

Chapter 8 Effects of a training program for fitness instructors based on STD and BPN on the attitude of users of a private university gym

Capítulo 8 Efectos de un programa de entrenamiento para instructores de fitness basado en la STD y la BPN en la actitud de los usuarios de un gimnasio privado

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Abstract

Self-determination theory SDT (Ryan & Deci, 2000) and the satisfaction of Basic Psychological Needs BPN are valuable approaches to promote improvements in the pedagogical forms used by fitness instructors. Both approaches positively influence practitioners' satisfaction and behaviors related to physical activity. Objective: assess the effects of a fitness instructor training program based on STD and BPN on attitudes of the users of a private university gym. Sample: 441 gym users. Method: Pre and post measurements of attitudes toward fitness instructors of group classes and strength area were performed. A training program based on SDT and BPN was implemented between both measurements and a comparative analysis of attitude was performed through the Student's t-test for related samples. Results and conclusions: The comparative analysis of attitudes showed a significance index of .565 and .000 for group classes and strength samples, respectively. The implementation of a training program for strength instructors based on SDT and BPN promotes changes in their interaction style that leads to a better attitude of the users of their services.

Self-determination, Attitudes, Physical activity, Fitness, Comparative-analysis

Resumen

La teoría de la autodeterminación TAD (Ryan & Deci, 2000) y la satisfacción de las Necesidades Psicológicas Básicas NPB son enfoques valiosos para promover mejoras en las formas pedagógicas utilizadas por los instructores de fitness. Ambos enfoques influyen positivamente en la satisfacción y conductas de los practicantes, relacionados con la actividad física. Objetivo: evaluar los efectos de un programa de formación de instructores de fitness basado en la TAD y NPB, sobre las actitudes de los usuarios del gimnasio de una universidad privada. Muestra: 441 usuarios del gimnasio. Método: Se realizaron mediciones pre y post de las actitudes hacia los instructores de fitness de las clases grupales y del área de fuerza. Entre ambas mediciones se implementó un programa de capacitación basado en la TAD y NPB y se realizó un análisis comparativo de actitudes mediante la prueba t de Student para muestras relacionadas. Resultados y conclusiones: El análisis comparativo de actitudes mostró un índice de significancia de .565 y .000 para las muestras de clases grupales y fuerza, respectivamente. La implementación de un programa de entrenamiento para instructores de fuerza basado en la TAD y NPB promueve cambios en su estilo de interacción que conducen a una mejor actitud de los usuarios de sus servicios.

Autodeterminación, Actitudes, Actividad física, Fitness, Análisis comparativo

8.1 Introduction

The regular practice of physical activity provides important health benefits for people of every age group. According to various health organizations such as the World Health Organization (WHO, 2022) and the American College of Sports Medicine (ACSM, 2014), physical activity performed on a regular basis and with the recommended doses, brings cardiovascular, musculoskeletal, psychological and functional health benefits and improves the general well-being of practitioners. Health institutions like as ACSM, American Heart Association (AHA) and WHO have made specific recommendations to people of different age groups to specify the right doses of physical activity to obtain health benefits. The WHO's current weekly recommendation for adults between 18 and 64 years of age, consists of a minimum of 150-300 minutes of moderate- intensity aerobic physical activity; or a minimum of 75-150 minutes of vigorous-intensity aerobic physical activity, or an equivalent combination of both; plus, at least two days of muscle strengthening activities of moderate or higher intensity focused on all major muscle groups (WHO, 2022).

Despite the great benefits of physical activity mentioned above, currently one in four adults and four out of five adolescents worldwide do not undertake enough physical activity to obtain health benefits, generating serious implications in terms of population health, human lives, and the economy of countries. In Mexico, according to the INEGI (National Institute of Statistics, Geography and Informatics) data contemplated in its Module of Sports Practice and Physical Exercise (MOPRADEF) module in 2020, only 38.9% of adults over 18 years perform some type of physical activity in their spare time (INEGI, 2021).

When we talk about lifestyles, we refer to "the set of decisions that people make about their health and over which they have relative control. Good decisions and personal habits favor health" (Giraldo et al., 2010); On the other hand, García-Laguna et al. (2012) refer that " among the most influential factors in the health of young college students are the consumption of tobacco and alcohol, nutrition and physical activity", thus confirming the importance of prioritizing research, design and implementation of strategies aimed at promoting it with the objective of improving health, specifically in this age group.

8.1.1 Factors determining physical activity

The practice of physical activity can be influenced positively or negatively by various factors and are considered as a starting point for the design and implementation of strategies for health promotion. These factors can be grouped into three main categories: 1) Personal factor refer to aspects inherent to the person him/herself: age, genetics, sex, race, level of education, incomes, and psychological aspects. 2) Environmental aspects are related to the physical space where one lives in terms of geography, urbanization, accessibility for physical activity practice and climate, among others. 3) Social factors involve the relationships we have with our social groups and whose level of influence is likely to change at different stages of life. Several studies support the importance of social factors as a determinant of physical activity, pointing specifically to social support, which is understood as "the perceptions of pressure (real or imaginary) exerted for another to change a behavior, attitude, or belief" (Gammage and Lamarche, 2014).

In published reports, didactic and communication tools of exercise leaders are considered as one of the most influential sources of social support, particularly in terms of the initiation and permanence of people in physical activity and exercise (Burke et al. 2006; Gammage and Lamarche, 2014; Joseph-Polyte et al., 2015, Salgado et al., 2021). These authors coincide in referring to the fitness instructor as a powerful and influential variable in the positive or negative experiences of the participants while exercising, and its consequent engagement and permanence in physical activity, for the most part in the initial stages.

8.1.2 The fitness instructor as a social determinant for physical activity

In the recent years, the fitness instructor has become a key figure in terms of motivation to physical activity due to the influence their role has shown on the participation of the people they serve. According to several reports, these leaders possess characteristics that are relevant in terms of the permanence in training programs of their customers. These characteristics include enthusiasm, ability to provide feedback, motivate, and understand capabilities of each person they attend. Moreover, previous research also refers that the fitness instructor communication style, might have an impact not only on the adherence to the activity itself but also on motivation and physical performance (Gammage and Lamarche, 2014; Joseph-Polyte et al., 2015; Madson et al., 2010).

On the other hand, recent reports also point out that fitness instructors' didactics and communication skills may have influence the participants' feelings of wellbeing, enjoyment, and motivations towards physical activity. Maher, et al. (2015) point out that when the instructors promoted the feeling of competence in their activities, participants reported higher levels of satisfaction. Similarly, Ryan & Deci (2018) talk about the growing evidence supporting the coach or instructor as a key element on facilitating the wellbeing development on individuals and groups.

8.1.3 Self-determination theory and basic psychological needs

Self-determination theory SDT (Ryan & Deci, 2000) has become a useful and valuable approach for instructors and leaders in charge of leading activities like exercise due to the importance it gives to a routine that is focused on high quality motivation and psychological well-being. Through the understanding and satisfaction of basic psychological needs, the participants' motivation and personal growth can be enhanced, increasing the possibility of permanence in the activity. Hence, Deci & Ryan point out that SDT and the satisfaction of psychological basic needs are essential components of basic training for leaders like fitness professionals.

The self-determination theory (Ryan & Deci, 2000) states that people's behaviors (physical activity in this case) are influenced by three basic psychological needs: autonomy, competence, and relatedness to others: "...basic psychological needs are defined as the essential nutrients of effective behavior and well-being... the satisfaction of these needs is critical for the self-regulation of everyday behavior, for positive experiences and life satisfaction" (Ryan & Deci, 2018, p. 3). In the same regard, Moreno-Murcia (2016) refers that the initial motives to participate in physical exercise programs are closely related to intrinsic motivation, particularly with enjoyment and competence "it seems particularly important to generate motivational climates aimed at satisfying the needs of autonomy, competence and relationship" (p. 154).

The term autonomy refers to an individual's perception that his or her actions are voluntary and reflexively chosen by him or her: "The concept of autonomy refers to the idea that a person's actions are voluntary or volitional; to be autonomous means to feel self-regulation and authentic action to own and take ownership of what one does" (Ryan & Deci, 2018, p. 4). Some strategies suggested for fitness instructors and coaches to promote autonomy (Ryan & Decy, 2018) are to explain why and what for of the things being done, to provide options that can be freely chosen and avoid control and conditionality in the interaction.

The need for competence relates to the feeling of confidence and capacity in the activities in which people engage. To be promoted, fitness instructors must have the ability to set realistic goals in the activities they lead to validate their capabilities and even improve them. Among the strategies recommended to promote competence are providing supportive information, including relevant, clear, and positive feedback and the creation and establishment of optimal challenges (Ryan & Deci, 2018).

The relational psychological need points to build quality bonds based on unconditional support, genuine interest, authenticity, and transparency. Being able to promote the satisfaction of this need, is an important ability in coaches and fitness instructors that improves the permanence of customers in the activity.

After all the previously exposed, the SDT and the satisfaction of BPN seem to be promising tools to promote improvements in the pedagogical forms used by the instructors. This theoretical acknowledgement could have a significant impact on feelings, beliefs, and actions of the users they serve; in other words, the adoption of strategies based on TAD and Basic Psychological Needs could positively influence the practitioners' attitudes towards the instructor and the physical activity itself.

The term attitude refers to "the degree of positive or negative psychological affect associated with a psychological object" (Edwards, 2009, p. 2). It has three components: cognitive (representations and perceptions), affective (feeling of liking or disliking), and behavioral (the way of reacting to the object). An attitude of liking towards the fitness instructor is related to positive behaviors for improving health and well-being, such as a higher level of physical activity (amount of time of physical activity accumulated per week; Salgado-Núñez et al., 2021).

After all that has been exposed, it is necessary to know the effects in terms of user's attitudes and of the training program for fitness instructors whose objective is to improve the quality of their interactions. Furthermore, it is necessary to better understand the impact of strategies specifically aimed to train fitness instructors in psychology and motivation theories like the Self-determination Theory. Therefore, the aim of the study presented in this chapter is to assess the effect of a fitness instructor training program based on STD and LBW on the attitude of users of a private gym at a community college. To cover the proposed purpose, this chapter is made up of the following sections; First, the problem to be solved and the usefulness of the information presented and the study carried out are presented, secondly, the process that was carried out to develop the study is presented, thirdly, the results of the information collected from according to the proposed purpose, fourthly, the contrast of the results found in the present study with the results of other studies and as the fifth and last section, the conclusions derived from the findings according to the proposed purpose are presented.

8.2 Materials and methods

This study took place at a private University's physical activity facility in Guadalajara, Jalisco México over a period of 8 weeks and during the autumn of 2019.

Participants: The sample was obtained incidentally; it consisted of a total of 441 fitness class users and strength training services: 263 users of the fitness classes area and 178 users of the strength training area. The training program about TAD and Basic Psychological needs was implemented to the 9 instructors in charge of leading the fitness classes and strengthening and training programs at the university gym.

Eligibility criteria: The participants in the study to whom the attitude questionnaires were applied, were selected in a non-probabilistic way under the following criteria: (1) They had to be users of the Physical Activity Dome and (2) they had just completed a fitness class (regardless the modality) or exercise in the strength area.

The instructors who received the training program were the team in charge of leading the fitness classes and strength training at the university's physical Activity Dome (gym). The training sessions were part of the training program designed by the Physical Activity Coordination during the fall of 2019. The instructors were informed and manifested their agreement about being part of this investigation.

For the purposes of this paper, the following terminology will be used:

Fitness Instructor: term used to refer indistinctly to both the instructors in charge of providing group training sessions called physical classes and the personal trainers in charge of attending to users in the strength and cardiovascular area.

Users: university students, graduates, employees, and members of the community who attend the Physical Activity Dome for physical and/or strength and cardiovascular classes indistinctly.

Attitude: positive or negative evaluation of users toward fitness instructors.

8.2.1 Materials

To evaluate the attitude of users, two validated questionnaires were applied: Attitude Toward Fitness Instructors Questionnaire (CA-ICF) and Attitude Toward Strength Instructors Questionnaire (CA-IF) instruments (Salgado-Núñez, Célis-Rivera & Cruz-Castruíta, 2020). The data obtained were entered into an Excel database and processed to obtain statistical data in the SPSS 26 software.

8.2.2 Design and procedures

This is a pre-experimental, comparative study, with pre and post measurements. The methodological part of this research included an Initial measurement of attitudes toward fitness instructors through the application of CA-ICF and CA-IF questionnaires on week 1 and a final measurement of attitudes on week 8, after the implementation of the instructors' training program. Thus, the study was conducted as it follows:

Initial measurement of attitudes toward fitness instructors through the application of CA-ICF and CA-IF questionnaires. According to the inclusion criteria described above, in the first stage of this study (October 2018) CA-ICF questionnaires were applied to 150 users of fitness classes area and CA-IF to 102 users of the strength training area. The results obtained from both instruments were captured in an Excel database and processed to obtain statistic data through SPSS 26 software.

A training program was designed focused on the unification of concepts around motivation basics, SDT and Psychological Basic Needs. The training was applied to the nine fitness instructors over a period of eight weeks. The topics included were:

- Motivation, SDT and Psychological Basic Needs.
- Identification of the current instructor style, at a personal and team level
- The autonomy concept applied to fitness
- Identification of behaviors that influence the user's competence.
- Constructing a model of service orientated to promote competence in users of the fitness services.

The training session was implemented in three modalities: individual, group and through digital resources such as WhatsApp and online forms; during a period of 8 weeks, a total of 20 training sessions were implemented: 2 group sessions (one at the beginning and one at the end of week 8th), and 2 individual sessions for each instructor. Additionally, a total of 4 infographics (1 every two weeks) with theoretical information about DT, BPN and motivation were sent via WhatsApp. During the last week and prior to the final group session, an online questionnaire was sent out with questions related to the topics covered in the training. Instructors training about SDT and Basic Psychological Needs. The information obtained was used to better understand the appropriation level of the concepts and determine the content of the final group session.

Final measurement of attitudes toward fitness instructors through the application of CA-ICF and CA-IF questionnaires. According to the inclusion criteria described above, CA-ICF questionnaires were applied to 120 users of fitness classes area and CA-IF to 115 users of the strength training area. The results were captured into an Excel database and processed and analyzed using SPSS 26 software.

For data analysis, a comparative test was run to determine the difference in terms of attitude, between the first and the last application of the CA-IFC and CA-IF tests. The results obtained from the application of both instruments were subjected to student's t-test for related samples through the SPSS 26 software.

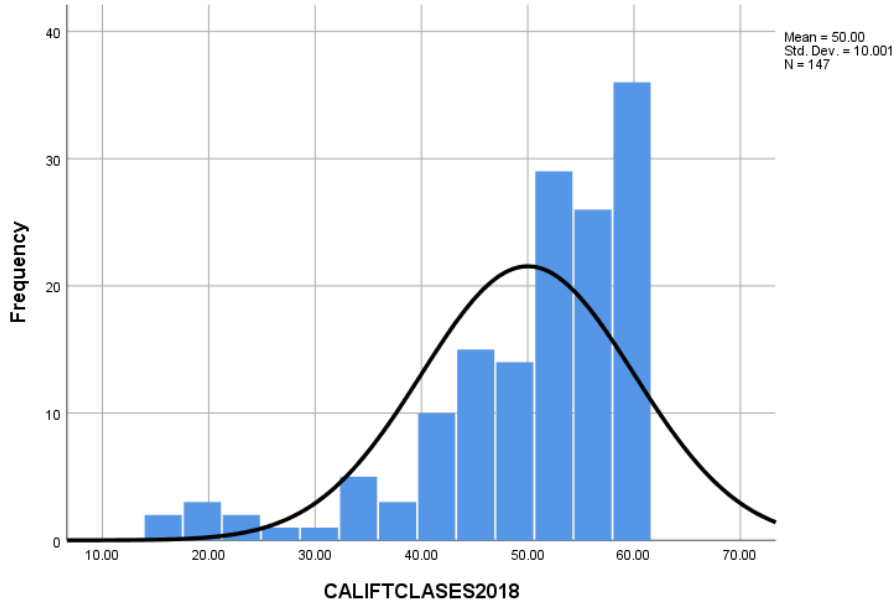
8.3 Results

8.3.1 Initial measurement of attitudes toward fitness instructors through the application of CA-ICF and CA-IF questionnaires

The total sample consisted of 252 people, of which 158 (61%) were female and 101 (39%) were male all of them users of the Physical Activity Dome at ITESO University. The age range of the participants was between 18 and 62 years old. Of the total sample, the CA-IFC questionnaire was applied to 150 users (107 women and 43 men) of the physical classes area. The CA-IF questionnaire was applied to 102 users (51 women and 51 men) of the strength and cardiovascular area.

As of the 150 CA-ICF questionnaire applications, 147 were valid. A mean score of 157.65 and standard deviation of 10.001 was obtained, with minimum values of 111 and maximum values of 170. The normalization of the results obtained is presented below in Figure 8.1 and the corresponding table of categories in Table 8.1. Of the 102 CA-IF questionnaire instruments applied, 63 were valid. A mean score of 108.28 and standard deviation of 10.001 were obtained with minimum values of 25 and maximum values of 132. The distribution curve of the normalized scores as well as the corresponding results categories are displayed below as figure 8.2 and table 8.2, respectively.

Figure 8.1 CA-ICF normalized results



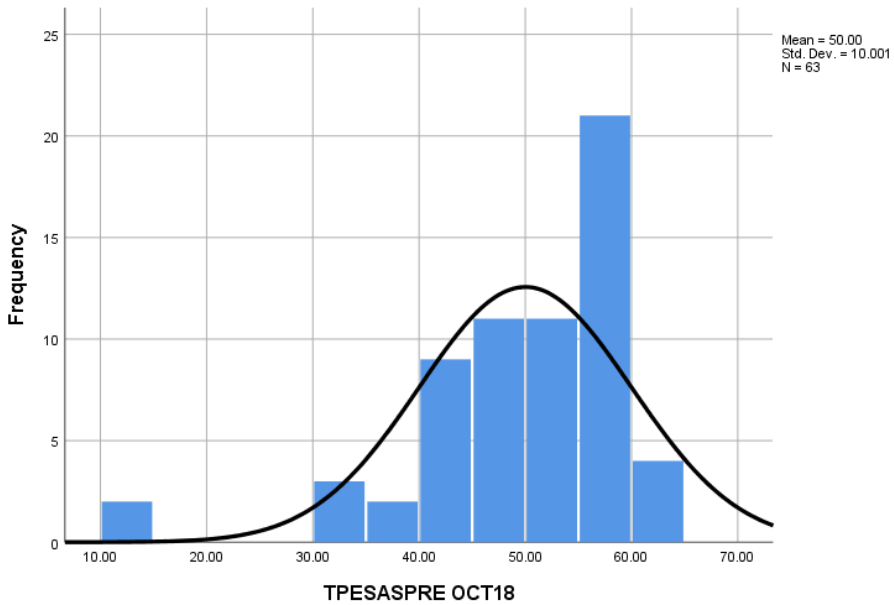
Note: CALIFTCLASES2018: Sum of the attitude results obtained in the sample of classes area users’
 N = number of participants in the sample

Table 8.1 CA-ICF Categories of attitudes toward fitness class instructors

CA-ICF Rating	Attitude Toward Instructor
T=40	“Unfavorable”
T= >40 and <50	“With areas of improvement”
T= 50	“Functional”
T=60	“Good”
T=>70	“Excellent”

Note: *T* = obtained result

Figure 8.2 CA-IF normalized results



Note: TPESASPREOCT18: Sum of the attitude results obtained in the sample of strength area users
 N = number of participants in the sample

Table 8.2 CA-IF Categories of attitudes toward strength area instructors

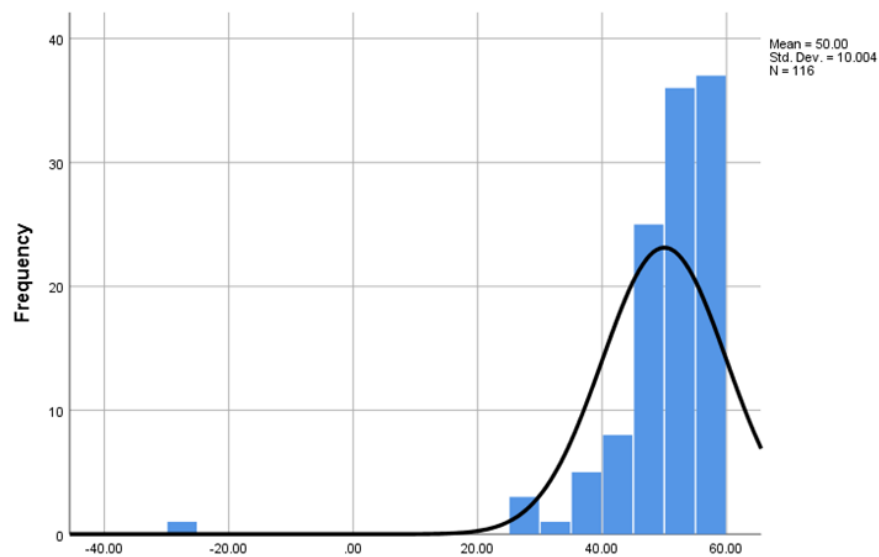
CA-IF Rating	Attitude Toward Instructor
T= 40	“Unfavorable”
T= >40 & <50	“With areas of improvement”
T= 50	“Functional”
T= 60	“Good”
T= >70	“Excellent”
Note: <i>T</i> = obtained result	

8.3.2 Instructors training about TAD and basic psychological needs

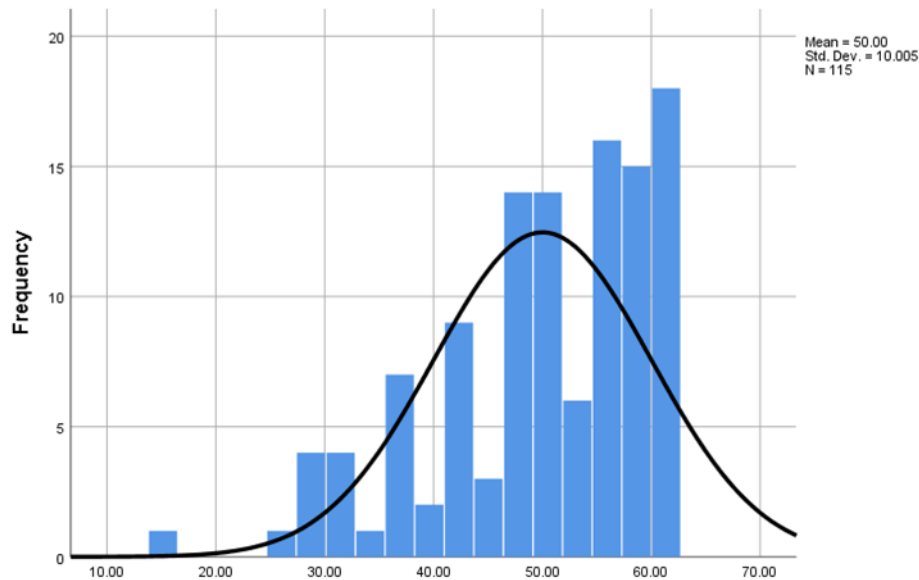
The training sessions were implemented during a period of 8 weeks and all the instructors completed all the training activities.

8.3.3 Final measurement of attitudes toward fitness instructors through the application of CA-ICF and CA-IF questionnaires

Regarding to the last measurement through the CA-ICF, 116 out of 120 questionnaires applied, resulted valid. A mean of 157.01 and standard deviation of 10.004 was obtained, with minimum values of 23 and maximum of 170. On the other hand, from the application of CA-IF questionnaires, 115 resulted valid out of 116. A mean value of 149.10 and a 10.005 standard deviation were obtained, with a minimum of 85 and a maximum of 170. The normalized results are displayed below (Figure 8.3-8.4).

Figure 8.3 CA-ICF Final measurement normalized results

Note: POSTCLASES2019: Sum of the attitude results obtained in the sample of classes area users in 2019
N = number of participants in the sample

Figure 8.4 CA-IF Final measurement normalized results

Note: POSTPESAS2019: Sum of the attitude results obtained in the sample of strength area users in 2019
N = number of participants in the sample

8.3.4 Comparative analysis of the results obtained through the initial and final measurements of attitudes toward fitness instructors

Regarding the comparative analysis of the results obtained through the application of the t student test, a correlation level of .230 and a significance index of .565 was found. The results of this analysis are presented in Table 8.3 and 8.4.

Table 8.3 CA-ICF Correlation analysis for paired samples results

Paired samples statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	OCT18PRE	155.9655	116	14.41131	1.33806
	OCT19POST	157.0172	116	17.05693	1.58370
Paired samples correlations					
		N	Correlation	Sig	
Pair 1	OCT18PRE & OCT19POST	116	.230	.013	

Table 8.4 CA-ICF t-student analysis results

Paired Samples Test									
Paired Differences									
					95% confidence interval of the difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2.tailed)
Pair 1	OCT18PRE & OCT19POST	-1.05172	19.63575	1.82313	-4.66300	2.55955	-.577	115	.565

Regarding to the CA-IF, a correlation level of .199 and a significance index of .000 were obtained from the comparative analysis. The results are displayed below as Tables 8.5 and 8.6.

Table 8.5 CA-ICF Correlation analysis for paired samples results

Paired samples statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	OCT18PESASPRE	108.2857	63	21.76223	2.74178
	OCT19PESASPOST	151.1270	63	17.88268	2.25301
Paired samples correlations					
		N	Correlation	Sig	
Pair 1	OCT18PESASPRE & OCT19PESASPOST	63	.199	.118	

Table 8.6 CA-IF Results of t-student analysis

Paired Samples Test									
Paired Differences									
					95% confidence interval of the difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2.tailed)
Pair 1	OCT18PESASPRE & OCT19PESASPOST	-42.84127	25.27028	3.18376	-49.20551	-36.47703	-13.47703	62	.000

8.4 Discussion

The main objective of this work is to determine whether the implementation of a training program for fitness instructors based on SDT and BPN modifies the users' attitudes. In this aspect, from the comparative analysis performed from the CA-IFC, a correlation level of .230 and a significance index of .565 was found, which does not represent a statistical significant difference. However, from the comparative analysis performed over the CA-IF results, an index of .000 was obtained, which represents a significant difference and an important improvement in the variable attitude towards strength instructors. These results could be explained by considering two main factors: 1) the social context where the interaction instructor-student takes place (group-individual), and 2) the academic profile of the instructor in each area. As for fitness instructors in the area of physical classes, the initial results show a higher attitude rating compared to that of strength instructors. That is, users of physical classes manifest a greater liking towards their instructors prior to training, possibly because the group context in which they develop is considered as one of the social factors that positively influence the user's enjoyment and their permanence in exercise (Burke et al. (2006), Brown et al. (2014), Farren et al. (2017), Gammage & Lamarche (2014)). Hence, the nature of this contexts strengthens the work of the instructor as it provides itself a sense of social support and belonging thus satisfying one of the basic psychological needs contemplated in TAD, the relational one (Deci and Ryan, 2000); Conversely, in the case of strength instructors, they provide their services in a one-to-one modality, facing a greater challenge in terms of social support and increasing the burden on the quality of the relationship they build, having to implement clear actions aimed at the formation of bonds of communication, care and genuine interest towards the users they serve.

Regarding to the academic profile, there are several reports referring that group instructors present a higher index of attendance to courses and workshops compared to the strength instructors, because most of them teach classes of different modalities that require periodic updates and qualifications. (Boned, et al 2015; De Lyon, 2017; Dorado Andia, 2018; Estrada-Marcén, et al 2019; Jankauskiene, 2018; Juan-Llomas, 2015); this continuous education gives them an access to a variety of exercises that, when offered as voluntary options at different levels of complexity and intensity, favor the competence and autonomy of the participants in their classes. On the other hand, strength instructors usually have a bachelor's degree or in some cases some specialized technical training in strength but just a few specializations or updates: "in relation to the necessary academic training, they indicated that the universities or study centers to which they belonged did not provide them with the necessary tools to work professionally in a gym; ... the results indicate that, in general, the instructors do not have multidisciplinary academic training that merits the performance of some of the functions they occupy" (Portes Junior et al, 2014).

The results obtained regarding the change in attitudes towards strength instructors, are consistent with other authors findings such as Edmunds (2008); Ntoumanis, et al (2017) & Wilson(2006), in the fact that it is not only possible but effective to train instructors to adopt a STD bases teaching style: “compared to the control group, participants in the SDTc exhibited a significant increase in positive affect derived whilst exercising over the 10-week exercise program” (Ntoumanis, et al 2017). In this same regard, these authors refer in their conclusions that: “These findings concur with prior research indicating that teachers and health professionals can be effectively trained to adopt a self-determination centered teaching style” p. 385. Thus, we consider that the training implemented in this study constitutes a useful material for fitness instructors, especially for strength area providing theoretical information and practical strategies likely to be applied in their work settings.

The findings of this study are relevant since they do not only highlight the important role of instructors as health promoters but also confirm the need of training these professionals in basic aspects of motivation applied to physical activity, as well as communication styles. Its implementation, mainly in strength instructors could not only favor the user's experience in physical activity but also their permanence in it, which will contribute to the construction of a more active and therefore healthier society.

Between the limitations of the current study, we find necessary the collection of detailed information about the academic and professional profile of the instructors since this information would allow us to find a correlation between the previous knowledge and changes obtained after the training. We also consider important to measure attitudes towards instructors separately since the general results could hide specific improvements in certain members of the team of instructors.

8.5 Conclusions

Physical activity has enormous benefits for health when practiced at the appropriate amount and frequency. The practice of physical activity can be positively or negatively influenced by several factors, and particularly fitness instructors as a relevant social factor, have shown to influence the motivation of the people they serve. It is important to train fitness instructors in psychology and motivation theories as it has demonstrated to remarkably impact not only the enjoyment but also the amount and permanence in physical activity. Several reports have proved that SDT and the satisfaction of BPN are not only solid psychological theories applied to the physical activity field but also practical frameworks to build better experiences and relations between instructor-client. This is demonstrated by two main factors/conclusions: 1. The implementation of a training program for strength fitness instructors based on SDT and BPN promotes changes in the interaction between instructor-user 2. These changes lead to a better attitude of the users of their services, which has been shown to be a causal factor for increased time spent in physical activity (Salgado-Núñez et al., 2021). However, further research is needed to better understand the needs and effects of training and education of fitness instructors to maximize the benefits of their work and ultimately to contribute to a more active and healthier population.

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