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SYSTEMATIC REVIEW

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The implication of alexithymia in personality disorders: a systematic review

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Abstract

Background Alexithymia, characterized by difficulty identifying and expressing emotions, is often associated with various psychiatric disorders, including personality disorders (PDs). This study aimed to explore the relationship between alexithymia and PD, focusing on their common origins and implications for treatment.

Methods A systematic review was conducted following PRISMA guidelines using databases such as MEDLINE (PubMed), Scopus, and Web of Science. The inclusion criteria were studies assessing adults with DSM-5-diagnosed personality disorders using validated alexithymia scales. The Newcastle–Ottawa Scale was used to assess the quality of the included studies.

Results From an initial yield of 2434 citations, 20 peer-reviewed articles met the inclusion criteria. The findings indicate a significant association between alexithymia and personality disorders, particularly within Clusters B and C. Patients with these disorders exhibited higher levels of alexithymia, which correlated with increased emotional dysregulation and interpersonal difficulties. The review also highlighted the comorbidity burden of conditions such as psychosomatic disorders, eating disorders, depression, anxiety, suicidal behavior, and substance use disorders.

Conclusions These findings underscore the need for integrating alexithymia-focused assessments into clinical practice to enhance therapeutic approaches, allowing for more personalized and effective interventions. Addressing the emotional processing challenges in patients with personality disorders could significantly improve patient outcomes. Future research should prioritize establishing clinical guidelines and conducting longitudinal studies to explore the relationship between alexithymia and specific personality disorder subtypes, ensuring the practical translation of these findings into clinical practice.

Keywords Alexithymia, Personality disorders, Emotional dysregulation, Interpersonal difficulties, Cluster B personality disorders, Cluster C personality disorders, Comorbidity

Introduction

Introduced by Sifneos and Nemiah, the construct of alexithymia refers to a reduced capacity to identify and express emotions, difficulty differentiating between emotional states and physiological sensations, and a concrete, externally oriented cognitive style [1, 2]. This condition has been extensively recognized as a valid transdiagnostic dimension. It is seen as a continuous personality trait that impairs the cognitive processing of emotional information and the capacity to verbally articulate feelings. Alexithymia disrupts individuals'

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interpersonal relationships due to their deficits in comprehending and relating not only to their own emotions but also to the emotions of others [3–5]. Furthermore, research suggests that less secure forms of attachment, such as avoidant dismissing, are most common among this group of patients [6]. This pattern is also demonstrated in interactions with the therapist [7], adding to their difficulty in building consistent and reliable relationships with significant others.

Perceived social support, which is an individual's belief in the adequacy of his or her social resources, significantly impacts mental health outcomes [8]. Therefore, it is not surprising that high levels of alexithymia remain relevant in adult psychopathology, as they are associated with a variety of psychiatric symptoms and diagnoses, such as depression, anxiety, impulsivity, eating disorders, substance use disorders, psychosomatic disorders and personality disorders [9–18]. Understanding the extent to which alexithymia is implicated in personality disorders is the aim of the present study.

Ego defenses are understood as psychological mechanisms for managing distressing or overwhelming emotions. Since impaired understanding of emotions, a characteristic of alexithymia, makes coping with emotional stress more challenging, it is logical for researchers to investigate this association. Freud (1923) posited that ego defense styles and the frequency of their use are key to understanding personality and psychopathology. In fact, previous research has indicated that immature defense mechanisms are strongly associated with maladaptive personality domains and personality disorders, whereas mature defense mechanisms are linked to better personality functioning [19, 20].

Personality disorders (PDs), which are defined in the DSM-5 as chronic dysfunctions that start early in life and are resistant to change, also disrupt essential psychological functions, particularly emotional regulation, in which difficulties in describing emotions are a common feature. Although the concept of pathological personality was first documented in 1930, rigorous empirical research on PDs only began in the 1970s and 1980s, even though its prevalence was found to be as high as 10%, and these disorders can be as debilitating as severe mood disorders [21, 22]. According to the DSM-5 Alternative Model for Personality Disorders, the severity of PD is evaluated based on dysfunctions in self-functioning (identity and self-direction) and interpersonal functioning (empathy and intimacy), which once again emphasizes the implication of alexithymia as a potential transdiagnosis in these patients. Moreover, attachment literature demonstrates that it also encompasses the psychopathology underlying PD since it is crucial for the acquisition of capacities for affect and stress regulation, attentional control, mentalization, and a sense of self-agency [23].

To provide a comprehensive background, it is essential to review the existing literature on the association between alexithymia and the three clusters of PD. In examining the relationship between alexithymia and PD, previous studies have provided valuable insights into how alexithymia manifests across the three clusters of PD. For Cluster A, research by Coolidge et al. [24] indicated a modest but significant correlation between schizoid personality disorder (SPD) and alexithymia, suggesting that the emotional detachment characteristic of SPD may be linked to difficulties in emotional processing. Cluster B, which includes borderline (BPD), histrionic (HPD), and narcissistic personality disorders (NPD), has been extensively studied in relation to alexithymia. For instance, Kiliç et al. [25] found that BPD patients exhibited significantly higher levels of alexithymia compared to healthy controls, particularly in the dimensions of difficulty identifying and describing feelings. Additionally, studies on HPD and NPD, such as those by Ritz et al. [26], have demonstrated a strong association between these disorders and alexithymia, especially in how these individuals process and express emotions. Finally, in Cluster C, which includes avoidant (AVPD) and dependent personality disorders (DPD), research by Simonsen et al. [27] and Loas et al. [28] has highlighted that individuals with these disorders often exhibit high levels of alexithymia, particularly in the externally oriented thinking dimension, which may contribute to their avoidance of emotional introspection and reliance on external validation.

Alexithymia is commonly conceptualized through its three core dimensions: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). Each of these dimensions can impact PD in distinct ways. For example, DIF is strongly associated with emotional dysregulation in BPD, where individuals struggle to identify their emotional states, leading to impulsive behaviors [25]. DDF, on the other hand, is often linked with interpersonal difficulties seen in AVPD, as individuals may have trouble articulating their emotions, hindering close relationships [27]. EOT is particularly relevant in SPD, where a focus on external, concrete thinking can lead to emotional detachment and a lack of introspection [24].

Research has enthusiastically explored the potential origins of both high levels of alexithymia and PD, highlighting early childhood exposure to traumatic events, maltreatment, and insecure environments [5, 29, 30]. Children lacking reliable primary caregivers tend to develop less adaptive defense mechanisms and insecure attachment styles in adulthood. Such early adverse experiences significantly shape emotional regulation and

relationship patterns later in life, emphasizing the profound impact of a stable and nurturing environment during formative years. Studies by Taylor [6], Honkalampi [31], and Nevarez [32] underscore the critical influence of early childhood experiences on adult psychological health. The meta-analytic review conducted by Ditzer et al. [5], published in 2023, synthesizes findings from 99 independent samples and confirms a significant correlation between childhood maltreatment and alexithymia in adulthood. Specifically, emotional abuse, emotional neglect, and physical neglect were identified as the strongest predictors of alexithymia. These findings highlight the critical importance of early and ongoing interventions to mitigate the long-term effects of childhood maltreatment on individuals' emotional regulation abilities.

Given the numerous commonalities between personality disorders and alexithymia, such as ego fragility, represented by less adaptive defense mechanisms and insecure attachment styles, as well as their association with hostile or neglectful childhood environments, expanding our knowledge about their relationship is essential. Both conditions are rooted in early adverse experiences, leading to significant challenges in emotional regulation and interpersonal relationships in adulthood. Despite extensive research on these individual conditions, a comprehensive systematic review to elucidate their interrelationship, particularly focusing on which subtypes of personality disorders exhibit the strongest connections with alexithymia, is lacking. Addressing this gap is crucial for advancing our understanding and improving therapeutic interventions, especially due to the high prevalence and often misunderstood nature of PDs, intensified by societal stigmatization.

Methods

Systematic review protocol

This review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [33].

Search strategy

We performed searches in the MEDLINE (PubMed), Scopus, and Web of Science (Science and Social Science Citation Index) databases on June 23, 2023, without restrictions on language or publication year. Keywords were tailored to our research objectives, using the Boolean operators "AND" and "OR" to refine the search. The specific search strategy employed in MEDLINE (PubMed) included terms such as "Personality Disorders" (MESH), "Alexithymia", "Toronto Alexithymia Scale", and "Bermond-Vorst Alexithymia Questionnaire". Details of the comprehensive search strategy for each database are available in the supplementary material.

Manual searches were also conducted to identify potentially overlooked studies through Google Scholar and the "related articles" feature in PubMed. The review excluded gray literature to focus on peer-reviewed articles. An updated search was conducted on November 9, 2023, to include more recent publications.

Inclusion and exclusion criteria

The inclusion criteria were as follows:

1. Population (P): Studies assessing adults with DSM-5-diagnosed personality disorders.*
2. Exposure (E): Studies using a validated scale to assess alexithymia.
3. Comparison (C): According to each study protocol, such as health subjects or subjects diagnosed with other mental health disorders.
4. Outcome (O): Studies in which alexithymia was a primary outcome.

The exclusion criteria were as follows:

1. Interventional studies.
2. Case reports, case series, systematic reviews, and meta-analyses.
3. Studies exclusively involving children and adolescents.
4. Studies on patients with comorbid psychotic disorders or primary substance use disorders.
5. Studies assessing personality traits rather than disorders.

*Regarding the inclusion criteria for diagnosis, we focused on DSM-5 diagnoses that were also recognized in previous editions of the manual. For example, we included studies published before the DSM-5 that assessed Borderline PD but excluded those that assessed Passive-Aggressive PD, as the latter is not considered a valid diagnosis in the latest edition.

Screening and selection

Titles and abstracts were independently screened by two investigators (CHC, TAM), followed by full-text reviews. Discrepancies were resolved through discussion until a consensus was reached. Rayyan software [34] was used to facilitate the screening process.

Data extraction

Data extraction was standardized and included variables such as author(s), publication year, country, objectives, study design, sample size, alexithymia assessment tools,

diagnoses, and results. The process was conducted by the authors CHC and TAM, with consultation from senior researchers when needed.

Risk of bias assessment

Study quality was assessed using the Newcastle–Ottawa Scale (NOS) [35]. Cohort studies were evaluated across three domains—Selection, Comparability, and Outcome. An adapted version of the NOS for cross-sectional studies [36] was also utilized.

Outcomes

This review primarily investigated the relationship between personality disorders and alexithymia, focusing on the following:

1. Correlations between PD and alexithymia.
2. Prevalence and expression of alexithymia in various PD clusters.
3. Severity of alexithymia in PDs.
4. Impact of alexithymia on functional impairment within this population.
5. Comparisons of alexithymia in PDs to other conditions such as mood disorders.

The Toronto Alexithymia Scale (TAS-20) was the predominant tool used for assessing alexithymia and was used in 95% of the studies, highlighting its validity and widespread acceptance in research contexts. The TAS-20 is a self-report scale in which each item is ranked from 1 to 5, for a total score ranging from 20 to 100. The TAS-20 is composed of three subscales: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT). A total score of 61 or higher indicates the presence of alexithymia [6, 37].

Results

Our initial search yielded 2434 citations across MEDLINE/PubMed, Scopus, Web of Science, and manual searches. A total of 311 duplicate records were removed, and 2123 were initially screened. A total of 2051 records were excluded due to illegibility in fulfilling the inclusion criteria. Seventy-two articles were assessed for eligibility, leading to the inclusion of 20 peer-reviewed articles after rigorous screening and eligibility assessments [13, 24–28, 38–51] (Fig. 1).

Overview

The studies collectively involved 4499 participants, although one study did not report detailed demographic data [13]. Among the reported participants, 71.3% were women. The study sample sizes varied widely, ranging from as few as 36 participants [43] to as many as 1611 [46], reflecting a broad range of study scales and scopes. The geographic spread of the studies included substantial contributions from the USA, several European countries, Iran, Turkey, and Canada, highlighting the global interest in the topic. This geographical diversity enriches the cross-cultural applicability of our findings.

Considering PD clusters, one study assessed Cluster A, SPD [24]; ten studies evaluated Cluster B, nine studies assessed BPD individuals; and one study assessed BPD, HPD and NPD participants [26]. Two studies assessed Cluster C, one in AVPD participants [27] and one in DPD participants [28]. Furthermore, one study assessed BPD and AVPD subjects [44]. Six studies evaluated different diagnoses and clusters in the context of personality disorder assessment [13, 38, 39, 42, 45, 46].

The samples of four studies (20%) were composed of inpatients [26, 40, 49, 51], and one study utilized a mixed sample of inpatients and outpatients [25]. Considering treatment modalities, the samples of three studies (15%) involved pharmacological treatment [40, 47, 49], especially antidepressants, antipsychotics, and mood stabilizers. Pharmacological agents are mostly utilized for the treatment of comorbidities, such as mood and anxiety disorders. One study [25] included both medicated and unmedicated participants, and one study assessed only unmedicated participants [44] (Table 1).

Cluster A

In a study by Coolidge et al. [24], a modest but significant correlation between alexithymia and Schizoid Personality Disorder (SPD) was observed in a sample of 199 undergraduate students utilizing the Coolidge Axis II Inventory (CATI) for PD diagnosis and the Observer Alexithymia Scale (OAS) for assessing alexithymia (r = 0.30). Multiple regression analysis revealed that SPD was a significant predictor of the total OAS score, with coefficients $\beta = 0.17$, $\beta = 0.19$, and $\beta = 0.11$. Moreover, both the OAS and SPD showed a strong association with the major depressive disorder scale on the CATI, which was particularly pronounced for the SPD ($r = 0.52$). The OAS differs from the TAS-20 in that the OAS is based on observations made by clinicians or others who know the individual, providing an external assessment of alexithymia. In contrast, the TAS-20 is a self-report measure where individuals assess their own alexithymic traits. The study by Coolidge et al. (2013) utilized the OAS to capture an objective, externally-validated perspective on alexithymia, which can be particularly useful in populations where self-awareness may be limited, such as those with SPD.

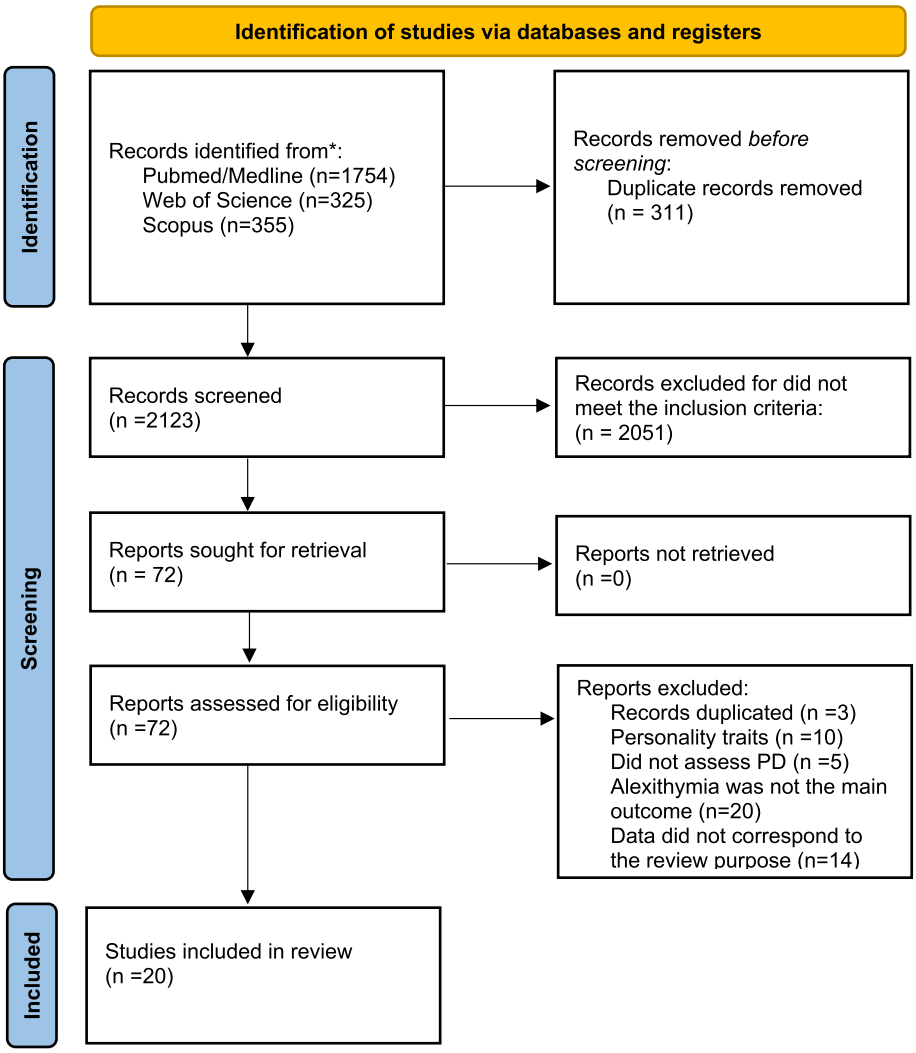

Fig. 1 PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only

Cluster B

Ten studies exclusively investigated Cluster B personality disorders. Kiliç et al. [25] explored differences in empathy, theory of mind (TOM), and alexithymia between Borderline Personality Disorder (BPD) patients and healthy controls and reported significantly greater scores in BPD patients on the Toronto Alexithymia Scale-20 (TAS-20; t = 8.711, $p < 0.001$). Additionally, BPD patients exhibited greater impulsivity and poorer performance in recognizing emotional states, as measured by the Reading the Mind in the Eyes Test (RMET), although this difference was not significant when controlling for alexithymia and impulsivity.

Pourmohammad et al. [48] assessed TOM, self-awareness, and alexithymia in fifty BPD outpatients, noting lower performance in BPD patients on the Faux Pas Task (FPT) and a negative correlation between the RMET and the Externally Oriented Thinking (EOT) subscale of the TAS-20 in the BPD group (r = -0.33, $p < 0.05$). Domes et al. [40] analyzed the correlation between alexithymia and facial emotion regulation in BPD patients and identified significant associations between TAS-20 scores and emotion recognition, especially for fearful and surprised expressions. Bøen et al. [50] highlighted how alexithymia relates to relationship problems and mood swings in BPD and bipolar II disorder patients, demonstrating distinct patterns of interpersonal issues associated with alexithymia across these groups. Guttman and Laporte [51] reported that BPD patients were significantly more alexithymic than were those diagnosed with anorexia nervosa or healthy controls, particularly in identifying and expressing feelings. Ritz et al. [26] compared alexithymia in patients with various Cluster B disorders and discovered that psychopathology severity was a more

Table 1 Characteristics of included studies

Reference	Country	Objectives	SD	N	AoA	ATs	Diagnosis	Results
Bach et. al, 1994 [38]	Austria	Alexithymia: relationship to PD	CS	182 overweight women	TAS	TAS SCID PDQ-R	PD	17% scored in the alexithymic range, schizotypal, dependent, and avoidant personality dimensions significant predictors of alexithymia
Berembaum, 1996 [52]	USA	Childhood abuse, alexithymia and PD	CS	60 out-patients (44 women) receiving PT.	TAS-20	PDQ-R	PD	Childhood abuse, alexithymia, and PD were associated with each other, differential associations for abilities to identify and communicate emotions
Bøen et al., 2020 [50]	Norway	Alexithymia study assessing borderline and bipolar type II patients	CS	22 BPD patients (20 females), 22 BP-II (17 females), 22 HC (17 females)	TAS	MINI SCID-II PDQ-4 GBB HoNOSR	BPD	Significant correlation found between difficulties describing feelings and HoNOSR values in BPD patients
Coolidge et al., 2013 [24]	USA	Correlation between alexithymia and SPD	CS	199 students (93 women)	OAS	CATIHCTI 5DPD	SPD	Modest significant positive correlation between SPD and alexithymia. Secondary measures supported that SPD and alexithymia are not synonymous entities
Domes et. al, 2011 [40]	Germany	Alexithymic traits and facial emotion recognition in BPD	CS	19 female BPD in-patients, 25 female controls	TAS-20	TAS-20 BDI BSL-95 DFMT	BPD	Significant differences between groups in depressive symptoms, severity of borderline symptoms, and alexithymic traits
Guttman et al., 2002 [51]	Canada	measure the level of alexithymia in members of three types of families	CS	35 women with BPD, 34 women with AN, 33 HC	TAS-20	IRI DIB-R SL-90-R BSI	BPD	Families of women with BPD showed more alexithymia than families of women with AN
Honkalampi et al., 2004 [31]	Finland	Alexithymia as a risk for PD major depression or AUD	cohort	333 subjects from the NPR	TAS-20	SCID-I BDI-21 SCID-II	PD (DSM-IV)	TAS scores not associated with subsequent major depressive disorder, PD, or AUD
Kiliç et al., 2020 [25]	Turkey	comparisons in empathy, alexithymia and theory of mind among HC and BPD patients	CS	35 female BPD patients, 35 female HC	TAS-20	SCID-I SCI-II RMET EQ BIS-11 BDI	BPD	BPD group had significantly worse RMET scores and higher alexithymia levels, predicting BPD diagnosis
Loas et al.,2015 [28]	Belgium	Relationship between alexithymia and DPD	CS	477 non-clinical subjects (311 women)	TAS-20	DPQ BDI-II	DPD	DPD is distinct from alexithymia and depression, with moderate correlation between DPQ and TAS-20

Table 1 (continued)

Reference	Country	Objectives	SD	N	AoA	ATs	Diagnosis	Results
Lysaker et. al, 2017 [41]	USA Italy Czech Republic	Contrasting metacognitive, social cognitive and alexithymia profiles in adults with BPD, SZ and SUD	CS	SZ (*n*=65, 3 female), BPD (*n*=34, 5 female), SUD (*n*=32, 1 female)	TAS-20	MAS-A BLERT TAS SCID-I SCID-II	SZ BPD SUD without psychosis or borderline traits	BPD and SZ groups had higher levels of alexithymia than the SUD group
Németh et. al, 2020 [43]	Hungary	Examining the relationship between executive functions and mentalizing abilities of BPD patients	CS	18 BPD patients (17 females), 18 HC (17 females)	TAS-20	WCST LST FT LFT RMET FPT	BPD	BPD patients exhibited significant impairments in emotional self-awareness and ToM reasoning, with comorbid psychiatric symptoms negatively predicting alexithymia and ToM decoding
New et al., 2012 [44]	USA	Empathy and alexithymia in BPD	CS	79 BPD (53 females) patients, 76 HC (48 females), 39 AVPD patients (15 females)	TAS-20	SCID-I SCID IRI ISEL	BPD AVPD	BPD and AVPD scored higher in TAS than HC, with BPD patients reporting impaired ability to identify/describe feelings
Nicolo et al., 2011 [42]	Italy	alexithymia in PD and its correlation with symptoms and interpersonal functioning	CS	388 individuals in an outpatient clinic (208 female)	TAS-20	SCID-II SL-90-R IIP	PD (DSM-IV)	Higher levels of alexithymia associated with high levels of global psychopathology and interpersonal dysfunction
Panfilis et al., 2015 [45]	Italy	Relationship between PD and alexithymia	CS	167 out-patients (111 females)	TAS-20	SCID-I GSI	PD	Cognitive aspects of alexithymia associated with PD criteria, particularly in borderline, avoidant, and dependent PDs
Pedersen et al., 2022 [46]	Norway	Psychometric evaluation of TAS-20 in a multisite clinical sample of patients with PD and personality problems	CS	1611 psychiatric out-patients (1256 females)	TAS-20	SCID-5 MINI	PD	Anxiety disorders, BPD, and AVPD highly related to levels of TAS-20
Pourmohammad et al., 2021 [48]	Iran	Examine emotion recognition, complex TOM, and alexithymia in BPD patients compared to HC	CS	50 BPD out-patients (20 females), 50 HC (20 females)	TAS-20	RMET TAS-20 FPT Digit Span subtest of WAIS	BPD	BPD patients scored lower on FPT and its subtests but comparable to HC in emotion recognition ability, lower overall alexithymia
Pluta et. al, 2018 [47]	Poland	Assessing advanced theory of mind and alexithymia in patients with BPD	CS	30 female BPD patients, 38 female HC	TAS-20	SCID-II BPI STAI CESD-R RPM	BPD	BPD patients scored worse on ToM abilities but had a similar level of alexithymia to HCs, no correlation between FPT and TAS-20

Table 1 (continued)

Reference	Country	Objectives	SD	N	AoA	ATs	Diagnosis	Results
Ritz et al., 2018 [26]	Hungary	Facial emotion recognition deficits and alexithymia in BPD, NPD, HPD	CS	80 (31 females) subjects: 20 of each PDs and 20 HCs	TAS-20	FEEST SCL-90-R SCID-II	BPD NPD HPD	BPD and NPD were more alexithymic than HCs, with severity in SCL-90-R predicting emotion recognition deficits.
Simonsen et al., 2021 [27]	Norway and Denmark	Alexithymia as a measure of personality dysfunction in AVPD	CS	56 AVPD patients (41 females)	TAS-20	SCL 90-R MINI SCID-II CIP SIPP-118 GAF WSAS	AVPD	Alexithymia is heterogeneous in AVPD, with highly alexithymic patients showing higher levels of personality dysfunction
Sleuwaegen et. al, 2017 [49]	Belgium	Investigate whether NSSI was associated with alexithymia controlling for gender and depression	CS	185 BPD inpatients (160 females)	TAS-20	TAS-20 SIQ-TR	BPD inpatients	82.7% reported lifetime NSSI, 71.3% scored in the alexithymic range, significant association between NSSI and TAS-total

AoA Assessment of Alexithymia, *AN* Anorexia Nervosa, *AUD* Alcohol Use Disorder, *AVPD* Avoidant Personality Disorder, *BDI-21* Beck Depression Inventory, *BDI-II* Beck Depression Inventory-II, *BPD* Borderline Personality Disorder, *BP-2* Bipolar type 2, *BSI* Borderline Syndrome Index, *BSL* Borderline Symptom List, *CATI* Coolidge Axis II Inventory, *CIP* Circumplex of Interpersonal Problems, *CS* Cross-Sectional, *DBI-II* Beck Depression Inventory-II, *DES* Dissociative Experiences Scale, *DFMT* Dynamic Facial Morph Task, *DIB-R* Revised Retrospective Diagnostic Interview for Borderlines, *DPQ* Dependent Personality Questionnaire, *DPD* Dependent Personality Disorder, *EQ* Empathic Quotient, *FEEST* Ekman 60 Faces Test, *FPT* Faux Pas Task, *FT* Eriksen Flanker Task, *GAF* Global Assessment of Functioning, *GBB* Giessener Subjective Complaints List, *GSI* General Severity Index, *HC* Healthy Controls, *HCTI* Horney-Coolidge Tridimensional Inventory, *HoNOSR* Health of the Nation Outcome Scales, *PD* Personality Disorders, *HPD* Histrionic Personality Disorder, *IIP* Inventory of Interpersonal Problems, *IRI* Interpersonal Reactivity Index, *ISEL* Interpersonal Support Evaluation List, *LFT* Letter Fluency Task, *LST* Listening Span Task, *MAS-A* Metacognition Assessment Scale-Abbreviated, *MINI* Mini International Neuropsychiatric Interview, *NPD* Narcissistic Personality Disorder, *NPR* National Population Register, *OAS* Observer Alexithymia Scale, *PDQ-4* Personality Disorder Questionnaire, version 4, *PDQ-R* Personality Disorder Questionnaire - Revised, *PT* Psychotherapy, *RMET* Reading the Mind in the Eyes Test, *SCID-I* Structured Clinical Interview for DSM-IV Axis I, *SCID-II* Clinical Interview for DSM-IV Axis II, *SCID-5* Structured Clinical Interview for DSM-5 Personality Disorder, *SCL-90-R* Symptom Checklist-90-R, *SD* Study Design, *SIQ-TR* Self-Injury Questionnaire-Treatment Related, *SIPP-118* Severity Indices of Personality Problems, *SPD* Schizoid Personality Disorder, *STAI* Spielberger State-Trait Anxiety Inventory, *SUD* Substance Use Disorder, *SZ* Schizophrenia, *TAS-20* Toronto Alexithymia Scale 20 item, *WAIS* Wechsler Adult Intelligence Scale, *WCST* Wisconsin Card Sorting Test, *WSAS* Work and Social Adjustment Scale

significant predictor of emotion recognition deficits than PD diagnosis itself. Sleuwaegen et al. [49] investigated the relationship between nonsuicidal self-injury (NSSI) and alexithymia in BPD patients, with 71.3% of participants identified as alexithymic and significant associations found between the TAS-20 score and current NSSI incidents.

Cluster C

Simonsen et al. [27] measured alexithymia in AVPD patients and reported significant variability in alexithymia levels and correlations with personality dysfunction, particularly in self-reflection and intimacy problems. Loas et al. [28] explored the distinctions between alexithymia and dependent personality disorder (DPD) using factor analysis to establish that while DPD and alexithymia are distinct constructs, they are closely correlated when controlling for depression.

Mixed findings

Honkalampi et al. [13] assessed whether alexithymia could predict the development of PD and found no significant associations with PD diagnosis over a three-year follow-up. Conversely, Panfilis et al. [45] noted that alexithymia levels closely correlated with the severity of PD symptoms, particularly within Cluster C disorders, regardless of psychopathology distress levels.

Newcastle–Ottawa assessment

The quality of the included studies was evaluated using the Newcastle–Ottawa Scale (NOS). The cross-sectional studies averaged 3.42 stars in the selection domain and 1.89 stars in the comparability domain, indicating moderate bias primarily due to the representativeness of the sample and self-report measures used for outcomes. The prospective cohort study scored well in terms of selection and comparability, reflecting a robust study design.

Discussion

This systematic review revealed a significant relationship between alexithymia and various personality disorders, particularly within Clusters B and C. Our findings are consistent with previous research that emphasized the role of emotional dysregulation and interpersonal difficulties as central features of these disorders, exacerbated by alexithymia [53, 54]. Integrating alexithymia assessments into the diagnostic process can greatly enhance therapeutic approaches, allowing for more personalized and effective interventions that address both alexithymic traits and underlying personality pathology [6].

The impact of alexithymia varies across the different clusters of personality disorders, reflecting the distinct clinical manifestations of each cluster. In Cluster A, characterized by odd and eccentric behaviors, alexithymia may contribute to emotional detachment and social withdrawal, particularly in schizoid personality disorder. For Cluster B, where dramatic, emotional, or erratic behaviors predominate, alexithymia often exacerbates emotional dysregulation and impulsivity, as seen in borderline personality disorder. In Cluster C, which includes anxious and fearful behaviors, alexithymia may reinforce avoidance and dependency, complicating interpersonal relationships and emotional processing.

The studies reviewed highlight the complex interplay between alexithymia and personality disorders. For instance, BPD patients consistently show greater alexithymia than healthy controls, which correlates with increased impulsivity and difficulties in emotion recognition [25, 48]. These findings suggest that alexithymia not only contributes to the severity of BPD symptoms but also hinders the therapeutic process by impairing patients' ability to engage emotionally with treatment.

In addition to the clinical and symptomatic links between BPD and alexithymia, recent neuroimaging and neurophysiological studies provide further insight into potential mechanisms that may underpin this association.

Functional MRI (fMRI) studies have shown that individuals with BPD and high levels of alexithymia often exhibit reduced activity in the prefrontal cortex, a region associated with emotional regulation and executive function. This diminished activity may contribute to difficulties in identifying and describing emotions, core features of alexithymia [55]. Additionally, alterations in the amygdala, which plays a crucial role in emotional processing, have been observed in BPD patients with alexithymia [56]. The heightened amygdala response to emotional stimuli may exacerbate the emotional dysregulation characteristic of BPD, further linking these two conditions. These neurophysiological findings suggest that the interplay between impaired cortical regulation and heightened limbic activity could be a key mechanism underlying the comorbidity of BPD and alexithymia.

Moreover, the mutable nature of personality disorders, as evidenced by recent research, indicates that these conditions can improve with appropriate interventions [55]. Traditional psychoanalytic therapies, which often rely on patient-led content and passive therapist involvement, may not be the most effective approach for patients with high levels of alexithymia. Such patients struggle with establishing interpersonal connections and articulating their emotions, thus requiring more proactive and structured therapeutic methods. Therefore, therapies specifically designed to address alexithymia, such as dialectical behavior therapy (DBT) and cognitive behavioral therapy (CBT), should be prioritized. These approaches

emphasize emotional processing and regulation, which are crucial for patients with alexithymia [57, 58].

Our review also identified a notable gap in the literature regarding Cluster A personality disorders. Although these disorders are less prevalent, they pose significant clinical challenges, and their association with alexithymia remains underexplored. Future research should focus on this area to uncover potential insights into the management and treatment of Cluster A disorders, potentially improving outcomes for this patient population [27].

The significant morbidity burden associated with common comorbidities of personality disorders is well documented, with many of these conditions having established links to alexithymia. Psychosomatic disorders, eating disorders, depression, anxiety, suicidal behavior, and substance use disorders are frequently observed alongside PD, highlighting the profound impact of alexithymia on these comorbidities [11–14, 49, 51]. This scenario underscores the importance of considering PD and alexithymia as interconnected concepts. Addressing them altogether can provide a more comprehensive understanding and improve therapeutic interventions, ultimately enhancing patient outcomes and quality of life.

Another critical aspect to be further elaborated is the role of the three dimensions of alexithymia—difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT)—in relation to the comorbidities associated with different personality disorder clusters. In examining these dimensions, it becomes evident that they may manifest differently depending on the specific comorbidities present in each cluster. For instance, in Cluster B personality disorders, where mood disorders and impulsivity are common, DIF and DDF may be particularly elevated, contributing to greater emotional dysregulation and challenges in interpersonal relationships. These difficulties may be less about the recognition of emotions in others and more about the internal struggle to process and articulate one's own emotions. Conversely, in Cluster C personality disorders, which are often comorbid with anxiety disorders, EOT might be more pronounced, potentially leading to a stronger focus on external events rather than introspective or emotional insight. This avoidance of emotional introspection can exacerbate anxiety and reinforce avoidant behaviors, making treatment more challenging. Understanding these dimensional differences within the context of comorbidities can guide more tailored and effective therapeutic interventions, addressing not just the personality disorder but also the specific alexithymic traits that may be driving comorbid conditions.

The clinical implications of our findings suggest that incorporating alexithymia-focused assessments and interventions could enhance the overall effectiveness of treatment for personality disorders. Tailored approaches that address emotional awareness and regulation are likely to yield better therapeutic outcomes and improve the quality of life for these patients.

Limitations and future directions

This review primarily relies on cross-sectional studies, which limits our ability to determine causality and the directionality of the relationship between alexithymia and personality disorders. The cross-sectional nature of these studies means that we cannot conclusively establish whether alexithymia leads to the development of personality disorders or vice versa. Longitudinal studies are necessary to assess the stability of alexithymia over time and to evaluate the long-term effects of targeted interventions. Additionally, the reliance on self-report measures for assessing alexithymia raises concerns about the objectivity and accuracy of the data. Self-report tools, while useful, may not fully capture the complexity of alexithymic traits. Future research should incorporate a combination of self-reports and clinician-administered tools to provide a more comprehensive understanding of alexithymia in the context of personality disorders.

In line with past studies, such as those by Mattila et al. [59], Kauhanen et al. [57], and Salminen et al. [58], we recognize that sociodemographic factors, including age and social conditions, significantly influence TAS-20 scores and, consequently, the relationship between alexithymia and personality disorders. Although our systematic review did not conduct direct analyses controlling for these variables, we acknowledge their potential impact based on the existing literature.

Another limitation is the geographical and cultural diversity of the included studies, which, while enriching, may also introduce variability that affects the generalizability of the findings. The samples involved in the studies may come from different countries or regions with varying cultural backgrounds and demographics. These differences could limit the generalizability of the findings, especially when extrapolating to other cultural contexts or populations. Moreover, it is important to acknowledge that the NOS risk of bias assessment inherently involves a degree of subjectivity, which can introduce bias into the evaluation process. Finally, it is important to acknowledge that this systematic review focused exclusively on peer-reviewed articles and did not include grey literature. This approach was chosen to ensure a high level of methodological rigor and reliability in the studies reviewed. However, this limitation could have led to the omission of relevant studies not published in peer-reviewed journals, potentially affecting the comprehensiveness and representativeness of our findings.

Conclusion

Our systematic review highlights the significant impact of alexithymia on the severity and management of personality disorders. The notable comorbidities associated with personality disorders, such as psychosomatic disorders, eating disorders, depression, anxiety, suicidal behavior, and substance use disorders, emphasize the importance of considering alexithymia and personality disorders as interconnected concepts. Addressing these two aspects together allows for a more comprehensive understanding and more effective therapeutic interventions.

By integrating alexithymia assessments into clinical practice, clinicians can tailor interventions to address the full spectrum of psychological needs, ultimately enhancing patient outcomes and quality of life. The inclusion of alexithymia in diagnostic processes provides a more nuanced understanding of the patient's condition, facilitating more targeted and effective treatments.

Future research should prioritize longitudinal studies to determine the causality and directionality of the relationship between alexithymia and personality disorders. Additionally, a systematic review focused on the strongest connections between alexithymia and specific subtypes of personality disorders could further clarify these relationships, guiding more precise and effective clinical strategies. This ongoing research is crucial for advancing our understanding and improving therapeutic approaches for individuals affected by these complex and intertwined conditions.

Abbreviations

PD	Personality Disorders
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
TAS-20	Toronto Alexithymia Scale-20
DIF	Difficulty Identifying Feeling
DDF	Difficulty Describing Feelings
EOT	Externally Oriented Thinking
NOS	Newcastle–Ottawa Scale
BP	borderline personality
BPD	borderline personality disorder
HPD	histrionic Personality Disorder
NPD	narcissistic personality disorder
AVPD	Avoidant Personality Disorder
DPD	dependent personality disorder
SPD	schizoid Personality Disorder
OAS	Observer Alexithymia Scale
CATI	Coolidge Axis II Inventory
TOM	Theory of Mind
RMET	Reading the Mind in the Eyes Test
FPT	Faux Pas Task
NSSI	Nonsuicidal Self-Injury

Supplementary Information

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Supplementary Material 1.

Authors' contributions

CHC developed the review protocol in collaboration with TMA and LHA. CHC and THM conducted the literature search and screened the articles to identify eligible articles then screened the references of these articles. The eligibility of the articles was discussed with LHA. The narrative review was discussed with PVA, GLS, ERS and LHA. CHC wrote the first draft. All authors reviewed the manuscript.

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Availability of data and materials

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

We did not seek ethical approval as all data were published and already in the public domain. This submission was performed in accordance with the relevant guidelines and regulations.

Consent for publications

Not applicable.

Competing interests

The authors declare no competing interests.

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