What is the relationship between Thyroid Disorders and Bipolar Disorders?

Thyroid Disorders and Bipolar Disorder: How They Are Linked

Thyroid disorders and bipolar disorder (BD) frequently co-occur, and many studies suggest shared biological pathways. The relationship is complex and bidirectional, involving hormones, immunity, genetics, and medications.

Comorbidity and Risk

- People with BD are more likely to have thyroid dysfunction than the general population; one study found they were about **2.5 times** more likely to have thyroid problems (Krishna et al., 2013; Chakrabarti, 2011; Liu et al., 2024).
- Hyperthyroidism is associated with about **double** the incidence of later bipolar disorders in a large national cohort (Hu et al., 2013).
- Hypothyroidism is associated with increased risk of BD and other mood/anxiety disorders in very large population samples (Soheili-Nezhad et al., 2022).
- Rapid-cycling BD and more refractory forms show higher rates of thyroid abnormalities or antibodies (Chakrabarti, 2011; Gan et al., 2019).

Key Comorbidity Patterns

Thyroid issue	Bipolar-related finding	Citations
Hypothyroidism	More common in BD; linked to rapid cycling and worse course	(Chakrabarti, 2011; Soheili-Nezhad et al., 2022; Liu et al., 2024; Joseph et al., 2023)
Hyperthyroidism	Higher later risk of BD; can present with mania-like symptoms	(Hu et al., 2013; Chakrabarti, 2011; Bernardes et al., 2024)
Thyroid autoantibodies	Increased in BD, especially depressed/mixed or rapid-cycling	(Barbuti et al., 2017; Skryabin et al., 2025; Gan et al., 2019; Soheili-Nezhad et al., 2022)

FIGURE 1 How specific thyroid abnormalities relate to bipolar disorder.

Biological Mechanisms

- Dysfunction of the **hypothalamic–pituitary–thyroid (HPT) axis** is repeatedly linked to BD pathophysiology (Skryabin et al., 2025; Norman et al., 2024; Chakrabarti, 2011; Liu et al., 2024).
- Thyroid hormones influence key neurotransmitters (serotonin, noradrenaline, dopamine) and neuroplasticity, affecting mood regulation and BD symptom severity (Skryabin et al., 2025; Norman et al., 2024; Song et al., 2023).
- Genetic studies show shared loci related to **immune and inflammatory pathways**, and autoimmune thyroiditis may reflect underlying genetic vulnerability to BD (Skryabin et al., 2025; Soheili-Nezhad et al., 2022; Barbuti et al., 2017).

Clinical Features and Treatment Implications

- First-episode and drug-naïve BD patients often show altered T3, FT3, FT4, and TSH, differing between manic and depressive episodes (Song et al., 2023; Zhao et al., 2021; Bernardes et al., 2024; Gatta et al., 2025).
- High-dose L-thyroxine and thyroid hormone–assisted strategies can help some treatment-resistant BD patients (Skryabin et al., 2025; Chakrabarti, 2011; Liu et al., 2024).
- Lithium, a core BD treatment, frequently induces or unmasks hypothyroidism, but when corrected, lithium response remains good (Chakrabarti, 2011; Joseph et al., 2023; Yang et al., 2025).

Conclusion

Thyroid disorders and bipolar disorder are strongly associated: thyroid disease increases the risk and can shape the course of BD, and BD (plus its treatments) often disrupts thyroid function. The link appears driven less by tiny hormone shifts and more by overt dysfunction, autoimmunity, and shared neuroendocrine and genetic mechanisms. Routine thyroid screening and appropriate hormone management are important parts of bipolar care.

References

Barbuti, M., Carvalho, A., Köhler, C., Murru, A., Verdolini, N., Guiso, G., Samalin, L., Maes, M., Stubbs, B., Perugi, G., Vieta, E., & Pacchiarotti, I. (2017). Thyroid autoimmunity in bipolar disorder: A systematic review.. *Journal of affective disorders, 221*, 97-106. https://doi.org/10.1016/j.jad.2017.06.019

Bernardes, B., De Oliveira Borba, M., Moreira, S., Sartori, C., Da Silva Júnior, I., De Souza, M., Câmara, A., Bastos, W., Silveira, L., Rezende, J., Folgosi, F., Franzoni, I., Berquo, J., & Moreira, A. (2024). RELATIONSHIP BETWEEN MOOD DISORDERS AND THYROID CHANGES. *Brazilian Journal of Implantology and Health Sciences*. https://doi.org/10.36557/2674-8169.2024v6n2p2241-2256

Chakrabarti, S. (2011). Thyroid Functions and Bipolar Affective Disorder. *Journal of Thyroid Research, 2011*. https://doi.org/10.4061/2011/306367

Gan, Z., Wu, X., Chen, Z., Liao, Y., Wu, Y., He, Z., Yang, Z., & Zhang, Q. (2019). Rapid cycling bipolar disorder is associated with antithyroid antibodies, instead of thyroid dysfunction. *BMC Psychiatry, 19*. https://doi.org/10.1186/s12888-019-2354-6

Gatta, E., Maltese, V., Dondi, F., Bellini, P., Ugoccioni, M., Silvestrini, I., Ceraso, A., Vita, A., Rotondi, M., Bertagna, F., & Cappelli, C. (2025). Thyrotropin levels in first-episode bipolar disorder and their association with clinical phenotypes: systematic review and meta-analysis. *Frontiers in Endocrinology, 16*. https://doi.org/10.3389/fendo.2025.1580854

Hu, L., Shen, C., Hu, Y., Chen, M., Tsai, C., Chiang, H., Yeh, C., Wang, W., Chen, P., Hu, T., Chen, T., Su, T., & Liu, C. (2013). Hyperthyroidism and Risk for Bipolar Disorders: A Nationwide Population-Based Study. *PLoS ONE, 8*. https://doi.org/10.1371/journal.pone.0073057

Joseph, B., Nuñez, N., Pazdernik, V., Kumar, R., Pahwa, M., Ercis, M., Ozerdem, A., Cuellar-Barboza, A., Romo-Nava, F., McElroy, S., Coombes, B., Biernacka, J., Stan, M., Frye, M., & Singh, B. (2023). Long-Term Lithium Therapy and Thyroid Disorders in Bipolar Disorder: A Historical Cohort Study. *Brain Sciences, 13*. https://doi.org/10.3390/brainsci13010133

Krishna, V., Thunga, R., Unnikrishnan, B., Kanchan, T., Bukelo, M., Mehta, R., & Venugopal, A. (2013). Association between bipolar affective disorder and thyroid dysfunction.. *Asian journal of psychiatry, 6 1*, 42-5. https://doi.org/10.1016/j.ajp.2012.08.003

Liu, S., Chen, X., Li, X., & Tian, L. (2024). Thyroid hormone levels in patients with bipolar disorder: a systematic review and meta-analysis. *BMC Endocrine Disorders, 24*. https://doi.org/10.1186/s12902-024-01776-1

Norman, S., Carney, A., Algarin, F., Witt, B., Witzel, I., Rodriguez, P., & Mohyeldin, M. (2024). Thyroid Dysfunction and Bipolar Disorder: A Literature Review Integrating Neurochemical, Endocrine, and Genetic Perspectives. *Cureus, 16*. https://doi.org/10.7759/cureus.69182

Skryabin, V., Sokolova, S., & Petrovsky, V. (2025). The Relationship between Thyroid Dysfunction and Bipolar Disorder. *Psychiatry (Moscow) (Psikhiatriya)*. https://doi.org/10.30629/2618-6667-2025-23-3-97-110

Soheili-Nezhad, S., Sprooten, E., Tendolkar, I., & Medici, M. (2022). Exploring the Genetic Link Between Thyroid Dysfunction and Common Psychiatric Disorders: A Specific Hormonal or a General Autoimmune Comorbidity. *Thyroid, 33*, 159 - 168. https://doi.org/10.1089/thy.2022.0304

Song, X., Feng, Y., Yi, L., Zhong, B., & Li, Y. (2023). Changes in thyroid function levels in female patients with first-episode bipolar disorder. *Frontiers in Psychiatry, 14*. https://doi.org/10.3389/fpsyt.2023.1185943

Yang, M., Fu, Y., Jiang, C., Chen, J., Liu, M., & Liu, J. (2025). Independent and medication related effects of bipolar disorder on thyroid and reproductive hormones in women. *Scientific Reports, 15*. https://doi.org/10.1038/s41598-025-11460-6

Zhao, S., Zhang, X., Zhou, Y., Xu, H., Li, Y., Chen, Y., Zhang, B., & Sun, X. (2021). Comparison of thyroid function in different emotional states of drug-naïve patients with bipolar disorder. *BMC Endocrine Disorders, 21*. https://doi.org/10.1186/s12902-021-00869-5