

# Anti-psychiatric Therapeutic Interchanges: A Narrative Reviews

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## ABSTRACT

**Objective:** To review the anti-psychiatric therapeutic interchanges drug therapy. **Methods:** It is an extensive search, or fifty databases comprised the following through the Saudi Digital Library (SDL) searching engine. It included the various types of studies (meta-analysis, randomized controlled studies and observational studies) in the English language with human study only for the update May 2017. The search in terms of therapeutic interchange, medication, therapy and type of disease or medication base on therapeutics class of anti-psychiatric. The medication list and switch from one drug to alternative based on the literature found the search that has included comparative safety, efficacy and cost of the type of medication for each disease and national or international evidence-based guidelines. **Results:** The total number of studies after an extensive search with a specific term search was 487 studies. Of those, there were 107 repeated studies, and 380 studies included for future assessment. After assessment, there were 20 studies discussed the therapeutic interchange of anti-Psychiatry. Of those 20 studies, three studies included for evaluation. **Conclusion:** Anti-psychiatric therapeutic interchange is seldom finding in the kinds of literature. Few observational studies discussed this matter. Further studies claim to standardized Anti-psychiatric therapeutic interchange in practice.

**Key words:** Anti-psychiatric, Therapeutic Interchanges, Drug Therapy, Literature, Review.

## INTRODUCTION

The management of psychiatric illness had various difficulties. For instance, the response rate to drug therapy, patient's non-compliance and related factors. Besides, switching from one medication to another.<sup>1-3</sup> The switching drug therapy from one to another might had serious drug-related adviser events and drug-drug interactions if not considered the properties and advantages of the medication.<sup>1-3</sup> As a result, if there is any lack of anti-psychotic medications, there will be critical problems during switching therapy. The appropriate solution is a therapeutic interchange that's switching the medications from one to an equal drug with efficacy, indicators and safety. Various international studies had been done on the anti-psychotic therapeutic interchange.<sup>4-6</sup> However, the local studies about antipsychotic therapeutic interchange not existed and there are some physician order drug therapy with mentioned alternative drug therapy. The aim of the current study is to reveal the review of the antipsychotic therapeutic interchange system in the Kingdom of Saudi Arabia.

## MATERIALS AND METHODS

It is extensive search or fifty databases included the following through Saudi Digital Library (SDL) searching engine; Willy online library, Web of Science, Springer link, Taylor and Francis, Social Science Journal via ProQuest, Science Journal via ProQuest, Scopus, Scifinder, Science Direct, Sage Journal, Royal Society of Medicine, Royal Society of Chemistry, Psychology Journals via ProQuest. Pharmaceutical news index via

ProQuest, patient education via MD consult, Drug via MD consult, Oxford Journals via Oxford University, Ovid Journals, Nursing and Allied Health Sources via ProQuest, Nature Publisher group, Medline index via ProQuest, Medline complete via EBSCO, Medical Evidence Matter via ProQuest, IGI InfoSci Journals, Health Management via ProQuest, Health and Medical complete via ProQuest. Global Health Database-CABI, Family Health via ProQuest, Eric via ProQuest and EBSCO, Emerald, Dynamed via EBSCO, Directory of Open Access Journal (DOAJ), Current Content via Web of Knowledge, Dentistry and Oral Science via EBSCO, Clinical Key -Nursing, Clinical Key- Physician, CINAHL via EBSCO, Central via ProQuest, CBCA via ProQuest, Canadian Science Publishing. Cambridge Journals via Cambridge University, Britannica Academic, BMJ Journals, BMJ Clinical Evidence via BMJ Best Practice, BMJ Best Practice, Biology Journals via ProQuest, ACM Digital Library, Academic Search Ultimate via EBSCO, Cochrane Library PubMed. In addition to Google, Scholar searched alone without SDL. It encompassed a variety of studies (meta-analysis, randomized controlled studies and observational studies) in the English language with human study only for an update in May 2017. The search in terms of therapeutic interchange and medication, therapy and type of disease or medication base on therapeutics class. The medication list and switch from one drug to alternative based on the literature found the search, that has included comparative safety, efficacy and cost

of the type of medication for each disease and national or international evidence-based guidelines.<sup>1-3,7,8</sup> The anti-psychiatric medication interchange list included drug name, general dosing and frequency. All settings of patient care services inpatient or ambulatory care or community services oral medication included. All dosage form medication will be included in the search. All medications should include the Ministry of Health formulary. The location of studies included Saudi Arabia as top propriety if hasn't existed Gulf or Middle East counties included, if not found overall counties included. If not existed the table recommended from authors experiences.

## RESULTS

The total number of studies after an extensive search with a specific term search was 487 studies. Of those, there were 107 repeated studies, and 380 studies included for future assessment. After assessment, there were 20 studies discussed the therapeutic interchange of anti-Psychiatry. Of those 20 studies, three studies included for evaluation (figure 1). Other studies did not fit with the criteria. One study for antidepressants interchange, one study for generic olanzapine interchange, one study about fluoxetine and sertraline interchange. All studies had been done in the USA within the period 1975-2015. The number of patients does not exceed more than 25 patients; That is mean the number of patients was few and the number of antibiotics interchange was few. The mainstream of studies were non-randomized controlled studies; most of the studies were observational studies. The cost-saving not documented within all discussed studies (Table 1).

## DISCUSSION

The combination field of therapeutic interchange and anti-psychiatric medications had various difficulties. With extensive, comprehensive research with only 17 studies had vital words. However, three studies fit with methodology regulation. After physically searched, very studies might be exploited in the discussion. There are no randomized clinical trials or meta-analysis studies to discuss the therapeutic interchange of anti-psychotic medications. Maybe single medications to alternative interchange study. One old study discussed therapeutic interchange of a class of antidepressant which need to be updated. Another method was used to interchange therapy based on therapeutic management guidelines. The first line therapy must be used and if it not existed the second-line drug therapy should be used as an alternative therapy. Besides, there was some suggestion to used therapeutic interchange by used of among medications

salts. The drug used interchangeably to their salts and *trance Versa*. The authors and his team suggest the therapeutic interchange medications list recommended of therapeutic drove from update literature and one mental hospital (Table 2). Of the first medications not available, the doctor can use the second one interchangeably. Despite there are no studies to validate it. However, it best indication that's we have to implement the international therapeutic interchange for antipsychotic medications.<sup>9-13</sup> All medications demand further future studies to evaluate the evidence. Therapeutic interchange one of the best tools used in the hospital and community pharmacy that's to keep the medications available over 24 hours and seven days per week.

## CONCLUSION

Therapeutic interchange services are highly needed by all medical and surgical services, including psychiatric services. Few studies conducted for therapeutic interchange in psychiatric. However, comparative studies used all alternative methods for interchange therapy. The method was used in international and local

therapeutic management guidelines. Further studies are highly demanded to validate psychiatric therapeutic interchange to prevent drug misadventures, drug-related problems and shortage stock of antipsychotic medications. The healthcare institutions appropriately use the suggested list to implement antipsychotic therapeutic interchange at healthcare organizations in the Kingdom of Saudi Arabia.

## ACKNOWLEDGMENT

None.

## CONFLICT OF INTEREST

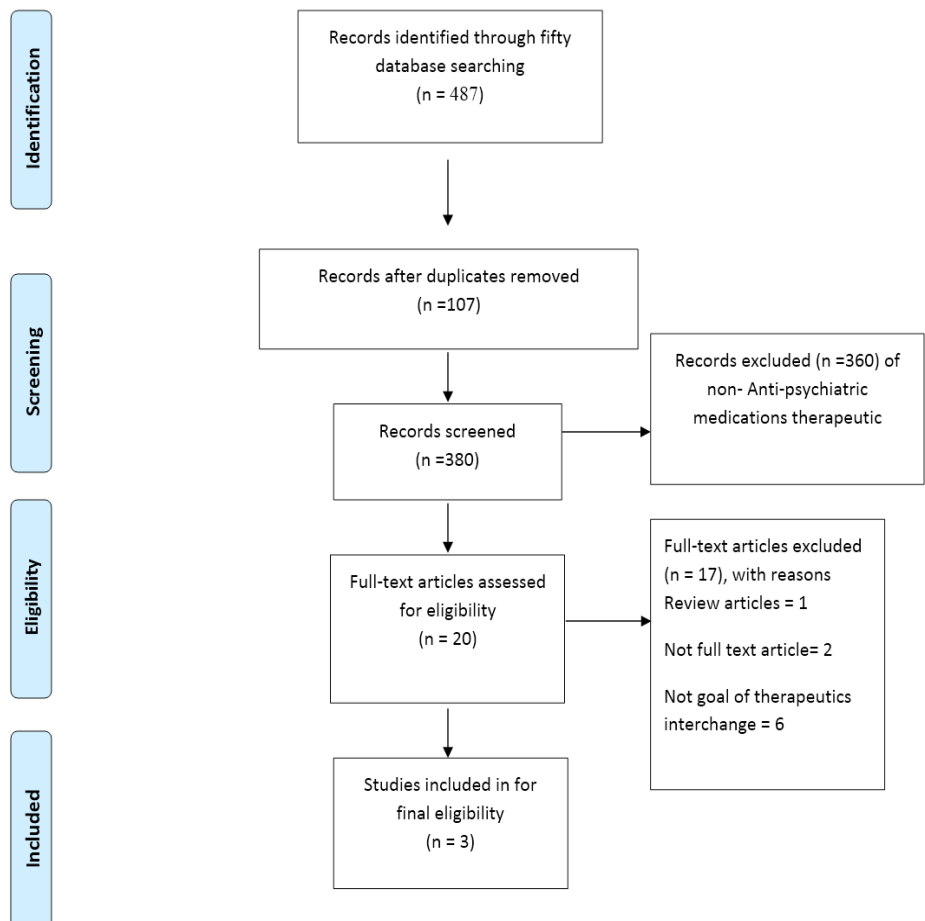
None.

## ABBREVIATIONS

**MOH:** Ministry of Health; **KSA:** Kingdom of Saudi Arabia; **USA:** United States of America, **TI:** Therapeutic Interchange; **SDL:** Saudi Digital Library

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**Figure 1:** Results of searching the literature.

**Table 1: Anti-psychiatric therapeutic interchange studies.**

No.	Author	Year of publication	Country	No. of participants	Duration	Study design	Outcome	Comments
1.	Stock A, et al. (1)	1994	USA	NA	3 years	The interchange from Fluoxetine 20 mg to Sertraline 50 mg	The results should the impact of the experiences of the therapeutic interchange was cost-saving at one hospital.	The study was done in one year. The net cost saving not documented
2.	Extein I, et al. (2)	1975	USA	NA	NA	Two-way inter-change observation study of antipsychotics and antidepressant drug	There were some differences in MOC	NA
3.	Italiano D et al. (3)	2015	Italy	25 patient	NA	Pre and post switching serum Olanzapine concentration in schizophrenic outpatient	There was a significant difference in the serum concentration between the brand and generic however it is not significantly different in the clinical outcomes	There are no significant differences in the positive and negative syndrome scale to assess modification in schizophrenia system

**Table 2: Suggested Antipsychiatry Therapeutic Interchange Medication list.**

No.	Ordered Drug or Interchange Drug(4)(5)(6)(7)			Ordered Drug or Interchange Drug(4)(5)(6)(7)			Indication, Registration(8)
	Regular Days	Doses/ Day	Frequency Per day	Regular Days	Doses/Day	Frequency Per day	
1.	Citalopram OR Escitalopram	10-20 mg 10-20 mg	In 1 dose In 1 dose	Citalopram OR Escitalopram	10-20 mg 10-20 mg	In 1 dose In 1 dose	RSFDA , MOHDF
2.	Venlafaxine ER OR Venlafaxine	37.5-75 mg 75 mg	In 1 dose Divided in 2-3 doses	Venlafaxine ER OR Venlafaxine	37.5-75 mg 75 mg	In 1 dose Divided in 2-3 doses	RSFDA , MOHDF
3.	Venlafaxine ER OR Desvenlafaxine	37.5-75 mg 50 mg	In 1 dose In 1 dose	Venlafaxine ER OR Desvenlafaxine	37.5-75 mg 50 mg	In 1 dose In 1 dose	RSFDA , MOHDF
4.	Risperidone OR Paliperidone	4-8 mg 3 to 12 mg	In 1 dose In 1 dose	Risperidone OR Paliperidone	4-8 mg 3 to 12 mg	In 1 dose In 1 dose	RSFDA , MOHDF
5.	Na Valproate OR Divalproex	750 mg 750-1000 mg	Target trough plasma level was 50 to 125 mcg/mL (347)	Na Valproate Divalproex	750 mg 750-1000 mg	Target trough plasma level was 50 to 125 mcg/mL (347)	RSFDA , MOHDF
6.	Amisulpride OR Olanzapine	400-800 mg 5-20 mg	Divided in 2 divided doses In 1 dose	Amisulpride OR Olanzapine	400-800 mg 5-20 mg	Divided in 2 divided doses In 1 dose	General Schizophrenia RSFDA , MOHDF
7.	Risperidone OR Paliperidone OR Quetiapine	4-8 mg 3 to 12 mg 150-750 mg	In 1 dose In 1 dose In 2-3 divided doses	Risperidone OR Paliperidone OR Quetiapine	4-8 mg 3 to 12 mg 150-750 mg	In 1 dose In 1 dose In 2-3 divided doses	General Schizophrenia RSFDA , MOHDF
8.	Aripiprazole OR Paliperidone	10-15 mg 3 - 12 mg	In 1 dose In 1 dose	Aripiprazole OR Paliperidone	10-15 mg 3 to 12 mg	In 1 dose In 1 dose	Schizophrenia with QTC prolongation RSFDA, MOHDF

Table 2: Cont'd.

No.	Ordered Drug or Interchange Drug(4)(5)(6)(7)			Ordered Drug or Interchange Drug(4)(5)(6)(7)			Indication, Registration(8)
	Regular Days	Doses/ Day	Frequency Per day	Regular Days	Doses/ Day	Frequency Per day	
9.	Olanzapine OR Quetiapine	5-20 mg 150-750 mg	In 1 dose In 2-3 divided doses	Olanzapine OR Quetiapine	5-20 mg 150-750 mg	In 1 dose In 2-3 divided doses	Schizophrenia with Extrapyramidal symptoms (EPS) RSFDA, MOHDF
10.	Aripiprazole OR Quetiapine	10-15 mg 150-750 mg	In 1 dose In 2-3 divided doses	Aripiprazole OR Quetiapine	10-15 mg 150-750 mg	In 1 dose In 2-3 divided doses	Schizophrenia with Hyperprolactinaemia, Sexual dysfunction
11.	Aripiprazole OR Amisulpride	10-15 mg 400-800 mg	In 1 dose Divided in 2 divided doses	Aripiprazole OR Amisulpride	10-15 mg 400-800 mg	In 1 dose Divided in 2 divided doses	Diabetes, sedation, weight gain, High cholesterol level, dyslipidemia and postural hypotension
12.	Risperidone Consta IM OR	25-50 mg	IM every 2 weeks	Risperidone Consta IM OR	25-50 mg	IM every 2 weeks	Poor compliance Schizophrenia RSFDA , MOHDF
	Paliperidone palmitate IM OR	150mg	IM every month	Paliperidone palmitate IM OR	150mg	IM every month	
	Haloperidol decanoate IM	100 mg	IM every month	Haloperidol decanoate IM	100 mg	IM every month	
13.	Escitalopram OR	10-20 mg	In 1 dose	Escitalopram	10-20 mg	In 1 dose	General Depression RSFDA , MOHDF
	Fluoxetine OR	20-60 mg	In 1 dose	Fluoxetine Ecitalopram	20-60 mg	In 1 dose	
	Venlafaxine OR	75 mg	Divided in 2-3 doses	Venlafaxine ER	37.5-75 mg	In 1 dose	
	Mirtazapine	15-30mg	In 1 dose	Venlafaxine Mirtazapine	75 mg 15-30mg	Divided in 2-3 doses In 1 dose	
14.	Lithium OR	600 – 1200 mg	In divided dose	Lithium OR	600 – 1200 mg	In divided dose	Resistance Depression RSFDA , MOHDF
	Quetiapine OR	150-300 mg	In 1 dose	Quetiapine OR	150-300 mg	In 1 dose	
	Bupropion OR	150-300mg	In 1 dose	Bupropion OR	150-300mg	In 1 dose	
	Aripiprazol OR	10-30 mg	In 1 dose	Aripiprazol OR	10-30 mg	In 1 dose	
	Mirtazapine	15-30mg	In 1 dose	Mirtazapine	15-30mg	In 1 dose	
15.	Clomipramine OR Fluvoxamine	25-100 mg 100-300 mg		Clomipramine OR Fluvoxamine	25-100 mg 100-300 mg		Depression with OCD RSFDA, MOHDF
16.	Fluoxetine OR Duloxetine	20-60 mg 60 mg	In 1 dose In 1 dose	Fluoxetine OR Duloxetine	20-60 mg 60 mg	In 1 dose In 1 dose	Depression with Diabetes or High cholesterol level RSFDA , MOHDF

Continued...

Table 2: Cont'd.

No.	Ordered Drug or Interchange Drug(4)(5)(6)(7)			Ordered Drug or Interchange Drug(4)(5)(6)(7)			Indication, Registration(8)
	Regular Days	Doses/ Day	Frequency Per day	Regular Days	Doses/ Day	Frequency Per day	
17.	Fluoxetine OR Escitalopram	20-60 mg 10-20 mg	In 1 dose In 1 dose	Fluoxetine OR Escitalopram	20-60 mg 10-20 mg	In 1 dose In 1 dose	Depression with Cardiovascular disease or Hypertension or elderly Arrhythmia RSFDA, MOHDF
18.	Escitalopram OR Mirtazapine	10-20 mg 15-30mg	In 1 dose In 1 dose	Escitalopram OR Mirtazapine	10-20 mg 15-30mg	In 1 dose In 1 dose	Depression with Stroke RSFDA, MOHDF
19.	Lithium OR Na Valproate	600 – 1200 mg 750 mg	In divided dose Target trough plasma level was 50 to 125 mcg/mL (347)	Lithium OR Na Valproate	600 – 1200 mg 750 mg	In divided dose Target trough plasma level was 50 to 125 mcg/mL (347)	Acute mania or hypomania RSFDA, MOHDF
20.	Aripiprazole OR Olanzapin	10-15 mg 5-20 mg	In 1 dose In 1 dose	Aripiprazole OR Olanzapin	10-15 mg 5-20 mg	In 1 dose In 1 dose	Acute mania or hypomania (Add to mood stabilizer) RSFDA , MOHDF
21.	Risperidone OR Quetiapine	2-8 mg 100-800 mg	In 1 dose In 2-3 divided doses	Risperidone OR Quetiapine	2-8 mg 100-800 mg	In 1 dose In 2-3 divided doses	Acute mania or hypomania (Add to mood stabilizer) RSFDA , MOHDF
22.	Olanzapin plus Fluoxetine OR Quetiapine	5-20 mg 20-60 mg 50-800 mg	In 1 dose In 1 dose In 2-3 divided doses	Olanzapin plus Fluoxetine OR Quetiapine	5-20 mg 20-60 mg 50-800 mg	In 1 dose In 1 dose In 2-3 divided doses	Bipolar depression RSFDA , MOHDF
23.	Aripiprazole OR Lamotrigine OR Na Valproate	10-15 mg 100-200 mg 750 mg	In 1 dose In 1 dose Target trough plasma level was 50 to 125 mcg/mL (347)	Aripiprazole OR Lamotrigine OR Na Valproate	10-15 mg 100-200 mg 750 mg	In 1 dose In 1 dose Target trough plasma level was 50 to 125 mcg/mL (347)	Bipolar disorder with chronic diseases Diabetes or High cholesterol level and Cardiovascular disease

Note: The prescriber should adjust the dose after interchange according to the patient condition

RSFDA: The Drug had been registered in Saudi Food and Drug Authority, MOHDF: The Drug is Ministry of Health Drug Formulary

## REFERENCES

- Alomi YA, Alsolami N, Alqahtani N, *et al.* Depression management physician order: New initiatives at the Mental hospital of ministry of health in Saudi Arabia. *J Pharm Pract Community Med.* 2018;4(2):126–7.
- Alomi YA, Alsolami N, Alqahtani N, *et al.* Schizophrenia treatment physician order: New initiatives at the Mental hospital of ministry of health in Saudi Arabia. *Int J Pharm Heal Sci.* 2018;1(1):1–5.
- Alomi YA, Alsolami N, Alqahtani N, *et al.* Bipolar disorder management physician order: New initiatives at the Mental hospital of ministry of health in Saudi Arabia. *J Pharm Pract Community Med.* 2018;4(2):126–7.
- Stock AJ, Kofoed L. Therapeutic interchange of fluoxetine and sertraline: Experience in the clinical setting. *Am J Hosp Pharm.* 1994;51(18):2279–81.
- Extein I, Bowers MB. The pharmacologic meaning of successful antipsychotic-antidepressant combinations. *Compr Psychiatry.* 1975;16(5):427–34.
- Italiano D, Bruno A, Santoro V, *et al.* Generic olanzapine substitution in patients with schizophrenia: Assessment of serum concentrations and therapeutic response after switching. *Ther Drug Monit.* 2015;37(6):827–30.
- Royal Pharmaceutical Society. British National Formulary 76. Ah-See KW, *et al.* editors. British National Formulary. BMJ Group. 2019;1–1653.
- Ministry of Health. Ministry of Health Formulary. Health Ministry of Health. 2012.
- Mills EJ, Gardner D, Thorlund K, *et al.* A users' guide to understanding therapeutic substitutions. *J Clin Epidemiol.* 2014;67(3):305–13.
- Gray T, Bertch K, Galt K, *et al.* Guidelines for therapeutic interchange - 2004. *Pharmacotherapy.* 2005;25:1666–80.
- Wall DS, Abel SR. Therapeutic-interchange algorithm for multiple drug classes. *Am J Heal Pharm.* 1996;53(11):1295–6.
- Holmes DR, Becker JA, Granger CB, *et al.* ACCF/ AHA 2011 Health Policy Statement on Therapeutic Interchange and Substitution. *Circulation.* 2011;124(11):1290–310.
- Compendium AMAP, Vol HP, *et al.* AMA policy on drug formularies and therapeutic interchange in inpatient and ambulatory patient care settings. *Am J Hosp Pharm.* 1994;51(14):1808–10.