International Journal of Innovative Technologies in Social Science

e-ISSN: 2544-9435

Operating Publisher
SciFormat Publishing Inc.
ISNI: 0000 0005 1449 8214

2734 17 Avenue SW,
Calgary, Alberta, T3E0A7,
Canada
+15878858911
editorial-office@sciformat.ca

ARTICLE TITLE	HORMONAL CONTRACEPTION AND MOOD DISORDERS: CURRENT EVIDENCE ON DEPRESSION, ANXIETY AND EMOTIONAL WELL-BEING
DOI	https://doi.org/10.31435/ijitss.2(50).2026.5839
RECEIVED	15 February 2026
ACCEPTED	27 May 2026
PUBLISHED	08 June 2026
LICENSE	The article is licensed under a **Creative Commons Attribution 4.0 International License.**

HORMONAL CONTRACEPTION AND MOOD DISORDERS: CURRENT EVIDENCE ON DEPRESSION, ANXIETY AND EMOTIONAL WELL-BEING

Klaudia Borowa *(Corresponding Author, Email: borowa2001@gmail.com)*
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0007-8694-6815

Patrycja Szczygielska
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0006-2063-3165

Weronika Teterycz
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0000-7486-458X

Gabriela Zimka
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0005-3954-7307

Magdalena Roman
Cardinal Stefan Wyszyński University in Warsaw, Warsaw, Poland
ORCID ID: 0009-0004-1261-180X

ABSTRACT

Hormonal contraception remains one of the most widely used methods of pregnancy prevention worldwide and is an integral part of contemporary reproductive healthcare. In addition to its contraceptive role, hormonal therapy is frequently prescribed for dysmenorrhea, endometriosis, acne, polycystic ovary syndrome, heavy menstrual bleeding, and premenstrual disorders. Although these benefits are well established, the potential relationship between hormonal contraceptive use and mental health has become a subject of growing scientific and clinical interest. Particular attention has been directed toward depression, anxiety, emotional instability, reduced well-being, and suicidal behavior (Mu & Kulkarni, 2022).

This review summarizes current evidence on the association between hormonal contraceptive methods and mood-related outcomes. It considers combined oral contraceptives, progestin-only pills, hormonal intrauterine devices, implants, injectable contraceptives, transdermal patches, and vaginal rings. Several large observational studies suggest that hormonal contraception may be associated with an increased risk of depressive symptoms, antidepressant use, or first diagnosis of depression, especially among adolescents, first-time users, and women using progestin-only formulations (Skovlund et al., 2016). Longitudinal findings further indicate that exposure to oral contraceptives during adolescence may be linked to later vulnerability to major depressive disorder (Anderl et al., 2020).

The evidence, however, is not uniform. Some women report worsening mood symptoms after initiating hormonal contraception, whereas others experience improved emotional stability, particularly when contraception reduces menstrual-related mood fluctuations or symptoms of premenstrual dysphoric disorder (Lewis et al., 2019). Proposed mechanisms include changes in serotonergic signaling, neurosteroid synthesis, GABAergic activity, stress reactivity, and hypothalamic-pituitary-adrenal axis regulation (Ciarcia & Huckins, 2024). Overall, psychiatric responses to hormonal contraception vary considerably between patients. Factors such as age, psychiatric history, hormonal formulation, biological susceptibility, and psychosocial context should therefore be considered carefully during contraceptive counseling.

KEYWORDS

Hormonal Contraception, Depression, Anxiety, Mood Disorders, Emotional Well-Being, Oral Contraceptives

CITATION

Klaudia Borowa, Patrycja Szczygielska, Weronika Teterycz, Gabriela Zimka, Magdalena Roman. (2026) Hormonal Contraception and Mood Disorders: Current Evidence on Depression, Anxiety and Emotional Well-Being. *International Journal of Innovative Technologies in Social Science*. 2(50). doi: 10.31435/ijitss.2(50).2026.5839

1. Introduction

Hormonal contraception represents one of the most significant advances in modern reproductive medicine. It enables effective pregnancy prevention and gives women greater control over reproductive planning, but its clinical use extends far beyond contraception. Combined and progestin-only methods are also prescribed for dysmenorrhea, endometriosis, polycystic ovary syndrome, acne, heavy menstrual bleeding, and premenstrual symptoms. For many patients, these treatments substantially improve daily functioning and quality of life. At the same time, the widespread use of hormonal contraception means that even uncommon adverse effects may have important public health implications (Mu & Kulkarni, 2022).

Mental health outcomes have become increasingly relevant in this context. Depression and anxiety disorders are highly prevalent among women of reproductive age, and their onset often overlaps with the years during which hormonal contraception is most commonly used. This temporal overlap does not prove causality, but it raises an important clinical question: can exogenous reproductive hormones influence emotional well-being in susceptible individuals? Sex steroids affect neurotransmitter systems, stress responsivity, sleep, reward processing, and emotional regulation. It is therefore biologically plausible that synthetic estrogens and progestins may influence mood in at least some users (Lewis et al., 2019).

Clinical experience supports this complexity. Some women describe improved mood stability after starting hormonal contraception, particularly when treatment suppresses painful, heavy, or emotionally disruptive menstrual cycles. Others report depressive symptoms, anxiety, irritability, reduced libido, emotional blunting, or mood swings soon after initiation. These divergent responses have made the subject controversial. The same formulation may be well tolerated by one woman and poorly tolerated by another, suggesting that individual vulnerability is central to understanding psychiatric outcomes (Mengelkoch et al., 2025).

Adolescents and young women have received particular attention. During adolescence, brain regions involved in emotional regulation, impulse control, social cognition, and stress response continue to mature. This developmental period may increase sensitivity to hormonal influences. In a large Danish cohort involving more than one million women, hormonal contraceptive users had higher rates of antidepressant use and first depression diagnosis than non-users, with the strongest associations observed in adolescents and users of progestin-only methods (Skovlund et al., 2016). Similarly, longitudinal data suggest that oral contraceptive use initiated during adolescence may be associated with increased lifetime vulnerability to major depressive disorder (Anderl et al., 2020).

These findings have raised concern, but they must be interpreted carefully. Observational studies are vulnerable to confounding by indication, health-seeking behavior, socioeconomic factors, relationship stress, prior subclinical symptoms, and differences between users and non-users. Several studies and reviews have failed to establish a clear causal relationship between hormonal contraception and depression. Others suggest neutral or beneficial effects in selected populations, particularly women with premenstrual dysphoric disorder, dysmenorrhea, or menstrual-related mood symptoms (Jahanfar et al., 2024).

The biological pathways potentially linking hormonal contraception with mood are also multifactorial. Estrogens and progestins may affect serotonergic signaling, GABAergic neurotransmission, neurosteroid metabolism, inflammatory pathways, and hypothalamic-pituitary-adrenal axis regulation. In addition, psychiatric effects may differ across formulations depending on estrogen dose, progestin type, androgenic activity, route of administration, and duration of exposure. Progestin-only methods have more often been associated with negative mood symptoms than combined methods, although evidence remains mixed and cannot be generalized to all users (Mu & Kulkarni, 2022).

Suicidal behavior has also been examined in relation to hormonal contraception. Skovlund et al. reported an association between hormonal contraceptive use and suicide attempts or suicides, particularly among adolescents (Skovlund et al., 2017). However, such outcomes are rare and strongly influenced by psychiatric, social, and environmental factors. These findings should therefore be considered signals for careful monitoring rather than definitive proof of causation.

Given the global burden of mood disorders and the widespread use of hormonal contraception, a balanced synthesis of available evidence is clinically important. The aim of this review is to analyze current findings on hormonal contraception and mood disorders, with emphasis on depression, anxiety, emotional well-being, biological mechanisms, formulation-specific differences, vulnerable populations, and implications for patient-centered counseling.

2. Methodology

A narrative literature review was conducted to evaluate current evidence regarding the association between hormonal contraception and mood-related outcomes, including depression, anxiety, emotional instability, suicidal behavior, and emotional well-being. The review focused on studies published between 2016 and 2026 in order to capture contemporary hormonal contraceptive formulations and the most recent epidemiological, neurobiological, and clinical findings.

The literature search was performed using PubMed/MEDLINE and Google Scholar databases between January and March 2026. Search terms included combinations of the following keywords: “hormonal contraception,” “oral contraceptives,” “combined hormonal contraception,” “progestin-only contraception,” “levonorgestrel intrauterine device,” “contraceptive implant,” “depot medroxyprogesterone acetate,” “depression,” “anxiety,” “mood disorders,” “emotional well-being,” “psychiatric symptoms,” and “suicidal behavior.” Boolean operators (“AND,” “OR”) were used to refine the search strategy. Reference lists of relevant reviews and meta-analyses were additionally screened manually to identify further eligible publications.

The initial database search identified approximately 168 records. After removal of duplicate publications, 137 articles remained for title and abstract screening. Articles were excluded if they were unrelated to hormonal contraception or psychiatric outcomes, focused exclusively on non-human models, lacked full-text availability, or did not evaluate clinically relevant mood-related endpoints. Following screening, 54 full-text articles were assessed for eligibility. Ultimately, 29 publications were included in the final narrative synthesis, including cohort studies, longitudinal analyses, systematic reviews, narrative reviews, and meta-analyses.

Priority was given to large population-based cohort studies, longitudinal investigations, and systematic reviews because of their relevance to temporal associations and population-level psychiatric outcomes. Studies involving adolescents and first-time hormonal contraceptive users were evaluated separately when possible due to evidence suggesting increased susceptibility in these groups.

Data extraction focused on study design, sample characteristics, contraceptive formulation, duration of exposure, psychiatric assessment methods, and reported mental health outcomes. Particular attention was paid to methodological limitations, confounding variables, and heterogeneity between studies.

A quantitative meta-analysis was not performed because of substantial heterogeneity in study populations, psychiatric outcome definitions, contraceptive formulations, duration of follow-up, and adjustment for confounding factors. Therefore, a qualitative narrative synthesis was considered the most appropriate approach for integrating the available evidence.

3. Neurobiological Mechanisms Linking Hormonal Contraception and Mood Disorders

The biological relationship between hormonal contraception and mood is complex. Synthetic estrogens and progestins do not act only on reproductive organs; they also interact with central nervous system pathways involved in emotion, cognition, reward, and stress response. Brain regions such as the amygdala, hippocampus, anterior cingulate cortex, and prefrontal cortex contain sex hormone receptors and are sensitive to changes in hormonal signaling. In susceptible individuals, these effects may contribute to depressive symptoms, anxiety, irritability, or emotional blunting (Mu & Kulkarni, 2022).

Serotonergic neurotransmission is one important pathway. Estrogen has been associated with increased serotonin synthesis, altered receptor expression, and reduced serotonin degradation. Since serotonin is central to the regulation of mood, anxiety, appetite, and sleep, changes in this system may influence psychiatric symptoms. Some synthetic progestins may have less favorable effects on serotonergic activity, potentially explaining why certain users report mood deterioration after starting hormonal contraception (Lewis et al., 2019).

GABAergic signaling and neurosteroid metabolism are also relevant. Neurosteroids such as allopregnanolone modulate GABA-A receptors and influence anxiety, stress tolerance, and emotional regulation. Altered neurosteroid levels or altered receptor sensitivity may contribute to mood symptoms in

hormonally sensitive women. This mechanism is particularly relevant to premenstrual dysphoric disorder, where symptoms appear to reflect abnormal sensitivity to normal hormonal fluctuations rather than abnormal hormone levels themselves (Ciarcia & Huckins, 2024).

The type of progestin may matter. Some progestins have androgenic activity, while others are more antiandrogenic. These pharmacological differences may influence mood, energy, irritability, and emotional regulation. Progestin-only methods may also suppress endogenous estrogen production, removing some of estrogen's potentially stabilizing effects on neurotransmission. This may partly explain why progestin-only formulations have been more frequently associated with negative mood outcomes in some observational studies (Mu & Kulkarni, 2022).

Another proposed pathway involves the hypothalamic-pituitary-adrenal axis. This system regulates cortisol secretion and plays a central role in the stress response. Hormonal contraceptive users may show altered cortisol responses to stress compared with naturally cycling women, although findings vary. Since HPA-axis dysregulation is strongly implicated in depression and anxiety, changes in stress reactivity may be clinically relevant (Mengelkoch et al., 2025).

Neuroimaging studies provide additional but still limited insight. Some data suggest that hormonal contraceptive use may influence functional connectivity and activity in brain regions involved in emotional processing and reward. These findings are intriguing, but the field remains small and heterogeneous. More research is needed before neuroimaging markers can be used clinically (Lewis et al., 2019).

Overall, available evidence suggests that mood-related effects of hormonal contraception are unlikely to arise from a single neurobiological pathway. Instead, psychiatric outcomes may reflect complex interactions between hormonal formulation, neurosteroid sensitivity, serotonergic regulation, developmental stage, and psychosocial stress exposure. This multifactorial framework may partly explain why some women experience adverse emotional effects whereas others report symptom improvement or no clinically significant psychological changes.

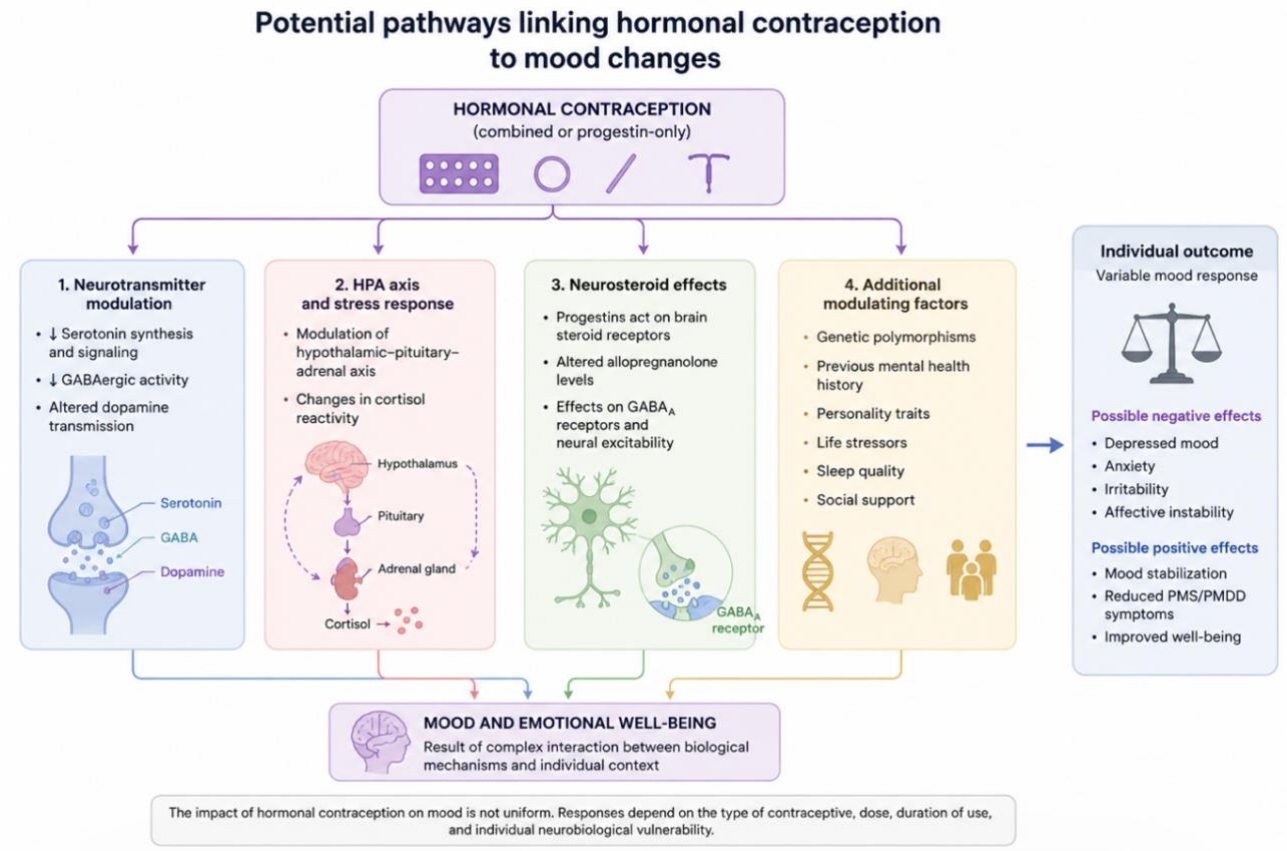

Fig. 1. *Proposed neurobiological and psychosocial mechanisms potentially linking hormonal contraception with mood-related outcomes. Created by the authors based on current literature.*

4. Depression and Hormonal Contraception

Depression is the most frequently investigated psychiatric outcome in relation to hormonal contraception. Over the last decade, several large studies have examined whether hormonal contraceptive use is associated with depressive symptoms, antidepressant use, or first diagnosis of depression. The results have been influential, but they are not uniform (Mu & Kulkarni, 2022).

The Danish nationwide cohort study by Skovlund et al. is among the most cited investigations in this field. It included more than one million women aged 15–34 years without previous psychiatric diagnoses and found that hormonal contraceptive users had a higher risk of first antidepressant use and first depression diagnosis compared with non-users. The association was strongest among adolescents and users of progestin-only methods (Skovlund et al., 2016).

Although the findings of large cohort studies have raised important clinical concerns, they should not be interpreted as definitive evidence of causality. Increased antidepressant use among hormonal contraceptive users may partly reflect pre-existing psychiatric vulnerability, healthcare utilization patterns, or greater likelihood of symptom reporting among women receiving regular medical care.

Adolescents may be particularly vulnerable because hormonal exposure occurs during a period of ongoing brain development. Anderl et al. reported that oral contraceptive use during adolescence was associated with a higher lifetime prevalence of major depressive disorder. Although such findings cannot establish causality, they suggest that age at initiation may be an important factor when evaluating psychiatric risk (Anderl et al., 2020).

Contraceptive formulation may also influence depressive outcomes. Progestin-only pills, injectables, implants, and levonorgestrel-releasing intrauterine devices have more often been associated with mood deterioration than combined estrogen-progestin methods. Possible explanations include reduced estrogenic support, androgenic properties of certain progestins, and effects on neurosteroid metabolism. Still, not all users of progestin-only methods experience negative symptoms, and many tolerate them well (Ciarcia & Huckins, 2024).

The levonorgestrel-releasing intrauterine device deserves separate attention. Although systemic hormone exposure is lower than with many oral methods, some studies have reported associations with depression, anxiety, and emotional lability. A systematic review by Elsayed et al. highlighted the need for further research, particularly in younger users and women with previous psychiatric vulnerability (Elsayed et al., 2022).

At the same time, several limitations must be acknowledged. Observational studies cannot fully separate hormonal effects from underlying psychiatric risk, health-seeking behavior, social stressors, relationship difficulties, or reasons for contraceptive use. Antidepressant prescriptions may reflect depression, but they can also be influenced by access to care and prescribing patterns. Self-reported depressive symptoms and formal psychiatric diagnoses are not interchangeable outcomes (Jahanfar et al., 2024).

Importantly, hormonal contraception may improve mood in selected women. Suppression of ovulation and reduction of cyclical hormonal fluctuations may benefit patients with premenstrual dysphoric disorder, dysmenorrhea, or severe menstrual-related mood symptoms. For these individuals, improved pain control and greater cycle predictability may enhance emotional well-being (Lewis et al., 2019).

Thus, the relationship between hormonal contraception and depression should not be interpreted as universally harmful or entirely neutral. Mood-related outcomes differ substantially between patients and are shaped by psychiatric history, formulation type, hormonal sensitivity, developmental stage, and psychosocial context.

5. Anxiety Disorders and Emotional Well-Being

Compared with depression, anxiety has been less extensively studied in relation to hormonal contraception, yet it is clinically important. Anxiety disorders are common among women of reproductive age, and many users report changes in nervousness, irritability, emotional sensitivity, or stress tolerance after starting hormonal contraception (Mu & Kulkarni, 2022).

Several biological pathways may link hormonal contraception with anxiety symptoms. Neurosteroids such as allopregnanolone influence GABA-A receptor activity and help regulate fear, arousal, and stress responses. Changes in neurosteroid synthesis or receptor sensitivity may therefore contribute to anxiety, panic-like symptoms, or emotional lability in susceptible women (Ciarcia & Huckins, 2024).

Stress reactivity may also be altered. Some studies suggest that hormonal contraceptive users show different cortisol responses compared with naturally cycling women. These differences may not be

pathological in all cases, but they may be relevant in individuals with pre-existing anxiety, chronic stress, or trauma exposure (Lewis et al., 2019).

Clinical findings remain mixed. Some women report increased anxiety or emotional tension, especially during the first months after initiating contraception or after starting progestin-only methods. Others experience greater stability, particularly when hormonal contraception reduces menstrual-related anxiety or physical symptoms that previously worsened mood (Jahanfar et al., 2024).

Adolescence is again a sensitive period. Hormonal exposure during this stage may influence emotional development, social cognition, and stress regulation. Anderl et al. focused primarily on depression, but their findings contribute to broader concerns about psychiatric vulnerability after adolescent oral contraceptive use (Anderl et al., 2020).

Emotional well-being is shaped not only by hormones but also by life context. Relationship quality, body image, chronic stress, previous psychiatric symptoms, expectations about contraception, and fear of unintended pregnancy may all affect psychological outcomes. For some users, reliable contraception reduces anxiety and increases autonomy; for others, side effects or fear of mood changes may worsen distress (Mengelkoch et al., 2025).

Current evidence does not support a universal negative effect of hormonal contraception on anxiety or emotional well-being. Psychological outcomes appear clinically diverse, and follow-up should include discussion of anxiety, irritability, sleep, and emotional functioning, particularly in women with previous anxiety disorders or pronounced sensitivity to hormonal fluctuations.

6. Differences Between Contraceptive Formulations

Hormonal contraceptives are not a single exposure. They differ in estrogen dose, progestin type, androgenic or antiandrogenic properties, route of administration, systemic hormone levels, and pattern of hormone delivery. These differences may influence mood tolerability (Mu & Kulkarni, 2022).

Combined hormonal contraceptives contain both estrogen and progestin. The estrogen component may support serotonergic signaling and emotional regulation, which may explain why some women experience improved mood stability on combined oral contraceptives. Continuous or extended-cycle regimens may further reduce menstrual-related mood symptoms by limiting hormonal fluctuations (Lewis et al., 2019).

The progestin component, however, is important. Some progestins have androgenic properties and may be less favorable for mood in susceptible women. Drospirenone, which has antiandrogenic and antimineralocorticoid activity, has been discussed as potentially beneficial in premenstrual dysphoric disorder. Nevertheless, individual response remains variable (Ciarcia & Huckins, 2024).

Progestin-only contraceptives include pills, injectables, implants, and levonorgestrel-releasing intrauterine devices. These methods are highly effective and useful for many patients, including those who cannot use estrogen. However, observational studies have more often linked progestin-only formulations with depressive symptoms or emotional changes, especially among adolescents (Skovlund et al., 2016).

LNG-IUDs are widely used because of their high efficacy and long duration of action. Although systemic levonorgestrel levels are lower than with oral methods, psychiatric symptoms have been reported in some studies. Elsayed et al. concluded that the potential association between LNG-IUDs and psychiatric symptoms deserves further investigation, particularly in vulnerable populations (Elsayed et al., 2022).

Injectable depot medroxyprogesterone acetate and implants may influence mood through prolonged exposure to synthetic progestins and suppression of endogenous ovarian activity. Evidence remains inconsistent, partly because users differ in medical history, socioeconomic background, and reasons for choosing long-acting methods (Mengelkoch et al., 2025).

Transdermal patches and vaginal rings provide alternative delivery routes and may produce more stable hormone levels than daily oral pills. In theory, this stability could improve tolerability for some women, but evidence regarding psychiatric outcomes remains limited (Jahanfar et al., 2024).

No formulation can be described as universally safe or harmful for mood. A woman's previous response to contraception, psychiatric history, menstrual symptom pattern, and preferences should guide method selection. If mood symptoms emerge, switching formulation or considering non-hormonal contraception may be appropriate.

The observed variability between contraceptive formulations further supports the hypothesis that psychiatric outcomes may depend not only on hormonal exposure itself, but also on the specific pharmacodynamic properties of individual progestins and their interaction with patient-specific biological susceptibility.

7. Vulnerable Populations and Risk Factors

Psychiatric responses to hormonal contraception are not evenly distributed across all users. Several groups may be more vulnerable to adverse mood effects, including adolescents, women with previous psychiatric disorders, patients with premenstrual dysphoric disorder, and individuals with heightened sensitivity to reproductive hormone changes (Mu & Kulkarni, 2022).

Adolescents represent the most discussed risk group. The adolescent brain is still developing, particularly in regions involved in impulse control, emotion regulation, reward processing, and stress response. Exposure to synthetic hormones during this period may have different effects than exposure in adulthood. This does not mean that adolescents should avoid hormonal contraception, but it does support careful counseling and follow-up (Anderl et al., 2020).

The Danish cohort study found the highest relative risk of depression among adolescents aged 15–19 years using hormonal contraception, especially progestin-only formulations (Skovlund et al., 2016). These results should not be interpreted as proof that contraception causes depression in all adolescents. They do, however, suggest that clinicians should ask about mood before and after initiation.

Previous psychiatric illness is another important risk factor. Women with a history of depression, anxiety disorder, bipolar disorder, postpartum depression, or premenstrual dysphoric disorder may be more sensitive to hormonal changes. In these cases, contraceptive choice should be made carefully, ideally with a plan for monitoring symptoms during the first months of use (Ciarcia & Huckins, 2024).

PMDD is a particularly relevant condition. Affected women are highly sensitive to normal changes in ovarian hormones. Hormonal contraception may reduce symptoms by suppressing ovulation, but some formulations may worsen mood. This dual possibility makes individualized selection essential (Lewis et al., 2019).

First-time users may also experience more pronounced emotional changes, possibly because the nervous system is adapting to a new hormonal environment. Genetic factors, inflammatory activity, serotonin receptor sensitivity, stress exposure, and adverse childhood experiences may further influence risk (Jahanfar et al., 2024).

Psychosocial factors should not be overlooked. Chronic stress, relationship difficulties, lack of social support, financial insecurity, and body image concerns may all contribute to mood symptoms during contraceptive use. These factors can also complicate interpretation of research findings, as mood changes may not be caused by hormones alone (Mengelkoch et al., 2025).

Recognizing risk factors allows clinicians to provide safer counseling. A brief mental health history, discussion of previous contraceptive experiences, and follow-up after initiation may be clinically more valuable than attempting to define hormonal contraception as either universally safe or universally harmful with respect to mental health outcomes.

8. Potential Protective Effects of Hormonal Contraception

Although much research focuses on possible adverse effects, hormonal contraception can also improve psychological well-being in selected women. By suppressing ovulation and reducing cyclical hormonal fluctuations, hormonal contraceptives may decrease menstrual-related mood symptoms and improve predictability (Mu & Kulkarni, 2022).

This is especially relevant for premenstrual syndrome and premenstrual dysphoric disorder. These conditions involve cyclical irritability, anxiety, depressed mood, emotional lability, and functional impairment. Combined hormonal contraceptives may reduce symptom severity in some patients by stabilizing hormonal changes across the cycle (Lewis et al., 2019).

Drospirenone-containing contraceptives have been discussed as useful in some women with PMDD because of drospirenone's antiandrogenic and antimineralocorticoid properties. These effects may help reduce irritability, bloating, and emotional symptoms, although response varies and not every patient benefits (Ciarcia & Huckins, 2024).

Hormonal contraception may also improve well-being indirectly. Dysmenorrhea, heavy menstrual bleeding, acne, and endometriosis-related pain can contribute to distress, fatigue, social withdrawal, and reduced quality of life. When contraception reduces these symptoms, mood may improve as a secondary benefit (Jahanfar et al., 2024).

Reliable pregnancy prevention itself may also reduce anxiety for many users. Reproductive autonomy and reduced fear of unintended pregnancy can improve psychological comfort, sexual well-being, and daily functioning (Mengelkoch et al., 2025).

These potential benefits are important because they prevent an overly negative interpretation of the literature. Hormonal contraception is not simply a psychiatric risk factor. Its effects may be adverse, neutral, or beneficial depending on the individual, the formulation, and the clinical context.

9. Clinical Implications

The clinical implications of this evidence are practical. Mental health should be part of contraceptive counseling, especially for adolescents, first-time users, and women with a psychiatric history. This does not mean discouraging hormonal contraception; rather, it means presenting balanced information and individualizing method selection (Mu & Kulkarni, 2022).

Before prescribing, clinicians should ask about previous depression, anxiety, PMDD, postpartum mood symptoms, suicidal ideation, and previous reactions to hormonal contraception. A family psychiatric history may also be relevant. If risk factors are present, closer follow-up during the first months of use is reasonable (Ciarcia & Huckins, 2024).

Adolescents should receive clear advice about possible mood changes and should be encouraged to report persistent sadness, irritability, anxiety, sleep disturbance, or suicidal thoughts. Parents or caregivers may be involved when appropriate, but confidentiality and autonomy must be respected (Skovlund et al., 2016).

If significant mood symptoms develop after initiation, clinicians should reassess the contraceptive method. Options may include switching to another formulation, changing from a progestin-only to a combined method when medically appropriate, using a lower or different hormone dose, or considering non-hormonal contraception. Psychiatric assessment should be arranged when symptoms are severe or suicidal ideation is present.

Counseling should remain balanced. Overstating psychiatric risk may increase fear, reduce adherence, and discourage effective contraception. Conversely, dismissing patient-reported mood changes may undermine trust and delay appropriate care. Shared decision-making is therefore essential (Jahanfar et al., 2024).

Interdisciplinary collaboration may be useful in complex cases. Gynecologists, primary care physicians, psychiatrists, and psychologists can work together when patients have severe mood disorders, PMDD, bipolar disorder, or recurrent adverse reactions to hormonal contraception.

An important implication of the current literature is that patient-reported mood symptoms should not be dismissed solely because causal biological mechanisms remain incompletely understood. Even when psychiatric effects cannot be definitively attributed to hormonal exposure, subjective emotional changes may still significantly influence treatment adherence, quality of life, and patient trust in clinical care.

10. Discussion

The current literature suggests that psychiatric responses to hormonal contraception are highly heterogeneous and unlikely to reflect a single uniform pharmacological effect. Instead, hormonal contraceptives may function as modulators of pre-existing neurobiological and psychosocial vulnerability, with clinically significant mood changes occurring primarily in susceptible individuals. The stronger associations observed in adolescent populations may be particularly relevant from a neurodevelopmental perspective. Ongoing maturation of emotional regulation pathways, stress responsivity, and reward processing systems could plausibly increase sensitivity to exogenous hormonal influences during this developmental stage. Public discussion of the topic is often polarized, with hormonal contraception sometimes presented either as entirely harmless or as a direct cause of psychiatric illness. Current evidence does not support either extreme interpretation.

One consistent theme is heterogeneity. Some women report depressive symptoms, anxiety, or emotional blunting after initiation. Others describe improved stability, reduced menstrual symptoms, and better quality of life. Many notice no major psychological change. This variability supports the view that hormonal contraception interacts with individual vulnerability rather than producing a uniform psychiatric effect (Mengelkoch et al., 2025).

Large epidemiological studies have played a major role in shaping concern. The Danish cohort study by Skovlund et al. showed associations between hormonal contraception and depression outcomes, particularly in adolescents (Skovlund et al., 2016). The same research group also reported associations with suicide attempts and suicides (Skovlund et al., 2017). These findings are important, but observational data cannot establish causality on their own.

Confounding remains a central limitation. Women who use hormonal contraception may differ from non-users in healthcare access, sexual activity, relationship status, chronic stress, baseline mental health, and socioeconomic background. In addition, women who develop depressive symptoms may be more likely to seek medical care and therefore more likely to receive psychiatric evaluation or antidepressant treatment. Discontinuation bias may also influence findings, since women experiencing adverse emotional effects often stop contraception early and may not be captured adequately in long-term analyses (Jahanfar et al., 2024).

Outcome measurement is another challenge. Antidepressant prescriptions, self-reported symptoms, and formal psychiatric diagnoses measure related but different phenomena. Follow-up duration, age at initiation, previous psychiatric history, and formulation type also vary across studies. This makes direct comparison difficult (Ciarcia & Huckins, 2024).

Nevertheless, several clinically relevant patterns emerge. Adolescents, first-time users, women with previous psychiatric disorders, and users of progestin-only formulations may require closer attention. Combined methods may be better tolerated by some women, particularly when they reduce menstrual-related symptoms, but they are not universally protective (Lewis et al., 2019).

Future research should prioritize prospective designs, standardized psychiatric assessment, and clearer characterization of contraceptive formulations. Greater attention should also be paid to patient-centered outcomes such as quality of life, emotional functioning, treatment adherence, and satisfaction with care.

In practice, the most useful approach is neither alarmist nor dismissive. Hormonal contraception provides substantial reproductive and therapeutic benefits, yet patient-reported mood changes should still be taken seriously when they occur. A flexible and patient-specific approach, combined with early follow-up and readiness to modify the contraceptive method if necessary, may improve both reproductive and psychological outcomes. Importantly, the available evidence suggests that psychiatric responses to hormonal contraception are unlikely to represent a uniform pharmacological effect across all users.

11. Conclusions

Hormonal contraception is an essential part of reproductive medicine and provides major contraceptive and therapeutic benefits. Current evidence suggests a possible association between hormonal contraceptive use and depression, anxiety, emotional instability, and suicidal behavior in some women, particularly adolescents and users of progestin-only methods (Mu & Kulkarni, 2022; Skovlund et al., 2016).

At the same time, the evidence is heterogeneous. Hormonal contraception may worsen mood in some users, improve emotional well-being in others, and have little psychological effect in many. Benefits may be especially relevant for women with premenstrual dysphoric disorder, dysmenorrhea, or menstrual-related mood symptoms.

Psychiatric responses appear to depend on age, formulation, psychiatric history, hormonal sensitivity, and psychosocial context. A definitive causal relationship has not been fully established because of confounding factors and methodological differences between studies (Jahanfar et al., 2024).

Clinical care should therefore be individualized. Mental health history, previous contraceptive experiences, patient preferences, and follow-up of mood symptoms should be integrated into contraceptive counseling. Current evidence supports a more individualized understanding of psychiatric risk during hormonal contraceptive use, in which biological susceptibility, developmental stage, psychiatric history, and psychosocial context may be as important as the hormonal formulation itself. Future prospective studies using standardized psychiatric assessment tools may help identify formulation-specific risk profiles and clinically vulnerable patient subgroups.

REFERENCES

1. Anderl, C., Li, G., & Chen, F. S. (2020). Oral contraceptive use in adolescence predicts lasting vulnerability to depression in adulthood. *Journal of Child Psychology and Psychiatry, 61*(2), 148–156. https://doi.org/10.1111/jcpp.13115
2. Ciarcia, J., & Huckins, L. M. (2024). Oral contraceptives and the risk of psychiatric side effects: A review. *Frontiers in Neuroendocrinology, 75*, Article 101183. https://doi.org/10.1159/000539515
3. Elsayed, M., Elsedfy, H., & Elsharkawy, M. (2022). The potential association between psychiatric symptoms and levonorgestrel intrauterine devices: A systematic review. *The European Journal of Contraception & Reproductive Health Care, 28*(1), 1–10. https://doi.org/10.1080/15622975.2022.2145354
4. Jahanfar, S., Howard, L. M., Medley, N., & Dolatian, M. (2024). Assessing the impact of contraceptive use on mental health among women of reproductive age: A systematic review. *Archives of Women's Mental Health, 27*(4), 635–649. https://doi.org/10.1186/s12884-024-06587-9
5. Lewis, C. A., Kimmig, A. S., Zsido, R. G., Jank, A., Derntl, B., & Sacher, J. (2019). Effects of hormonal contraceptives on mood: A focus on emotion recognition and reactivity, reward processing, and stress response. *Current Psychiatry Reports, 21*(11), Article 115. https://doi.org/10.1007/s11920-019-1095-z
6. Mengelkoch, S., Afshar, K., & Slavich, G. M. (2025). Hormonal contraceptive use and affective disorders: An updated review. *Open Access Journal of Contraception, 16*, 1–14. https://doi.org/10.2147/OAJC.S431365
7. Mu, E., & Kulkarni, J. (2022). Hormonal contraception and mood disorders. *Australian Prescriber, 45*(3), 75–79. https://doi.org/10.18773/austprescr.2022.025
8. Skovlund, C. W., Mørch, L. S., Kessing, L. V., Lange, T., & Lidegaard, Ø. (2017). Association of hormonal contraception with suicide attempts and suicides. *American Journal of Psychiatry, 175*(4), 336–342. https://doi.org/10.1176/appi.ajp.2017.17060616
9. Skovlund, C. W., Mørch, L. S., Kessing, L. V., & Lidegaard, Ø. (2016). Association of hormonal contraception with depression. *JAMA Psychiatry, 73*(11), 1154–1162. https://doi.org/10.1001/jamapsychiatry.2016.2387