Factor structure of the Life Orientation Test-Revised (LOT-R)

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Abstract

Optimism and pessimism are conceptualized as generalized expectations about events happening in people's lives, and are regarded as stable dispositions. The construct of optimism can be understood as being one-dimensional and bipolar, in other words, it's an only attribute with two extremes ranging from optimism or pessimism. The Revised Life Orientation Test (LOT-R) is the instrument used for assessing dispositional optimism and has been the subject of several studies that verify its one-dimensionality. However, the results of those studies do not necessarily support the theoretical model. The aim of this paper was to analyze the factor structure of the LOT-R in a sample of adolescent students from basic primary and secondary education. Participants were 183 students of both genders, aged between 13 and 19 years old. The application of the LOT-R was carried collectively in the classroom. The instrument's confirmatory factor analysis was performed by testing a one-factor model and another one of two-factors. The two-factor model was the most appropriate, showing that, for this particular sample, the LOT-R consists of two components. The need for studies to test the structure of the instrument is evident inasmuch as the literature indicates that cultural differences are key elements to understanding optimism.
Key words: Language, human behavior, spoken language.

Estructura factorial del Life Orientation Test Revisado (LOT-R)

Resumen

El optimismo y el pesimismo se han conceptualizado como las expectativas generalizadas sobre los acontecimientos en la vida de los individuos, y son considerados disposiciones estables. El constructo optimismo puede entenderse como unidimensional y bipolar, es decir, es un único atributo con dos extremos que pueden variar entre el optimismo y el pesimismo. El Life Orientation Test Revisado (LOT-R) es el instrumento utilizado para la evaluación del optimismo disposicional que ha sido objeto de numerosas investigaciones, entre las cuales se encuentran las que comprueban su unidimensionalidad; sin embargo, los resultados no necesariamente han respaldado el modelo teórico. El objetivo de la presente investigación fue realizar el análisis de la estructura factorial del LOT-R en una muestra de 183 estudiantes de educación básica primaria y secundaria de ambos sexos y con edades entre los 13 y 19 años. La aplicación del LOT-R se hizo colectivamente en el aula de clases. El análisis factorial confirmatorio del instrumento se realizó mediante dos modelos, uno unifactorial y otro bifactorial. El segundo modelo fue el más adecuado, lo que demuestra que en esta muestra específica el LOT-R consta de dos componentes. La necesidad de realizar estudios para comprobar la estructura del instrumento resulta evidente debido a que la literatura señala que las diferencias culturales son elementos clave para entender el optimismo.
Palabras clave: Lenguaje, conducta humana, lenguaje hablado.

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Estrutura Fatorial do Life Orientation Test-Revised (LOT-R)

Resumo

O otimismo e o pessimismo foram conceituados como expectativas generalizadas sobre os acontecimentos na vida dos indivíduos, e são considerados disposições estáveis. O construto otimismo pode ser entendido como unidimensional e bipolar, ou seja, é uma única característica com dois extremos, que pode variar entre o otimismo e o pessimismo. O *Life Orientation Test Revisado (LOT-R)* é o instrumento utilizado para a avaliação do otimismo disposicional que tem sido objeto de vários estudos, entre os quais se encontram as que verificam sua unidimensionalidade; no entanto, os resultados não necessariamente endossam o modelo teórico. O objetivo da presente pesquisa foi realizar a análise da estrutura fatorial do LOT-R numa amostra de 183 estudantes do ensino fundamental e médio, de ambos os sexos e com idade entre 13 e 19 anos. A aplicação do LOT-R aconteceu de forma coletiva em sala de aula. A análise fatorial confirmatória do instrumento foi realizada mediante dois modelos, um unifatorial e outro bifatorial. O modelo bifatorial foi o mais adequado, o que revela que nessa amostra específica, o LOT-R consta de dois componentes. A necessidade de realizar estudos para verificar a estrutura do instrumento fica evidente, pois a literatura aponta que diferenças culturais são pontos fundamentais para entender o otimismo.
Palavras- Chave: otimismo, adolescentes, validade fatorial.

INTRODUCTION

The dispositional optimism construct has been studied by a large field termed positive Psychology, and can be understood as a person's stable tendency to believe that good things will happen to them, instead of bad things. Scheier, Carver and Bridges (1994) consider optimism and pessimism as generalized expectations about the events happening in individuals' lives. These expectations are considered stable arrangements, in other words, characteristics of each person. Also, the optimism construct can be understood as uni-dimensional and bipolar, which means that it is an only attribute with two extremes, which can vary between optimism and pessimism.

According to this model, two elements are essential for the definition of expectations: the purpose and the sense of confidence. All behaviors lead to the achievement of a goal, with ends or values that people understand as desirable or undesirable; and if this goal did not have any value, there would not be a reason to act. Attached to this is the sense of trust that it is possible to achieve a goal; thus, the person needs to have enough confidence to act and continue acting. When one is confident about a future event, continuous efforts are made to achieve the goal, even when facing great adversity (Carver & Scheier, 2002).

The explanation that the individual attributes to these positive or negative events that happen to them will determine if a person is optimistic or not. Those who attribute good permanent, unspecific, inner explanations to the events are considered optimistic people. On the other hand, pessimistic people perceive good events as temporary, specific and external, and they do not attribute the happenings to their personal effort (Carver & Scheier, 2002; Ortín, Fayos, Gosálvez, Ortega, & Olmedilla, 2011; Peterson, 2000; Peterson & Steen, 2002).

In order to measure optimism from the dispositional perspective, Scheier and Carver (1985) proposed the *Life Orientation Test (LOT),* which included the evaluation of optimism and pessimism representing opposing poles of a continuum. The wide use of the instrument has brought about two questions. First, some studies showed that both the items formulated positively and negatively stemmed from two factors; that is to say, the scale measured two constructs (optimism and pessimist), unlike what the authors had postulated, that the LOT was an instrument of only one bipolar dimension. Secondly, there was what was called the *third variable;* in other words, that the instrument showed an overlap of constructs such as self-esteem, self-efficacy and neuroticism.

Bearing in mind these results and criticisms, Scheier et al. (1994) reviewed the instrument, removing the items that did not explicitly focus on expectations related to the future, in an attempt to eliminate coincidences between items. This way, the authors developed a briefer version consisting of ten statements, four of which were not accounted for in the total value of the scale as they are distractor items. The remaining six items measure the positive and negative expectations that are strongly related to each other. The new version, called *Revised Life Orientation Test (LOT-R),* resulted in a single factor dimensional structure, responsible for 48.1% of the total variance, and presented an adequate internal consistency, with a Cronbach alpha of 0.78 and tests-retests coefficients between 0.56 and 0.79 (Scheier et al, 1994).

However, results regarding the discussion about LOT-R's uni-dimensionality have not reached a consensus. As mentioned previously, Scheier et al. (1994) conducted factorial

analysis and came to a one-factor solution. According to Bandeira, Bekou, Lott, Teixeira and Rocha (2002), Monteiro (2008) and Zenger, Finck, Zanon, Jimenez, Singer and Hinz (2013), consider the instrument as uni-dimensional bipolar, taking optimism and pessimism as two opposite poles of the same construct, whereas other authors consider that there were two different factors.

Vautier, Raufaste and Cariou (2003) discuss the dimensionality of LOT-R differently from other studies. For these authors, LOT-R would cover two different constructs, one corresponding to dispositional optimism, comprising all the items, and another one referring to the style of the answer, which would reflect individual differences regarding self-evaluation, and that would be sensitive to the liability of a social desirability, comprehending only the positive items. That said, the authors claim that the definition of the basic psychological dimensions underlying the instrument has not been completed yet. Nonetheless, Segerstrom, Evans and Eisenlohr-Moul (2011) consider that the difference between optimism and pessimism can be explained by the formulation of the items, which are emphatic and extreme (for example: *I am always optimistic about my future*), which can lead people to respond according to what they believe to be more socially acceptable.

The studies described below are organized as follows: first, the ones that reached the conclusion of a single factor and, then, the ones that reached two factors. It has been chosen to describe those that were conducted with the goal of verifying the factorial structure in different cultural contexts, since that can be an important characteristic when studying dispositional optimism, as pointed by Carver, Scheier and Segerstrom (2010).

The study by Bandeira et al. (2002) aimed to develop a Brazilian adaptation of the LOT-R (Life Orientation Test – Revised) and carried out the analysis of its psychometrical properties. The application of LOT-R was performed with 396 undergraduate students of both genders and from different courses in a private university. The positive and negative items of LOT-R were submitted to factorial exploratory analysis, with Varimax rotation. The results showed the presence of one factor composed by six items that evaluated the optimism construct, whose explained variance was 39.78%. The internal consistency of the Brazilian version was $\alpha=0.68$, while in the original version the value is $\alpha=0.78$.

Sanjuán and Magallanes (2006) used the LOT-R in a Spanish sample of 98 Psychology students, aiming to verify the relation between optimism and psychological and physical well-being. Through the analysis of Pearson correlation between instruments, as well as between the LOT-R items (pessimism and optimism), the authors concluded that the instrument configures itself as uni-dimensional, since only significant negative correlations between the pessimism and optimism scales were found.

The adaptation of LOT-R to the Portuguese context was performed by Laranjeira (2008) with a sample of 790 Portuguese undergraduate students. Regarding the internal consistency of the instrument, a Cronbach alpha coefficient of 0.71 was found. An analysis of main components was also performed, followed by an orthogonal rotation of Varimax type, which revealed 45.87% of explained variance, indicating the existence of only one factor, similar to the original study by Scheier et al. (1994).

Also in the Portuguese context, Monteiro (2008) verified the psychometric properties of LOT-R in a sample of 487 Portuguese undergraduate students, from several universities and courses. From factorial confirmatory analysis, the author found that the six items of LOT-R were organized as one (dispositional optimism), which explained 37.68% of the variance, revealing the agreement with the original findings of the instrument.

More recently, in a Brazilian context, Bastianello, Pacico e Hutz (2014) adapted and validated LOT-R, and also verified its psychometric properties. In order to achieve this, the author used a sample of 844 undergraduate students from the South of Brazil, enrolled in several courses. To evaluate the factorial structure of LOT-R, the analysis of main components through the method of *eigenvalues* extraction higher than one was performed, which explained 51% of the total variance, thus indicating a uni-dimensional structure. Regarding the internal consistency, a Cronbach alpha of 0.80 was obtained which was considered adequate.

Unlike the data hereby presented, a study carried out by Ferrando, Chico and Tous (2002) with a sample of 735 undergraduate Spanish students indicated that LOT-R presents a structure with two dimensions partially independent. The Spanish version of the instrument was considered adequate from the psychometric point of view. The authors discussed the results found considering aspects such as the samples used in researches about the instrument, most of which have been carried out in undergraduate students, as well as about the structure of the items, inasmuch as once all the translations and adaptations had been performed, these allowed the instrument to remain very similar to the original.

For the Chilean population, the results of the research by Villarroel, Rubio and Atenas (2009) also indicate the existence of two factors in LOT-R. The study was developed with 309 undergraduate students and aimed to analyze the psychometric properties of the instrument and verify the possibility of its usage in the Chilean population. The internal consistency was considered adequate by the authors ($\alpha=0.65$) and no significant differences between genders

were found. Regarding the factorial analysis, results indicated a bi-dimensional solution, wherein the first factor, referring to optimism, explained 32.11% of the variance and the second factor (pessimism), 23.43% of the variance.

Gaspar, Ribeiro, Matos, Leal and Ferreira (2009) performed an adaptation and validation of the Life Orientation Scale for Children Revised (version of LOT-R) in a sample of 3195 Portuguese children and teenagers, aged between 9 and 16 years old. Factorial exploratory and confirmatory analysis was performed and the results revealed two factors, one connected to optimism and the other reflecting pessimism. The optimism factor indicated 28.88% of the explained variance, whereas the pessimism factor explained 25.85%. Regarding reliability, the internal consistency was not considered adequate since Cronbach alpha values ranged between 0.56 and 0.61 for both dimensions, which, for the authors it indicated a weak internal consistency and measurement error. Some possible explanations considered by the authors regarding the low alpha values are the ages of the subjects studied - children and teenagers - as they might not have understood the items and given random answers, as well as the reduced number of items.

Also in the Portuguese context, Ribeiro, Pedro and Marques (2012) conducted a study to verify the usefulness of the LOT-R, as well as to determine whether the measure was one or two-dimensional. Two different samples were used: one of 280 patients with a diagnosis of multiple sclerosis, aged between 16 and 70 years old, mostly female (71.4%), and another with 615 people, selected randomly in public areas, aged between 17 and 80 years old, 51.1% female. The data regarding the factorial structure of LOT-R was similar in both samples, wherein the solution of both factors was the best configuration found.

The study by Lai and Yue (2000) was performed with Chinese undergraduate students from Hong Kong and Beijing. The idea was to verify if LOT-R was an adequate measure to this sample, because, according to researchers, the concept of optimism in Eastern culture is different from that of Western culture. The popular Chinese wisdom affirms that being optimistic means being capable of accepting the conditions of life as they are at present and not expecting good things to happen as a change. The sample from Hong Kong was comprised of 404 undergraduate students and the sample from Beijing, of 328 subjects. The results showed that for the Hong Kong sample, a uni-dimensionality scale was found, while for the Beijing sample, two factors were found. The researchers discussed the data from the perspective of the difference between the two samples, because although they are in the same country, they showed different results. In addition, the importance and need to carry out studies related to the cultural issues was taken into account

Zenger et al (2013) studied the Spanish version of LOT-R in a Colombian sample of 1500 adult people from several regions of the country. By means of the factorial confirmatory analysis they concluded that there are two dimensions of the scale, where optimism and pessimism are seen as independent variables weakly related. According to the authors, the differences between the results found in several researches regarding one or two dimensions of the scale, can be explained by the characteristics of the samples concerning age and educational level.

These dimensional differences found in several contexts reveal a weak point in the theory of dispositional optimism. In order to minimize this, it is necessary to conduct more studies on the validity of the test, with different samples and in other cultures, which can broaden the discussions and point out alternatives to improve this measurement (Bastianello *et al*, 2014; Carver et al, 2010).

Concerning the need to carry out research about optimism in different cultures, there are also some discussions involved. The research in the Chinese context mentioned above (Lai & Yue, 2000) explores this issue. Another researcher (Khallad, 2010) claims that Canadian students demonstrate a more positive view regarding the future than Japanese students do. Thus, the author emphasizes the need to study optimism in Arabian societies, which are mainly classified as belonging to Eastern cultures, while more recent researches have indicated that Arabians have characteristics that differ from them.

The proposal by Khallad (2010) was to verify if there were differences between optimism in a Jordanian sample (N=260) and a North American sample (N=167), composed by undergraduate students. The data revealed that there was no significant statistical difference between the levels of optimism in both samples, although the average of North American participants was higher than that of Jordanians. Other data indicated that the differences between the two groups were restricted to the negative part of LOT-R, indicating that although Jordanians can be more pessimistic than North Americans, that does not mean that they are less optimistic. Thus, the author raises a discussion about the common view that Western people would be more optimistic than Eastern people and it seems to be more adequate to treat optimism and pessimism as two independent constructs. Moreover, regarding the results of the research, the author raises an explanatory hypothesis to deal with the similarity of results between the two samples, which would be the variable *undergraduate student*. According to him, Jordanian students are exposed to Western behavior and ideas, which can contribute to the shaping of attitudes and expectations that are not typical of the rest of the population.

More recently, Hutz, Midgett, Pacico, Bastianello and Zanon (2014) studied hope, self-esteem, life satisfaction, affection, optimism and personality in two samples of undergraduate students, one composed by Brazilians and the other composed by North Americans. Particularly about optimism, data indicate significant differences between the groups - Brazilians being more optimistic. The authors discuss that the data dealt with the economic and social characteristics that Brazilians had at that moment, as the increase in the population's income and the easier access to the employment market, which can explain the positive hopes of people in relation to the future.

In general, the studies about optimism seek a better understanding of the construct and its impact in people's life, and it has been performed in the most diverse contexts such as, for example, health, academic and sports, which has led to the improvement of the measuring instruments and intervention proposals. The results of several studies have evidenced some aspects such as the consistency between optimism and better work and academic performance, more satisfactory interpersonal relationships and more effective coping with adverse situations, besides indicating a high positive correlation between pessimism and physical and mental illnesses (Carver et al, 2010; Bastianello et al, 2014).

A relevant aspect of the researches developed with the dispositional optimism construct is pointed out by Carver et al. (2010) and refers to a cultural question. The great majority of studies and much of what is known about optimism comes from North American data and, from these, some generalizations are made. The authors consider important to take this limitation into account and also to develop studies in different contexts and with several populations. With this in mind, the objective of the present investigation was to perform an analysis of the factorial structure of LOT-R in a sample of adolescents, students from basic primary and secondary school

METHOD

Participants

A convenience sampling was used. There were 183 students from a public school of the inland State of Minas Gerais participating in this research. 51.4% of them were students of 9th year of basic primary education, and 48.6% were students of 3rd year of high-school. Their age group was between 13 and 19 years old (M=15.77; DP=1.74) where 52.5% were female students and 47% male (N=1; 0.5% did not provide information about these data).

Instrument

The Revised Life Orientation Test – LOT-R is a self-report test made to measure the dispositional optimism described by Scheier and others (1994). The LOT-R (Scheier and others, 1994) is the reduced and revised version of Life Orientation Test – LOT (Scheier & Carver, 1985), whose revision process improved the psychometric characteristics. The test consists of 10 items, where three of them are about optimism (items 1, 4 and 10), three about pessimism (items 3, 7 and 9) and four are distractor items (2, 5, 6 and 8), whose scores are not calculated. The subjects answer the statements indicating their degree of agreement in a Likert scale of five points, ranging from fully disagreement to fully agreement. The LOT-R presents good internal consistency (Cronbach alpha varies from 0.70 to 0.80) and their test-retest correlations are from 0.68 to 0.79 for intervals from 4 to 28 months (Scheier and others, 1994). During the translation and adaptation process of LOT-R for Brazilian Portuguese, there was some difficulty in understanding item number 1, so another statement about optimism was added to the test (item number 11). This version with 11 sentences was tested. Subsequently, statistical analyses demonstrated that items 1 and 11 carried the same semantic value; however, item 11 showed better correlations with the other items and with the test total score. For that reason, the authors opted for substituting item 1 for item 11, so that the test consisted again of 10 items, as the original one (Bastianello, 2011).

Procedure

After the approval from the Research Ethics Committee (CAAE: 07812612.6.0000.5514) the data collection was conducted in regular class time with the participation of students whose parents had previously authorized through an Informed Consent Form. Students older than 18 signed the Informed Consent Form themselves. The average time to answer the instrument was 10 minutes.

Data analysis

The modeling of structural equations was used to conduct the confirmatory factor analysis through the AMOS statistical program (Arbuckle, 2007). Regarding the coefficients considered, the ratio between Chi-square ($\chi2$) and the Degrees of freedom (gl) and the adjustment indexes CFI, GFI, SRMR and RMSEA were used. The $\chi2$ must be considered from its ratio in relation to the Degrees of freedom ($\chi2/gl$) and values must be between 2 and 5. The CFI (Comparative Fit Index) calculates the relative adjustment of the model observed by comparing it with the model prediction, whose values over 0.90 indicate proper adjustment. The same adjustment over 0.90 is proposed by GFI (Goodness-of-Fit

Index) and indicates the proportion of variance-covariance in data explained by the model. On the other hand, the SRMR (Standardized Root Mean Square Residual) reports the standardized average of residue – discrepancies between the matrixes observed and modeled – once an index lower than 0.10 is indicative of proper adjustment. Finally, the RMSEA (Root-Mean-Square Error of Approximation) is also a measure of discrepancy where results lower than 0.05 are expected, but are acceptable up to 0.08 (Byrne, 2010; Hair, Black, Babin, Anderson, & Tatham, 2009).

RESULTS

In order to make the analysis, firstly data were verified in order to identify possible typing mistakes and there was no need to exclude any protocol, as the number of errors was below 1%. Based on this, as previously mentioned, from the AMOS statistical program (Arbuckle, 2007), the confirmatory factorial analysis was made (modeling of structural equations). The matrixes of variance-covariance were used as starting point adopting the estimator maximum likelihood (ML) tested the LOT-R factor structure considering two models: the first model with a one-factor structure showed all the items saturating in only one factor, and the second one with a two-factor structure. The results are presented in Table 1.

According to Table 1 data, Model 2, which describes the structure with two factors, was the most appropriate, being statistically superior to Model 1 (one factor). Even though both Goodness-of-Fit Index (GFI) have been higher than 0.90, as expected from an adjusted model, the two-factor structure was even more appropriate (GFI=0.96). Only the two-factor model had the CFI higher than 0.90. Additionally, for a RMSEA to be considered favorable, it must be lower than 0.05. The PCLOSE cannot be significant, which is only visualized in Model 2. Another index that also indicates

the better structure of Model 2 is the SRMR, which must be lower than 0.05.

Figure 1 presents the LOT-R factor structure as well as the factorial load of the items and the correlation between the optimism and pessimism factors.

Figure 1 data indicate the covariance between optimism and pessimism factors, which was negative, as theoretically expected. The correlation coefficients between the items varied from 0.34 to 0.81.

DISCUSSION

The instrument LOT-R was developed based on the conceptualization of dispositional optimism as a stable tendency that people have when believing that good things are going to happen to them. Several researches have used the instrument for verification of its adequacy and useful-ness in the most diverse contexts as well as with different populations.

These studies aim at verifying the structure of the ins-trument by using the same original format (Scheier et al., 1994), composed by 10 items, three of which refer to op-timism (items 1, 4 and 10), three to pessimism (items 3, 7 and 9) and 4 are distractor items (2, 5, 6 and 8). The several translations of LOT-R keep this structure and, therefore, the comparisons of the results of many researches with the data of Scheier et al (1994) are possible and essential to the improvement of the discussions about the construct and its different cultural manifestations. In the present study, the Brazilian version of Bastianello *et al*. (2014) was used.

The research had the goal to verify if the LOT-R factor structure and the presented data indicate the existence of the two-factor model of the instrument, a finding different from what was postulated by the authors of the instrument (Scheier and others, 1994) when they revised it and deve-loped the new version through exploratory factor analysis.

Table 1
Comparison between two factorial models from LOT-R

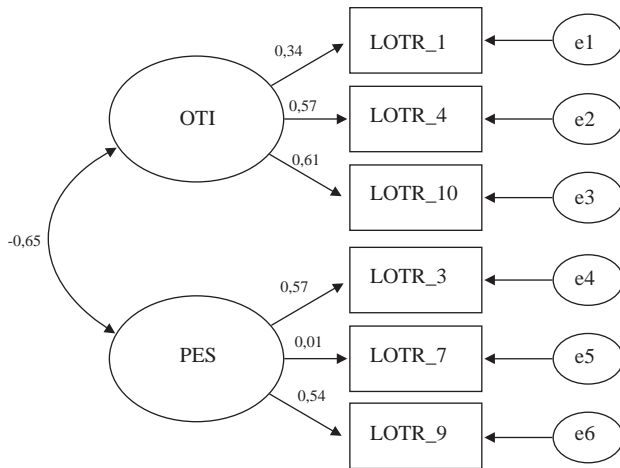| Modelo factorial	χ^2 (df)	χ^2/df	GFI	CFI	RMSEA (IC90%)	PCLOSE	SRMR	ECVI	CAIC	$\Delta\chi^2$ (df)
1	33.60 (9)	3.73	0.94	0.84	0.12 (0.08; 0.16)	0.004	0.07	0.318	108.04	-
2	20.69 (8)	2.59	0.96	0.92	0.09 (0.04; 0.14)	0.067	0.05	0.258	101.34	12.91 (1)[*]

Nota. [*] *p*<0.001.

Figure 1. LOT-R Factor Structure

It is worth noting that there is no consensus between research results about the formatting of the LOT-R, although the findings corroborate those of Ferrando et al. (2002), Villarroel et al. (2009), Gaspar et al. (2009), Ribeiro et al. (2012), Vautier et al (2003) and Zenger et al. (2013). In this sense, Vautier et al. (2003) discuss the issue of uni or bi-dimensionality of the scale, bringing an important issue into discussion, which is the absence of a clear well-defined theoretical framework. For these researchers, there is no well-supported theory to explain the difference between optimism and pessimism, which reveals that the survey data indicate that the bi-dimensional model does not help to explain this conceptual difference.

Studies carried out by Ferrando et al (2002), Villarroel et al. (2009), Gaspar et al. (2009), Ribeiro et al. (2012) and Zenger et al. (2013) also found a bi-dimensional structure by performing exploratory and confirmatory factor analysis. The studies were conducted in different locations and with subjects of different age groups. Hypothesis to explain the differences in the results were raised by some researchers like Fernando et al. (2002) and Zenger et al. (2013), who consider that people with higher education are more optimistic, in addition to the issue of the format of the items, which are positive or negative, and, therefore, may influence the type of response.

In the present study the sample was made up of teenagers between 13 and 19 years old, from a public school. The research of Gaspar and others (2009) was the only one that also used children and teenagers – 9 and 16 years old, taking into account the research presented here. There were similarities in the results, since the authors found a two-factor structure for the LOT-R. However, the authors'

explanation is that maybe the children had not understood the items of the instrument. The other studies, which used university students, were not unanimous in their findings, which may also indicate the need to consider that sample characteristics such as the adequate understanding of the items is not only a matter of age group.

Lai and Yue (2000), Khallad (2010) and Hutz et al. (2014) explore the question of cultural differences in their studies. Therefore, it was found that it is relevant to consider the cultural and social aspects of the research sample. The research data with Chinese, Canadians, Japanese, Jordanians and Americans revealed differences in the optimism level that may be related to the different ways of seeing life and seeing the world. Carver and others (2010) criticize the optimism studies, because they consider that most of the researches were conducted with American samples, which restricts the possible generalizations.

In summary, it must be stated that a number of reasons may explain the differences between the results indicating two factors, not just one, as found by the authors of the original instrument (Scheier et al., 1994). More specifically, the lower age may indicate difficulty in understanding the items; the most intense social desirability in certain groups, as the items are clearly polarized negative (if anything can go wrong with me, it surely will) or positive (I'm always optimistic about my future); the instructional level of the participants, and also the cultural influence.

Among the Brazilian studies, like the one by Bandeira's et al.(2002), although it not made use of LOT-R but of TOV, found a two-factor solution, similar to Bastianello's et al. (2014). The investigations had in common the fact that the participants were college students and made use of exploratory factor analysis (EFA). The latter, in particular, can help to understand the different results. In this research, the analysis of one or two factors was satisfactory, although the best results endorse optimism and pessimism as distinct factors. However, it must be mentioned that the study methodology was different from the others, in which only AFE was applied.

It is concluded that many studies about the construct of dispositional optimism are still needed, especially to measure improvements and better theoretical understanding, as well as based on different statistical models. Such studies must consider the sample method used, diversify the samples, investigate all age groups, and always consider the specific cultural characteristics of the context (Bastianello et al., 2014; Villarroel et al., 2009; Hurtz et al., 2014). The present study makes its contribution clear by using a teenage sample, but the number of participants restricts it.

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