meaningful goals	13	8.69	1.18
Educating yourself for the SUDs treatment completion	13	8.46	1.26
Perceived Helpfulness rate (Compute)	13	8.69	.85

TABLE 3. CORRELATION AND CRONBACH'S A

Variable	*Mean*	*1*	*Cronbach α*
1 Frequency of goal setting use	8.55		.651
2 Perceived Helpfulness	8.69	863**	.778

steadily and methodically towards bettering my performance... [...] as well as helping me in therapy...". "[...] it's made me enjoy my improvement". Moreover, it appears that RACE program has helped the participants assimilate the fundamental component they are to build upon in setting and further attaining goals, all the more since they are quoted saying: "[...] this has helped me set goals and commit myself towards attaining them...", "[...] I've learned how to set little goals and remain focused on them...", "[...] I came to understand that were I one to set and achieve challenging goals, one is bound to feel great!...", "[...] by staying focused, I am capable of achieving things originally appearing difficult to attain...", "[...] demand, transcendence and attainment of the goal...". It also pays to mention that the participants declared to have had a positive experience which may in turn inspire them in terms of boosting their motivation in treatment, in the future. Participants reported that "[...] I realized I love running....an alternative way of life is possible...", "[...] it's made me part of a team in pursuit of a common goal...", "[...] it has helped me refrain from quitting...", "[...] each time I run, I set as a goal to complete preparation and that goal I linked to my therapy; this gave me the strength to go on...". "[...] it made me feel good...".

DISCUSSION

In this study, we implemented an interventional exercise program grounded in goal theory and self-determination theory, the purpose of having been to train persons in SUDs treat-

ment to set and attain goals as well as to further transfer such skill into the therapeutic process.

A first review of the results of this research corroborates the perception that participation in sport programs may actually help set a safe context, wherein people with SUDs may become trained in behavior-changing strategies which are, in turn, transfer by them in treatment. Such view is further supported by the fact that all participants completed the RACE program at quite high rates of assiduity, all the way to the end, thus further also highlighting the value of the implementation of targeted sport programs towards enhancing retention rates in therapy.

Another important parameter that seems to have positively affected the above process, is the involvement of the participant itself in the goal-setting process. The results of the research in this particular aspect suggest that to the extent that the participants themselves determined their km goals, they reinforced their commitment towards achieving them. On top of that – so the result suggests – goal setting seems to also have been impacted by the actual performance of the participants, eventually helping participants to increase the level of difficulty as well as setting new, challenging goals. Gratification through performance in any person is conditioned by the difference between aspired-to levels of performance and levels of performance actually attained (Hamner & Harnett, 1974).

Throughout the RACE program, the successful attainment, by participants, of their weekly individual goals had been in itself an equally critical parameter as it gradually booted their self-confidence and sense of competence, engendering a sense of fulfillment whilst also stimulating their motivation towards setting higher and more challenging goals (Locke & Latham, 2002). Creating a context favorable to the fostering of a sense of competence is understood to have a beneficial impact on the attainment of goals set (Locke & Latham, 2002). Under the RACE program, the more confident participants became as they attained weekly goals one after the other, the more challenging the goals they set were bound to be and the better was their performance. It also appears that with self-confidence rates amongst the participants rising, as to their capacity to succeed during the RACE program, their faith also increased as to the likelihood to achieve their treatment goals, hence further also in life, as a whole.

Further to the parameters to have positively impacted the completion of the program, mention is also to be made of the role of the team and that of the trainer. Teams were built upon the initiative of the participants themselves to split into sub-groups based on their capacities to complete the daily training session and later the race, as a whole. Such a choice of theirs eventually fostered a supportive ambiance of equality and common goals that boosted motivation amongst the participants, inciting them to successfully complete the RACE program. Efficiency in the achievement of objectives is further enhanced through teamwork (Locke & Latham 2006). Another feature that decisively contributed to the success of this program was the fact that the trainer was also a member of the team and as such shared in the preparation effort on an equal basis. Such interaction with the participants during materialization of the training sessions seems to have worked as a catalyst in the development of a climate of trust, as it allowed both the trainer and the participants to develop interpersonal relationships. Individuals are more likely to be affected by and ultimately adopt behaviors manifested by other, trusted ones (Ryan, Patrick, Deci, & Williams, 2008).

There is another, very critical aspect to be included with the above: throughout the RACE program experience, the participants were also trained on how to formulate goals that are specific, realistic, and attainable, through a weekly process of goal-setting, recording, and self-monitoring of the process towards achievement of the goals. Feedback the participants received from the trainer seems to have had a beneficial role in the process and more specifically in helping people link goals to actual performance. According to Locke and Latham (2002), for goals to be efficient, the individual needs to have access to summary comments referent to their progress referent to their goals. Also critical is the fact that this particular intervention appears to have been just as efficient in terms of training on and the transfer of necessary skills in the therapeutic process, boosting the will of participants to pursue their course to treatment. It nevertheless also pays to observe that for such transfer to be possible, certain processes are in order (e.g. linkage to everyday life, engendering trust, e.g.) to buttress once self-determination and incite the person towards applying such skills in domains, besides sport.

Findings stemming out of our study lead to the overall conclusions that if appropriately targeted, motivation-enhancing interventions implemented within a sport context may also be implemented in the SUDs treatment, with positive results. However, RACE program's successful implementation was based on the application of behavior change techniques. Application of the goal-setting technique, assisted by ongoing feedback from the trainer, in combination with self-monitoring amongst the participants themselves, led to a boosting of self-confidence towards the setting of graded challenging tasks. The process of setting new goals was being buttressed by the successful attainment of previous weekly goals, thereby enhancing the feeling of accomplishment amongst the participants (focus on past success). Putting to value social support –both on the part of peers, at the team level and on the part of the trainer himself– averred itself to be of determinant importance throughout the program since it was through such process that the change of behavior was actually promoted. Yet another critical aspect has been the very trainer's active participation, as he ended up being identified as a role model. Trainers involved in the development and implementation of similar sport programs in this particular type of population, however, should have previously acquired knowledge and experience in such strategies and behavior change techniques to be capable of ensuring the appropriate conditions for the efficiency thereof to be boosted. Last but not least, implementation of the "Behavioral Contract" technique was found to have been quite beneficial and as such strongly recommended for utilization in this particular population, as it became apparent that through such process, whatever negative behaviors, along with the aspects of commitment to and retention in the program, have been dealt with quite constructively. Application of such behavior change techniques in sport-based interventions, as part of SUDs treatment, is likely to further enhance adherence to and retention in the latter. A combination of such parameters ought indeed to be put to value and indeed be seriously considered when planning respective interventions.

Nevertheless, the RACE program was not a controlled study. Comparing the experimental group to a control group under this process was not part of our set of objectives, at the moment. Rather, we focused on an investigation into whether a program of this kind, focusing as it is on the development and transfer of skills within a sport context, would

be likely to yield positive results, such as to encourage further evaluation and prospects for the future.

Thus, however encouraging, such findings are still conditioned by several limitations. Amongst the circumstances justifying the methodological limitation that the absence of a control group implied, is the fact that the particular therapeutic context of TC could not support the functioning of such type of group. Yet another critical limitation has been the fact that, throughout the sport program, all participants were also attending SUDs treatment; such participation amongst others implies participation in motivation enhancement and behavior-changing interventions. Further into the list of limitation, one should reckon the fact of this particular study contemplating behavioral changes at micro-time and meso-time levels, whereas without considering the macro-time perspective (Lee & Martinek, 2013), which makes it impossible for us to establish whether the positive outcomes of the intervention actually remain throughout treatment and ever after.

CONCLUSION

In summing up the above considerations, one tends to assert that sport may and indeed could become a safe context within which targeted interventions may be implemented, aimed at training people under treatment for SUDs on behavior-changing strategies as well as at bolstering self-confidence to bring changes in such persons' lives. In that sense, RACE program may rise to become an example or a model framework for the implementation of sport-based interventions aimed at bringing behavior-change, whilst enhancing motivation amongst persons with SUDs to remain in treatment.

ABBREVIATION

SUD - Substance Use Disorder

SDT - Self-Determination Theory

RACE - Relatedness, Autonomy, Competence, Education

TC - Therapeutic Community

KETHEA - Therapy Centre for Depended Individuals

PARQ - Physical Activity Readiness Questionnaire

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