REVIEW

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Association Between Premenstrual Dysphoric Disorder and ADHD/ASD: A Review of Current Evidence

Związek pomiędzy przedmiesiączkowymi zaburzeniami dysforycznymi a ADHD/ASD: przegląd aktualnego stanu wiedzy

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Abstract

Premenstrual dysphoric disorder (PMDD) is a severe form of menstrual cycle-related mood disorder, significantly impacting mental health, daily functioning, and quality of life. This review article analyzes data on the comorbidity of PMDD with ADHD and/or autism spectrum disorder (ASD). Studies suggest that women with ADHD, or elevated ADHD traits, may be more likely to meet the criteria for PMDD. This association may be particularly pronounced in individuals with comorbid depression and/or anxiety. By contrast, evidence regarding ASD and PMDD remains limited and inconsistent. Although one prospective study, based on the DSM-IV criteria, reported a very high prevalence of late luteal phase dysphoric disorder in autistic women with intellectual disabilities, more recent studies in intellectually capable autistic adolescents and adults did not confirm

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this association. The findings regarding individuals with co-occurring ASD and ADHD also remain inconclusive. Nevertheless, current evidence warrants cautious interpretation due to methodological limitations. Further research should utilize prospective longitudinal designs, include large, inclusive cohorts (with transgender and gender diverse individuals), and stratify groups according to DSM-5 or ICD-11 criteria. It is important to carefully differentiate between PMDD and premenstrual exacerbation of ADHD symptoms, especially in ADHD population. Furthermore, studies should investigate the potentially shared pathophysiological mechanisms between PMDD and ADHD. Finally, it is important to establish tailored therapeutic protocols for optimizing care in comorbid populations.

Keywords: premenstrual dysphoric disorder, PMDD, attention-deficit hyperactivity disorder, ADHD, autism spectrum disorder, ASD, PMS

Streszczenie

Przedmiesiączkowe zaburzenia dysforyczne (PMDD) to ciężka postać zaburzeń nastroju związanych z cyklem miesiączkowym, która ma znaczący wpływ na zdrowie psychiczne, codzienne funkcjonowanie i jakość życia. Niniejszy artykuł przeglądowy analizuje dane dotyczące współwystępowania PMDD z ADHD i/lub spektrum autyzmu (ASD). Wyniki badań sugerują, że kobiety z ADHD lub nasilonymi cechami ADHD mogą częściej spełniać kryteria PMDD. Ta zależność może być szczególnie nasilona u osób ze współwystępującą depresją i/lub zaburzeniami lękowymi. Z kolei dane dotyczące związku między ASD a PMDD pozostają ograniczone i niespójne. Mimo, że jedno badanie prospektywne, opierające się na klasyfikacji DSM-IV, wykazało bardzo wysoką częstość występowania zaburzenia dysforycznego późnej fazy lutealnej u autystycznych kobiet z niepełnosprawnością intelektualną, nowsze badania przeprowadzone wśród sprawnych intelektualnie autystycznych adolescentów i dorosłych nie potwierdziły tego związku. Wyniki badań dotyczące osób, u których współwystępują ASD i ADHD, również pozostają niejednoznaczne. Niemniej jednak, obecne dowody wymagają ostrożnej interpretacji ze względu na ograniczenia metodologiczne. Dalsze badania powinny wykorzystywać prospektywne modele podłużne, obejmować liczne, inkluzywne kohorty (z udziałem osób transpłciowych i zróżnicowanych płciowo) oraz stosować stratyfikację grup zgodnie z kryteriami DSM-5 lub ICD-11. Istotne jest staranne różnicowanie między PMDD a przedmiesiączkowym zaostrzeniem objawów ADHD, szczególnie w populacji osób z ADHD. Ponadto badania powinny zgłębić potencjalnie wspólne mechanizmy patofizjologiczne występujące w PMDD i ADHD. Na koniec należy zaznaczyć, że ustalenie dostosowanych proto-

kołów terapeutycznych jest niezbędne dla optymalizacji opieki w grupach z diagnozami współistniejącymi.

Słowa kluczowe: przedmiesiączkowe zaburzenia dysforyczne, PMDD, zespół nadpobudliwości psychoruchowej z deficytem uwagi, ADHD, zaburzenia ze spektrum autyzmu, ASD, PMS

1. Introduction

Premenstrual Dysphoric Disorder (PMDD), also referred to as late-luteal dysphoric disorder, remains under-recognized and consequently poorly managed condition [1].

According to Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (DSM-5-TR), PMDD is defined by the presence of at least five symptoms which must include at least one core affective symptom from Criterion B, such as irritability, anxiety, dysphoria, and/or marked affective lability, and at least one additional symptom from Criterion C: diminished interest in usual activities, impaired concentration, lethargy, changes in sleep and/or appetite, a sense of being overwhelmed or 'out of control', physical symptoms such as breast tenderness or swelling, joint or muscle pain, and abdominal bloating. These symptoms must be present in most of the menstrual cycles. Furthermore, they must emerge in the final week before menses, improve within a few days after onset of menses, and be minimal or absent in the week following menses [2]. The explicit diagnostic criteria are presented in Table 1.

While the prevalence rate of PMDD among cisgender women is estimated to be around 5% [1, 3], there is a lack of data regarding transgender and gender diverse (TGD) individuals [3].

Due to significant symptom burden, PMDD adversely affects health-related quality of life, hobbies, interpersonal relationships, and participation in social activities [1, 4-5]. Furthermore, it has been identified as a significant risk factor for suicidality [1, 3, 6-7]. Cisgender women with PMDD are nearly seven times more likely to attempt suicide and almost four times more likely to experience suicidal ideation [1, 7]. However, the data on TGD individuals is further lacking [3].

The etiology of PMDD is not fully understood, and likely involves several interacting mechanisms, including genetic vulnerability, serotonergic disturbances, stress-related and inflammatory processes [1]. Within this multifactorial framework, converging evidence highlights altered sensitivity of GABA-A receptors to the neurosteroid allopregnanolone

Table 1. DSM-5-TR criteria for PMDD

Diagnostic Criteria for PMDD		
A- Timing of symptoms	Majority of menstrual cycles that occurred in the preceding year.	At least five symptoms must be present.
	The final week before the onset of menses.	
	Within a few days after menses begins.	Symptoms must start to improve.
	The week following the end of menses.	Symptoms must become minimal or absent.
B- Core symptoms	At least one symptom must be present.	
	1. Marked affective lability (e.g., mood swings, feeling suddenly sad or tearful, or increased sensitivity to rejection). 2. Marked irritability or anger or increased interpersonal conflicts. 3. Marked depressed mood, feelings of hopelessness, or self-deprecating thoughts. 4. Marked anxiety, tension, and/or feelings of being keyed up or on edge.	
C- Additional symptoms	At least one symptom must additionally be present, to reach a total of five symptoms when combined with Criterion B.	
	1. Decreased interest in usual activities (e.g., work, school, friends, hobbies). 2. Subjective difficulty in concentration. 3. Lethargy, easy fatigability, or marked lack of energy. 4. Marked change in appetite, overeating or specific food cravings. 5. Hypersomnia or insomnia. 6. A sense of being overwhelmed or out of control. 7. Physical symptoms such as breast tenderness or swelling, joint or muscle pain, a sensation of “bloating,” or weight gain.	
D- Clinically significant functional impairment	Distress.	
	Interference with work or school performance.	
	Interference with usual social activities	
	Interference with relationships with others.	
E- Differential diagnosis and comorbidity	The symptoms must not simply be a worsening of an existing underlying disorder.	1. MDD 2. Panic Disorder 3. PDD* 4. Personality Disorders
	PMDD may co-occur with any of these disorders.	
F- Confirmation	Provisional Diagnosis	Confirmed Diagnosis
	1. Based on retrospective reports (patient memory/history) or if prospective tracking has covered fewer than two cycles.	1. Prospective daily ratings of symptoms. 2. Tracking must cover at least two symptomatic cycles.
G- Exclusion of physiological causes	Symptoms must not be the direct result of a substance or drug of abuse.	
	Symptoms must not be side effects of a prescribed medication or therapy.	
	Symptoms must not be caused by a general medical condition (e.g., hyperthyroidism).	
* In ICD-11 dysthymic disorder. **PDD** - Persistent depressive disorder; **PMDD** - Premenstrual dysphoric disorder; **MDD** - Major depressive disorder;		

(ALLO) as a principal pathophysiological mechanism [8]. In most individuals, ALLO functions as an anxiolytic, mood-stabilizing positive modulator of GABA-A receptors, but in PMDD it is associated with paradoxical negative mood effects at luteal-phase–like concentrations, reflecting a dysregulated GABAergic response rather than the expected calming action [1, 9]. This impaired ALLO–GABA-A sensitivity, interacting with broader neurobiological and psychosocial factors, is therefore proposed as a key driver of the characteristic cyclical mood instability, anxiety, and stress hypersensitivity in individuals with PMDD [8].

Beyond affective disturbances, PMDD is characterized by cognitive impairment observed in the late luteal phase [10-11]. These findings point to a similar phenomenon observed in menstruating individuals with ADHD [12]. Fluctuations in estrogen and progesterone across the menstrual cycle may affect dopaminergic activity and, in turn, influence not only cognitive performance [12-13], but also the overall severity of ADHD symptoms [12-16]. Two mechanistic pathways have been proposed to explain these fluctuations: an estrogen withdrawal model affecting dopaminergic signaling [12-13], and ALLO sensitivity model involving altered GABAergic modulation [12].

On the other hand, only a limited number of studies examined the impact of hormonal changes in autistic individuals, despite preliminary evidence suggesting that autistic cisgender women may experience hormonal fluctuations differently from neurotypical ones [17-19].

To provide a foundational context for future exploration of potential common pathophysiological pathways and the establishment of tailored therapeutic protocols, this review investigates data on the comorbidity of PMDD in individuals with ADHD, autism spectrum disorder (ASD), or both.

2. Methods

To identify relevant literature, a comprehensive search was performed using the PubMed database between February and March 2026. The search strategy employed a combination of Boolean operators and keywords related to neurodevelopmental conditions and premenstrual distress: (“ADHD” OR “attention-deficit/hyperactivity disorder” OR “autism spectrum disorder” OR “ASD”) AND (“PMDD” OR “premenstrual dysphoric disorder”). Only articles published in English were considered. After the removal of duplicates, 21 publications were identified. Titles and abstracts were screened for relevance, and potentially eligible articles underwent full-text review. In addition, the reference lists of initially

identified articles were manually screened to identify further relevant studies. Given the limited number of available studies, particularly the lack of prospective longitudinal data, no restrictions on study design were applied. Studies were eligible if they examined the relationship between PMDD or premenstrual symptomatology and ADHD and/or ASD, including both formally diagnosed conditions and trait-based symptom measures. Owing to the scarcity of directly relevant literature, studies using related constructs, including provisional PMDD diagnosis, were also considered eligible for inclusion. Ultimately, 7 studies met the inclusion criteria and were included in the final synthesis.

A narrative rather than systematic review approach was adopted, as the methodological inconsistencies between studies precluded a systematic comparison. Consequently, this approach was considered the most appropriate for providing a structured qualitative synthesis of the available evidence.

3. Results

3.1. *ADHD and PMDD*

Recent studies have increasingly examined the association between ADHD and PMDD. Dorani et al. [20] reported that in a clinical sample of 209 adult women with ADHD, 45.5% met the PMDD-group criteria, which appears to be higher compared to the 28.7% of participants from the general population observed in a comparison study by Hylan et al. [21]. Although most participants were of reproductive age, a subgroup of peri – and postmenopausal women was also included. PMDD symptoms were assessed retrospectively using thirteen premenstrual dysphoria questions from the Neuropsychiatric Interview Plus version 5.0.0 (the M.I.N.I. Plus) [20].

In a cross-sectional survey by Broughton et al. [22], three groups were identified: a self-reported clinical ADHD diagnosis group, an Adult ADHD Self-Report Scale (ASRS)-based ADHD group, and a non-ADHD reference group. Importantly, the ASRS-based ADHD group included 70.6% of participants who reported a clinical ADHD diagnosis, 49.4% of those who considered themselves to have ADHD, and 14.2% of those who did not consider themselves to have ADHD. PMDD symptoms were assessed using the Premenstrual Symptoms Screening Tool (PSST) which is based on Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Text Revision (DSM-IV-TR) criteria. Provisional PMDD was observed in 31.4% of participants reporting a clinical ADHD diagnosis and in 41.1% of those meeting the criteria on the ASRS. In the non-ADHD reference group, provisional PMDD was observed in only 9.8%. These findings corre-

Table 2. Study characteristics and instruments used for the assessment of ADHD, ASD, and PMDD.

Study	Type of the study	Recruitment Source	ADHD Assessment	ASD/Autistic Traits Assessment	PMDD Assessment	Additional Assessment Tools*
Dorani et al. [20]	cross-sectional observational	1. PsyQ outpatient clinic for Adult ADHD in The Hague, The Netherlands	1. Diagnostic Interview for ADHD in adults 2.0 based on DSM-IV criteria	-	1. Premenstrual dysphoria questions from the M.I.N.I. Plus	1. M.I.N.I. Plus- comorbidities 2. EPDS 3. GCS 4. MCTQ
Broughton et al. [22]	cross-sectional observational	1. Online platform for research study participant recruitment (Prolific)	1. Endorsing the question: 'Has a clinician ever diagnosed you with ADHD?' 2. ASRS-v1.1	-	1. PSST	Endorsing the questions: 1. 'Has a clinician ever diagnosed you with depression?' 2. 'Has a clinician ever diagnosed you with anxiety?'
Lin et al. [23]	cross-sectional observational	1. Online forum (the Professional Technology Temple)	1. Assessment based on DSM-5 criteria	-	1. Assessment based on DSM-5 criteria	1. APSA- everyday memory and concentration performance 2. Dickman impulsivity inventory
Tsuji et al. [24]	cross-sectional observational	1. Online survey company (Cross Marketing Inc.)	1. Part A of ASRS-v1.1	1. AQ	1. PMDD scale	-
Kondo et al. [25]	retrospective observational	1. Electronic medical records at Dokkyo Medical University Saitama Medical Center, psychiatry department	1. ADHD-RS + assessment based on DSM-5 criteria	1. PARS + assessment based on DSM-5 criteria 2. AQ**	1. PMDD scale	1. QIDS- depressive symptoms
Obaydi & Puri [26]	prospective observer-rated	1. Hospitals or homes for people with learning disability in the large catchment area of the Home Counties in the south of England, UK	-	1. Childhood autism disorder documented in medical records + assessment based on DSM-IV criteria	1. Observer-based rating scale based on DSM-IV criteria	-
Groenman et al. [19]	cross-sectional observational (part of a multicohort longitudinal study)	1. Mental health institutions (YOUZ (Leo Kannerhuis and SARR), GGZ Breburg, GGZe, Mondriaan, PsyQ, GGZ inGeest) across the Netherlands 2. Social media (Twitter, LinkedIn, and Facebook) 3. Advertisements of autism networks (Dutch Association for autism www.nva.nl, Persons on the autism spectrum www.pasnederland.nl, Impuls https://impulsen-woortblind.nl/) 4. Social network of researchers, research assistants, and students	1. ADHD-SR**	1. Reported clinical diagnosis based on DSM-IV or DSM-5 criteria 2. AQ**	1. Premenstrual dysphoria questions from the M.I.N.I. Plus	1. MRS- menopausal symptoms 2. SCL-90- depressive and anxiety symptoms

*Excluding questions about general/demographic characteristics
**Not used for group identification
ADHD- attention-deficit/hyperactivity disorder; ADHD-RS- ADHD Rating Scale; ADHD-SR- ADHD-self-report; APSA- Attention and Performance Self-Assessment; AQ- Autism-Spectrum Quotient; ASD- autism spectrum disorder; ASRS- Adult ADHD Self-Report Scale; DSM- Diagnostic and Statistical Manual of Mental Disorder; EPDS- Edinburgh Postnatal Depression Scale; GCS- Greene Climacteric Scale; MCTQ- Munich Chronotype Questionnaire; M.I.N.I. Plus- Neuropsychiatric Interview Plus version 5.0.0; MRS- Menopause Rating Scale; PARS- Pervasive Developmental Disorders-Autism Society Japan Rating Scale; PMDD- Premenstrual Dysphoric Disorder; PSST- Premenstrual Symptoms Screening Tool; SCL-90- Symptom Checklist-90; QIDS- Quick Inventory of Depressive Symptomatology;

Table 3. Characteristics of reviewed studies and participant distribution by PMDD status.

Study	Age of participants (years)	Participants (n)	PMDD (n)	Non-PMDD (n)
Dorani et al. [20]	18–71	209	95	114
Broughton et al. [22]	18–34	564	n/s	n/s
Lin et al. [23]	1. Mean age in PMDD: 28.09 +/– 4.72 2. Mean age in non-PMDD: 27.98 +/– 4.83	108	58	50
Tsuji et al. [24]	20–44	2000	101	1899
Kondo et al. [25]	10–19	290	100*	190**
Obaydi & Puri [26]	18–45	62	28	34
Groenman et al. [19]	31–79	70	8	62
* Moderate or higher PMS ** Mild or lower PMS **ADHD**- attention-deficit/hyperactivity disorder; **ASD**- autism spectrum disorder; **n**- number; **n/s**- not specified; **PMDD-** Premenstrual Dysphoric Disorder; **PMS**- Premenstrual Syndrome;				

Table 4. Distribution of the study sample across different diagnostic subgroups.

Study	ADHD + PMDD (n)	ADHD Only (n)	ASD + PMDD (n)	ASD Only (n)	ASD + ADHD + PMDD (n)	ASD + ADHD Only (n)	PMDD Only (n)	Non-PMDD/ ASD/ADHD/ ASD+ADHD (n)
Dorani et al. [20]	95	114	-	-	-	-	-	-
Broughton et al. [22]	32* 94**	70* 135**	-	-	-	-	30	275
Lin et al. [23]	16	6	-	-	-	-	42	44
Tsuji et al. [24]	35***	137***	17***	238***	7***	23***	42	1501
Kondo et al. [25]	15****	16*****	28****	42*****	11****	9*****	46****	123*****
Obaydi & Puri [26]	-	-	24****	2****	-	-	4******	32******
Groenman et al. [19]	-	-	4	24	-	-	4	38

* Self-reported ADHD diagnosis
** ASRS-based ADHD
*** Traits of neurodevelopmental disorder
**** Moderate or higher PMS
***** Mild or lower PMS
****** With learning disability
ADHD- attention-deficit/hyperactivity disorder; **ASD**- autism spectrum disorder; **n**- number; **PMDD-** Premenstrual Dysphoric Disorder;

spond to a 3.19-fold higher risk of provisional PMDD among participants with a clinical ADHD diagnosis (95% CI: [2.04, 4.98], $p < 0.001$) and a 4.17-fold higher risk among those meeting ASRS-based ADHD criteria (95% CI: [2.87, 6.07], $p < 0.001$). Furthermore, the risk of provisional PMDD was highest among individuals with ADHD and a reported diagnosis of depression/anxiety, both in those with a self-reported clinical ADHD diagnosis and those with ASRS-based ADHD, with statistically significant associations. Similarly, the ASRS-based ADHD group without comorbidities was also significantly more likely to meet provisional PMDD criteria compared with the non-ADHD reference group. Although the results for participants with only a self-reported ADHD diagnosis did not reach statistical significance, they were at twice the risk of provisional PMDD compared with those without an ADHD diagnosis [22].

Evidence from a recent observational case-control study by Lin et al. [23] also suggests a significant association between ADHD and PMDD ($p = 0.045$). In this study, psychiatric interviews were conducted to diagnose PMDD and adult ADHD according to the DSM-5 criteria. Participants were included only if they had regular menstrual cycles and fulfilled prospective symptom criteria for PMDD. The final sample consisted of 58 women with PMDD and 50 control participants. Among women with PMDD, 27.6% met the diagnostic criteria for ADHD. During the late luteal phase, scores for prospective everyday memory problems and dysfunctional impulsivity did not differ between women with and without ADHD within the PMDD group. However, outside of the late-luteal phase, participants with comorbidity of PMDD and ADHD exhibited significantly greater cognitive and behavioral difficulties compared with those without ADHD. Specifically, they had higher scores for prospective everyday memory problems during both the pre-ovulatory ($p = 0.012$) and mid-luteal ($p = 0.001$) phases. In addition, they demonstrated higher levels of dysfunctional impulsivity during the pre-ovulatory ($p = 0.006$) and mid-luteal ($p = 0.004$) phases. Interestingly, regardless of ADHD comorbidity, all women with PMDD exhibited greater prospective everyday memory problems and difficulties maintaining focused attention from the pre-ovulatory phase to the late luteal phase compared with healthy controls [23].

Another cross-sectional study by Tsuji et al. [24] involving 2000 full-time female employees in Japan found that ADHD traits, assessed using Part A of the ASRS-v1.1, were present in 8.6% of participants and were strongly associated with PMDD. PMDD was evaluated using a scale based on the research criteria described in the DSM-IV-TR. Overall, the prevalence of PMDD in the sample was 5.1%, and approximately 20.3% of women with ADHD traits met the criteria for PMDD. Women with ADHD traits had a significantly

higher likelihood of PMDD compared with those without such traits (adjusted OR = 6.49, 95 % CI: 4.10–10.2, $p < 0.001$) [24].

Additionally, a retrospective study by Kondo et al. [25] involving 290 adolescent females, diagnosed with ASD, ADHD, or both, suggests that ADHD is associated with greater premenstrual symptom severity. The study used a standardized PMDD assessment scale with self-reported symptoms during the two weeks before menstruation. Patients were classified into three groups: PMDD, moderate premenstrual syndrome (PMS), and none/mild PMS. For analysis, the authors mainly used moderate-or-higher PMS as the dependent variable in logistic regression. Individuals with ADHD had higher odds of moderate-to-severe PMS (OR = 2.43, 95% CI:1.01–5.84, $p = 0.047$) compared with those without ADHD. However, the authors state that the finding did not remain significant after Bonferroni correction ($\alpha = 0.017$). Additionally, depressive symptom severity, assessed using the Quick Inventory of Depressive Symptomatology (QIDS), remained strongly associated with PMS severity in women with ADHD (OR = 1.16, 95% CI: 1.08–1.25, $p < 0.001$) [25].

3.2. ASD and PMDD

Evidence on the association between ASD and PMDD remains limited and inconsistent. Early findings from a small prospective, observer-rated study by Obaydi & Puri [26] showed a higher prevalence of late luteal phase dysphoric disorder in autistic women with intellectual disabilities compared to non-autistic participants with intellectual disabilities. All diagnoses were based on DSM-IV criteria. In this study, 92% of autistic participants met the observer-based diagnostic criteria, compared with 11% of matched controls [26].

However, several later studies did not confirm an increased prevalence of PMDD among women with ASD [19, 25]. Groenman et al. [19] found no significant difference in lifetime PMDD prevalence, assessed using the MINI-Plus, between intellectually capable autistic and non-autistic women. Furthermore, Kondo et al. [25] did not identify ASD as a significant predictor of moderate-to-severe PMS. Nevertheless, depressive symptom severity, assessed using the QIDS, demonstrated a strong association with PMS severity also in the ASD-only group (OR = 1.14, 95% CI: 1.07–1.21, $p < 0.001$) [25]. In addition, in the study by Tsuji et al. [24], participants with autistic traits, assessed by Japanese version of Autism Spectrum Quotient (AQ), had a lower prevalence of PMDD compared to participants with ADHD traits.

3.3. ASD + ADHD (AuDHD) and PMDD

In the study by Kondo et al. [25] comorbidity between ASD and ADHD was not identified as a significant risk factor for moderate-to-severe PMS (OR = 2.39, 95% CI: 0.80–7.12,

p = 0.12). Nevertheless, depressive symptom severity, assessed using the QIDS, remained a strong predictor of PMS severity (p = 0.006, OR = 1.10, 95% CI: 1.03–1.18) [25]. In contrast, Tsuji et al. [24] reported a significant association between comorbid autistic and ADHD traits and PMDD (adjusted OR = 5.56, 95% CI: 2.14–12.8, p < 0.001) [24].

4. Discussion

4.1. *Current evidence on the association between ADHD and/or ASD and PMDD*

Growing evidence suggests a potential overlap between ADHD and PMDD, with several studies reporting greater PMDD symptom severity and the possibility of increased PMDD prevalence among women with ADHD or elevated ADHD traits [20, 22-25]. The association appears to be particularly pronounced in individuals with comorbid depression and/or anxiety, which may indicate that a greater affective burden potentiates menstrual-related symptom expression [22]. However, it should be noted that in the study by Broughton et al. [22], depression and anxiety were assessed based on participants' responses to whether a clinician had ever diagnosed them with these conditions, rather than through a standardized clinical assessment. Nevertheless, these findings align with Kondo et al. [25], who identified depressive symptoms, assessed by the QIDS, as a strong correlate of PMDD symptom severity. Importantly, this association was observed not only in women with ADHD and PMDD, but also in those with AuDHD and PMDD, as well as in the ASD and PMDD group [25]. By contrast, it remains unclear whether the prevalence of PMDD is increased among individuals with ASD. Although Obaydi and Puri [26] reported a high prevalence of late luteal dysphoric symptoms in autistic women, these findings should not be taken as representative of the broader autistic population, as the study was based on a very small sample, included only individuals with intellectual disability, and applied DSM-IV criteria for autistic disorder rather than the contemporary concept of autism spectrum disorder. In contrast, the more recent study by Groenman et al. [19] did not confirm a significantly increased prevalence of PMDD in intellectually capable autistic adults. Interestingly, that study identified greater menopausal complaints and links between menopausal symptoms, depression, and autistic traits, suggesting that hormonal sensitivity in ASD may be more relevant to the menopausal transition than to PMDD, or may characterize only specific autistic subgroups [19]. Subsequent studies likewise did not confirm an increased prevalence of PMDD among women with autistic traits or ASD [24-25]. While Tsuji et al. [24] observed a significant association between comorbid autistic and ADHD traits and PMDD, Kondo et al. [25] found the link between AuDHD and PMDD to be

insignificant. However, the lack of statistical significance in this study may be explained by the relatively small sample size (n = 11) of the comorbid subgroup [25]. Nevertheless, it is essential to acknowledge that interpreting results related to ASD and AuDHD can be complicated by camouflaging (masking), which may reduce apparent identification and diagnosis of autistic individuals [27]. As a result, people with ASD or AuDHD may not be assigned to appropriate study groups. These factors may partly contribute to the inconsistent findings regarding ASD/AuDHD and PMDD in the current literature.

4.2. *Potential mechanistic overlap between PMDD and ADHD*

The more consistent association observed between PMDD and ADHD, compared with ASD, could be cautiously interpreted considering the mechanistic models outlined in the introduction. Within a multifactorial framework, PMDD is best described as a centrally mediated disorder in which abnormal brain sensitivity to normal ovarian hormone fluctuations, particularly impaired ALLOmodulated GABA-A receptor function, drives cyclical affective symptoms and heightened physiological stress reactivity [8]. Although altered sensitivity to ALLO has been more clearly implicated in PMDD [8], related neurosteroid sensitivity mechanisms have also been discussed by Wynchank et al. [12] in the broader context of menstrual cycle–related symptom fluctuation in women with ADHD, raising the possibility of a partially shared mechanistic pathway. Although these interpretations remain speculative, they provide a plausible pathophysiological framework that warrants further investigation.

4.3. *Clinical implications and diagnostic considerations*

Emerging evidence consistently indicates that PMDD might be particularly common in women with ADHD [20, 22-25]. Given this significant co-occurrence, routine screening for PMDD is likely warranted in this population [22, 25]. Conversely, Lin et al. [23] suggested that clinicians should consider ADHD comorbidity when evaluating symptoms of inattention and impulsivity in patients presenting with PMDD. However, an important clinical and diagnostic issue is the distinction between PMDD and premenstrual exacerbation (PME) of pre-existing ADHD symptoms. This differentiation carries significant treatment implications: PMDD in the absence of psychiatric comorbidities is reported to be best treated with selective serotonin reuptake inhibitors (SSRIs) and low-dose oral estroprogestins [30], whereas individuals with ADHD may instead require cycle-informed stimulant adjustments, including dosage increases during the premenstrual phase [15]. To improve diagnostic accuracy, studies must evaluate the symptoms outside the late luteal phase. The persistence of deficits across different cycle phases may suggest underlying

ADHD. This is supported by Lin et al. [23], who reported that women with comorbid ADHD and PMDD exhibited significantly greater dysfunctional impulsivity and memory impairment during both the pre-ovulatory and mid-luteal phases compared with women with PMDD only. Nevertheless, it is important to remember that an ADHD diagnosis necessitates evidence of symptoms prior to age 12, and their consistent presence across multiple settings [2], rather than manifesting solely in a cyclical, phase-dependent manner.

On the other hand, since it is reported that women with ADHD experience the exacerbation of ADHD symptoms during the luteal phase [12-13, 15-16], cyclical exacerbation of functioning during this phase may represent both ADHD-related PME and PMDD symptoms. However, the differentiation may be especially challenging because many symptoms common in PMDD, including reduced concentration, irritability, affective lability, a sense of being overwhelmed or 'out of control', anxiety, changes in appetite, sleep problems, and cognitive impairment [1-2, 10-11], overlap with core and associated features of ADHD such as attention dysregulation, impulsivity, cognitive impairment, emotional dysregulation, low frustration tolerance, and common sleep problems [12, 28-29]. To better clarify the distinctions between PMDD and ADHD-related PME in ADHD population, future studies should employ a three-arm comparison including menstruating individuals with comorbid ADHD and PMDD, those with ADHD only, and those with PMDD only. Furthermore, future research should implement longitudinal monitoring of executive deficits and fluctuations in ADHD trait control across the entire menstrual cycle, as exacerbation of ADHD symptoms was reported to be present not only during the premenstrual (late luteal) phase [12-13, 15], but also during the mid-luteal [12, 14] and the periovulatory [13] phases, with one study suggesting the greatest increase in ADHD symptoms during the early luteal, early follicular, and post-ovulatory phases [16]. Given the profound symptomatic overlap, assessment protocols restricted to the late luteal phase may lack the sensitivity required to distinguish a cyclically amplified baseline from a discrete secondary pathology in ADHD population. Furthermore, there remains a critical evidence gap regarding the optimal pharmacological management of comorbid ADHD and PMDD. Future research should prioritize comparative efficacy trials to evaluate the relative benefits of stimulants, SSRIs, and oral contraceptives, either as monotherapies or in combination, in mitigating symptom exacerbation within this specific population.

While clinical evidence regarding the comorbidity of PMDD and ASD is currently insufficient to mandate routine screening, there remains a need for research to establish evidence-based therapeutic recommendations for patients with comorbid ASD and PMDD. As recent clinical guidelines caution against the use of SSRIs as a first-line pharmacological treat-

ment for depression in autistic individuals, suggesting an elevated risk of behavioral side effects [31], it might be crucial for future research to investigate the comparative efficacy of SSRIs, non-SSRI antidepressants, and oral contraceptives to determine the most effective and safest management strategies for PMDD in this population.

4.4. *Methodological limitations of the current literature*

Firstly, the majority of the studies included in this review were cross-sectional, which precludes causal inference. Cross-sectional designs also limit the ability to capture temporal fluctuations in conditions characterized by cyclical symptom variation and distinct phases of expression [24]. To better understand causal mechanisms and long-term mental health effects, future studies should adopt longitudinal frameworks.

Furthermore, most of the studies are limited by self-reported, questionnaire-based and retrospective assessment of PMDD symptoms rather than prospective DSM-5-based confirmation of PMDD across at least two menstrual cycles. Importantly, self-reported and retrospective measurement of PMDD symptoms introduces recall bias and possible symptom over – or underestimation.

Another important limitation is that the ADHD and ASD study groups did not consist exclusively of individuals diagnosed according to DSM-5 criteria. Instead, most of the studies relied on earlier diagnostic frameworks, screening tools, trait-based measures, or self-reported diagnoses. Methodological heterogeneity in ASD and ADHD assessment frameworks may influence prevalence estimates and limit comparability across studies.

Additional limitations included small sample sizes and insufficient control for potentially relevant confounders, such as medication use, lifestyle factors, menstrual cycle regularity, psychiatric comorbidities, environmental influences, and selection bias.

A further limitation is that the available literature primarily concerns cisgender women. Nevertheless, PMDD is relevant more broadly to menstruating individuals, including TGD people [3]. The lack of data in these populations represents an important gap in the literature.

5. Conclusion

This review aimed to summarize the current evidence on the co-occurrence of PMDD with ADHD and ASD. Overall, the available literature suggests a potential association between ADHD and PMDD, whereas evidence for a similar association between ASD or AuDHD and PMDD remains inconclusive with most findings showing lack of significant

association. However, these findings should be interpreted cautiously given the methodological limitations. To enhance the generalizability of future findings, research must move toward larger, more representative sample sizes that include also TGD individuals and prioritize prospective longitudinal designs that utilize standardized clinical assessments for both PMDD and neurodevelopmental disorders, strictly adhering to DSM-5 or ICD-11 diagnostic criteria. Furthermore, to differentiate between PMDD and exacerbation of the ADHD symptoms, subsequent studies should rigorously assess symptoms across the entire menstrual cycle. To bridge the current gap in the literature, studies should also investigate the pathophysiological mechanisms that may be common to ADHD-related PME and PMDD, as well as establish evidence-based therapeutic protocols tailored specifically to the unique needs of comorbid populations.

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List of abbreviations: ADHD – Attention-Deficit/Hyperactivity Disorder; **ADHD-RS** – ADHD Rating Scale; **ADHD-SR** – ADHD-self-report; **ALLO** – allopregnanolone; **APSA** – Attention and Performance Self-Assessment; **AQ** – Autism-Spectrum Quotient; **ASD** – Autism Spectrum Disorder; **ASRS** – Adult ADHD Self-Report Scale; **DSM** – Diagnostic and Statistical Manual of Mental Disorders; **DSM-5-TR** – Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition-Text Revision; **DSM-IV-TR** – Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Text Revision; **EPDS** – Edinburgh Postnatal Depression Scale; **GCS** – Greene Climacteric Scale; **MCTQ** – Munich Chronotype Questionnaire; **M.I.N.I. Plus** – Mini-International Neuropsychiatric Interview Plus, version 5.0.0; **MRS** – Menopause Rating Scale; **n** – number; **n/s** – not specified; **PARS** – Pervasive Developmental Disorders Autism Society Japan Rating Scale; **PMDD** – Premenstrual Dysphoric Disorder; **PME** – premenstrual exacerbation; **PMS** – Premenstrual Syndrome; **PSST** – Premenstrual Symptoms Screening Tool; **QIDS** – Quick Inventory of Depressive Symptomatology; **SCL-90** – Symptom Checklist-90; **SSRIs** – selective serotonin reuptake inhibitors; **TGD** – Transgender and gender-diverse;

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