Introduction: Pharmacogenomics has become increasingly significant in clinical practice, in several fields of Medicine. Psychiatric patients, in particular, may benefit from pharmacogenetic testing as many of the psychotropic medications prescribed may lead to varied response rates and a wide range of side effects. Thus, the use of pharmacogenetics may help tailor psychotropic treatment improving the likelihood of success. Several studies, have recently, tried to demonstrate the benefits of using genetic testing in order to improve patient outcomes and decrease healthcare costs.

Objectives: This brief review aims to analyse the evidence supporting the present clinical utility and benefits of genetic testing in psychiatric patients.

Methods: A PubMed database review, using "pharmacogenomics", "pharmacogenetics", "psychiatry" as keywords.

Results: Response to psychotropic medication is a complex trait; the identification of key phenotypic measures for its definition is still a major issue in psychiatry. This is further increased by disparities of pharmacodynamics and pharmacokinetics across different ethnic groups, caused by genetic variations. In a study conducted, 57% of the papers examined, showed significant association between genetic variations and improved patient outcome. Clinical response and remission were significantly associated with variants within SLC6A4 and cytochrome P450 2D6 (CYP2D6), as well as serotonin receptor 2A (5HTR2A) and cytochrome P450 1A2 (CYP1A2). Adverse events were most associated with variations in CYP2D6, serotonin receptor subtype 2C, SLC6A4, and 5HTR2. These examples advocate the usefulness of genetic testing in psychiatry. However most of said tests are not required to show their analytical validity and clinical utility, before being approved for marketing, something that the forthcoming FDA guidelines on laboratory-developed tests will likely encourage. Even though some studies have proven that tailored medicine has improved adherence and reduced cost of outpatients, the overall benefit have not been well established.

Discussion and Conclusions: Pharmacogenetic is a newly evolving field and is rapidly gaining wide acceptance. However to further substantiate the utility of genetic testing in psychiatry large randomized controlled and independent assessment of any genetic test would be ideal.