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Research Article

The Beliefs about Psychological Problems Inventory (BAPPI): Development and Validity-Based Studies

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ABSTRACT

The clients' belief systems are components of effective therapy relationships. Thus, it is desirable to include clients' beliefs about their psychological problems on systematic assessment protocols underlying the process of systematic treatment selection and of tailoring the treatment to the person. However, assessment instruments which specifically capture clients' beliefs about their psychological problems are scarce. The objective of the studies presented was to evaluate the psychometric properties of the Beliefs about Psychological Problems Inventory (BAPPI), an assessment instrument of the clients' beliefs about their psychological problems. Study 1 (Exploratory Factor Analysis) involved 200 individuals, and study 2 (Confirmatory Factor Analysis and other validity studies), involved 545 individuals. Results revealed that the BAPPI presents a stable factorial structure of six dimensions (Psychodynamic, Humanistic, Biomedical, Cognitive Behavioral, Systemic, and Eclectic/Integrative). Additionally, the instrument showed to be sensitive to capture differences in beliefs about psychological problems amongst groups of individuals of different ages and educational attainment. Altogether, analyses of items, internal consistency, reliability, and external validity revealed that the BAPPI is a valid assessment instrument for use in mental health research and practice, especially in the process of systematic treatment selection and, therefore, of matching/tailoring the treatment to the client's characteristics.

Keywords: Beliefs; Treatment selection; Causes of psychological problems; Psychometrics; BAPPI

INTRODUCTION

The understanding of how to promote therapeutic effectiveness using tailoring the treatment also to the clients' Trans diagnostic characteristics became one of the major challenges of contemporary mental health treatments, especially of psychotherapy. Clients' characteristics are at the core of psychotherapy, as it impacts several treatment processes and outcomes [1].

Consistently, major scientific and institutional organizations, such as the APA's Task Force on Evidence-based Psychotherapy Relationships, are making efforts to identify 1) the components of effective therapy relationships and, 2) the effective processes leading to effective tailoring of the treatment to the person [2]. Belief systems are core components of individuals' psychosocial organizations, including behavior change; they play a fundamental role in the way clients mobilize their psychological resources to behavioral change. Assessing clients' representations and beliefs is of great importance to psychotherapy as they are very informative about a) a clients' characteristic that need to be considered in the systematic treatment selection process, b) clients' meanings systems about his/her developmental and functioning patterns, resulting from previous spontaneous conceptualizations about his/her functioning (including the spontaneous attempts of self-understanding and self-help), and c) of the psychological environment where behavioral change is to occur. Clients' beliefs are mechanisms underlying the patterns of clients' responses to the therapeutic interaction.

Despite the importance of the clients' systems of beliefs about the causes of their psychological problems (also called preferences, attributions, etc.) for an effective adaptation of the treatment [3] assessment measures of this phenomenon that are

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both reliable and user-friendly (so they can be included in systematic assessment protocols) are still scarce. The objective of this study was to test the psychometric properties of the "Beliefs about Psychological Problems Inventory (BAPPI)" an assessment instrument of the clients' beliefs about their psychological problems.

Beliefs construct and frameworks

Beliefs refer to mental constructions about reality, which are differentiated throughout peoples' experiences, which orient/ determine individuals' behaviors [4]. Beliefs are higher-order representations about reality (including about the self, the others, and the broader reality), and play an important guiding role in the individuals' argentic mechanisms. Belief systems have been traditionally studied by different disciplines (from social to clinical psychology) and have been approached by different research traditions. As a consequence, different labels are referring to the same phenomenon, depending on the discipline or the research approach they come from. The concept of belief is perhaps the mostly broader construct referring to the individuals' socio-cognitive organizations about reality. However, the individuals' representations about reality present several specificities, mostly related to the object of the representation, the reason why different labels have been adopted to capture different beliefs at several levels. Examples include attributions, perceptions, values, opinions, self-concepts, or standards.

Regardless of its labels, or the research traditions they derive from, mental representations are amongst the main determinants of behavior, the reason why is considered as one of the main organizers of personality, from normal to abnormal personality [5]. The importance of individuals' beliefs system for describing and predicting human behavior is highlighted by frameworks, coming from multiple scientific disciplines, reflecting its importance to the understanding of multiple functioning domains. Examples of frameworks describing the mechanisms throughout which systems beliefs influence behaviors to include George Kelly's classical Theory of Personal Constructs [6], Social Learning Theory [7], Cognitive-behavioral psychotherapies[8], Beck's Cognitive therapy [9]. Ellis' Rational, Emotive and Behavioral therapy (Dryden, David & Ellis), Cloninger's biopsychological model of Personality [10] or more recent models of identity, such as the Theory of Narrative Identity [11]. These frameworks all converge on the assumption that beliefs are crucial components of agency mechanisms, and, therefore, they shape individuals' ways of thinking, feeling, and behaving.

Besides, meta-theories (including self-determination, bioecological theory, or the trans theoretical model and stages of change) emphasize the importance of individuals' beliefs systems in describing transactional processes between individual and context [12]. Belief systems, as "psychological environment" are a more proximal "environment" for individual experiences than the objective environment itself [13]. The clients' understanding of the causes of the psychological problems is of great importance for treatment as it constitutes the more proximal meaning environment underlying the clients' subjective experience of its psychosocial functioning.

Similarly to what happens to therapists theoretical orientation (which refers to a rational used as a plausible explanation for a given condition, as well as their underlying mechanisms, from their genesis to its evolution) [14] clients have also some type of understanding about their experiences, and, therefore, they have beliefs about their psychological problems. As a consequence, all actions aimed to exert an impact on human behavior, including therapeutic interventions, need to consider the individual differences in beliefs system [15].

Beliefs about the causes for the psychological problems

Beliefs about psychological problems and mental health are personal and idiosyncratic knowledge that influence general patterns of thought, affect, and behavior towards treatment, including beliefs about psychological problems and therapeutic modalities [16]. Clients' beliefs about their psychological functioning (including the causes of their psychological problems) are information that is available to clients' processing of their reality and that becomes salient when it comes to the meaning-making processes. As confirmed by the APA Task Force on Evidence-Based Practice (2006) and by several meta-analyses, the transdiagnostic client's characteristic of preferences or beliefs about psychological problems and psychotherapeutic modalities is an element of effective therapy relationships, both at treatment processes and outcomes levels [17]. Nunnally (1961) conducted one of the seminal works on the clients' beliefs about their psychological problems and concluded that clients have a variety of beliefs about the causes of their psychological problems, ranging from organic, personal history to environmental and contextual factors. These results were confirmed by other studies, which consistently identified as the self-perceived main causes were intrapsychic and psychological/ relational more than biological and genetic factors [18]. Besides, individuals preferred approaches emphasizing self-understanding rather than For example, in a study conducted by Mellot and colleagues the majority of the individuals identified themselves with approaches to behavioral change more based on self-understanding rather than those relying on the changing of contextual characteristics or organic treatments.

As already stated by Miller (1991), the clients' belief systems allow for the identification of the clients' understandings about the causes of their psychological problems but also about the clients' tendencies and preferences about the treatment.

There has increasingly been a shift from a therapist-centric to a client-centered approach to research and practice to treatment adherence and competence [19-25]. Clients' beliefs are important not only as discrete variables but also because they are part of clients' complex and dynamic meaning-making and narrative processes involved in psychotherapy from various theoretical orientations If at the end of the XX century there was a raising of interest about the clients' transdiagnostic characteristics, the last decade was characterized by an exponential raising of interest by the specific transdiagnostic characteristics of cognitive representations, including preferences and beliefs about psychological problems and mental health treatments.

Several decades after the first studies about the clients' beliefs about psychological problems and treatment modalities, there is a robust body of research showing that the majority of patients do have different beliefs about different treatments and that they have preferences for one treatment over the others, even in control randomized studies [25-30]

Clients' beliefs and therapeutic processes and outcomes

Besides the fact that there are individual differences in the clients' beliefs about their psychological problems and the preferred treatment modality, the importance of the clients' beliefs system relies on the fact that they have a significant impact on treatment both processes and outcomes [21].

Therapeutic processes: Clients' beliefs and representations about the etiology of mental disorders and the perceived causes of psychological problems have a strong impact in all the treatment phases and processes, from professional help-seeking to treatment dropout (Chen & Mak, 2008). Firstly, clients' disclosure and help-seeking for psychological problems are strongly influenced by his/her beliefs about mental health disorders and cultural values [31].

Secondly, prevention and early intervention for mental health are significantly dependent on the clients' system of beliefs about their psychological functioning [32] seeking for help in crises is strongly influenced by the similarity between client's and therapist's attributions and attitudes [33]. Thirdly, the belief system predicts the client's perceptions about the therapist's credibility and the clients' satisfaction with therapy [34-40]. Therapeutic relations are more productive when the therapist and client share the same values system [41]. Clients' representations and preferences about treatment impact on therapeutic alliance and research increasingly demonstrate the clinical benefits of assessing and considering them for the process of treatment selection [26]. Fourthly, the beliefs system is one of the most important dimensions underlying clients' adherence to the different treatment modalities, from pharmacotherapy to psychotherapy [27], and there is less dropout from therapy when patients receive treatment consistent with their preferences [28]. Finally, also stigmatization about mental problems is highly dependent on individuals' system of beliefs about psychological problems [42].

Therapeutic outcomes: The clients' beliefs about their psychological problems exert a significant impact on therapeutic outcomes [43]. The matching between the clients' beliefs and preferences about treatment and the selected therapeutic model has a positive impact on therapeutic outcomes [44-46] with better results being observed among clients' who receive treatment consistent with his/her beliefs and preferences [47]. Clients' belief systems and preferences about treatment are a moderator of the therapeutic outcomes in different psychopathological conditions, and different modalities [48].

In sum, clients' beliefs about their psychological functioning, including treatment preference, have been systematically found to affect treatment satisfaction, completion, and clinical outcomes [34]. Therefore, there is a need to consider and to include clients beliefs in the clients' general assessment and the diagnostic assessment [49], in the process of matching the therapeutic plan to each client's characteristics [50], and in the process of professional training [51-53].

Assessment instruments on the clients beliefs about their psychological problems

Previous research on clients' beliefs about their psychological problems relied firstly on assessments based on qualitative data and then moved to quantitative data. Examples of existing quantitative assessment instruments used in previous research include the Treatment Expectancies Questionnaire [54], the Causes of Illness Inventory [55], Causal Belief Questionnaire (CQB; Whittle, 1996), the Opinion about Psychological Problems [40] or the Questionnaire of reasons for Depression [56-59]. The Treatment Expectancies [60] captures the clients' for two treatment modalities: biological approach, including individual behavioral therapy) and group psychodynamic psychotherapy. The Causes of Illness Inventory [61] assessed two main approaches: explanations consistent with the medical model (which constituted the dimension 1), and non-medical explanations (the second dimensions, which included other explanations, but that did not differentiate amongst the different non-medical theoretical models). The Causal Belief Questionnaire [62-65] assessed 4 main factors: psychosocial variables (education); biological variables, structural conditions (cultural beliefs), and stress and recent life events. The Opinion about Psychological Problems [66] represented a significant advance on the methodology used for assessing the beliefs about psychological problems for 2 main reasons. On the one hand, it considered the client's beliefs at two levels: beliefs about the causes of the psychological problems and beliefs about the treatment preferences. On the other hand, it captured beliefs consistent with the major psychotherapeutic model approaches. However, and because of the very complex proposed factorial structure of this instrument, no study is known that describes this instruments' factorial structure and psychometric properties. The Questionnaire of Reasons for Depression [67] has received empirical for its factorial structure composed of the dimensions of Achievement, interpersonal conflict, Intimacy, Existential, Childhood, Physical, and Relationship. Additionally, it is been recently used for the standardization of national populations' studies [68-70].

In sum, the available assessment instruments on the clients' beliefs about their psychological problems present substantive limitations, including a) the very limited number of dimensions assessed (e.g. medical *VS* non-medical, such as the CII; or biological/individual *VS* psychodynamic/group, such as the TEQ); b) the mixture between the nature of causes consistent (with some been consistent with major psychotherapy models, but other dimensions referring to other reasons (such as education) – this is the case of the CQB; c) the inexistence of studies attesting for its psychometrics validity (such as the OPP); or d) despite the empirical validity for its factorial structure, some questionnaires are disorder-specific (such as the QRD) [71-73]. Finally, some instruments used in very recent published studies assess dimensions such as superstition and other

dimensions that are specific to African populations, and less consistent with the culture of Occidental populations [73-75].

The objective of this study was to analyze the psychometric properties of the BAPPI, a short instrument (23 items) that assesses the individuals' beliefs about their psychological problems.

METHODOLOGY

To test the psychometrics of the BAPPI we conducted two studies. In the first one, we performed the Exploratory Factor analysis, and in the second study, we performed the Confirmatory Factor Analysis and the other validity evidence analyses.

Participants

Study 1: Participated in this study with 200 individuals, from the north of Portugal. 155 (77.5%) were female and 45 (22.5%) were male. This was a convenience sampling technique, using the snowball technique. In terms of the participant's education, 14 participants (7%) had the 9th school grade or less, 102 (51%) had completed the 12th school year, and 83 (41.5%) had completed a University degree.

Study 2: Participated in this study 545 individuals from the Northern region of Portugal, with ages between 16 and 82 years (M=32.22; SD=12.01). 161 (29,54%) were under 25 years old, 327 (60%) had between 25 and 50 years old, and 57 (10,46%) were over 50 years old. From the total sample, 385 (70,64%) were female and 160 (29,36%) were male.

Concerning education, 113 (20,7%) had 7 years of schooling or less, 224 (41,10%) had completed secondary school, and 205 (about 37,6%) had some university degree. The sample included 151 (28%) psychology students, and 373 (68%) not studying psychology. Therefore, the majority of the sample was not familiarized with the concepts addressed by this investigation.

We included in the questionnaire items aimed to capture information regarding the participants' previous experiences with Mental Health services. 164 (30%) individuals had received professional help from a psychologist before, 100 (18%) had received professional help from a psychiatrist and 122 (22%) had received professional help from the generalist physician only. Only 47 (9%) individuals had received a psychotherapeutic treatment before, and 174 (32%) had used drugs for psychological problems (anxiolytics, antidepressants).

INSTRUMENTS

Beliefs about psychological problems

The "Beliefs about Psychological Problems Inventory" (BAPPI) was developed with aim of overcoming the limitations of the existing instruments assessing the Beliefs about the psychological problems. In this process we followed the Guidelines for the development and testing of psychological tests (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, Joint Committee on Standards for Educational & Psychological Testing (US), 1999).), and which are obviously, consistent with other eminent proposals [48].

The BAPPI captures individual's understanding of their psychological problems, consistent with the 6 main theoretical approaches to mental health problems treatment: Biomedical, Psychodynamic, Humanistic, Systemic, Cognitive-Behavioral, and Eclectic [76,77].

Consistently, careful synthesis of the main assumptions of these theoretical approaches was gathered, from an exhaustive review of several sources. An important question to us was how to guarantee fidelity between the proposed assumptions of each theoretical model and those assumed by their respective eminent representatives and advocates. To test our preliminary assumptions of each therapeutic model, we selected some of the major handbooks of models of psychotherapy and therapy approaches [78]. These handbooks included chapters for each theoretical orientation that were written by eminent authors and major representatives (acknowledged by their peers) of their respective theoretical approaches.

The main sources for the identification of the representative assumptions were as follows. For Psychodynamic Psychotherapy, we used the chapters of [66,19,77]. For Systemic psychotherapies, we used the chapters by [32]. For Eclectic/ Integrative psychotherapies we used the chapters by [52,18,]. For Systemic psychotherapies, we used the chapter by [107]. For Cognitive-Behavioral psychotherapies, we used the chapters by [84,42,38]. After having selected these resources as the main sources of information for the main assumptions of each therapeutic model, and based on them, the first set of items was generated with the main of capturing the main assumptions of the respective therapeutic models.

This preliminary set of items (70 items) were then analyzed by pairs of judges (who were experts on psychotherapeutic models), who rated each item in terms of the degree to which it captured the basic assumptions of each therapeutic model. Only the items that were consensually considered as capturing the basic assumptions of each model were kept and included in the next step (48 items filled this criterion) [78-80]. This set of items (48) was rated by other judge's blind to the item selection, who asked the question "what therapeutic model this item refers to?" The objective of this procedure was to test the degree to which there was consensus between the two groups of judges about the theoretical affiliation of the diverse items. From this process, 25 items were consensually considered as being representative of the main assumptions of their respective theoretical models.

Then, these 25 items were answered by a group of potential participants in the study, using the think-aloud method. In this process, 2 items were excluded, meaning that we had 23 items for the first version of the questionnaire. Answers to items are in a Likert-scale format, with values 0=totally disagree, 1=agree; 2=not agree nor disagree; 3=agree; and 4=totally agree [81-83].

The Biomedical scale is composed of 3 items, the Cognitive-Behavioral 4 items, the Psychodynamic scale by 2 items; the Humanist scale by 4 items; the Systemic scale by 5 items; and the Eclectic/Integration scale is composed of 5 items.

Opinion about psychological problems: This scale assesses the clients' perceptions about the causes (47 items) and the treatment (47 items) for psychological problems.

Items are distributed by 7 scales: Psychodynamic, Humanist/ interpersonal, Behavioral, Cognitive, Organic, Socioeconomic, and Naïve [84].

Perceptions about help-seeking for psychological problems

We were also interested in understanding how the individuals' beliefs about their psychological problems were associated with a) their previous experience with mental health services and b) their perception about the perceived relevance of receiving help for mental health problems.

Thus, we included additional 5 items capturing these features: "In the past, I received a drug treatment for a psychological problem"; "In the past, I received psychotherapeutic treatment for a psychological problem"; "If I have a friend or a family member with a psychological problem, I will recommend that he/she looks for help from a psychologist"; "If I have a friend or a family member with a psychological problem, I will recommend that he/she looks for help from a psychiatrist"; and "If I have a friend or a family member with a psychological problem, I will recommend that he/she looks for help from a general physician".

PROCEDURES

Data collection

Data collection was made through the snowball technique. After signing the informed consent, participants filled out the questionnaires and sent them in a closed envelope to the research team.

Data analysis

With exception of the Confirmatory Factor Analysis (which was made using the AMOS, version 18.0), all analyses were performed using the SPSS for Windows, version 17.

To test how the items and factors were consistent with the construct, its semantic features, and hypnotized factorial structure, we performed both Factorial Analyses and Confirmatory Analyses, which differ on the degree of restrictions imposed on the factorial solution [85-89].

Firstly, we imposed minimal restrictions on the estimation of the factorial structure, the reason why we performed the Exploratory Factor Analysis with Varimax Rotation (because we assumed that the underlying dimensions are dependent).

To test the final factorial structure, we performed the Confirmatory Factor Analysis, which allowed us for testing the factorial structure using a combination of different fit indices: the Chi-square (2), the Root-Mean Square Error Approximation (RMSEA) [90], the Goodness of Fit Index (GFI) [52] the Comparative Fit Index (CFI) [91-93], and the Tucker and Lewis Index (TLI) [94].

Non-significant values of 2 are an indicator of a good fit, but in big samples, a combination of other fit indices needs to be considered. Values greater than .90 GFI for and .95 for CFI, and TLI are indicative of good fit, but values higher than .

90 for GFI, CFI, and TLI are also considered indicative of good fit but prominent authors [95-97]. Generally, values less than or equal to .05 for RMSEA are indicative of a good fit, the method of Maximum Likelihood (ML) was used, once the items were consistent with the presupposition of normality required for its use.

Based on the descriptive statistics, on the discrimination indices, and the factor loading of the items, the final items were selected, as suggested (American Educational Research A, American Psychological Association, National Council on Measurement in Education, Joint Committee on Standards for Educational & Psychological Testing (US), 1999).

For the estimation of reliability, the internal consistency of the scales using Cronbach's alpha was estimated [98-100].

To estimate scale's sensibility, or how it is sensitive enough to capture differences that the construct may assume in different group ds of individuals, we estimated the mean differences in different groups.

Finally, and to test the external evidence validity, we tested the convergent validity of the scale with the scales of the "Opinion about Psychological Problems" [101-103].

RESULTS

We will present results in the following sequence: Item analysis, internal consistency of the scale, Reliability Analysis, and Evidence of validity (sensitivity and convergent validity).

Item analysis: Descriptive statistics of the items are displayed in Table 1. Based on the suggestions made by eminent statisticians, the descriptive is acceptable.

For example, according to Nunnally and Bernstein's (1994) proposal, discrimination items need to be higher than .25/.30 in 90% of the cases, which is in line with what was found.

Table 1: Mean, standard deviation, Skewness, Kurtosis, and discrimination items.

	M	SD	Skewness	Kurtosis	Item-total correlation dimension
System-My behaviors are mainly determined by the characteristics of my family.	2.15	.96	-.20	-.87	.85
System-What influenced the mostly the way I am the relations with my family's members.	2.41	.91	-.57	-.54	.80
System My behaviors are mainly determined by the relationships that I have with the members of my family.	2.11	.93	-.04	-.69	.78
System-The characteristics of my family are what influenced the most the way I am.	2.63	.96	-.58	-.52	.79
System-My family's characteristics are the main responsible for me being the way I am.	2.65	.90	-28	-.66	.33
Call/Int-There are several ways for me to succeed in changing my behaviors.	2.97	.56	-,89	4.57	.43
Ecl/Int-We understand better the situations and behaviors, when we analyze them from several perspectives.	3.29	.60	-.36	.14	.57
Ecl/Int-The most of the times, there are several ways to explain peoples' behaviors.	2.88	.73	-.66	.67	.68
Ecl/Int-The causes of the psychological problems are different from person to person.	2.49	.83	-.57	-.03	.48
Ecl/Int-There are several ways of explaining why people have psychological problems.	2.59	.95	-.89	.81	.70
Hum-Once people fulfill their basic needs, they will change or growth.	2.82	.78	-.99	1.62	.49
Hum-The direction people give to their lives depend on their decisions.	2.40	.98	-.33	-.60	.51

Hum-I am responsible for the decisions I make.	1.71	1.04	.14	-.71	.48
Hum-In order to people may change, they need for the context to give them the basic conditions.	2.72	1.04	-.56	-.55	.52
Congn/Beh-If my behaviors had had different consequences, I would be different as a person.	2.39	.89	-.54	-.26	.76
Cogn/Beh-If I thought in a different way, I would have different behaviors.	3.12	.58	-.17	.56	.40
Cogn/Beh-I would succeed in changing my behaviors if was able to see things differently.	2.41	.81	-.53	-.21	.69
Cogn/beh-One can't change a behavior without changing the perspective about it.	2.41	.80	-.50	-.19	.62
Psychod-If I knew why I have certain behaviors, I would succeed in changing them.	2,46	.76	-.40	-.50	.93
Psychod-If I was aware of what is influencing my behaviors, I would succeed in changing them.	2.48	.77	-.53	.29	.94
Biomed-My brain is the main responsible for me having the behaviors I have;	2.58	.80	-.76	.70	.09
Biomed-The peoples' psychological problems are mainly due to their brain' functioning;	2.21	1.07	-.39	-.73	.10
Biomed-People can change their psychological problems if they take medication.	2.48	.90	-.45	-.22	.10

The internal structure of the scale

To obtain a factorial structure of the scale, we performed an Exploratory Factor Analysis (EFA, with minimal restrictions. A factorial structure of 6 factors was found (Systemic, Eclectic/ Integrative, Psychodynamic, Humanist; Cognitive-Behavioral and Biomedical. This structure was consistent with the theoretically and semantically hypothesized structure (Table 2). Factor 1 groups items from the systemic approach; Factor 2 groups items from the Eclectic/integrative approach; Factor 3 group items from the Humanistic approach; Factor 4 groups the items from the Cognitive-Behavioral approach; Factor 5 groups the items of the Psychodynamic approach; and Factor 6 groups the items of the Biomedical approach. All factors had an eigenvalue superior to 1, and all items registered loadings above . 40 on their respective factor [104-109].

Table 2: Results from the factorial exploratory analysis of the BAPPI (Varimax Rotation)

Item	Factor					
	1	2	3	4	5	6
My behaviors are mainly determined by the characteristics of my family;	0.860	0.035	0.054	0.061	0.023	0.064
What influenced mostly the way I am were the relations with my family's members;	0.846	0.070	0.044	0.085	-0.009	-0.010
My behaviors are mainly determined by the relationships that I have with the members of my family;	0.812	-0.083	0.050	0.054	0.086	0.039
The characteristics of my family are what influenced the most the way I am;	0.793	0.188	0.075	0.016	0.039	0.024
My family's characteristics are the main responsible for me being the way I am.	0.728	0.057	-0.031	0.172	0.093	0.234
There are several ways for me to succeed in changing my behaviors;	-0.036	0.739	0.078	0.031	0.119	0.004
We understand better the situations and behaviors, when we analyze them from several perspectives;	0.053	0.716	0.062	0.170	0.023	-0.060
The most of the times, there are	0.097	0.677	0.040	0.181	0.134	0.021

several ways to explain peoples' behaviors;						
The causes of the psychological problems are different from person to person;	0.089	0.670	0.048	0.046	0.072	0.017
There are several ways of explaining why people have psychological problems;	0.005	0.660	0.113	0.351	0.028	-0.034
Once people fulfill their basic needs, they will change or growth;	0.044	-0.022	0.787	0.014	0.064	-0.006
The direction people give to their lives depends on their decisions;	0.107	0.047	0.785	0.111	0.021	-0.010
I am the main responsible for me being the way I am;	-0.072	0.083	0.625	0.121	-0.083	0.149
In order to people may change, they need for the context to give them the basic conditions;	0.098	0.229	0.532	-0.050	0.143	0.079
If my behaviors had had different consequences, I would be different as a person;	0.154	0.050	-0.018	0.735	0.142	0.205
If I thought in a different way, I would have different behaviors;	0.169	0.364	0.002	0.625	-0.040	0.028
I would succeed in changing my behaviors if was able to see things differently;	0.042	0.242	0.124	0.623	0.361	0.058
One can't change a behavior without changing the perspective about things;	0.036	0.248	0.202	0.499	0.092	-0.177
If I knew why I have certain	0.081	0.174	0.052	0.126	0.892	0.076

behaviors, I would succeed in changing them;						
If I was aware of what is influencing my behaviors, I would succeed in changing them;	0.097	0.141	0.058	0.198	0.877	0.079
My brain is the main responsible for me having the behaviors I have;	0.151	-0.091	0.181	0.102	0.034	0.773
The peoples' psychological problems are mainly due to their brain' functioning;	0.082	-0.017	0.205	-0.070	0.001	0.768
People can change their psychological problems if they take medication;	0.030	0.051	-0.134	0.068	0.107	0.658
Eigenvalue	3.424	2.832	2.105	1.905	1.826	1.804
Variance	14,88%	12,31%	9,15%	8,28%	7,94%	7,84%

Note: Extraction method: Principal component analysis; Rotation method: Varimax, with Kaiser Normalization.

Confirmatory factor analysis

Results confirm the measurement model composed by 23 items. The indices confirm a good fit of the model to the data: 2= 441.25, df=214; 2/df=2.062; CFI=.942; GFI=935; TLI=.932; RMSEA=.044). Parameters were significant at p<.001.

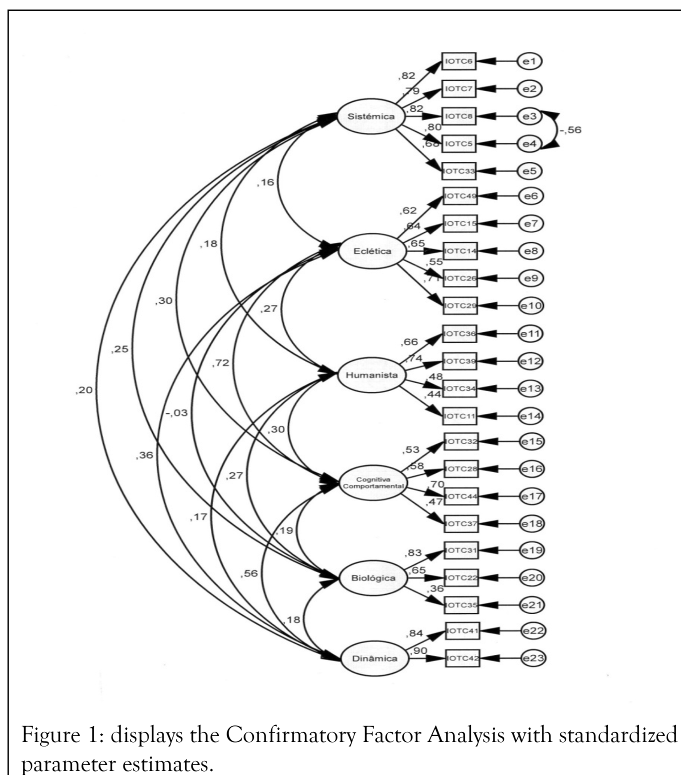

Figure 1: displays the Confirmatory Factor Analysis with standardized parameter estimates.

Reliability analysis

As an indicator of reliability, we estimated the internal consistency of the scales using the Cronbach'□, which was greater than .

70 to all scales, with exception of the Biomedical: α=.63 for Biomedical; α=.86 for Psychodynamic scale; α=.79 for Cognitive-Behavioral; α=0.77 for Eclectic/Integrative; and α=.75 for Systemic 110-115].

Table 3: Correlations between the BAPPI and OPP scales.

	OPP	OPP	OPP	OPP	OPP	OPP	OPP
BAPPI' s scales	Psychodynamic	Humistic	Behavioral	Cognitive	Organic	Socio-Economic	Naive
Systemic	-.011	.090	.000	.025	-.084	-.049	.044
Ecletic/ Integrative	.120	.173*	,176*	.151*	-.075	-.049	.051
Humanist	.234**	.221**	.218**	.198**	.200**	.235**	.145*
Cognit/ Behavioral	.017	.116	.113	.098	-.086	-.034	.151*
Psychodynamic	.216**	.227**	.185**	.201**	.089	.163*	.133
Biomedic	,020	,028	,007	-.039	-.068	-.217**	-.043

* p <.05

** p <.01

Evidence of validity

We tested the validity of the BAPPI by estimating the correlations between scales of the BAPPI and the scales of an instrument (the OPP) which was developed to evaluate the same construct. As displayed in Table XXX, significant and positive correlations were found between some scales of the different instruments [116-120]. As expected, some scales were found to positively correlate with their equivalent of the other scale (OPP). This was the case of the BAPPI's Psychodynamic scale which was positively correlated with the OPP's Psychodynamic scale (r=.216). The same happened with the BAPPI's and the OPP's Humanistic scales, which were significantly and positively correlated (r=.218). The BAPPI's Humanist scale was positively correlated with all the OPP's scales. On the other side, the BAPPI's Systemic scale was not correlated with no scale of the OPP (Table 3).

Group differences

To test the sensibility of the BAPPI in capturing existing differences in the phenomenon in individuals presenting characteristics that may influence individuals' beliefs about their psychological problems, we tested the mean differences.

Table 4: Mean, standard deviation, and ANOVA for mean differences on Beliefs about Psychological Problems between groups with different levels of educational attainment.

	9th school year		12th school year	University degree	df	F	p		
	(n=113)		(n=224)	(n=205)					
	M	SD	M					M	SD
Consulted/ sugest Psychologist	5.91	1.62	6.26	1.3	6.57	1.45	3	6.514	0.000*
Consulted/ sugest Psychiatrist	5.07	2.11	4.89	1.96	4.96	2.14	3	0.409	0.747
Consulted/ suggest General Physician	4.67	2.15	4.41	2.07	3.69	2.16	3	6.539	0.000*
Biomedic	6.52	2.39	5.72	2.22	5.28	2.29	3	8.159	0.000*
Psychodynamic	4.61	1.55	4.84	1.42	5.05	1.42	3	7.103	0.000*
Humanist	10.74	2.41	10.25	2.75	10.36	2.69	3	3.132	0.025*
Cognitive-Behavioral	9.97	2.69	10.83	2.06	11.19	1.82	3	9.854	0.000*
Systemic	11.69	4.32	11.39	3.97	12.19	3.6	3	2.739	0.043*
Ecletic/ Integrative	14.28	2.77	15.37	2.29	15.69	2.02	3	9.818	0.000*

* p <.05

Results show (Table 4) statistically significant difference in the degree to which individuals have sought professional help for their psychological problems from a psychologist and a general physician. Those with higher education had sought help for their psychological problems more from a psychologist (M=6.57; SD=1.45), and those with the lowest education had sought help/suggest for help to psychological problems more from their general physician (M=4.67; SD=2.15) (p=0.000). No differences were found in what it comes too had sought/intention to suggest for help from psychiatrists [121-122]. Statistically significant differences in beliefs about psychological problems were found as a function of the individuals' Educational attainment. Interestingly, the tendency for presenting beliefs about psychological problems consistent with the Biomedical

decreased as the Education Attainment level raised (p=0.000). Conversely, beliefs about psychological problems were becoming more consistent with Psychodynamic (M=5.05;SD=1.42), Cognitive-Behavioral (M=11.19;SD=1.82), and Eclectic/ Integrative (M=15.69; SD=2.02) orientations as the educational attainment level raised (p=0.000). Tendencies were mixed for the Humanist and Systemic approaches.

Table 5: Mean, standard deviation, and ANOVA for mean differences on Beliefs about Psychological Problems between groups with different ages.

	< 30		30 - 50	> 50	df	F	p		
	(n=290)		(n=198)	(n=55)					
	M	SD	M	SD				M	SD
Consulted Psychologist	6.41	1.46	6.17	1.51	6.28	1.11	3	4.451	.004*
Consulted Psychiatrist	4.89	2,12	4.92	2.05	5.5	1.72	3	2.763	.041*
Consulted General Physicist	4	2.17	4.2	2.14	5.28	1.8	3	7.067	.000*
Biomedic	5.53	2.16	5.55	2.47	7.28	2.06	3	10.091	.000*
Psychodyna mic	4.96	1.47	4.81	1.47	4.5	1.35	3	4.218	.006*
Humanist	10.58	2.59	10.2	2.78	10.15	2.56	3	4.82	.003*
Cognitive-Behavioral	11.04	1.98	10.6	2.26	10.2	2.61	3	7.033	.000*
Systemic	11.72	3.97	11.68	3.71	12.12	4.41	3	1.363	0.253
Ecletic/ Integrative	15.43	2.29	15.19	2.42	14.75	2.53	3	8.319	.000*

* *p* <.05

Concerning mean differences according to age (Table 5), there was a consistent tendency for younger individuals (under 30) to have sought/intent to suggest seeking help for psychological problems from a psychologist more than older individuals (p<. 004). Older individuals had sought/suggested help from a psychiatrist (p<.041) or a general physicist (p<.000) more than under thirties individuals.

Concerning the differences on Beliefs about Psychological Problems, younger individuals registered beliefs more consistent with Psychodynamic (M=4.96; SD=1.47; p=0.006), Humanist (M=10.58; DP=2.59; p=0.003), Cognitive-Behavioral (M=11.04; SD=1.98; p=0.000) and Eclectic approaches (M=15.43; SD=2.29; p=0.000). Conversely, the older the individuals, the higher the preference for the Biomedical approach (p=0.000). No differences between groups of age were found in what comes to the Systemic approach (p=.253).

DISCUSSION

The objective of this study was to evaluate the psychometric characteristics of the Beliefs about Psychological Problems Inventory (BAPPI), an assessment instrument intended to capture the individuals' beliefs about their psychological problems. We analyzed different indicators of validity, including item analysis, the internal structure of the scale, reliability, and evidence of validity, which we will discuss in the following.

Item analysis

As recommended by several authors, the discrimination calculations need to be performed by sub-scale of dimension. This means that the estimation of discrimination needs to be performed between the item and its correspondent narrower dimension. Consistently, all the items of the BAPPI registered correlations with their respective dimension higher than . 25/.30, which is in line with the suggested.

Exceptions to this tendency were the items of the biomedical dimension, which required specific analysis of these items' behavior. The correlation of the items with their correspondent dimension is an indicator of the degree to which the items are measuring in the same direction, and, therefore, how the items are representative of that dimension. When this discrimination is performed taking the diverse items together, then an estimation of the reliability of the scale is obtained, such as in the case of Cronbach's α. In the case of this study, Cronbach's α was performed only after the group of items for each scale had been defined, also as suggested for example by Carretero-Dios and Pérez (2007). The Cronbach's α was greater than .70 for all the scales, with exception of the Biomedical (α=.63) which, not being optimal, is still acceptable. Future studies should address this question and try some improvements on these items' discrimination indices.

The internal structure of the scale

All items had been previously repeatedly analyzed (as described before) in terms of the semantic and construct criteria. Then the resulting 23 items were all included in the Exploratory Factor Analysis, in which minimal restrictions were imposed. The resulting model was consistent with the semantic and construct expected model and was composed of 6 oblique factors. The facts that a) the Eigenvalue of each factor was greater than 1 and b) the item loadings were all superior to .40 supported the decision of keeping this 6-factor solution.

To test the stability of the proposed model, and to evaluate its adequacy to another set of data, a second study was conducted where the scale was administrated to a different and larger sample. The different indices obtained by the Confirmatory Factor Analysis suggested that this was a model that fit well to the data.

Evidence of validity

As suggested by several authors, the validity of an instrument cannot be assumed without considering its associations with other constructs. In fact, and considering the dynamic nature of human functioning, a given phenomenon As a consequence, an indicator of an assessment's validity is how the instrument relates with other (convergent or divergent) constructs (American Educational Research Association, American Psychological Association, National Council on Measurement in Education, Joint Committee on Standards for Educational & Psychological Testing (US), 1999). In this study, we estimated the associations between the scales of the BAPPI and the scales of the OPP, which assesses the clients' opinions about their psychological problems.

Firstly, and as expected, some scales were found to positively correlate with their equivalent of the other scale (OPP): the BAPPI' Psychodynamic scale which was positively correlated with the OPP's Psychodynamic scale (r=.216); the BAPPI's and the OPP's Humanistic scales were significantly and positively correlated (r=.218). Secondly, the BAPPI's Humanist scale was positively correlated with all the OPP's scales. This is an understandable result, because the Humanistic approaches emphasize the role of necessary conditions to change to occur, which tend to be shared by the different approaches. Thirdly, the BAPPI's Systemic scale was not correlated with no scale of the OPP. The OPP does not have a scale for the Systemic approach which helps to understand the inexistence of significant association of any of its scales with the BAPPI' Systemic scale. Fourthly, the BAPPI's Cognitive-Behavioral scale does not significantly correlate with the OPP's behavioral and cognitive scales. Although it could be expected that such relations would exist, this result suggests that the contemporary understanding of the Cognitive-Behavioral approach (as captured by the BAPPI) present semantic and construct differences about the classic approaches of the cognitive and behavioral approaches when taken independently one from another. Taking together, the relationships between the dimensions of the BAPPI and the OPP suggest that, although they present some commonalities, these two instruments are not equivalent.

Finally, we tested for differences between groups based on age and educational attainment, on beliefs about psychological problems, which would be an indicator of the BAPPI sensitivity for capturing existing differences between individuals. As expected, we found that younger individuals registered beliefs more consistent with Psychodynamic, Humanist, Cognitive-Behavioral, and Eclectic approaches. Conversely, the older the individuals, the higher the preference for the Biomedical approach. These results may be understood in the light of the Health paradigms dominants during the lifespan of the individuals. Older individual's development occurred more in a time were the Biomedical paradigm was still very dominant, and so, it is possible that it substantially had shaped more markedly beliefs consistent with the Biomedical approach to mental health. Younger individuals tend to present a conception about mental health more consistent with the bio psychosocial perspective, also because of the higher availability of systematized and empirically supported frameworks for the explanation of psychological problems. Concerning educational attainment, the tendency for presenting beliefs about psychological problems consistent with the Biomedical decreased as the education level rose. Conversely, beliefs consistent with Psychodynamic, Cognitive-Behavioral, and Eclectic/Integrative orientations were higher in individuals with higher educational status. These results are in line with evidence about the significant impact that educators have on individuals' development, including the development of socio-cognitive processes. Education promotes the development of internal resources (such as abstraction, flexibility, self-knowledge, awareness, etc.) which underlie the meaning-making processes and the differentiation of the beliefs systems. But education facilitates also the access of external resources (information, etc.) which makes more information to be available and to be integrated into the process of the belief system's development. Thus, individuals with higher educational attainment tend to have more internal and external resources that allow them to develop alternatives to the Biomedical approach of mental health, as a result of having awareness and knowledge about other dimensions that impact human development and psychosocial functioning (human relations, cognitions, emotions, etc.). As a consequence, their system beliefs may be more consistent with approaches that emphasize the active role of the agency mechanisms on their several functioning domains (including mental health) rather than approaches that may inspire a more deterministic and passive attitude. Information coming from the analyzed indicators suggested that the BAPPI is an instrument with acceptable psychometric properties, and suitable for use in research and clinical practice. Firstly, the range of the dimensions assessed by the BAPPI goes behind the simplistic dichotomy of medical *VS* non-medical approaches or biological/individual *VS* psychodynamic/group. Secondly, BAPPI includes only frameworks that have empirical validation. Thirdly, as demonstrated by both the EFA and CFA performed in this study, the BAPPI has a stable factorial structure, which is an advantage over other assessments to which there is no evidence for their structural stability. Fourthly, more than

focusing on beliefs regarding specific disorders, it captures beliefs about global psychological problems, which may be an advantage for treatment selection, but also for comparison of finding coming from different studies. Fifth, the dimensions assessed by the BAPPI are consistent with the major frameworks of current psychotherapy science, which makes the BAPPI suitable for use in studies that aim to understand individuals' beliefs about their psychological problems besides the naïve or popular conceptions of Mental Health (which it is still very prevalent in some societies). Sixth, its short form (23 items) facilitates its systematic use in systematic assessment protocols.

In sum, as suggested by this study's results, the BAPPI presents adequate psychometric properties and has the potential of contributing to the advance of research and practice of the systematic efforts of tailoring Mental Health Interventions to the individuals' non-diagnostic characteristics, including to the clients' systems of beliefs about their psychosocial functioning, which is a current trend on psychotherapy research and practice.

Future studies need to describe the BAPPI use in clinical populations, including in studies assessing the impact on psychotherapeutic processes and outcomes of the systematic tailoring of the treatment to the clients' characteristics.

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