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women did not show a significant association [3]. Another study also reported that the association between anemia and depression was not significant after adjusting for potential confounders [4]. Therefore, whether anemia is independently associated with depression remains controversial. The current study aimed to investigate the association between anemia and depression according to sex in a large national sample population.

**Methods:** Data from the 2014, 2016, and 2018 Korean National Health and Nutrition Examination Survey were analyzed, and 15,472 participants were included in this study. Anemia was defined as a hemoglobin level <13 g/dL in men and <12 g/dL in women. We defined a Patient Health Questionnaire-9 score ≥10 as depression and ≥5 as mild depressive symptoms. Differences between the general characteristics of the study population were tested using the chi-square test and t-test. We used multilevel logistic regression analysis to examine the association between anemia and depression. 

**Results:** The prevalence of depression was significantly higher in women with anemia than in women without anemia (8.9% vs. 7.0%, P = 0.036). In women, anemia was significantly associated with depression after adjusting all covariates in multilevel logistic regression analysis (odds ratio, 1.37; 95% confidence interval, 1.08–1.75; P = 0.011). In particular, while the risk of depression was insignificant in men (OR, 1.17; 95% CI, 0.67–2.04; P = 0.588), in women, the odds ratio and the statistical significance increased as more covariates were adjusted. In the analysis of mild depression, no significant association between anemia and depression was observed in both men and women.

**Limitations:** First, because cross-sectional data were analyzed, there is a limit to explaining the causal direction between the two variables. Second, considering that anemia is affected by various diseases, several uncontrolled factors affecting the results may not have been considered as confounders. Third, as data from the general population were analyzed and patients with severe diseases were excluded from data acquisition, and it is difficult to generalize the results. Lastly, although PHQ-9 ≥ 10 has been established as the optimal cutoff score for depression screening, a more detailed and structured diagnostic interview, other than the self-report method, was not conducted.

**Conclusion:** The findings of this study indicates that anemia is associated with depression in women but not in men. Our results suggest that a reciprocal association exist between anemia and depression. A decrease in tissue oxygenation, deterioration of physical performance due to anemia, and altered monoamine synthesis due to malnutrition may have an effect on depression.

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**Physical health profile and associated behavior during the covid-19 pandemic in patients with bipolar disorder**

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**Background:** The COVID-19 pandemic has led to an increased psychological strain on public mental health and may impact behavioral, mental, and physical health, presumably with effects on patients with severe mental disorders (1,2,3-6). Overall, patients with BD are considered as an at-risk population, especially vulnerable to recurrent affective episodes during the pandemic (1). For patients with BD, it has been suggested that targeted interventions and monitoring/interventions for physical health are prudent (20-22). Accordingly, recent recommendations for handling patients with BD during the present pandemic have been developed including validating emotional reactions (e.g., fear, anxiety, and sadness), and monitoring physical health and promote healthy lifestyle choices and health problems arising from confinement (1). However, studies on patients with BD in relation to the COVID-19 pandemic are scarce (23, 24). Thus, more data are needed to develop data- and evidence-driven strategies to reduce the adverse impacts on psychological and physical health during the pandemic and related profound changes of daily life in individuals with BD.

**Aims:** This multicentric study aimed to assess the psychological and physical impact of the COVID-19 pandemic in individuals with affective disorders. The present analysis specifically examined risk factors associated with physical health during the COVID/19 pandemic, and the association with worries/anxiety in individuals with BD. We hypothesize that individuals with BD (vs. HC individuals) show (i) a significantly higher proportion of risk factors associated with poorer physical health, (ii) pandemic-related behavioral and mental changes, and (iii) lesser extent of compensatory behavioral changes in relation to physical activity.

**Method:** Physical and mental health and self-reported changes in daily structure and behavior due to the pandemic were assessed using a self-constructed questionnaire and the brief symptom inventory (BSI) in Germany, Austria, and Denmark in individuals with BD and a healthy control group.

**Results:** The present study included 118 individuals with BD and 215 healthy controls. Individuals with BD reported statistically significant higher physical risk burden, increased weight gain, more physical comorbidities, and a decrease in physical activity and they further reported higher rates of COVID-19 testing, had more worries concerning health, and experienced more anxiety but less social distancing.

**Conclusions:** Patients with BD revealed an overall increased burden during the COVID-19 pandemic on their physical health and changes in behavior indicating an increased need for COVID-19 testing, more worries concerning health, a higher amount of anxiety, and less social distancing. Overall, the COVID-19 pandemic seems to have a more severe impact on the physical health of patients with BD and the patients experience more difficulties in coping with the restrictions and behavioral changes that the pandemic has required. Clinically, it is therefore recommended to increase the attention on the overall health status of patients with BD including handling of physical health during the COVID-19 pandemic.

**Limitations:** Sampling issues and self-report forms, selectivity (missing elderly, and those lacking access or knowledge of technology).

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The mood study: an effectiveness study of vortioxetine in patients with major depressive disorder and early dementia

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Introduction: Major depressive disorder (MDD) is one of the most prevalent, disabling, and recurrent medical conditions. Often, MDD is a risk factor for dementia, causing the disease to worsen and lead to a poor prognosis. Vortioxetine, a multimodal antidepressant, is approved in over 80 countries and has demonstrated efficacy, tolerability, and safety in adults and the elderly population with MDD, including patients with MDD and comorbid Alzheimer’s disease, showing improvement in cognitive performance and depressive symptoms.

Aim: To assess the effectiveness of vortioxetine on depressive symptoms in an adult population with MDD and early dementia over a 12-week period.

Methods: Patients aged 55–85 years diagnosed with recurrent MDD (onset before age 55) and comorbid dementia at least 6 months prior to screening were enrolled in this ongoing study. Eligible patients required a baseline Montgomery-Åsberg Depression Rating Scale ( MADRS) score of ≥26 (moderate to severe depression) and a Mini-Mental State Examination (MMSE-2) total score of 20–24 (mild cognitive impairment). This study included a 12-week, open-label, flexible-dose treatment period along with a safety follow-up of 4 weeks. Vortioxetine was administered at a starting dose of 5 mg/day, increased to 10 mg/day at week 1, and, based on investigator judgement, either decreased or increased to 20 mg/day. The primary endpoint was change from baseline in MADRS total score to week 12, analysed using a mixed model for repeated measurements. Secondary endpoints included change from baseline to week 12 in Clinical Global Impression–Severity of Illness (CGI-I), Digit Symbol Substitution Test (DSST) cognitive performance, Rey Auditory Verbal Learning Test (RAVLT) to assess memory, and Bath Assessment of Subjective Quality of Life in Dementia (BASQID); CGI-Improvement (CGI-I) was assessed over time. Safety and tolerability also were assessed.

Summary of Results: In the Table, we present preliminary baseline data (n=65); final results will be available at the time of poster presentation. A total of 89.2% (n=58) of patients took at least 1 dose of vortioxetine; the majority were female (63.8%) and White (93.1%). Mean (SD) age was 70.0 (7.1) years. Most patients were from Poland (n=32) and Spain (n=16), and the most common type of dementia was Alzheimer’s disease, at 50.0% (n=29). Baseline scores reflect a patient population with moderate severity of depression, reduced functioning, and perceived low life satisfaction with little to moderate positive feelings about quality of life (QoL).

Conclusions: Final results are expected to demonstrate that vortioxetine shows effectiveness and is well tolerated in a flexible dosing schedule for the treatment of MDD and early dementia in adults.

Table: Baseline Characteristics

| Variable         | Vortioxetine mean ± SD |
|------------------|------------------------|
| MADRS score      | 30.9 ± 4.21*           |
| CGI-S score      | 4.6 ± 0.62*            |
| DSST score       | 23.5 ± 10.53*          |
| IADL score       | 5.6 ± 1.48*            |
| RAVLT score      | 30.6 ± 6.60*           |
| List A (words recalled) | 9.5 ± 4.42*            |
| List B (words recognised) | 16.6 ± 6.61*          |
| BASQID score     | 8.7 ± 3.92*            |
| Section C (feelings of positive QoL) | 7.9 ± 3.71* |

*Full-analysis set (N=57). (All-patients-treated set (N=58).

Conflict of interest

Disclosure statement:

M. Cronquist Christensen and S. Nitschky Schmidt are employees of H. Lundbeck A/S. I. Grande is an advisor, consultant, and/or speaker for Lundbeck, Otsuka, Angelini, CasenRecordati, Ferrer, and Jansen Cilag, and has received research funding from the Institut de Salud Carlos III, Ministry of Economy, and Competitiveness, Spain.