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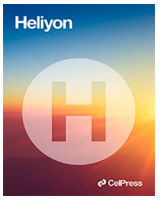

Research article

Association between pathogenic beliefs and personality disorders

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ABSTRACT

Background and objectives: Personality disorders are significant entities in the field of psychiatry and serve as predisposing factors for Axis I clinical disorder. The Treatment of choice is psychotherapy, and one specific approach is Control Mastery Therapy, which emphasizes addressing Pathogenic beliefs (PB). This study aimed to investigate whether there is a relationship between PB and specific personality disorders and whether these beliefs align with the core features specified in the Diagnostic and Statistical Manual of Mental Disorders (DSM) for that personality disorder.

Materials and methods: This study employed a retrospective cross-sectional design and included 319 participants, comprising individuals receiving treatment at the Psychotherapy Clinic at Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, Chiang Mai University between 2007 and 2023. All participants were assessed and completed the Structured Clinical Interview for DSM-IV Axis II - Personality Disorders Questionnaire (SCID-II-PQ), Pathogenic Beliefs Scale, and Outcome-Inventory (depression). A generalized linear model (binary logistic regression) was employed, and the predictors included personality disorders. The outcome was the pathogenic belief, and covariates encompassed age, sex, education, clinical diagnosis, and depression score. A sensitivity analysis was conducted to examine the effect on the model when outliers of depressive scores were present.

Results: After adjusting for depression, ten personality disorders were found to predict 16 pathogenic beliefs out of the 27 outcomes examined. Notably, histrionic and obsessive-compulsive personality disorders showed no association with specific pathogenic beliefs. Furthermore, certain pathogenic beliefs were predicted by multiple personality disorders, while conversely, some personality disorders were associated with multiple pathogenic beliefs as well. Sensitivity analysis revealed that outliers influenced the relationships between certain disorders and pathogenic beliefs, particularly those with small effect sizes.

Conclusions: The profound impact of pathogenic beliefs intertwined with personality disorders, particularly influenced by childhood trauma and evident in Cluster B and schizotypal disorders, underscores the critical need for targeted psychotherapeutic interventions. Addressing these beliefs directly is key to enhancing treatment efficacy and patient outcomes. Pathogenic belief should be elicited in clinical settings regardless of personality disorder, especially those who experienced depression. Moving forward, rigorous research is imperative to validate and refine therapeutic approaches aimed at reshaping pathogenic beliefs, ensuring they become pivotal in transforming clinical practice and advancing mental health care.

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1. Introduction

Pathogenic beliefs refer to deeply ingrained cognitive patterns or schemas that contribute to maladaptive behaviors, emotional distress, and dysfunctional interpersonal relationships. These beliefs often develop early in life, influenced by personal experiences, upbringing, and environmental factors [1]. In the context of personality disorders, pathogenic beliefs play a significant role in shaping the characteristic behaviors and symptoms associated with each disorder subtype.

Personality disorders are enduring patterns of behavior, cognition, and inner experience that deviate markedly from societal expectations. They typically manifest across various life domains and cause significant distress or impairment. Based on shared characteristics and diagnostic criteria outlined in the DSM-5 (Diagnostic and Statistical Manual of Mental Disorders), personality disorders are categorized into clusters (A, B, and C) [2].

Understanding how pathogenic beliefs intersect with personality disorders, particularly within Cluster B (e.g., borderline, narcissistic, histrionic, antisocial) and schizotypal personality disorders, is crucial for developing effective therapeutic interventions. These disorders are characterized by pervasive difficulties in interpersonal functioning, identity, and emotional regulation, often exacerbated by distorted perceptions and beliefs about oneself and others.

Interventions targeting pathogenic beliefs in personality disorders aim to challenge and modify these entrenched cognitive schemas through specialized psychotherapeutic approaches. By addressing underlying beliefs, therapists can help individuals with personality disorders achieve greater self-awareness, emotional stability, and healthier interpersonal relationships.

Research into the intricate interplay between pathogenic beliefs and personality disorders continues to evolve, driving advancements in therapeutic strategies tailored to meet the complex needs of affected individuals.

Personality disorders affect approximately 9 % of the general population [3,4], with about half of individuals diagnosed with mental disorders also experiencing comorbid personality disorders [5]. These conditions serve as both risk factors and comorbidities for various mental health issues, including depressive disorders, anxiety disorders, substance abuse, suicide, mood disorders, impulsivity, and eating disorders [6]. A significant majority, 77 %, of individuals diagnosed with Major Depressive Disorder also have comorbid personality disorders [7]. Individuals with personality disorders often lack insight into their condition (ego-syntonic) and may not seek treatment specifically for their personality issues unless they initially seek help for another mental disorder [6].

The DSM-5 categorizes personality disorders into three clusters comprising ten distinct disorders. Cluster A includes paranoid, schizoid, and schizotypal personality disorders characterized by odd behavior. Cluster B encompasses antisocial, borderline, histrionic, and narcissistic personality disorders marked by difficulties in emotion regulation. Cluster C, associated with anxiety, includes avoidant, dependent, and obsessive-compulsive personality disorders (OCPD). It is common for individuals to exhibit more than one personality disorder simultaneously [2].

Treatment for personality disorders typically involves pharmacological and psychological approaches. Pharmacological treatment targets symptom management and associated conditions like mood disorders, anxiety, aggression, impulsivity, and psychosis to prepare patients for psychotherapy. Psychotherapy, particularly modalities like Psychoanalytically oriented, Cognitive-analytic therapy, Dynamic-interpersonal therapy, and Schema therapy, is central to enhancing personality traits, problem-solving skills, and adaptation [6]. Control-mastery therapy within psychoanalytic approaches focuses on identifying and challenging pathogenic beliefs to help patients resolve underlying issues [8].

Pathogenic beliefs are thought patterns rooted in past traumatic experiences, which can range from actual events like abuse to misinterpretations such as assuming responsibility for parental actions. These beliefs can profoundly affect individuals, hindering their development and causing significant distress [1,9]. Early adverse experiences are believed to play a crucial role in the formation of these beliefs, influencing how individuals perceive themselves and their interactions with others [10,11]. Overall, pathogenic beliefs can manifest on conscious and unconscious levels, impacting individuals' perceptions and behaviors, and are a critical focus in therapeutic interventions aimed at promoting psychological well-being and adaptive functioning [12,13].

Family attitudes and dynamics are critical in shaping an individual's self-concept and worldview. The relationship between pathogenic beliefs and family attitudes, particularly during adolescence, can significantly influence the development and

Table 1
Socio-demographic data.

Variable	Mean ± SD or n (%)
Sex	
Female	208 (65.2)
Male	111 (34.8)
Age	39.05 ± 17.05
OI-Depression score	13.70 ± 5.57
Partnership status	
Yes	122 (38.2)
No	197 (61.8)
Level of education	
Primary school	5 (1.57)
Secondary school	87 (27.27)
Vocational school	48 (15.05)
Bachelor's degree	145 (45.45)
Above bachelor's degree	34 (10.66)

Table 2
Psychiatric disorder and personality disorder data.

Variable	Mean ± SD or n (%)
Psychiatric disorder	
MDD	187 (60.3)
PDD	85 (27.6)
Adjustment disorder	9 (3.01)
Bipolar disorder	10 (3.4)
GAD	13 (4.2)
Panic disorder	8 (2.5)
Other	3 (1.1)
Personality disorder	
Paranoid	94 (25.40)
Schizoid	35 (11.0)
Schizotypal	56 (17.60)
Antisocial	46 (14.40)
Borderline	245 (76.80)
Histrionic	23 (7.20)
Narcissistic	74 (23.20)
Avoidant	109 (34.20)
Dependent	31 (9.70)
Obsessive-Compulsive	112 (35.10)
Passive-aggressive	77 (24.10)
Depressive	81 (25.40)

MDD = Major depressive disorder, PDD = Persistent depressive disorder, GAD = Generalized anxiety disorder.

manifestation of personality disorders. During adolescence, individuals are highly susceptible to internalizing family attitudes and beliefs about themselves and their world. Pathogenic beliefs, which are negative or maladaptive beliefs about oneself, often originate from early experiences within the family environment [14–16]. For example, inconsistent parenting, overprotection, criticism, or neglect can contribute to beliefs such as "I am unlovable," "I am incompetent," or "I cannot trust others." Dysfunctional family patterns, including conflict, enmeshment, or emotional volatility, can foster a sense of insecurity, low self-esteem, or distorted beliefs about relationships and one's own abilities. These dynamics may contribute to developing personality traits that align with specific personality disorders. Pathogenic beliefs can be transmitted intergenerationally within families. Parents who hold negative self-beliefs or exhibit maladaptive behaviors may unintentionally pass these beliefs to their children through modeling or direct communication. This transmission can perpetuate cycles of maladaptive coping mechanisms and interpersonal difficulties that are characteristic of personality disorders.

Adolescence is critical for identity formation and personality development. The accumulation of negative experiences and internalized beliefs during this sensitive period can shape enduring patterns of thinking, feeling, and behaving that are characteristic of personality disorders. For instance, individuals with borderline personality disorder may have developed intense fears of abandonment or rejection due to early family experiences that reinforced feelings of instability or unpredictability. Research suggests that pathogenic beliefs can shape and constrain the expression of personality traits [17–21]. However, pathogenic beliefs are distinguished from personality traits, which are generally considered stable characteristics [22].

Recognizing the role of family attitudes and pathogenic beliefs is essential in therapeutic interventions for personality disorders. Therapists often explore early family dynamics and belief systems to uncover underlying issues and facilitate cognitive restructuring. Addressing and challenging maladaptive beliefs can lead to more adaptive coping strategies and improved interpersonal relationships.

In addition to personality disorder, pathogenic beliefs are closely linked to the psychopathology of various mental disorders, such as major depressive disorder [23], nightmare disorder [24], agoraphobia [25], and issues like low self-esteem, pessimism, and emotional instability [16,26]. Individuals with pathogenic beliefs often struggle to form and maintain healthy relationships, leading to difficulties with trust, intimacy, and communication [15,27–29]. These beliefs can alter personality traits [17–21] and attachment styles [30]. Patients often attempt to challenge these beliefs, recognizing their inaccuracy [31], but this process is challenging due to fears of revisiting traumatic events [8]. Pathogenic beliefs can be conscious or unconscious, rooted in past traumatic experiences [31]. Understanding pathogenic beliefs is crucial for treatment planning and therapist-patient alignment [18,31].

While distinct from personality traits, pathogenic beliefs can influence their expression [33]. Research suggests varying prevalence and types of pathogenic beliefs across different personality disorders, such as higher prevalence in schizotypal personality disorder [34]. Other disorders like OCPD, avoidant personality disorder, and borderline personality disorder also exhibit specific core beliefs and schemas [35–41].

From the diagnostic criteria outlined in the DSM-5, each personality disorder appears to be characterized by distinct cognitive patterns or core beliefs. For instance, paranoid personality disorder is typified by a pervasive belief in a mistrustful and dangerous world, while narcissistic personality disorder involves an overriding sense of entitlement over others. Avoidant personality disorder is associated with a deep-seated belief in personal inadequacy, whereas dependent personality disorder is marked by a profound sense of lacking self-trust. Obsessive-compulsive personality disorder (OCPD) centers around a rigid belief that self-worth hinges on doing things correctly or in a meticulously organized manner.

Table 3
The distribution of pathogenic beliefs based on personality disorders.

No.	Pathogenic beliefs	n (%)
1	You are a failure because You could not make parents or significant others happy	100 (31.3 %)
2	You are fundamentally unlovable	64 (20.1 %)
3	You cannot achieve your goals because You lack self-control over emotions and impulses	103 (32.3 %)
4	Others will hurt, abuse, humiliate, cheat, or manipulate you	154 (48.3 %)
5	You should not/does not deserve to be happy because your family of origin was unhappy	59 (18.5 %)
6	If you are relaxed and unworried You will be punished or something terrible will happen	93 (29.2 %)
7	You deserve to be mistreated and therefore puts yourself in self-destructive or abusive situations/relationships	34 (10.7 %)
8	Disagreeing with others will result in contemptuous, angry, rejecting reactions	164 (51.4 %)
9	Expressing or experiencing an appropriate sense of pride means that you are self-aggrandizing or narcissistic	108 (33.9 %)
10	You are different from other people, isolated from the rest of the world, and/or not part of any group or community	100 (31.3 %)
11	By pursuing your interests and goals you are being selfish, uncaring, or ignoring the needs of others	116 (31.4 %)
12	You are weak, helpless, and vulnerable to exploitation or trauma	129 (40.4 %)
13	Others are superior or more competent than you are	113 (35.4 %)
14	You are superior to others, entitled to special privileges, and is not bound by ordinary social conventions	34 (10.7 %)
15	Your desire for emotional support and nurturance will not be met by others	77 (24.1 %)
16	An imminent catastrophe will strike at any time, and nothing can be done to prevent or avoid it	102 (32.0 %)
17	Others will be attentive or affectionate only when You are suffering or unhappy	82 (25.7 %)
18	You do not deserve to be taken seriously	41 (12.9 %)
19	You are responsible for the feelings or behavior of others	134 (42.0 %)
20	If you are not successful, you are worthless, and life is meaningless	116 (36.4 %)
21	Your feelings, needs, or behaviors are overwhelming or alienating to others	54 (16.9 %)
22	You do not deserve to be cared for and to feel protected	36 (11.3 %)
23	You cannot challenge, criticize, disagree with others or assert Your own point of view because doing so could hurt or harm others	103 (32.3 %)
24	You must surrender control to others	66 (20.7 %)
25	Committing to a relationship means forever being trapped or stifled	106 (33.2 %)
26	Gaining recognition or approval from other people is more important than developing a secure and true sense of self	90 (28.2 %)
27	It is dangerous to express loving feelings	60 (18.8 %)
Total score of Pathogenic Belief Scale		
Mean (Standard deviation)		7.64 (6.01)
Min - Max		0–24
Median (Interquartile range)		7 (10)

However, there remains uncertainty and a notable gap in research concerning the specific core cognitive patterns associated with personality disorders such as borderline and antisocial personality disorders. These disorders are highly complex and characterized by volatile interpersonal relationships, impulsivity, and often significant societal disruption. Despite their clinical significance, comprehensive studies investigating pathogenic beliefs' precise nature and impact on these disorders are notably sparse.

Currently, the research landscape predominantly lacks in-depth investigations into the relationship between pathogenic beliefs and individual personality disorders, especially within clinical settings. For instance, while there is some research exploring pathogenic beliefs in schizotypal personality disorder [42], this represents a singular focus amidst a broader spectrum of personality pathology.

This knowledge gap is critical as understanding the underlying cognitive patterns contributing to and sustaining personality disorders is fundamental for developing targeted and effective therapeutic interventions. By elucidating these pathogenic beliefs, clinicians can better tailor treatment approaches to address the specific cognitive distortions and maladaptive schemas that perpetuate the symptoms and impairments associated with each personality disorder. Moving forward, there is an urgent need for comprehensive empirical studies that systematically investigate the role of pathogenic beliefs across all personality disorders, particularly borderline and antisocial personality disorders. Such research endeavors would enhance our theoretical understanding of personality pathology and inform evidence-based practices to improve clinical outcomes and quality of life for individuals affected by these challenging disorders.

In this exploratory study, we deliberately refrained from formulating specific hypotheses, acknowledging the limited research and the intricate nature of the phenomena under investigation. Our objective was to gather preliminary data, explore potential relationships between pathogenic beliefs and specific personality disorders, and assess their alignment with core features outlined in the DSM, free from preconceived notions. This approach aimed to uncover new insights and generate hypotheses to shape future research in this critical area. By adopting a hypothesis-free approach, we aimed to more effectively capture the richness and complexity of our diverse participant sample and the multifaceted nature of pathogenic beliefs in personality disorders. This methodology allowed us to explore nuances and potential interactions that might have been overlooked with a more constrained hypothesis-driven approach. The findings of this study hold significant implications for the field of psychiatry and psychotherapy. They contribute to our understanding of how pathogenic beliefs manifest across different personality disorders, shedding light on underlying cognitive processes that perpetuate and exacerbate symptoms. Ultimately, this research represents a critical step towards advancing our understanding of personality disorders and enhancing clinical practice. By elucidating the intricate interplay between pathogenic beliefs and personality pathology, we aim to pave the way for more effective interventions that promote recovery, resilience, and improved quality of life for individuals grappling with these challenging conditions.

Table 4
Logistic regression results for the pathogenic belief "you are fundamentally unlovable."

Variables	B	S.E.	Wald	p-value	Exp(B)	95 % C.I. for EXP(B)	
						Lower	Upper
Avoidant PD	−.580	.578	1.009	.315	.560	.180	1.737
Dependent PD	−.782	.710	1.212	.271	.458	.114	1.840
Obsessive-Compulsive PD	−.506	.452	1.254	.263	.603	.249	1.461
Passive-Aggressive PD	−.655	.563	1.353	.245	.519	.172	1.566
Depressive PD	.276	.560	.244	.621	1.318	.440	3.947
Paranoid PD	1.651	.643	6.598	.010	5.210	1.479	18.356
Schizoid PD	.066	.573	.013	.908	1.069	.348	3.283
Histrionic PD	−.634	.716	.784	.376	.530	.130	2.159
Borderline PD	1.273	.517	6.059	.014	3.570	1.296	9.837
Narcissistic PD	−.534	.563	.900	.343	.586	.195	1.766
Schizotypal PD	.134	.544	.061	.806	1.143	.394	3.318
Antisocial PD	−.329	.595	.305	.581	.720	.224	2.310
OI-depression score	.077	.030	6.578	.010	1.080	1.018	1.145
Age	−.009	.012	.501	.479	.991	.967	1.016
Sex (Male)	−.371	.349	1.124	.289	.690	.348	1.369
Marital (lived together)	.015	.395	.002	.969	1.015	.468	2.203
Education (bachelor's degree)	−.091	.326	.078	.781	.913	.482	1.731
Dx (depressive disorder)	−.095	.579	.027	.870	.909	.292	2.829
Constant	−2.880	1.037	7.712	.005	.056		

B = unstandardized coefficient. PD = personality disorder, S.E. = standard error, Exp(B) = Odds ratio, CI = confidence interval.

2. Materials and methods

2.1. This study employed a retrospective cross-sectional design

All the study participants were registered as individuals receiving treatment at the Psychotherapy and Personality Disorder Clinic and Education Center at Maharaj Nakorn Chiang Mai Hospital, Faculty of Medicine, Chiang Mai University, between 2007 and 2023. They were both self-referred to and referred by other psychiatrists for psychotherapy as a combined therapy. Intake interviews were performed by a psychiatrist at the clinic to assess and decide whether the patients would be accepted for psychotherapy. If they were accepted, further steps would be completed, including completing the self-report questionnaire related to psychotherapy, consent, and psychotherapy treatment plan.

2.2. Patients and procedure

All participants signed a written informed consent document for psychotherapy and completed the questionnaires. Attending psychiatrists determined the diagnosis of personality disorder using both the Structured Clinical Interview for DSM-IV Axis II Disorders Questionnaire (SCID-II) and clinical interviews. Pathogenic beliefs were assessed using a self-report pathogenic belief scale (PBS). Additionally, patients completed the Outcome Inventory – Depression (OI-Depression) to evaluate the severity of depression. All participants were assessed and completed the questionnaires at the beginning of therapy.

The study centered on adult patients undergoing therapy, adhering to specific inclusion criteria. Participants were required to be at least 18 years old, diagnosed with clinical disorders on Axis I, diagnosed with a personality disorder on Axis II, and to have completed self-reports on measures of pathogenic beliefs, personality disorder assessment, and a depression inventory to control for confounding factors related to depression. Exclusion criteria included incomplete data in medical records.

2.3. Instruments

2.3.1. Structured clinical interview for DSM-IV axis II disorders questionnaire (SCID-II-PQ)

The Structured Clinical Interview for DSM-IV Axis II Disorders Questionnaire (SCID-II-PQ) is a tool used in clinical settings to assess the presence of personality disorders based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria and DSM-5 criteria. It is part of the SCID-II, which is a comprehensive diagnostic interview designed to assess all DSM-IV and DSM-5 Axis II personality disorders. Specifically, the SCID-II-PQ is a self-report questionnaire that aids in gathering information about the participant's symptoms and behaviors related to personality disorders.

This SCID-II-PQ was developed by First and colleagues and utilized to complement the diagnostic interviews conducted by psychiatrists. Adhering to the standard protocol for diagnosis with the SCID-II tool, the research assistant administered the SCID-II-PQ [43].

This scale assesses personality across 12 subtypes, including Cluster A (paranoid, schizoid, schizotypal), Cluster B (antisocial, borderline, histrionic, narcissistic), Cluster C (avoidant, dependent, obsessive-compulsive), and Others (passive-aggressive, depressive). The SCID II questionnaire consists of a total of 119 items. Participants would select 'Yes' or 'No' based on their compatibility with those items, and the results would indicate the corresponding personality subtype they possessed. In this study. We utilized the Thai

Table 5
The summary of binary logistic regression results of personality disorder predicting pathogenic beliefs[a].

Type PD	PBS No.	PBS	Odds ratio	95 % CI		p-value
				Lower	Upper	
Paranoid	2	You are fundamentally unlovable	5.210	1.479	18.356	0.010
	10	You are different from other people, isolated from the rest of the world, and/or not part of any group or community	3.286	1.004	10.756	0.049
Schizoid	20	If you are not successful, you are worthless, and life is meaningless	0.221	0.076	0.638	.005
Schizotypal	21	Your feelings, needs, or behaviors are overwhelming or alienating to others	9.465	2.688	33.329	<0.001
	7	You deserve to be mistreated and, therefore, put yourself in self-destructive or abusive situations/relationships	7.719	1.625	36.671	0.010
	26	Gaining recognition or approval from other people is more important than developing a secure and true sense of self	0.350	0.131	0.939	0.037
Antisocial	21	Your feelings, needs, or behaviors are overwhelming or alienating to others	4.914	1.412	17.096	0.012
	23	You cannot challenge, criticize, disagree with others, or assert your own point of view because doing so could hurt or harm others	0.093	0.025	0.345	<.001
Borderline	2	You are fundamentally unlovable	3.570	1.296	9.83	0.014
	5	You should not/do not deserve to be happy because your family of origin was unhappy	3.727	1.248	11.129	0.018
	13	Others are superior or more competent than you are	3.466	1.549	7.755	0.002
	14	You are superior to others, entitled to special privileges, and is not bound by ordinary social conventions	13.803	1.724	110.507	0.013
	22	You do not deserve to be cared for and to feel protected	10.828	1.256	93.340	0.030
Histrionic	–	–	–	–	–	–
Narcissistic	26	Gaining recognition or approval from other people is more important than developing a secure and true sense of self	4.159	1.719	10.064	0.002
	8	Disagreeing with others will result in contemptuous, angry, rejecting reactions	2.900	1.197	7.027	0.018
	19	You are responsible for the feelings or behavior of others	3.371	1.392	8.162	0.007
Avoidant	19.	You are responsible for the feelings or behavior of others	2.970	1.193	7.395	0.019
	21	Your feelings, needs, or behaviors are overwhelming or alienating to others	.131	.028	.611	0.010
Dependent	16	An imminent catastrophe will strike at any time, and nothing can be done to prevent or avoid it	3.960	1.28	12.21	0.017
	26	Gaining recognition or approval from other people is more important than developing a secure and true sense of self	3.076	1.147	8.247	0.026
Obsessive-Compulsive	–	–	–	–	–	–
Passive-aggressive	4	Others will hurt, abuse, humiliate, cheat, or manipulate you	2.422	1.016	5.775	0.046
Depressive	27	It is dangerous to express loving feelings	3.429	1.023	11.499	.046
	19	You are responsible for the feelings or behavior of others	0.378	0.149	0.958	0.040
	7	You deserve to be mistreated and, therefore, put yourself in self-destructive or abusive situations/relationships	0.064	0.011	0.380	0.003

PBS = pathogenic belief scale, CI = confidence interval.
[a] Controlling for confounding variables, including OI-depression scores.

version of the scale, translated and validated by Wongpakaran and colleagues [44]. The overall interrater reliability demonstrated good consistency across all studies. The Kappa value for the test, comparing the first and second raters in diagnosing each personality disorder, ranged from 0.70 to 0.90, with a mean of 0.81 for all personality disorders. The mean trait intraclass correlation coefficient score was 0.90, and the summed score was 0.83 [44]. Cronbach's alpha ranged from 0.71 to 0.88, indicating acceptable to excellent internal consistency, except for passive-aggressive PD, which showed a lower Cronbach's alpha of 0.67.

2.3.2. Pathogenic belief scale (PBS)

PBS was developed by the San Francisco Psychotherapy Research Group (SFPRG) [32]. This scale is used to evaluate pathogenic beliefs in accordance with the Control Mastery Theory, and translated into Thai by Wongpakaran [23], is a tool designed to identify these beliefs. Unlike other scales, PBS employs a "bottom-up" approach, focusing on the patient's perspective [27,33]. The original version of the scale consists of 54 items [26], but we utilized a shortened version for this study. The shortened version of PBS (PBS-27) comprises 27 items, requiring respondents to indicate their agreement with each statement by choosing 'no' (1), 'uncertain' (2), or 'yes' (3). The validity and reliability of the PBS were established by the PBS carried out through Rasch analysis. Factorial validity and substantial reliability for persons and items were established, each exceeding 0.80. The test-retest reliability over a two-week interval, calculated by intraclass correlation coefficient, was 0.65 ($p < .001$), indicating moderate reliability [34]. Cronbach's alpha in this study was excellent (0.88).

2.3.3. Outcome inventory – depression (OI-depression)

OI-Depression is a component of the Outcome Inventory-21 (OI-21), designed to assess the most frequently encountered mental illnesses, including depression, anxiety, somatization, and interpersonal difficulties. This scale prompts participants to indicate the frequency of their experiences, ranging from 'Never' to 'Almost always,' and assigns scores on a Likert scale from 0 to 4 respectively.

The scale comprises 21 items, and the items specifically assessing depression were used in this study. Validity and reliability of the OI-Depression were established. They also reported diagnostic validity by sensitivity of 86.15 %, Specificity of 80.25 %, Positive predictive value of 78.30 %, and Negative predictive value of 87.50 %. The area under the ROC curve was 0.89, suggesting a good diagnostic performance [45]. Cronbach's alpha value for depression was 0.82.

2.4. Statistical analysis

Descriptive statistics such as mean, percentage, standard deviation, and variance were utilized for demographic data analysis. The outcomes (pathogenic belief scores) were dichotomized to enhance interpretation, with a score of '1′ indicating 'yes' and '0′ indicating 'not sure' or 'no'. Subsequently, binary logistic regression within a generalized linear model was applied for each pathogenic belief outcome, with specific personality Disorders as predictors. We used binary logistic regression within a generalized linear model framework because it may enhance traditional binary logistic regression by offering greater flexibility in error distribution, handling overdispersion, incorporating complex predictors, providing robustness in non-standard situations, and ensuring broad applicability across various research domains. These advantages collectively contribute to more accurate and reliable statistical modeling of binary outcomes in research and practice.

To mitigate the influence of confounding factors such as depression [23]. To account for confounding factors, the binary logistic regression model included covariates including age, sex, education, clinical diagnosis, and depression score in the models. Odds ratios, calculated from exponential parameter estimates, were reported for each outcome to facilitate interpretation.

Each of the 27 pathogenic belief outcomes was analyzed with the 12 Personality Disorders (PDs) as predictors alongside confounding factors. A significant effect was determined if the 95 % confidence interval of the estimated coefficients excluded 0.

Because depression is vital for pathogenic belief and was controlled for, it is important to check for outliers or influential points that might skew results. If outliers are present, consider robust regression techniques. We, therefore, performed sensitivity analysis by comparing the results of the logistic regression model with and without outliers. This approach accounts for potential sampling variability and provides a robust way to assess the stability of the results.

All statistical analyses were conducted using IBM SPSS 27.0, with statistical significance set at a two-tailed p-value of less than 0.05.

2.5. Ethical consideration

This study was approved by the Institutional Review Board (IRB) of the Faculty of Medicine, Chiang Mai University (Study code: PSY-2566-09467, certification number 135/2023, Date of approval: April 4, 2023). Due to its retrospective cross-sectional design, this study does not require written consent. The confidentiality of the study subjects' responses was ensured.

3. Results

The present study included 319 participants. Most were female, accounting for 65.2 %. The mean age of the participants was 39.05 years. Most participants had a bachelor's degree and lived without a partner. Table 1 provides more details.

Table 2 presents the clinical psychiatric disorder and personality disorder data of participants. Of most participants, 187 individuals (60.3 %) have Major Depressive Disorder (MDD), followed by 85 individuals (27.6 %) with Persistent Depressive Disorder (PDD). All personality disorders are represented in this study, with the majority being individuals with borderline personality disorder, comprising 214 individuals (70.40 %). It is to be noted that patients who sought psychotherapy were likely to experience personality disorder, especially borderline PD, with the presenting disorder of depressive disorders. In addition, patients appeared to have more than one personality.

Table 3 shows the distribution of pathogenic beliefs based on personality disorders. In this study, PBS no. 8 (Disagreeing with others will result in contemptuous, angry, rejecting reactions) emerges as the most positively endorsed belief, with 107 participants (48.4 %). The PBS was significantly associated with the OI depression score ($r = .568$, $p < .001$). This indicates that the more pathogenic beliefs, the higher the level of depression.

The PBS score was significantly associated with histrionic PD ($r = .251$, $p < .01$) and borderline PD ($r = .579$, $p < .001$), likewise the OI depression score was significantly associated only with borderline and histrionic PD ($r = .288$, $p < .01$, and $.122$, $p < .05$, respectively). However, these indicate only the number of pathogenic beliefs without controlling for other factors.

Binary logistic regression analysis was performed for each pathogenic belief outcome. The following provides an example of the regression analysis for pathogenic belief outcome no. 2, "You are fundamentally unlovable," as outlined in Table 4. The analysis reveals that borderline personality disorder emerges as a significant predictor, displaying an odds ratio of 3.02 with a 95 % confidence interval of 1.15–7.93 after controlling for covariates and depression.

The results indicate that paranoid PD and Borderline PD, along with depression, predicted the pathogenic belief of 'You are fundamentally unlovable.' In other words, this belief was associated with depression, and it also manifested in individuals with paranoid and borderline PDs, even in the absence of depression.

Out of the 27 outcomes, 10 personality disorders predicted 16 pathogenic beliefs. Some pathogenic beliefs were predicted by multiple personality disorders, while some personality disorders predicted multiple pathogenic beliefs. The results of binary logistic regression, including significant personality predictors, have been summarized in Table 5 to streamline information for readers and conserve space. Among the 16 pathogenic beliefs examined, three (no. 26: "Gaining recognition or approval from other people is more important than developing a secure and true sense of self") were predicted by three personality disorders: schizotypal, narcissistic, and

dependent personality disorders. Borderline personality disorder predicted the highest number of pathogenic beliefs (six), followed by schizotypal personality disorder. However, histrionic and obsessive-compulsive personality disorders showed no association with any specific pathogenic beliefs.

It is noteworthy that while some pathogenic beliefs align with specific personality disorders, others do not. For instance, paranoid personality disorder predicted the pathogenic belief of "You are different from other people, isolated from the rest of the world, and/or not part of any group or community," which aligns with paranoid ideation, whereas "You are fundamentally unlovable" does not. Moreover, most pathogenic beliefs showed a positive association with personality disorders, but three out of the 16 pathogenic beliefs exhibited a negative association. For example, for pathogenic belief no. 20: "If you are not successful, you are worthless, and life is meaningless," the odds ratio was below 1, indicating that schizoid personality disorder was associated with a reduced likelihood of developing such a belief.

3.1. Sensitivity analysis

Outliers were identified using boxplot analysis, with values beyond 1.5 times the interquartile range considered outliers. Ten cases were identified and removed for re-analysis of the logistic regression models. In sensitivity analysis, excluding outliers resulted in a reduction of the effect size in some models. However, up to 80 % of the models retained statistical significance ($p < 0.05$). This suggests that while outliers influenced the magnitude of the effect, the overall conclusions regarding the relationship between predictors, covariates, and the outcome of pathogenic beliefs remained largely robust (see Supplemental File).

4. Discussion

This study represents the first attempt to explore the potential relationship between pathogenic beliefs and personality disorders, assessing whether these beliefs align with the core features specified in the DSM. The findings revealed that all personality disorders except histrionic and obsessive-compulsive personality disorders predicted 16 pathogenic beliefs, with borderline and schizotypal personality disorders emerging as the primary predictors. Specifically, Cluster B personality disorders, including antisocial, borderline, and narcissistic personality disorders, showed statistical significance in association with the highest number of specific pathogenic beliefs.

It's important to acknowledge that while many pathogenic beliefs are linked to beliefs centered around the respective personality traits, some do not appear to be associated with such traits. This discrepancy may be attributed to the possibility that these inconsistent pathogenic beliefs stem from childhood traumatic experiences. This hypothesis gains support from the higher incidence of such beliefs observed in Cluster B and schizotypal personality disorders compared to Cluster C personality disorders. Previous evidence has indicated a correlation between childhood traumatic experiences and personality disorders in Cluster B [46,47], as well as schizotypal PD [48]. Similarly, traumatic events have been linked to pathogenic beliefs [19,30,49–51].

It is unfortunate that no similar research has been conducted before, except for our previous research on schizoid personality disorder [34]. The previous study suggested that the pathogenic beliefs in schizotypal personality disorder are not solely linked to their cognitive style.

These pathogenic beliefs may contribute to stress, leading to psychiatric symptoms and motivating individuals to seek therapy. Clinicians or therapists must avoid stereotyped thinking about schizotypal individuals, recognizing that they may hold beliefs only on paranoid ideas, ideas of reference, and magical thinking. In reality, these individuals may also harbor other beliefs that are susceptible to various clinical disorders such as depression. Evidence suggests that childhood traumas can play a role in the development of schizotypal personality structure, and the pathogenic beliefs associated with schizotypal personality disorders may be influenced by such trauma [48]. In contrast to our previous findings, the current study identified fewer pathogenic beliefs [42]. This discrepancy could be attributed to confounding factors, particularly depression.

Regarding other personality disorders, it is anticipated that pathogenic beliefs are associated with specific cognitive patterns, especially borderline personality disorder. This contrasts the dichotomous thought pattern like "all or none" or "black and white," which is generally recognized among borderline individuals. A related study using dysfunctional belief demonstrated that dependency, distrust, and the belief that one should act preemptively to avoid threats were observed in individuals with borderline personality [52]. A study comparing early maladaptive schema between borderline and chronic depression found that maladaptive schemas regarding self-worth and interpersonal relationships appear to differentiate borderline personality disorder and chronic depression. Whereas borderline personality disorder was associated with fluctuating self-image and difficulties in interpersonal settings, chronic depression patients showed excessive focus on meeting the needs of others [53].

The pathogenic beliefs of 'you should not/do not deserve to be happy because your family of origin was unhappy' and 'you are fundamentally unlovable.' found in the present study seem to be consistent with the mentioned studies, and they are aligned with the traumatic experiences and poor sense of self often associated with a borderline personality disorder. These beliefs are frequently linked with depression, a prevalent experience among individuals with borderline personality disorder. Furthermore, borderline personality disorder is closely associated with childhood trauma, which directly correlates with the development of pathogenic beliefs [54–56]. However, the belief "You are superior to others, entitled to special privileges, and is not bound by ordinary social conventions" found in borderline personality might be related to vulnerable narcissism, which is closely associated with BPD [57].

For individuals with narcissistic personality disorder, the pathogenic belief that 'gaining recognition or approval from other people is more important than developing a secure and true sense of self' aligns with the cognitive pattern of grandiosity often observed in individuals with narcissistic traits [58,59]. On the other hand, the beliefs of "Disagreeing with others will result in contemptuous,

angry, rejecting reactions" and "You are responsible for the feelings or behavior of others" seem not to be related to narcissistic personality disorders. A relevant study on control mastery therapy in narcissistic personality disorder demonstrated that the patient experienced some guilt and sought the therapist's assistance in addressing it [60]. Evidence indicates that childhood traumas can contribute to the formation of a narcissistic personality structure, and the pathogenic beliefs linked to narcissistic personality disorders may be impacted by trauma [61–63].

For antisocial personality disorder, the unlikeliness to believe that "You cannot challenge, criticize, disagree with others, or assert your own point of view because doing so could hurt or harm others" is aligned with the core belief of this personality [64]. A study showed that individuals with antisocial personalities showed grandiosity and justification of violent schemas [65], or a belief that people are there to be taken [58]. On the contrary, the present study found significance for the pathogenic belief that 'your feelings, needs, or behaviors are overwhelming or alienating to others.' This pathogenic belief suggests that individuals with antisocial traits may be cognizant of the burden they place on others, even if they do not experience guilt for their actions. According to the control-mastery theory, individuals are driven by a motivation to attain acceptance and meaningful relationships. Any pathogenic beliefs held by those with antisocial traits might prompt them to pursue psychotherapy to challenge and disprove these distressing beliefs. Evidence suggests that childhood traumas can play a role in the development of antisocial personality disorders, and the pathogenic beliefs associated with antisocial personality disorders may be influenced by trauma [66].

For avoidant, dependent, passive-aggressive, and depressive personality disorders, the pathogenic beliefs tended to show a positive association. However, this pattern did not hold for schizoid personality disorder. Additionally, the absence of correlation between pathogenic beliefs and histrionic or obsessive-compulsive personality disorders observed in this sample might be specific to this population. Further research conducted in different settings or with other populations may yield different results.

4.1. Clinical implications and future research

The study's findings hold significant practical implications for clinical practice, particularly how therapists assess and treat individuals with personality disorders. Recognition of Pathogenic Beliefs: Therapists can benefit from recognizing the importance of identifying pathogenic beliefs alongside the personality traits outlined in diagnostic manuals like the DSM criteria. Pathogenic beliefs, which are linked to clinical disorders such as depression, may not always align with these criteria. By understanding and addressing these beliefs, therapists can gain deeper insights into the underlying issues affecting their patients. In addition, the study suggests using a self-reporting pathogenic belief scale in clinical practice. This tool can help therapists identify and measure beliefs that individuals hold at a conscious level beyond the symptoms associated with their personality disorder. When complemented with detailed interviews, therapists can comprehensively understand the patient's beliefs and their impact on their mental health. Furthermore, with knowledge about personality traits and pathogenic beliefs, therapists can formulate more personalized and comprehensive treatment plans. These plans can target not only the symptoms and behaviors associated with personality disorders but also the underlying negative beliefs that contribute to psychological distress and impairments in functioning.

Future research on how pathogenic beliefs change after therapy and their relationship with the patient's personality can further enhance clinical practice. Therapists can monitor changes in these beliefs throughout treatment, assessing whether therapeutic interventions effectively address and modify them. This approach supports a more tailored and effective therapeutic process based on the specific needs and challenges of individuals with different personality disorders.

4.2. Limitations

In this study, it is important to acknowledge several limitations that may impact the interpretation and generalizability of the findings. Firstly, the data were collected during pre-treatment assessments, which means that certain unconscious pathogenic beliefs of patients might not have fully manifested at that specific time. Pathogenic beliefs can evolve over the course of therapy, and capturing these changes would provide a more comprehensive understanding of their impact. Secondly, pathogenic beliefs examined in this study are rooted in a Western context, potentially overlooking cultural variations in beliefs about self-worth and identity. Cultural factors can significantly shape these beliefs, and future research should consider diverse cultural perspectives to ensure findings are applicable across different cultural backgrounds. Thirdly, while useful, self-report questionnaires may not fully capture the unconscious or implicit aspects of pathogenic beliefs. Supplementing quantitative measures with qualitative research methods could unveil nuanced dimensions and deeper insights into how these beliefs manifest and influence individuals with personality disorders. Fourthly, the data span over 16 years, during which socioeconomic and societal factors may have evolved. These changes could impact individuals with personality disorders and how personality traits interact with pathogenic beliefs. Longitudinal studies could better capture these dynamics over time. Finally, participants were exclusively recruited from individuals seeking therapy, potentially excluding those with personality disorders who do not seek or have access to therapy. This sampling bias limits the generalizability of the findings to the broader population of individuals with personality disorders who may not be represented in therapeutic settings. Employing mixed-method approaches, considering diverse cultural contexts, incorporate longitudinal designs, and broaden participant recruitment strategies to enhance the validity and applicability of study findings in clinical practice and beyond.

5. Conclusions

Certain pathogenic beliefs are associated with specific personality disorders, while others may originate from childhood trauma, especially in Cluster B personality disorders and schizotypal personality disorders. Therefore, therapists should pay close attention to identifying and addressing these particular pathogenic beliefs, as they are crucial targets for tailored psychotherapeutic interventions. Further research is necessary to determine the effectiveness of therapy in reshaping these beliefs within the context of personality disorders in order to advance treatment approaches.

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Institutional review board statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of the Faculty of Medicine, Chiang Mai University. Study code: PSY-2566-09467, certification number 135/2023, effective April 4, 2023.

Informed consent statement

Written consent is required to register with the psychotherapy clinic, but it is not required for this study due to its retrospective cross-sectional design.

Data availability statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

CRediT authorship contribution statement

Varit Jintanachote: Writing – review & editing, Writing – original draft, Methodology, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Tinakon Wongpakaran:** Writing – review & editing, Writing – original draft, Validation, Supervision, Software, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Nahathai Wongpakaran:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Prof. Tinakon Wongpakaran reports was provided by none. Prof. Tinakon Wongpakaran reports a relationship with Chiang Mai University that includes: non-financial support. Prof. Tinakon Wongpakaran has patent none pending to none. None If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2024.e37183.

References

[1] A. Boals, Trauma in the eye of the beholder: objective and subjective definitions of trauma, J. Psychother. Integrat. 28 (2017).
[2] American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, fifth ed., 2013.
[3] B. Gawda, K. Czubak, Prevalence of personality disorders in a general population among men and women, Psychol. Rep. 120 (3) (2017).
[4] M.F. Lenzenweger, Epidemiology of personality disorders, Psychiatr. Clin. 31 (3) (2008) 395–403.
[5] M.F. Lenzenweger, *DSM-IV personality disorders in the national comorbidity survey replication* biol psychiatry 62 (6) (2007) 553–564.
[6] R. Boland, Kaplan & Sadock's Concise Textbook of Clinical Psychiatry, twelfth ed., Wolters Kluwer, Philadelphia, 2022.
[7] N. Wongpakaran, et al., Comorbid personality disorders among patients with depression, Neuropsychiatric Dis. Treat. 11 (2015) 1091–1096.
[8] G. Silberschatz, Transformative Relationships the Control Mastery Theory of Psychotherapy, first ed., Routledge, New York, 2005.

[9] D.C. Rubin, Schema-driven construction of future autobiographical traumatic events: the future is much more troubling than the past, J. Exp. Psychol. Gen. 143 (2) (2014) 612–630.
[10] V.J. Edwards, et al., Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: results from the adverse childhood experiences study, Am. J. Psychiatr. 160 (8) (2003) 1453–1460.
[11] W. Junek, The development of the person: the Minnesota study of risk and adaptation from birth to adulthood, in: J Can Acad Child Adolesc Psychiatry, Copyright © 2007 Canadian Academy of Child and Adolescent Psychiatry, 2007, pp. 180–181.
[12] L.Y. Abramson, M.E. Seligman, J.D. Teasdale, Learned helplessness in humans: critique and reformulation, J. Abnorm. Psychol. 87 (1) (1978) 49–74.
[13] J. Weiss, How Psychotherapy Works: Process and Technique, Guilford Press, 1993.
[14] S. Kanofsky, R.J. Lieb, Control mastery theory and family therapy, Psychotherapy 44 (3) (2007) 316–332.
[15] K. Aafjes-van Doorn, et al., Perceived adverse parenting in childhood and psychological distress among psychotherapy patients: the mediating role of pathogenic beliefs, J. Nerv. Ment. Dis. 209 (3) (2021) 181–187.
[16] G. Silberschatz, K.A. Doorn, Pathogenic beliefs mediate the relationship between perceived negative parenting and psychopathology symptoms, J. Aggress. Maltreat. Trauma 26 (3) (2017) 258–275.
[17] E.E. Beckham, et al., Development of an instrument to measure Beck's cognitive triad: the Cognitive Triad Inventory, J. Consult. Clin. Psychol. 54 (4) (1986) 566–567.
[18] J. Curtis, G. Silberschatz, Clinical implications of research on brief dynamic psychotherapy I. Formulating the patient's problems and goals, Psychoanal. Psychol. 3 (1986) 13–25.
[19] F. Gazzillo, et al., Personalizing psychotherapy for personality disorders: perspectives from control-mastery theory, Psychoanal. Psychol. 38 (2020).
[20] C.Y. Lai, et al., Personal beliefs, learned resourcefulness, and adaptive functioning in depressed adults, J. Psychiatr. Ment. Health Nurs. 21 (3) (2014) 280–287.
[21] S. Soldz, et al., The relation of defensive style to personality pathology and the big five personality factors, J. Pers. Disord. 9 (4) (1995) 356–370.
[22] B.W. Roberts, Back to the future: personality and Assessment and personality development, J. Res. Pers. 43 (2) (2009) 137–145.
[23] A. Neelapaijit, et al., Pathogenic beliefs among patients with depressive disorders, Neuropsychiatric Dis. Treat. 13 (2017) 1047–1055.
[24] T. Wongpakaran, et al., Using control-mastery and Jungian theories to treat nightmare disorder: a case from Thailand, J. Ment. Health Counsel. 36 (2014) 189–207.
[25] C.J. Shilkret, The role of unconscious pathogenic beliefs in agoraphobia Psychotherapy: Theory, Research, Practice, Training 39 (4) (2002) 368–375.
[26] G. Silberschatz, K.A.-V. Doorn, Pathogenic beliefs mediate the relationship between perceived negative parenting and psychopathology symptoms, J. Aggress. Maltreat. Trauma 26 (2017) 258–275.
[27] G. Silberschatz, K. Aafjes-van Doorn, Pathogenic beliefs mediate the relationship between perceived negative parenting and psychopathology symptoms, J. Aggress. Maltreat. Trauma 26 (3) (2017) 258–275.
[28] K. Aafjes-van Doorn, et al., Interpersonal and social functioning among psychotherapy patients: the indirect effect of childhood adversity, J. Nerv. Ment. Dis. 209 (10) (2021) 747–752.
[29] A. Neelapaijit, et al., Relationship between pathogenic beliefs and interpersonal problems: a cross-sectional study of Thai patients with depression, Ment. Health Relig. Cult. 21 (3) (2018) 262–273.
[30] F. Gazzillo, et al., Attachment disorganization and severe psychopathology: a possible dialogue between attachment theory and control-mastery theory, Psychoanal. Psychol. 37 (2019).
[31] G. Silberschatz, Control-mastery Theory☆, in: Reference Module in Neuroscience and Biobehavioral Psychology, Elsevier, 2017.
[32] J. Curtis, et al., The plan formulation method, Psychother. Res. 4 (3–4) (1994) 197–207.
[33] McCollum, J., et al., The revised pathogenic beliefs scale: a transtheoretical measure of maladaptive beliefs that are associated with psychological distress. J. Pers. Assess.: p. 1-10.
[34] N. Pattamanusorn, et al., Pathogenic beliefs among patients with schizotypal personality disorder, Heliyon 6 (5) (2020) e03870.
[35] Depression Clinical, Experimental and Theoretical Aspects, J R Coll Gen Pract, 1969, p. 249.
[36] J.E. Young, Cognitive Therapy for Personality Disorders: A Schema-Focused Approach. Cognitive Therapy for Personality Disorders: A Schema-Focused Approach, vols. 79-xi, Sarasota, FL, England: Professional Resource Exchange, Inc. xi, 1990, 79.
[37] A.T. Beck, D.D. Davis, A. Freeman, Cognitive Therapy of Personality Disorders, third ed., Guilford Press, 2015.
[38] M. Jovev, H.J. Jackson, Early maladaptive schemas in personality disordered individuals, J. Pers. Disord. 18 (5) (2004) 467–478.
[39] H. Kunst, et al., Early maladaptive schemas and their relation to personality disorders: a correlational examination in a clinical population, Clin. Psychol. Psychother. 27 (6) (2020) 837–846.
[40] L. Bamelis, et al., Extended schema mode conceptualizations for specific personality disorders: an empirical study, J. Pers. Disord. 25 (1) (2011) 41–58.
[41] A. Arntz, A. Weertman, S. Salet, Interpretation bias in Cluster-C and Borderline personality disorders. Behaviour Research and Therapy 49 (8) (2011) 72–81.
[42] N. Pattamanusorn, et al., Pathogenic beliefs among patients with schizotypal personality disorder, Heliyon 6 (5) (2020) e03870.
[43] M.B. First, et al., Structured Clinical Interview for DSM-IV Axis II Personality Disorder (SCID-II), User's Guide, American Psychiatric Press, 1997.
[44] T. Wongpakaran, et al., Interrater reliability of Thai version of the structured clinical interview for DSM-IV Axis II personality disorders (T-SCID II), J. Med. Assoc. Thai. 95 (2) (2012) 264–269.
[45] N. Wongpakaran, T. Wongpakaran, Z. Kovi, Development and validation of 21-item outcome inventory (OI-21), Heliyon 8 (6) (2022) e09682.
[46] T. Zhang, et al., Role of childhood traumatic experience in personality disorders in China, Compr. Psychiatr. 53 (6) (2012) 829–836.
[47] L.Y. Massaal-van der Ree, et al., Cluster B versus cluster C personality disorders: a comparison of comorbidity, suicidality, traumatization and global functioning, Behav. Sci. 12 (4) (2022).
[48] H. Berenbaum, et al., Psychological trauma and schizotypal personality disorder, J. Abnorm. Psychol. 117 (3) (2008) 502–519.
[49] F. Gazzillo, Toward a more comprehensive understanding of pathogenic beliefs: theory and clinical implications, J. Contemp. Psychother. 53 (3) (2022) 227–234.
[50] Reid, J. and D. Kealy, Features of pathogenic beliefs in the context of childhood maltreatment: implications for therapeutic empathy. Studies in Clinical Social Work: Transforming Practice, Education and Research: p. 1-18.
[51] O. Zashchirinskaia, E. Isagulova, Childhood trauma as a risk factor for high risk behaviors in adolescents with borderline personality disorder, Iran. J. Psychiatry 18 (1) (2023) 65–71.
[52] S.S. Bhar, G.K. Brown, A.T. Beck, Dysfunctional beliefs and psychopathology in borderline personality disorder, J. Pers. Disord. 22 (2) (2008) 165–177.
[53] N. Flink, et al., Comparison of early maladaptive schemas between borderline personality disorder and chronic depression, Clin. Psychol. Psychother 25 (4) (2018) 532–539.
[54] H. MacIntosh, N. Godbout, N. Dubash, Borderline personality disorder: disorder of trauma or personality, a review of the empirical literature, Canadian Psychology/Psychologie canadienne 56 (2015) 227–241.
[55] P. Bozzatello, et al., The role of trauma in early onset borderline personality disorder: a biopsychosocial perspective, Front. Psychiatr. 12 (2021) 721361.
[56] H.P. Hailes, et al., Long-term outcomes of childhood sexual abuse: an umbrella review, Lancet Psychiatr. 6 (10) (2019) 830–839.
[57] S. Euler, et al., Grandiose and vulnerable narcissism in borderline personality disorder, Psychopathology 51 (2) (2018) 110–121.
[58] E. Benedik, S.C. Dobnik, Phemenological aspects of personality disorders in adult psychiatric patients, Psychiatr. Danub. 26 (2) (2014) 127–136.
[59] P.F. Kernberg, Narcissistic personality disorder in childhood, Psychiatr. Clin. 12 (3) (1989) 671–694.
[60] D. Kealy, F. Gazzillo, Testing and treatment-by-attitude in psychotherapy for pathological narcissism: a clinical illustration, J. Clin. Psychol 80 (4) (2023) 795–808.
[61] V. Clemens, J.M. Fegert, M. Allroggen, Adverse childhood experiences and grandiose narcissism – findings from a population-representative sample, Child Abuse Neglect 127 (2022) 105545.

[62] L.J. Cohen, et al., Are there differential relationships between different types of childhood maltreatment and different types of adult personality pathology? Psychiatr. Res. 215 (1) (2014) 192–201.
[63] C.I. Montoro, et al., Narcissistic personality and its relationship with post-traumatic symptoms and emotional factors: results of a mediational analysis aimed at personalizing mental health treatment, Behav. Sci. 12 (4) (2022).
[64] G.O. Gabbard, Psychodynamic Psychiatry in Clinical Practice, fifth ed., American Psychiatric Publishing. xiv, Washington, DC, 2014, p. 639.
[65] E. Calvete, Justification of violence and grandiosity schemas as predictors of antisocial behavior in adolescents, J. Abnorm. Child Psychol. 36 (7) (2008) 1083–1095.
[66] D. Moreira, et al., Childhood traumatic experiences and psychopathy: a comprehensive review, Psychol Trauma 14 (8) (2022) 1281–1287.