The Distinctive Associations of Interpersonal Problems with Personality Beliefs Within the Framework of Cognitive Theory of Personality Disorders

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Abstract

The aim of this study was to explore the relationship between interpersonal problems and dysfunctional beliefs associated with personality disorders, within the framework of cognitive theory of personality disorders. Based on the proposition of cognitive theory, different dimensions of interpersonal problems which were assessed through the coordinates of interpersonal circumplex model were expected to be associated with specific categories of personality beliefs namely, deprecating, inflated, and ambivalent personality beliefs. Participants were 997 volunteer adults (304 males and 693 females) from Turkey, between the ages of 18 and 61. They completed the personality belief questionnaire, basic personality traits inventory, and inventory of interpersonal problems measures. Considering the well-established representations of personality disorders in Big Five space, and correspondence between five-factor model of personality and interpersonal circumplex model, the present study examined the hypothesized associations via a robust analysis where strongly relevant personality factors were statistically controlled for in each analysis. Results revealed that different dimensions of interpersonal problems distinctively associated with three personality belief categories; deprecating beliefs were associated with over-friendly submissiveness, inflated beliefs were associated with dominance, and ambivalent beliefs were associated with hostile/cold dominance. Findings supported the validity of cognitive formulations (view of self and view of others) of the personality disorders proposed by the cognitive theory, also highlighted the priority of interpersonal problems in personality psychopathology.

Keywords Interpersonal problems · Personality beliefs · Cognitive theory · Dominance · Friendliness · Submissiveness

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Introduction

A dimensional model of personality disorders as an alternative to the categorical system has been proposed to promote further research by the recent revision of DSM. Accordingly, the first criterion of the personality disorders in this alternative model emphasizes the impairment of self and interpersonal functioning (American Psychiatric Association 2013). Consistently, the representativeness of personality disorders on dimensional spaces and interpersonal coverage of different personality disorder models have been well addressed in the literature (see also, Williams and Simms 2016). Moreover, specific associations between pathological DSM-5 personality traits and dysfunctional personality beliefs have been underlined (Hopwood et al. 2013). Bhar et al. (2012) claimed that a diagnostic evaluation of self and interpersonal impairment proposed by the DSM-5 model requires identification of the person's belief about self and others. Thus, examination of cognitive features (i.e., self and others-schemas) of personality disorders in relation to interpersonal problems have the potential to further improve the understanding of personality psychopathology.

The cognitive theory of personality disorders (Beck et al. 2015) emphasizes the role of dysfunctional cognitive schemas in the development and maintenance of personality disorders (PDs). Accordingly, a negative meaning and undue importance attached to the daily and ordinary experiences trigger, a specific hierarchy of the thoughts and beliefs associated with that PD. These dysfunctional thoughts and beliefs about the self, others, the world, and the future, in turn, lead to typical maladaptive behaviors observed in PDs. According to the cognitive model, beliefs of personality disorders are less amenable to change when compared to other psychological disorders because of their strong, stable, and deeper structure in the cognitive organization. Moreover, the symptoms of people with PD viewed as ego-syntonic, hence they do not regard their personality characteristics as problematic unless these symptoms lead to disturbing consequences or interfere with their social or occupational goals (Beck et al. 2015). Thus, they rarely seek psychological help to change. Nevertheless, interpersonal problems are important issues not only for these individuals but for the people interacting with them as well. Indeed, personality disorders were described as primarily disorders of interpersonal relatedness (Benjamin 1993; Kiesler 1986).

Consistent with the cognitive model, Dimaggio et al. (2006) emphasized the importance of dysfunctional cognitive schemas in interpersonal problems. They proposed that interpersonal schemas develop through relationships with others, and in turn, they shape people's interactions with others (see Safran 1990). Similarly, according to the interpersonal theory of personality (Sullivan 1953), experiences of interpersonal interactions represent the fundamental elements of psychopathology. Sullivan (1953, pp. 110–111) states, "personality is the relatively enduring pattern of recurrent interpersonal situations which characterize a human life". Needs of security and self-esteem represent the essential motives underlying interpersonal interactions in which individuals affect each other's behaviors (Sullivan 1953). Leary (1957) elaborates the interpersonal theory of Sullivan, and

describes interpersonal behaviors with a circle in which affiliation (ranges from hostile to friendly behaviors) and dominance (ranges from domineering to submissive behaviors) are the basic coordinates corresponding to Sullivan's security and self-esteem concepts, respectively. This model is named as interpersonal circumplex model (Gurtman 1992; Leary 1957). A generic interpersonal circumplex and interpersonal behaviors derived from these dimensions are diagrammed in Fig. 1 to be reviewed.

Due to maladaptive patterns of interpersonal relationships that have a chronic negative impact on individuals with personality disorders, the relationship between interpersonal problems and personality disorders has been widely examined. Results mostly supported the relationship between interpersonal difficulties and borderline PD (Barnow et al. 2009; Hilsenroth et al. 2007; Leichsenring et al. 2003; Russel et al. 2007; Wright et al. 2013), antisocial PD (Edens 2009; Wiggins and Pincus 1989), and avoidant PD (Alden and Capreol 1993). Likewise, researchers investigated personality disorders in relation to the interpersonal circumplex (e.g., Soldz et al. 1993; Gurtman 1996; Wiggins and Pincus 1989) and found that Histrionic PD was characterized by friendly-dominant problems; Antisocial, Narcissistic, and Paranoid PDs were characterized by hostile-dominant problems; Avoidant and Schizoid
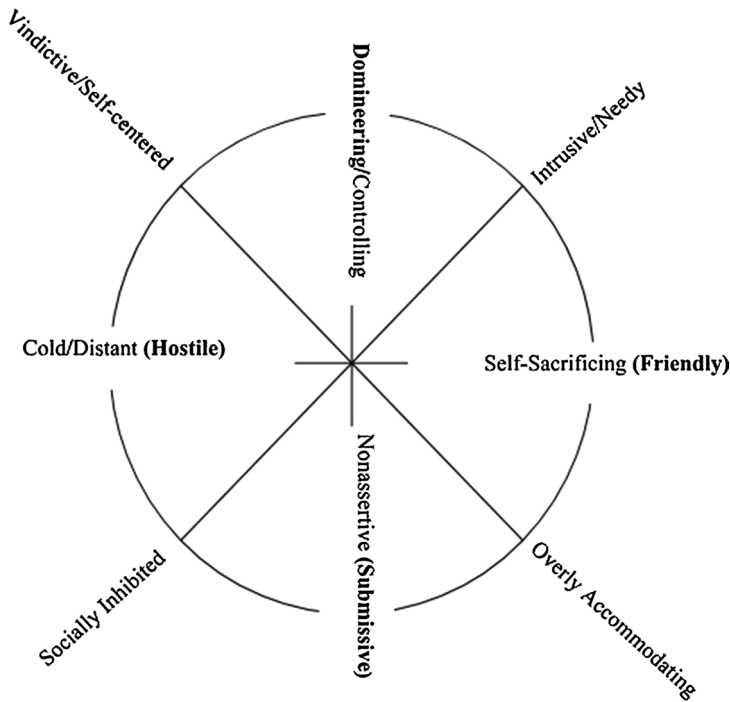

Fig. 1 The interpersonal circumplex. *Note:* Horizontal and vertical axes represent affiliation and dominance dimensions, respectively. Interpersonal octants represented by subscale names of the Inventory of Interpersonal Problems appear in every 45° of the circumplex. Adapted from Alden et al. (1990)

PDs were characterized by hostile-submissive problems; and Dependent PD was characterized by friendly-submissive problems in relations with others (See also meta-analysis, Wilson et al. 2017).

Another widely accepted dimensional model that has been examined in relation to personality psychopathology is the five factor model (FFM; Costa and McCrae 1985) of personality. Associations between these two well-established models of personality (Interpersonal Circumplex and FFM) and personality disorders have also been given great attention by researchers. Although both models are organized in dimensions, their origin, scope, and structure are different. The interpersonal circumplex model has a narrow focus of personality covering interpersonal dispositions whereas the five-factor model is a comprehensive organization covering various areas such as emotional, behavioral, motivational, and interpersonal traits (Wiggins 1979; McCrae and Costa 1989). Thus, it is suggested that interpersonal dimensions should overlap with big five dimensions to some extent (e.g., McCrae and Costa 1989). Nevertheless, among the basic personality traits of the five-factor model, neuroticism, extraversion, and agreeableness were found to be associated with interpersonal problems (Gurtman 1995; Nysæter et al. 2009). Specifically, Trapnell and Wiggins (1990) indicate that extraversion is closely associated with the dominance dimension whereas agreeableness is associated with nurturance (affiliation) dimension of the interpersonal problems. It was also suggested that extraversion and agreeableness factors of the big five correspond to dominance and affiliation dimensions of the interpersonal circumplex model only if rotated 30°–45° in clockwise, respectively (e.g., McCrae and Costa 1989; Soldz et al. 1993; DeYoung et al. 2013).

The Current Study

Cognitive theory of personality disorders set a framework for the hypotheses of the study, proposing that depending on the content of self and others-schemas, personality disorder categories would reveal distinctive associations with interpersonal problems. In the content analysis of the self and others-schemas, proposed by the cognitive theory (Beck et al. 2015), Akyunus and Gençöz (2017) suggested that dysfunctional personality beliefs could be classified into three higher-order categories named as deprecating, inflated, and ambivalent beliefs. According to this classification, deprecating personality beliefs consist of avoidant, dependent, and borderline personality beliefs which have a more negative view of self as compared to the view of others. The self is perceived as inferior to others in the sense that they are inadequate, incompetent, helpless, and vulnerable to be rejected from others who are perceived as competent, superior, idealized, and critical. Inflated personality beliefs include obsessive-compulsive, antisocial, narcissistic, and histrionic personality beliefs which have a more positive view of self as compared to the view of others. Their self-conceptualization is superior and idealized such that they are competent, self-sufficient, special, and unique, and they deserve special attention and treatment from others. On the other hand, others are seen as inferior, careless, weak,

exploitable, and receptive admirers. Finally, the ambivalent personality beliefs consist of schizoid, paranoid, and passive-aggressive personality beliefs that have an inconsistent view of self in relation to others. The self is perceived positively as independent, autonomous, self-sufficient, and righteous but also negatively due to the sense of "vulnerability". They view themselves as vulnerable to the malicious and manipulative intentions of others. This view of self is consistent with and perpetuated by the view of others, which is intrusive, demeaning, manipulative, and controlling. Due to these characteristics, this autonomous but vulnerable self in relation to others is classified as ambivalent personality beliefs. Akyunus and Gençöz (2017) also confirmed the validity of this categorization of personality beliefs with the discriminant function analyses of the proposed categories on positive and negative affect.

In the present study, the relation of dysfunctional personality beliefs with interpersonal problems represented by interpersonal circumplex is aimed to be examined via a robust analysis where strongly associated personality factors were statistically controlled. With the use of alternative categorization of the PDs which depends on their cognitive formulations provided by the cognitive model, hypotheses of the present study are also expected to provide support for the cognitive model of PDs in the interpersonal context. Specifically, deprecating personality beliefs were hypothesized to be associated with submission and (over)friendliness problems, inflated personality beliefs were hypothesized to be associated with dominance problems, and unspecified (also referred as ambivalent) personality beliefs were expected to be associated with dominance and coldness (hostility) problems. The personality traits that were stated as being strongly associated with interpersonal problems and its dimensions, namely neuroticism, extraversion, and agreeableness, were statistically controlled for to eliminate their influence on personality beliefs.

Method

Participants

Participants of the present study were 997 volunteer adults (304 males and 693 females) from Turkey, between the ages of 18 and 61 (M = 27.18, SD = 8.1). Two of the participants did not report their age. Among the participants, 64.7% had university and graduate level education, 34.6% were high-school graduates, and .7% were middle-school graduates. In terms of marital status, 79.2% of participants were single, 16.2% were married, and 4.6% were divorced, separated or widow. Among the participants, 49.3% were actively working, 49.7% were unemployed, whereas 1% were retired. According to their occupational/ professional status, 38.2% of the participants were students, 12.3% were engineers, 8.3% were finance specialists, lawyers, administrators, 8% were teachers, 6.4% were health professionals, 5.6% were researchers, 3.6% were architects and designers, 15.9% reported other professions (e.g., artists, freelancers, technicians, salesmen, social workers, etc.) and, 2.7% did not report their occupation or profession. Participants were also screened for their

psychological problems. 20.6% of the participants reported that they had a psychological problem, 6.7% being depression, 5.3% anxiety disorders, 1% bipolar disorder, .6% personality disorders, and 1.3% other forms of psychological problems (e.g., eating disorders, sleeping disorders, ADHD, etc.), whereas 5.7% did not report the type of their problem. This study was a part of a larger project, thus the participants enrolled in some other studies as well.

Instruments

Basic Personality Traits Inventory (BPTI)

BPTI is developed particularly for Turkish culture by Gençöz and Öncül (2012) to measure basic personality traits (Peabody and Goldberg 1989). As a result of a series of studies, Gençöz and Öncül (2012) found factors referring to the five basic personality traits consistent with the FFM (McCrae and Costa 2003; Peabody and Goldberg 1989) namely, openness, conscientiousness, extraversion, agreeableness, and neuroticism with an additional sixth factor called "negative valence" which refers to "negative self-attributions". BPTI consists of 45 items rated on a 5-point Likert-type scale. The internal consistencies of the six factors were found to be ranging from .71 and .89, and test-retest reliabilities were ranging from .71 to .84. Validity studies conducted by examining correlations with other relevant variables (e.g., self-esteem, perceived social support, coping) revealed satisfactory psychometric characteristics for BPTI. Internal consistencies of BPTI scales used in the current study were found to be ranging from .82 to .87.

Inventory of Interpersonal Problems Circumplex Scales (IIP-32)

IIP-32 is a 32-item self-report measure assessing the most salient interpersonal problems of a person (Horowitz et al. 1988; Horowitz et al. 2003). Eight domains of difficulties in interpersonal functioning were represented by the subscales of IIP-32 namely, domineering/controlling, vindictive/self-centered, cold/distant, socially inhibited, nonassertive, overly accommodating, self-sacrificing, and intrusive/needy. Each subscale includes 4 items where participants rated their distress due to a specified interpersonal problem on a 4-point Likert scale. IIP-32 was adapted to Turkish by Akyunus and Gençöz (2016), the internal consistency was found as .86 for the overall scale, and as ranging from .66 to .84 for the subscales, whereas test-retest reliability was shown to be .76 for the overall scale, and ranging between .59 and .83 for the subscales. Concurrent validity study indicated expected significant correlations between IIP-32 subscales and personality traits, psychological symptoms, social support, and positive and negative affect whereas criterion validity study revealed that IIP-32 subscales differentiate individuals with high and low psychological symptoms. In the current study, the internal consistencies of the IIP-32 subscales were found to be ranging from .66 to .84, whereas overall scale reliability coefficient was .86.

Personality Belief Questionnaire (PBQ)

PBQ (Beck and Beck 1991; Fournier 2015) is developed for assessment of the dysfunctional beliefs related to personality disorders. The PBQ includes ten subscales each with 14 items, corresponding to the personality disorders on Axis II of the DSM-III-R namely, dependent, avoidant, passive-aggressive, obsessive-compulsive, antisocial, narcissistic, histrionic, paranoid, schizoid, and borderline personality disorders. Good psychometric properties were obtained in studies conducted with both clinical and non-clinical populations (Beck et al. 2001; Butler et al. 2002; Trull et al. 1993). Moreover, Beck et al. (2001) proposed a strong discriminative validity of PBQ among the PDs. Psychometric properties of the Turkish version of PBQ revealed good reliability and validity coefficients. Internal consistencies of the subscales ranged from .67 to .90, and test re-test reliability coefficients ranged between .65 and .87 (Türkçapar et al. 2008). Satisfactory validity characteristics were also shown with significant correlations between subscales of PBQ and psychological symptoms (Akyunus-İnce 2012) and dysfunctional attitudes (Türkçapar et al. 2008). Internal consistencies of the PBQ subscales were found to be ranging from .78 to .92 in the current study.

Procedure

Prior to the data collection, ethical permission for conducting research with human subjects was obtained from The Applied Ethics Research Center of Middle East Technical University. Participants were invited to the study via an announcement shared in social network sites. In this announcement, participants were informed that they would get personal feedback regarding their personality characteristics and interpersonal behaviors. The Demographic Information Form, IIP-32, BPTI, and PBQ were administered to the participants in a web site, particularly built for this research, in which the informed consent form was presented initially. Participants who voluntarily participated in the study from the web site were given automatic feedback in which they could compare their own mean values with the means provided for the subscales of BPTI and IIP-32. The provided mean values for this feedback were obtained from an independent sample of 300 university students. This feedback included bar graphs showing means of the participant, the mean of the previous sample for each subscale, and a definition of the presented subscale. Prior to the feedback presentation, participants were informed about nature (e.g., this is not a psychological assessment of abnormality or deviations) and limitations (e.g., the comparison sample is not a representative one) of this feedback system.

Results

Prior to the analyses, raw data of IIP-32 were ipsatized (by subtracting the overall mean from each score) in order to remove the effect of general interpersonal distress and reveal the bipolar structure of the two-dimensional interpersonal circumplex (as suggested by Acton and Revelle 2002; Alden et al. 1990; Soldz et al. 1993). For the PB categories constructed with the given rationale in the introductory section; deprecating category of PB was obtained with the computation of arithmetical average of the avoidant PB, dependent PB, and borderline PB scale scores; inflated category of PB was obtained with the computation of arithmetical average of the narcissistic PB, antisocial PB, histrionic PB, and obsessive-compulsive PB scale scores; and ambivalent category of PB was obtained with the computation of arithmetical average of the passive-aggressive PB, paranoid PB, and schizoid PB.

Three separate hierarchical multiple regression analyses were conducted to regress personality belief categories via interpersonal problem octants, after statistically controlling for the effects of relevant personality traits. At each regression analysis regressing one of the personality belief categories, variables were entered into the equation in three steps via the stepwise method. At the first two steps, age

Table 1 Variables associated with personality belief categories

Sets of predictors	Criterion					
	Deprecating personality beliefs		Inflated personality beliefs		Unspecified personality beliefs	
	ΔR^2	β	ΔR^2	β	ΔR^2	β
Control variables						
Age	.016***	− .13***	.01***	− .11***	.011***	− .11***
Gender			.009**	− .09**	.01***	− .10***
Personality traits						
Neuroticism	.133***	.37***	.109***	.34***	.108***	.34***
Extraversion	.06***	− .25***			.017***	− .14***
Agreeableness						
Interpersonal problems						
Domineering/controlling			.025***	.17***	.012***	.13***
Vindictive/self-centered						
Cold/distant					.026***	.17***
Socially inhibited						
Nonassertive	.003*	.06*	.004*	− .09*		
Overly accommodating	.005*	.07*			.004*	.08*
Self-sacrificing			.005*	− .06*		
Intrusive/needy	.003*	.06*				
Total explained variance (R^2)	22%		16%		19%	

Male = 1, Female = 2, *p < .05, **p < .01, ***p < .001

and gender (coded as male = 1, female = 2), and three basic personality traits (i.e., extraversion, agreeableness, neuroticism) were entered as the control variables; at the last step eight interpersonal problem octants (i.e., dominant-controlling, vindictive/self-centered, cold-distant, socially inhibited, nonassertive, overly accommodating, self-sacrificing, intrusive-needy) were entered into the equation (See Table 1).

The analysis regressing the Deprecating PB measure revealed significant associations with the control variables. In the first step, age explained 2% of the variance, (F_{change} [1, 993] = 15.87, $p < .001$), and it was found to be negatively associated with deprecating beliefs. In the second step, neuroticism increased the explained variance to 14% (F_{change} [1, 992] = 154.62, $p < .001$), whereas extraversion increased it to 21% (F_{change} [1, 991] = 75.20, $p < .001$). Accordingly, Deprecating PB has a positive association with neuroticism, and a negative association with extraversion. After controlling for the personality traits along with age and gender, hierarchical regression analysis run for the Deprecating PB measure revealed significant increment of prediction afforded by Overly Accommodating (F_{change} [1, 990] = 5.80, $p < .05$), Intrusive/Needy (F_{change} [1, 989] = 4.07, $p < .05$), and by Nonassertive (F_{change} [1, 988] = 3.86, $p < .05$) interpersonal problem octants, increasing explained variance to 22 % in total. The analysis of the last step revealed that among interpersonal problems namely, overly accommodating, intrusive/needy, and nonassertive problems were all positively associated with Deprecating PB (See Table 1).

Regression analysis with the Inflated PB (See Table 1) measure revealed that age (F_{change} [1, 993] = 10.27, $p < .001$) and gender (F_{change} [1, 992] = 8.78, $p < .01$), explained 2% of the variance, and both age and gender had negative association with Inflated PB. Among personality traits, neuroticism increased explained variance to 13% (F_{change} [1, 991] = 123.51, $p < .001$), and it was found to be positively associated with Inflated PB. In the last step, Inflated PB measure revealed significant increment of prediction afforded by Domineering/Controlling (F_{change} [1, 990] = 28.65, $p < .001$), by Self-Sacrificing (F_{change} [1, 989] = 4.30, $p < .05$), and by Nonassertive (F_{change} [1, 988] = 6.40, $p < .05$) interpersonal problem octants, increasing explained variance to 16% in total. The analysis of the last step revealed that among interpersonal problems, domineering/ controlling problems had positive, whereas self-sacrificing, and nonassertive problems had negative associations with the Inflated PB.

Finally, regression analysis conducted with the Ambivalent PB measure revealed that age (F_{change} [1, 993] = 10.78, $p < .001$) and gender (F_{change} [1, 992] = 10.40, $p < .001$), explained 2% of the variance. Accordingly, both age and gender were negatively associated with Ambivalent PB. Among personality traits, neuroticism (F_{change} [1, 991] = 122.57, $p < .001$) increased explained variance to 13%, and extraversion increased it to 15% (F_{change} [1, 990] = 19.73, $p < .001$) in the second step. Accordingly, neuroticism had a positive association with Ambivalent PB, whereas extraversion had a negative association. In the last step, Ambivalent PB measure revealed significant increment of prediction afforded by cold/distant (F_{change} [1, 989] = 31.49, $p < .001$), Domineering/Controlling (F_{change} [1, 988] = 14.16, $p < .001$, and by Overly Accommodating (F_{change} [1, 987] = 4.71, $p < .05$) interpersonal problem octants, increasing the explained variance to 19% in total. The analysis of the last step revealed that among interpersonal problems, cold/distant, domineering/ controlling, and overly accommodating problems were positively associated with

Table 2 Hierarchical regression results for variables predicting personality disorder beliefs

Set of predictors	Avoidant PB		Dependent PB		Passive-aggressive PB		Obsessive-compulsive PB		Antisocial PB	
Criterion	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Control variables										
Gender					.01***	–.10***	.01**	–.09**	.01**	–.10**
Age	.005*	–.07*	.015***	–.12***	.005*	–.07*			.01**	–.10**
Personality traits										
Extraversion	.11***	–.23***	.04***	–.21***	.01**	–.09**			.01**	–.10**
Agreeableness			.02***	.14***			.01***	.12***		
Neuroticism	.05***	.34***	.07***	.28***	.10***	.33***	.06***	.25***	.05***	.22***
Interpersonal problems										
Dominant										
Self-centered									.007**	–.14**
Cold-distant										
Socially inhibited									.006**	.09**
Nonassertive			.02***	.15***			.01***	–.10***	.003*	–.07*
Overly accommodating			.006***	.09**					.01***	–.13***
Self-sacrificing									.02***	–.18***
Needy			.03***	.19***			.01**	.08**	.005*	.09*
Total variance	17%		20%		12%		10%		13%	

Set of predictors	Narcissistic PB		Histrionic PB		Schizoid PB		Paranoid PB		Borderline PB	
Criterion	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Control variables										

Table 2 (continued)

Set of predictors	Narcissistic PB		Histrionic PB		Schizoid PB		Paranoid PB		Borderline PB	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Gender	.007**	– .09**					.01**	– .08**		
Age	.007**	– .09*	.03***	– .16***			.02***	– .14***	.02***	– .15***
Personality traits										
Extraversion	.006**	.08**					.02***	– .14***	.05***	– .23***
Agreeableness					.03***	– .17***				
Neuroticism	.08***	.29***	.10***	.33***	.01***	.11**	.10***	.32***	.14***	.38***
Interpersonal problems										
Dominant										
Self-centered										
Cold-distant					.06***	.27***	.01***	.11***		
Socially inhibited	.01***	– .13***								
Nonassertive	.02***	– .15***			.02***	– .14***				
Overly accommodating					.006**	– .10**				
Self-sacrificing	.02***	– .14***	.01**	– .08*	.01**	– .12**				
Needy			.03***	.18***	.012***	– .12***				
Total variance	15%		17%		14%		16%		21%	

$*p < .05, **p < .01, ***p < .001$

Ambivalent PB (See Table 1). The unexpected significant result of overly accommodating problems was interpreted as a suppression effect since its zero-order correlation with the criterion was in the opposite direction (i.e., $r = -.12$, $p < .001$).

In addition to the main analyses, additional hierarchical regression analyses (via the same method and steps as the previous analyses) were conducted with the use of ten personality belief categories separately as the criterion. The results of these analyses are provided in Table 2.

Discussion

In the present study, the association between three personality disorder belief categories and interpersonal problems were examined after controlling for the relevant basic personality traits, namely neuroticism, extraversion, and agreeableness. The results revealed hypothesized associations between criterion and predictor variables.

Among the control variables concerning personality traits, neuroticism was positively associated with all PB categories, whereas extraversion was negatively associated with deprecating and ambivalent PB. These findings were consistent with the previous studies associating neuroticism with the overall interpersonal problems as a general factor (Gurtman 1995; Nysæter et al. 2009). Low extraversion being associated with high deprecating and high ambivalent PB can be interpreted within their self-in relation to-others conceptualization. Accordingly, withdrawal from relationships with others and introversion can be observed in inferior (deprecating PB) and vulnerable (ambivalent PB) self in relation to others. Indeed, extraversion was consistently shown to be positively associated with self-esteem (e.g., Amirazodi and Amirazodi 2011; Francis 1997; Francis and James 1996) and assertiveness (e.g., Bouchard et al. 1988; Ramaniah and Deniston 1993) which would be expected to be low among individuals with perceived inferiority and vulnerability. For the main hypotheses of the present study, interpretation of the results will be elaborated within the framework of the cognitive conceptualizations (Akyunus and Gençöz 2017; Beck et al. 2015) of the presented PB categories.

For the deprecating PB (Avoidant PB, Dependent PB, and Borderline PB), the self is viewed as inferior, inadequate, helpless whereas others are viewed as competent, superior, and critical. Consistent with this categorization, problems of deprecating PB in the interpersonal context were found to appear in overly accommodating (friendly submissive/ exploitable), non-assertive (submissive), and intrusive/needy (friendly dominant) interpersonal problem octants. This might be due to a probable striving for perpetual contact, help, and approval from others because they tend to be insecure and vulnerable to rejection. Considering perceived inferiority of self and superiority of others, need for others and rejection sensitivity can be the underlying issue of these individuals in interpersonal relationships. Indeed, perceived inferiority and low social rank were shown to be associated with submissive behaviors at event and person-level (Fournier et al. 2002; Zuroff et al. 2007). Moreover, social conformity and submission were found to be the strong features of individuals with high-need-for-approval (Crowne and Marlowe 1964). Therefore, deprecating personality beliefs being associated with interpersonal problems ranging from needy

to submissive behaviors is consistent with the relevant literature. On the other hand, the results of the secondary regression analyses with three PB categories revealed that the association between interpersonal problems and deprecating PB is carried out by Dependent PB but not by Avoidant PB and Borderline PB. However, this might be due to the high explained variance accounted for by the personality factors entered into the regression equation in the previous steps for these criterions.

For the inflated PB (Narcissistic PB, Obsessive-compulsive PB, Antisocial PB, and Histrionic PB), contrary to deprecating PB, view of self is superior, special, competent, and self-sufficient whereas view of others is inferior, weak admirer, incompetent, and exploitable. Consistently, the domineering/ controlling interpersonal problems were found to be associated with this category of PB. Moreover, negative association with non-assertiveness (submission) was also observed, and indicated the association between inflated PB and the dominance dimension of interpersonal circumplex. Accordingly, it can be suggested that for people with inflated PB, perceived superiority and autonomy can be reflected as dominance, and strong resistance to submission, control, and manipulation in interpersonal relations with those who are perceived as receptive, vulnerable and exploitable. Actually, individuals with positively biased self-appraisal such as superiority tend to be aggressive and violent (i.e., Baumeister et al. 1996), which are the extreme behavioral expressions of dominance. Results also revealed a negative association between inflated beliefs and self-sacrificing (friendly, overly nurturant) interpersonal problems. Indeed, being low in warmth, intimacy, and nurturing behavior, and not prioritizing others' needs are expected features of individuals with inflated personality beliefs. A self-sufficient and superior person would not need and respect others; particularly those who were already incompetent and exploitable. For them, the other person is supposed to serve the inflated personality. Therefore, their interpersonal behaviors can reflect their perceived superiority and entitlement, accompanied by the lack of warmth and friendliness toward others who were "inferior and weak admirer". Consistently, the personality disorder categories covered in this belief category were primarily defined with low investment in interpersonal relationships characterized by their neglectful, superficial, manipulative, self-centered nature (See DSM-5, American Psychiatric Association 2013). Secondary regression analyses with four separate PB categories of inflated beliefs revealed various and different associations with interpersonal problems. Although significant associations seemed to be shifted toward the friendly-dominance side of the circumplex and increased in variety, the directions of the associations were considered to be consistent with their unique symptomatology.

For ambivalent PB (Paranoid PB, Schizoid PB, Passive-Aggressive PB), the view of self, relative to others is not as clear as it is in deprecating and inflated PB, and it is contradictory. The self is perceived as independent, righteous, and self-sufficient while others are perceived as controlling, intrusive, calculating and manipulative; and these perceptions lead to suspicion and defensiveness. Therefore, the sense of self is positive and strong enough to be independent and autonomous, on the other hand, it is negative and weak in the sense that it is vulnerable to the controlling and malicious intentions of others. To protect the vulnerable side of the self, people with these beliefs tend to show social isolation and aloofness in an interpersonal context,

but they also struggle for control and domination when they are in interaction with others. Consistent with this, the results indicated that ambivalent beliefs were associated with cold/distant and domineering/controlling interpersonal problems. This result was also consistent with the association between loneliness and distrust (e.g., Rotenberg 1994). On the other hand, in the secondary analyses of regression with three PB categories of ambivalent beliefs separately, Passive-Aggressive PB category did not reveal any significant associations with interpersonal problems when the effect of extraversion and neuroticism was controlled for. Therefore, it did not contribute to explaining the association between interpersonal problems and Ambivalent PB.

The effect of interpersonal problems on personality belief categories was significant and supported the present hypotheses; however, the increment in the explained variance accounted for by those interpersonal problems was substantially low. One reason might be that the predictors entered in the previous steps had a shared variance with the interpersonal problems contributing to the prediction of dysfunctional personality beliefs. Moreover, the ipsatized data was used for the assessment of interpersonal problems, to reveal bipolar dimensions of the interpersonal circumplex, and in order to eliminate the influence of general interpersonal distress on the subscales. That is to say, ipsatization decreased the variance in the data leading to relatively low explained variance in correlational analyses, as discussed in other studies as well (see De Raad et al. 1994; Chan 2003). Indeed, the effect of ipsatization and shared variance of the predictors might be more evident in the secondary analyses of regression with ten PB categories as the criterion. These analyses revealed that interpersonal problems did not improve prediction of Avoidant, Passive-Aggressive, and Borderline PB categories beyond the effect of personality factors. Nevertheless, ipsatization method is essentially necessary for intra-individual comparisons (Chan 2003), revealing relative priority of specific interpersonal problem type over other interpersonal problems. Consequently, the distinctive patterns of interpersonal problems for the proposed higher-order personality belief categories were confirmed in the present study.

The present study and findings need to be considered in light of its limitations. Although large sample size with great diversity of participants provided large variance in the sample, some characteristics of the present sample brought limitations, such as extended age-range (18–61), increased number of highly educated and young participants (half of the present sample were under age 27) and unbalanced number of male and female participants with females being two times more than males. Another limitation is the use of self-report data, possible biases such as limited self-awareness and social desirability could have interfered with the reliability of the assessment. On the other hand, participants in the present study completed the questionnaires with the expectation that they would get personal feedback (See the procedure section). Therefore, participants were encouraged to respond honestly and carefully to the questionnaires, increasing the reliability of the assessments. In addition to these, cognitive patterns associated with personality disorders might be underrepresented in a community sample, especially in terms of severity and diversity of cognitive distortions, and this might have led to poor representations of a personality disorder belief category in the interpersonal

circumplex. Finally, although psychological problems were screened through self-report assessment, no formal assessment of personality disorders was used to check the diagnosis of PDs in the present sample.

Nevertheless, the present study supported hypothesized associations between interpersonal problems and personality belief categories generated within the framework of cognitive conceptualizations of personality disorders. The validity of cognitive formulations (view of self and view of others) of the personality disorders proposed by cognitive theory was supported by their distinctive problem expressions in the interpersonal context. Moreover, the current study revealed the important contribution of interpersonal problems (essentially domineering/controlling and cold/hostile problems) to dysfunctional beliefs of personality disorders, beyond the control variables including relevant personality factors. Thus, present findings also provide support for the characterization of personality disorders as primarily the disorders of interpersonal relatedness (Benjamin 1993; Kiesler 1986).

As for the clinical implications of the present study, obtained findings have the potential to contribute to the cognitive interventions of interpersonal problems. In particular, it can be suggested that individuals with inflated personality beliefs can benefit from cognitive restructuring focusing on reasons of prioritizing the inflated self-conceptualization, and devaluation of others and relationships; so that trying to achieve some sort of decrease regarding domineering-controlling interpersonal behavior. On the other hand, individuals with deprecating beliefs may need to explore ways of boosting the self-worth and efficacy, to be able to promote a more balanced appreciation of self and others, which can eventually decrease their submissiveness and excessive need for others. For individuals with ambivalent personality beliefs, improving confidence on the capability of coping could change their vulnerable self-perceptions, which may lead to the restructuring of expectations and attributions of malevolent intentions to others, which would, in turn, help them change their cold and controlling attitudes toward others.

Compliance with Ethical Standards

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