#### Appendix 1

# Scoping Review of Psychotropic Medications and Fracture Risk

### **PICO Question:**

In patients who have been taking psychotropic medications, how are these patient's fracture risk and severity of fracture changed when compared to the general population.

### **Methods**

### Literature Search

- Search Terms
  - Psychotropic drugs (and MESH terms seen below) AND fracture (and MESH terms seen below)
- Databases
  - o PubMed
  - Google Scholar
  - o EMBASE
  - MEDLINE
  - o CENTRAL
  - o Scopus

# Inclusion/Exclusion Criteria

- Inclusion
  - o Primary literature—level I to IV
  - Must undergo discuss fracture risk
  - o Patients must be taking psychotropic medications
  - Case series/studies
  - Human subjects
  - o English language
- Exclusion
  - Animal studies
  - Cadaver studies
  - Duplicate studies found between data bases
  - No fracture
  - Expert opinion
  - o Review articles
  - Systematic reviews and Meta-analyses
  - o Studies in languages other than English
  - SSRI and SNRI studies

# MESH Entry Terms for Psychotropic Medications (on PubMed)

• Drugs, Psychotropic

- Psychoactive Agent
- Agent, Psychoactive
- Psychoactive Drug
- Drug, Psychoactive
- Psychopharmaceuticals
- Psychoactive Agents
- Agents, Psychoactive
- Psychoactive Drugs
- Drugs, Psychoactive
- Psychotropic Drug
- Drug, Psychotropic
- Psychopharmaceutical
- Agents, Antipsychotic
- Antipsychotic Agent
- Agent, Antipsychotic
- Neuroleptic
- Antipsychotic
- Antipsychotic Drugs
- Drugs, Antipsychotic
- Antipsychotics
- Major Tranquilizers
- Tranquilizers, Major
- Neuroleptic Agents
- Agents, Neuroleptic
- Neuroleptic Drugs
- Drugs, Neuroleptic
- Neuroleptics
- Tranquilizing Agents, Major
- Agents, Major Tranquilizing
- Major Tranquilizing Agents
- Tranquillizing Agents, Major
- Agents, Major Tranquillizing
- Major Tranquillizing Agents
- Major Tranquilizer
- Tranquilizer, Major
- Antipsychotic Drug
- Drug, Antipsychotic
- Neuroleptic Agent
- Agent, Neuroleptic
- Neuroleptic Drug
- Drug, Neuroleptic
- Antipsychotic Effect
- Effect, Antipsychotic
- Antipsychotic Effects
- Effects, Antipsychotic

- Agents, Antidepressive
- Antidepressive Agent
- Agent, Antidepressive
- Antidepressants
- Antidepressant
- Antidepressant Drugs
- Drugs, Antidepressant
- Antidepressant Drug
- Drug, Antidepressant
- Thymoleptics
- Thymoleptic
- Thymoanaleptics
- Thymoanaleptic
- Agents, Anti-Anxiety
- Anti Anxiety Agents
- Anti-Anxiety Drug
- Anti Anxiety Drug
- Drug, Anti-Anxiety
- Anti-Anxiety Drugs
- Anti Anxiety Drugs
- Drugs, Anti-Anxiety
- Anxiolytic
- Anxiolytics
- Tranquilizing Agents, Minor
- Agents, Minor Tranquilizing
- Minor Tranquilizing Agents
- Tranquillizing Agents, Minor
- Agents, Minor Tranquillizing
- Minor Tranquillizing Agents
- Anxiolytic Agent
- Agent, Anxiolytic
- Anti-Anxiety Agent
- Agent, Anti-Anxiety
- Anti Anxiety Agent
- Anxiolytic Agents
- Agents, Anxiolytic
- Anti-Anxiety Effect
- Anti Anxiety Effect
- Effect, Anti-Anxiety
- Anxiolytic Effects
- Effects, Anxiolytic
- Antianxiety Effects
- Effects, Antianxiety
- Anxiolytic Effect

- Effect, Anxiolytic
- Anti-Anxiety Effects
- Anti Anxiety Effects
- Effects, Anti-Anxiety
- Antianxiety Effect
- Effect, Antianxiety
- Central Stimulants
- Stimulants, Central
- CNS Stimulants
- Stimulants, CNS
- Analeptics
- Analeptic Drugs
- Drugs, Analeptic
- Analeptic Agents
- Agents, Analeptic
- Sedatives and Hypnotics
- Sedative and Hypnotic
- Hypnotic and Sedative
- Hypnotic Effect
- Effect, Hypnotic
- Hypnotic Effects
- Effects, Hypnotic
- Sedatives
- Sedative
- Hypnotics
- Hypnotic
- Sedative Effect
- Effect, Sedative
- Sedative Effects
- Effects, Sedative
- Anticonvulsive Agent
- Agent, Anticonvulsive
- Anticonvulsive Drug
- Drug, Anticonvulsive
- Anticonvulsive Drugs
- Drugs, Anticonvulsive
- Anticonvulsant
- Anticonvulsant Drugs
- Drugs, Anticonvulsant
- Anticonvulsive Agents
- Agents, Anticonvulsive
- Anticonvulsant Drug
- Drug, Anticonvulsant

- Antiepileptic Agents
- Agents, Antiepileptic
- Antiepileptics
- Antiepileptic Drug
- Drug, Antiepileptic
- Antiepileptic
- Antiepileptic Agent
- Agent, Antiepileptic
- Antiepileptic Drugs
- Drugs, Antiepileptic
- Antagonists, Dopamine
- Antagonists, Dopamine Receptor
- Antagonists, Dopaminergic
- Dopamine Blockers
- Blockers, Dopamine
- Dopamine Receptor Antagonists
- Receptor Antagonists, Dopamine
- Dopamine Blocker
- Blocker, Dopamine
- Dopamine Receptor Antagonist
- Antagonist, Dopamine Receptor
- Receptor Antagonist, Dopamine
- Dopaminergic Antagonist
- Antagonist, Dopaminergic
- Dopaminergic Antagonists
- Dopamine Antagonist
- Antagonist, Dopamine
- Benzodiazepine Compounds
- Benzodiazepine
- Agents, Tricyclic Antidepressive
- Tricyclic Antidepressant Drug
- Antidepressant Drug, Tricyclic
- Drug, Tricyclic Antidepressant
- Tricyclic Antidepressant
- Antidepressant, Tricyclic
- Antidepressants, Tricyclic
- Tricyclic Antidepressants
- Tricyclic Antidepressive Agents
- Tricyclic Antidepressive Agent
- Agent, Tricyclic Antidepressive
- Antidepressive Agent, Tricyclic
- Antidepressant Drugs, Tricyclic
- Drugs, Tricyclic Antidepressant

- Tricyclic Antidepressant Drugs
- Inhibitors, Monoamine Oxidase
- Monoamine Oxidase Inhibitor
- Inhibitor, Monoamine Oxidase
- MAO Inhibitors
- Inhibitors, MAO
- MAO Inhibitor
- Inhibitor, MAO
- RIMA (Reversible Inhibitor of Monoamine Oxidase A)
- Reversible Inhibitors of Monoamine Oxidase
- Reversible Inhibitor of Monoamine Oxidase
- Antidepressive Agents, Second Generation
- Second-Generation Antidepressive Agents
- Agents, Second-Generation Antidepressive
- Second Generation Antidepressive Agents
- Atypical Antidepressants
- Antidepressants, Atypical
- Antidepressive Drugs, Second-Generation
- Antidepressive Drugs, Second Generation
- Drugs, Second-Generation Antidepressive
- Second-Generation Antidepressive Drugs
- SSRI
- SSRIs
- Reuptake Inhibitors, Serotonin
- Uptake Inhibitors, 5-Hydroxytryptamine
- Uptake Inhibitors, 5 Hydroxytryptamine
- Uptake Inhibitors, Serotonin
- Serotonin Reuptake Inhibitor
- Inhibitor, Serotonin Reuptake
- Reuptake Inhibitor, Serotonin
- Serotonin Uptake Inhibitor
- Inhibitor, Serotonin Uptake
- Uptake Inhibitor, Serotonin
- 5-HT Uptake Inhibitor
- 5 HT Uptake Inhibitor
- Inhibitor, 5-HT Uptake
- Uptake Inhibitor, 5-HT
- 5-Hydroxytryptamine Uptake Inhibitor
- 5 Hydroxytryptamine Uptake Inhibitor
- Inhibitor, 5-Hydroxytryptamine Uptake
- Uptake Inhibitor, 5-Hydroxytryptamine
- 5-HT Uptake Inhibitors

- 5 HT Uptake Inhibitors
- 5-Hydroxytryptamine Uptake Inhibitors
- 5 Hydroxytryptamine Uptake Inhibitors
- Inhibitors, 5-HT Uptake
- Inhibitors, 5 HT Uptake
- Inhibitors, 5-Hydroxytryptamine Uptake
- Inhibitors, 5 Hydroxytryptamine Uptake
- Inhibitors, Serotonin Reuptake
- Inhibitors, Serotonin Uptake
- Serotonin Reuptake Inhibitors
- Uptake Inhibitors, 5-HT
- Uptake Inhibitors, 5 HT
- Selective Serotonin Reuptake Inhibitors
- Selective Serotonin Reuptake Inhibitor
- Serotonin and Norepinephrine Reuptake Inhibitors
- SSRIs and NRIs
- NRIs and SSRIs
- Serotonin and Noradrenaline Uptake Inhibitors
- SNRIs
- SNRI
- Serotonin and Norepinephrine Uptake Inhibitors
- 1-(2-pyrimidinyl)piperazine (Supplementary Concept)
- 1-(4-chlorophenyl)-4-piperidin-1-yl-1,5-dihydroimidazol-2-one (Supplementary Concept)
- 2,3-dioxo-6-nitro-7-sulfamoylbenzo(f)quinoxaline (Supplementary Concept)
- 2,5-dimethoxy-4-bromoamphetamine (Supplementary Concept)
- 2,5-Dimethoxy-4-Methylamphetamine (MeSH Term)
- 2-hydroxydesipramine (Supplementary Concept)
- 3,4,4a,10b-tetrahydro-4-propyl-2H,5H-(1)benzopyrano(4,3-b)-1,4-oxazin-9-ol (Supplementary Concept)
- 3,4-Methylenedioxyamphetamine (MeSH Term)
- 3-((4-(4-chlorophenyl)piperazin-1-yl)methyl)-1H-pyrrolo(2,3-b)pyridine (Supplementary Concept)
- 3-methyl-5-(1-methyl-2-pyrrolidinyl)isoxazole (Supplementary Concept)
- 4-(1-(3-methoxyphenyl)cyclohexyl)morpholine (Supplementary Concept)
- 4-amino-3-phenylbutyric acid (Supplementary Concept)
- 4-iodo-2,5-dimethoxyphenylisopropylamine (Supplementary Concept)
- 4-methoxyamphetamine (Supplementary Concept)
- 5-Hydroxytryptophan (MeSH Term)
- 6-methyl-2-(phenylethynyl)pyridine (Supplementary Concept)
- 6-methyl-2-ethyl-3-hydroxypyridine (Supplementary Concept)
- 7-nitroindazole (Supplementary Concept)
- abecarnil (Supplementary Concept)

- Acepromazine (MeSH Term)
- aceprometazine (Supplementary Concept)
- adinazolam (Supplementary Concept)
- adipiplon (Supplementary Concept)
- alaproclate (Supplementary Concept)
- alnespirone (Supplementary Concept)
- alpha-(4-fluorophenyl)-4-(5-fluoro-2-pyrimidinyl)-1-piperazine butanol (Supplementary Concept)
- alpidem (Supplementary Concept)
- Alprazolam (MeSH Term)
- amineptin (Supplementary Concept)
- Amisulpride (MeSH Term)
- Amitriptyline (MeSH Term)
- amitriptyline, chlordiazepoxide drug combination (Supplementary Concept)
- amitriptyline, perphenazine drug combination (Supplementary Concept)
- Amoxapine (MeSH Term)
- amperozide (Supplementary Concept)
- angelicin (Supplementary Concept)
- aniracetam (Supplementary Concept)
- Aripiprazole (MeSH Term)
- aripiprazole lauroxil (Supplementary Concept)
- Asenapine (Supplementary Concept)
- Azaperone (MeSH Term)
- Benactyzine (MeSH Term)
- Benperidol (MeSH Term)
- BIBP 3226 (Supplementary Concept)
- bifemelane (Supplementary Concept)
- binospirone mesylate (Supplementary Concept)
- bromantane (Supplementary Concept)
- Bromazepam (MeSH Term)
- bromperidol (Supplementary Concept)
- bromperidol decanoate (Supplementary Concept)
- Bufotenin (MeSH Term)
- Bupropion (MeSH Term)
- Buspirone (MeSH Term)
- Butaclamol (MeSH Term)
- butriptyline (Supplementary Concept)
- Carbamazepine (MeSH Term)
- cariprazine (Supplementary Concept)
- carpipramine (Supplementary Concept)
- cathinone (Supplementary Concept)
- Chlordiazepoxide (MeSH Term)
- chlordiazepoxide, clidinium drug combination (Supplementary Concept)
- Chlormezanone (MeSH Term)

- Chlorpromazine (MeSH Term)
- Chlorprothixene (MeSH Term)
- Citalopram (MeSH Term)
- CL 218872 (Supplementary Concept)
- Clobazam (MeSH Term)
- Clomipramine (MeSH Term)
- Clopenthixol (MeSH Term)
- clopenthixol acetate ester (Supplementary Concept)
- clopenthixol decanoate (Supplementary Concept)
- Clorazepate Dipotassium (MeSH Term)
- Clorgyline (MeSH Term)
- clothiapine (Supplementary Concept)
- clovoxamine (Supplementary Concept)
- Clozapine (MeSH Term)
- clozapine N-oxide (Supplementary Concept)
- cotriptyline (Supplementary Concept)
- cyclobenzaprine (Supplementary Concept)
- dapiprazole (Supplementary Concept)
- Deanol (MeSH Term)
- deramciclane (Supplementary Concept)
- Desipramine (MeSH Term)
- desmethyldoxepin (Supplementary Concept)
- Desvenlafaxine Succinate (MeSH Term)
- Diazepam (MeSH Term)
- dibenzepin (Supplementary Concept)
- dibutylone (Supplementary Concept)
- dicarbine (Supplementary Concept)
- dimoxamine (Supplementary Concept)
- dixyrazine (Supplementary Concept)
- DN 1417 (Supplementary Concept)
- doramectin (Supplementary Concept)
- Dothiepin (MeSH Term)
- Doxepin (MeSH Term)
- Dronabinol (MeSH Term)
- Droperidol (MeSH Term)
- Duloxetine Hydrochloride (MeSH Term)
- DuP 734 (Supplementary Concept)
- ecopipam (Supplementary Concept)
- eglumetad (Supplementary Concept)
- emoxypine succinate (Supplementary Concept)
- Esketamine (Supplementary Concept)
- Estazolam (MeSH Term)
- Etazolate (MeSH Term)
- ethacizine (Supplementary Concept)

- ethyl loflazepate (Supplementary Concept)
- etifoxine (Supplementary Concept)
- etizolam (Supplementary Concept)
- fananserin (Supplementary Concept)
- femoxetine (Supplementary Concept)
- fencamfamine (Supplementary Concept)
- flesinoxan (Supplementary Concept)
- fluanisone (Supplementary Concept)
- fludiazepam (Supplementary Concept)
- Flunitrazepam (MeSH Term)
- flunitrazolam (Supplementary Concept)
- Fluoxetine (MeSH Term)
- Flupenthixol (MeSH Term)
- flupenthixol decanoate (Supplementary Concept)
- fluperlapine (Supplementary Concept)
- Fluphenazine (MeSH Term)
- fluphenazine depot (Supplementary Concept)
- fluphenazine enanthate (Supplementary Concept)
- fluprazine (Supplementary Concept)
- Flurazepam (MeSH Term)
- Fluspirilene (MeSH Term)
- Fluvoxamine (MeSH Term)
- Gabapentin (MeSH Term)
- gamma-endorphin, des-Tyr(1)- (Supplementary Concept)
- gepirone (Supplementary Concept)
- glutamic acid diethyl ester (Supplementary Concept)
- halazepam (Supplementary Concept)
- Haloperidol (MeSH Term)
- haloperidol decanoate (Supplementary Concept)
- Harmine (MeSH Term)
- honokiol (Supplementary Concept)
- hydroxymaprotilin (Supplementary Concept)
- hypericin (Supplementary Concept)
- Ibogaine (MeSH Term)
- iloperidone (Supplementary Concept)
- Imipramine (MeSH Term)
- indalpine (Supplementary Concept)
- indeloxazine (Supplementary Concept)
- indol-3-yl pyruvic acid (Supplementary Concept)
- indorenate (Supplementary Concept)
- Iprindole (MeSH Term)
- Iproniazid (MeSH Term)
- ipsapirone (Supplementary Concept)
- Isocarboxazid (MeSH Term)

- isofloxythepin (Supplementary Concept)
- kavain (Supplementary Concept)
- ketazolam (Supplementary Concept)
- L 701324 (Supplementary Concept)
- Lamotrigine (MeSH Term)
- lappaconitine (Supplementary Concept)
- Levomilnacipran (MeSH Term)
- Lithium Carbonate (MeSH Term)
- Lithium Chloride (MeSH Term)
- Lithium Compounds (MeSH Term)
- Lofepramine (MeSH Term)
- Lorazepam (MeSH Term)
- Loxapine (MeSH Term)
- Lurasidone Hydrochloride (MeSH Term)
- Lysergic Acid Diethylamide (MeSH Term)
- lysergol (Supplementary Concept)
- Maprotiline (MeSH Term)
- mebikar (Supplementary Concept)
- Medazepam (MeSH Term)
- melitracene (Supplementary Concept)
- Meprobamate (MeSH Term)
- Mescaline (MeSH Term)
- Mesoridazine (MeSH Term)
- metapramine (Supplementary Concept)
- Methiothepin (MeSH Term)
- Methotrimeprazine (MeSH Term)
- methoxytryptophol (Supplementary Concept)
- metylperon (Supplementary Concept)
- Mianserin (MeSH Term)
- Midazolam (MeSH Term)
- minaprine (Supplementary Concept)
- Mirtazapine (MeSH Term)
- Moclobemide (MeSH Term)
- Molindone (MeSH Term)
- N,N-Dimethyltryptamine (MeSH Term)
- N,N-dipropyl-2-(4-methoxy-3-(2-phenylethoxy)phenyl)ethylamine monohydrochloride (Supplementary Concept)
- N-Methyl-3,4-methylenedioxyamphetamine (MeSH Term)
- N1-(cyclopropylmethanoyl)-lysergic acid diethylamide (Supplementary Concept)
- nabilone (Supplementary Concept)
- nebracetam (Supplementary Concept)
- nefazodone (Supplementary Concept)
- nefiracetam (Supplementary Concept)
- nemonapride (Supplementary Concept)

- Nialamide (MeSH Term)
- nimetazepam (Supplementary Concept)
- Nitrazepam (MeSH Term)
- norclozapine (Supplementary Concept)
- Nordazepam (MeSH Term)
- Nortriptyline (MeSH Term)
- norzimelidine (Supplementary Concept)
- noxiptilin (Supplementary Concept)
- Olanzapine (MeSH Term)
- Ondansetron (MeSH Term)
- Opipramol (MeSH Term)
- Oxazepam (MeSH Term)
- oxiracetam (Supplementary Concept)
- Oxprenolol (MeSH Term)
- Paliperidone Palmitate (MeSH Term)
- Paroxetine (MeSH Term)
- PD 134308 (Supplementary Concept)
- PD 135158 (Supplementary Concept)
- Penfluridol (MeSH Term)
- Perazine (MeSH Term)
- perospirone (Supplementary Concept)
- Perphenazine (MeSH Term)
- Phencyclidine (MeSH Term)
- Phenelzine (MeSH Term)
- phenethylamine (Supplementary Concept)
- phenylpiperazine (Supplementary Concept)
- piflutixol (Supplementary Concept)
- pimavanserin (Supplementary Concept)
- Pimozide (MeSH Term)
- pinazepam (Supplementary Concept)
- pipamperone (Supplementary Concept)
- pirenperone (Supplementary Concept)
- pirlindole (Supplementary Concept)
- Pizotyline (MeSH Term)
- Prazepam (MeSH Term)
- Pregabalin (MeSH Term)
- Prochlorperazine (MeSH Term)
- progabide (Supplementary Concept)
- Promazine (MeSH Term)
- proroxan (Supplementary Concept)
- Protriptyline (MeSH Term)
- psilocin (Supplementary Concept)
- Psilocybin (MeSH Term)

- pyro(l-alpha-aminoadipyl)-L-histidyl-L-thiazolidine-4-carboxamide (Supplementary Concept)
- Quetiapine Fumarate (MeSH Term)
- Quipazine (MeSH Term)
- Raclopride (MeSH Term)
- Reboxetine (MeSH Term)
- Remoxipride (MeSH Term)
- Reserpine (MeSH Term)
- rimcazole (Supplementary Concept)
- Risperidone (MeSH Term)
- Ritanserin (MeSH Term)
- Ro 22-1319 (Supplementary Concept)
- Rolipram (MeSH Term)
- roxindole (Supplementary Concept)
- RP5063 (Supplementary Concept)
- salvinorin A (Supplementary Concept)
- SB 206553 (Supplementary Concept)
- Selegiline (MeSH Term)
- sertindole (Supplementary Concept)
- Sertraline (MeSH Term)
- sibutramine (Supplementary Concept)
- sidnocarb (Supplementary Concept)
- SK<sup>^</sup> and F 10047 (Supplementary Concept)
- Spiperone (MeSH Term)
- SR 142801 (Supplementary Concept)
- stepholidine (Supplementary Concept)
- sulforidazine (Supplementary Concept)
- Sulpiride (MeSH Term)
- suriclone (Supplementary Concept)
- talipexole (Supplementary Concept)
- tandospirone (Supplementary Concept)
- Temazepam (MeSH Term)
- tetrahydrodeoxycorticosterone (Supplementary Concept)
- tetrahydropalmatine (Supplementary Concept)
- Thioridazine (MeSH Term)
- Thiothixene (MeSH Term)
- tianeptine (Supplementary Concept)
- Tiapride Hydrochloride (MeSH Term)
- timiperone (Supplementary Concept)
- tiracizine (Supplementary Concept)
- tofisopam (Supplementary Concept)
- toloxatone (Supplementary Concept)
- Tranylcypromine (MeSH Term)
- Trazodone (MeSH Term)

- Triazolam (MeSH Term)
- triazulenone (Supplementary Concept)
- Trifluoperazine (MeSH Term)
- Trifluperidol (MeSH Term)
- Triflupromazine (MeSH Term)
- Trimipramine (MeSH Term)
- Tryptophan (MeSH Term)
- Valproic Acid (MeSH Term)
- Venlafaxine Hydrochloride (MeSH Term)
- veralipride (Supplementary Concept)
- Vilazodone Hydrochloride (MeSH Term)
- Viloxazine (MeSH Term)
- Vortioxetine (MeSH Term)
- xanomeline (Supplementary Concept)
- zetidoline (Supplementary Concept)
- ziprasidone (Supplementary Concept)
- ZK 91296 (Supplementary Concept)
- ZK 93423 (Supplementary Concept)
- Zolazepam (MeSH Term)
- zotepine (Supplementary Concept)

### MESH Entry Terms for fracture (PubMed)

- **Broken Bones**
- Bone, Broken
- Bones, Broken
- Broken Bone
- **Bone Fractures**
- Bone Fracture
- Fracture, Bone
- **Spiral Fractures**
- Fracture, Spiral
- Fractures, Spiral
- Spiral Fracture
- **Torsion Fractures**
- Fracture, Torsion
- Fractures, Torsion
- **Torsion Fracture** Fracture, Open
- Open Fracture
- **Open Fractures**
- Fractures, Compound
- Compound Fracture **Compound Fractures**
- Fracture, Compound