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Prevalence and Predictors of Potentially Inappropriate Medications (PIMs) in Saudi Older Adults with Mood and Anxiety Disorders: A Systematic Review and Meta-analysis .

Abstract

Background: The need for older adults to be treated with long-term pharmacotherapy, which may be accompanied by multimorbidity and pain treatment, is common in cases of mood and anxiety disorders. Old age, age-related physiologic transformations, and the accumulation of central nervous system (CNS) exposure pose risks to potentially inappropriate medications (PIMs), adverse drug events, and falls[9,10,11,18,37]Purpose: To synthesize Saudi evidence on (i) the occurrence of PIMs and (ii) predictors of PIM exposure in older adults (over 65 years) with mood and anxiety disorders, based on larger Saudi geriatric psychiatric cohorts in which depression and/or anxiety cases were modeled, and to pool prevalence estimates where possible.[1,2].Methods: PRISMA 2020[1,2] We wrote the review according to the major bibliographic databases with Saudi and psychiatric terms that were planned to be searched (Table 1). The eligibility of the study was based on clear criteria (AGS Beers, STOPP/START, or similar). The risk of bias was to be calculated with the Joanna Briggs Institute (JBI) tools [3,38]. In the case when 2 or more studies reported similar definitions of prevalence, we planned to pool proportions with a random-effects meta-analysis on the logit scale.Findings: Two Saudi studies qualified (N=1,606 in total) in geriatric psychiatric outpatient populations with a diagnosis of depression and anxiety found the prevalence of PIM of 51.0% to 68.0% (depending on the scope of the criteria) by random-effects pooling (59.9), which had considerable heterogeneity. Discussion: It seems a general practice in Saudi geriatric psychiatric care to be exposed to PIM, with fewer studies having diagnosis-stratified prevalence of mood and anxiety disorders, thereby making it difficult to draw definitive conclusions about subgroups. In line with the larger evidence base, medication burden and comorbidity are key predictors in

favor of pharmacist-led review, deprescribing pathways, and decision support by using modern criteria. [8,9,13,19,20,21,39].

Registration Protocolin PROSPERO: CRD420261307581.

Keywords: potentially inappropriate medications, Beers criteria, STOPP/START, geriatric psychiatry, depression, anxiety, Saudi Arabia, polypharmacy, deprescribing, meta-analysis.

Introduction

The use of PIMs is usually captured in specific tools that include the American Geriatrics Society (AGS) Beers Criteria and STOPP/START, which identify risky categories of drugs, contraindicated drug-disease interactions, and potentially inappropriate omissions of treatments in older adults [9,10,11,12,13].

Physicologic changes in older age, such as decreased renal clearance, changes in volume of distribution and increased CNS sensitivity, may amplify the adverse effects of sedatives, anticholinergics, and hypotensive drugs, in populations with multimorbidity and polypharmacy, in addition to age-related effects on risk and cost (PIM exposure) contribute to adverse drug events, falls, emergency department admissions, hospitalization, mortality, and health care costs);[9,10,11,37]

The subgroup of high priority in terms of medication safety is older adults with mood and anxiety disorders. Psychiatric polypharmacy that develops with age is often associated with insomnia, chronic pain, cardiovascular disease, diabetes, and neurocognitive impairment, which increases the risk of prescribing cascades [18,34] Polypharmacy The most common psychiatric agents that exceed PIM criteria include tricyclic antidepressants (anticholinergic burden), benzodiazepines and Z-drugs (sedation, delirium, dependence), and antipsychotics (cerebral vascular risk, met

Saudi Arabia is experiencing both demographic aging and epidemiologic transition, and the burden of chronic diseases and the larger outpatient services delivery is growing. The opportunities presented by national digitization and health-system transformation open up

the possibilities of enhancing medication safety by standardized prescribing criteria, clinical decision support, and pharmacist-led medication reviews in Saudi geriatric populations in general, and mood and anxiety disorders diagnosis-stratified estimates, in particular, are lacking a systematic review.

The aim of this systematic review and meta-analysis was to (1) estimate the prevalence of PIM exposure among Saudi older adults (with mood and anxiety disorders) and psychiatric cohorts (with mood and anxiety disorders) in general, (2) summarize the predictors related to PIM exposure, and (3) pool similar prevalence estimates using meta-analytic methods where possible to support a publishable evidence base nationally.

Methods

Ethics and standard reporting. The review has been written in a manner that is consistent with PRISMA 2020 and its explanation-and-elaboration guidelines. [1,2] Since this research study will involve synthesizing published literature and no direct interaction with the human participants will be involved, the approval of the institutional review board is not necessary; however, ethical considerations in conducting and presenting research are relevant.

Eligibility criteria (PICOS). Population: adults aged 65 years and above in Saudi Arabia with mood disorders (major depressive disorder, bipolar disorder, other affective disorders) and/or anxiety disorders (generalized anxiety disorder, panic disorder, PTSD, phobias). Geriatric psychiatric cohorts with the prevalence of diagnosed depression and/or anxiety such that the sample and outcomes would be extractable (AGS Beers 2015/2019/2023; STOPP/START v2 or v3; or similar tools).[4,17] Exposure: PIM was received at least once (possibly inappropriate psychotropic medication (PIPM)). Secondary outcomes comprised class-specific PIM prevalence, psychotropic polypharmacy, as well as the predictors/effect estimates (e.g., adjusted odds ratios, correlations). Designs Study designs: observational designs (cross-sectional, cohort, retrospective review of records) and interventional designs, which report baseline prevalence. Exclusion criteria: Case reports/series, editorial, qualitative studies, non-Saudi studies, studies that lack an older adult stratum, and studies

that do not specify the PIM definition.

Sources of information and search strategy. We intended to search in MEDLINE/PubMed, Embase, Scopus, Web of Science, CINAHL, and Cochrane Library, as well as regional sources and reference lists hand-searching [3]. The search was done using controlled vocabulary and keywords, i.e., older adults/geriatrics, (ii) Saudi Arabia, (iii) PIMs/inappropriate prescribing and explicit criteria names, and (iv) psychiatric diagnoses (depression, anxiety, mood disorders). Table 1 illustrates some of the example terms. To submit it conclusively, database-specific strategies are to be provided in the appendix with syntax queries and the date of search.

Selection process and de-duplication. The retrieved records were to be imported into reference management software, de-duplicated, and filtered by title/abstract, and then filtered by full-text. Reasons for exclusion at full text need to be documented and summarized in the PRISMA flow diagram. [1].

Data extraction and items. Variables that were extracted were the identifiers of the studies, region and setting of care, sample size, psychiatric diagnoses composition, patient demographics, PIM tool and version, polypharmacy/hyperpolypharmacy definition, prevalence outcomes, and predictors with effect estimates. The extraction procedure was standardized in a spreadsheet that can be edited (it is available as a companion deliverable).

Risk of bias assessment. Prevalence studies' risk of bias was to be planned using JBI tools, and the studies that report predictors were to be planned using analytical cross-sectional tools. To submit the final report, item-level judgements must be reported as a risk-of-bias table and, therefore, they will be taken into account in sensitivity analyses.

Certainty of evidence. In cases where adequate research is available, certainty can be determined by means of GRADE, taking into account the risk of bias, inconsistency, imprecision, and indirectness. It is critical, especially when prevalence estimates are used to stimulate policy or quality indicators [32].

Statistical analysis. We pooled proportions in random-effects meta-analysis when 2 or

more studies had prevalence of exposure to 1 or more of the 4 PIM/PIPM in similar populations. Since proportions are limited and variances are determined by the level of prevalence, pooling was done on the logit scale with back-transformation to proportions. [30]. Between-study heterogeneity was evaluated with Cochran Q, and between-study variance (tau 2); summary interpretation of random-effects in accordance with existing recommendations. [31]. The small number of eligible studies (fewer than 10) could not be tested using the techniques of publication bias because these approaches are not reliable in that context [31].

Table. Example MEDLINE/PubMed search strategy (to be adapted per database).

Step	Search terms	Notes
1	aged OR elderly OR older adult* OR geriatric*	
2	"Saudi Arabia" OR Saudi OR Riyadh OR Jazan OR Taif OR Tabuk	
3	"potentially inappropriate" OR PIM OR PIP OR "inappropriate prescribing" OR Beers OR STOPP OR START OR "EU(7)-PIM"	
4	depression OR depressive OR anxiety OR "mood disorder" OR bipolar OR psychiatric OR psychogeriatric	
5		

1 AND 2 AND 3 AND 4

Limits: humans; English/Arabic; 2010–Feb 2026

Results

Study selection. In the search for evidence to use in this draft, relatively limited geriatric psychiatry studies that operationalized PIMs based on clear criteria and provided extractable prevalence rates of older adults were identified in the Saudi literature. Two studies satisfied the core inclusion criteria of Saudi geriatric psychiatric populations with depression and/or anxiety and typical measurements of PIMs with the Beers criteria. [4,17].

Study characteristics. Both studies that were eligible were retrospective observational studies with the use of electronic prescribing records. Characteristics and outcomes were summarized in a study by Meraya et al. on potentially inappropriate psychotropic medications (PIPMs) in outpatient clinics of a psychiatric hospital in Jazan (N=1,300) using Beers 2015 (psychotropic) criteria.

PIMs and patterns Prevalence. Merya and colleagues found that 68.0% of older adults with psychiatric outpatient services had at least one PIPM and 77.7% met the criteria of psychotropic polypharmacy, which aligns with the clinical significance of the exposure levels found in geriatric psychiatry (17,9).

Meta-analysis. Of the two eligible studies that reported prevalence of exposure to ≥1 PIM/PIPM, random-effects pooling gave an estimated prevalence of 59.9% (95% CI 42.675.1), with high heterogeneity (Q=30.74; tau 2=0.247). Due to the presence of heterogeneity (when criteria versions and scopes are not equal), this pooled estimate is to be construed as a preliminary quantitative summary as opposed to a definitive national point estimate. [31].

Predictors of PIMs. The diagnosis-related variances in PIPM exposures were reported by Meraya et al., wherein diagnoses of dementia, anxiety, and schizophrenia were linked with low odds of PIPM exposure, indicating diagnosis-related prescribing patterns and potentially different medication requirements among psychiatric subgroups. Alsultan et al.

found that the overall burden of medication and the number of PIM had a strong relationship, as polypharmacy is a core determinant of polypharmacy itself [17,27].

Risk of bias. Both articles were observational and based on routine data. The main issues are representativeness (regional or limited-system samples), possible misclassification of possible exposure in case prescriptions were not followed (actual consumption), and residual confounding. Nevertheless, there are explicit criteria that are used on prescription data to promote the consistency of measurement [3,38].

Table. Included study characteristics and PIM prevalence (Saudi geriatric psychiatry).

Study

Year

Setting

PIM criteria/tool

N

PIM prevalence (%)

Meraya et al., 2021 (Saudi Pharm J)

2021

Psychiatric hospital outpatient clinics (Jazan)

Beers 2015 (psychotropic/PIPM focus)

1300

68.0

Alsultan et al., 2025 (Front Med)

2025

Outpatient clinics

Beers 2019 (overall PIMs)

306

51.0

Figure 1. Forest plot of PIM prevalence in Saudi older adults receiving psychiatric care (eligible studies located during drafting).

Discussion

Principal findings. Though based on a small and varied body of evidence, the findings of this systematic review are similar to the rest of the Saudi geriatric prescribing literature and to previous international systematic reviews that have reported high rates of PIM prevalence in older adults (approximately 51-68 percent), and a pooled estimate of approximately 60 percent.

Clinical interpretation: the mood and anxiety disorders as a prescribing pressure point. Insomnia, agitation, somatic symptoms, as well as chronic pains are common in late-life depression and anxiety, and all these can predispose the potential to prescribe sedatives, anticholinergics, and other high-risk agents. These actions are in line with literature that shows anticholinergic burden, and orthostatic hypotension are associated with tricyclic antidepressants, and recommend benzodiazepines and Z-hypnotics because of delirium, falls, cognitive impairment, and dependence.

Interaction risk and psychiatric polypharmacy. In psychiatry, polypharmacy may be caused by an incomplete response to therapy, efforts to treat comorbidity in sleep or pain symptoms, and such layering through time. In their psychiatric polypharmacy reviews, the emphasis is on a trade-off between symptom management and cumulative adverse effects and reactions, particularly in the geriatric population, where prescription counts are a reliable predictor of PIM exposure and adverse outcomes, in this case, polypharmacy.

Correlation to extensive Saudi evidence. A variety of Saudi studies in general outpatient or hospital older-adult cohorts find that a high PIM baseline rate by the Beers criteria and newer risk by exposure to psychotropic drugs could result in a double-exposure pattern, necessitating special attention in surveillance. [14,17] (Though these studies are not psychiatric-specific, they propose that psychiatric patients might have a high base rate of

PIM because of multimorbidity management, and have secondary risk due to the exposure to psychotropic drugs, creating a doubled-exposure pattern, which should

Patient safety programs and deprescribing. Most probably, multi-component strategies will be needed, integrating standardized PIM screening (Beers 2023 and/or STOPP/START v3) with pharmacist-led medication therapy management and deprescribing pathways. [9,13,19,20,21] It is also proposed by the multi-component approaches to focus on high-alert classes of medication and develop systems predicting error and overexposure instead of complete reliance on individual clinician awareness (Cohen 2015). Careful tapering and symptom follow-ups can prevent withdrawal or relapse in psychiatric cases of deprescribing, which is consistent with deprescribing theories and outcome quality indicators like benzodiazepine deprescribing in elderly patients [19,20,21,39].

Methodological and reporting loopholes. The body of evidence is weak due to the low number of Saudi geriatric psychiatry research with reports on mood- and anxiety-specific PIM prevalence in extractable forms. The heterogeneity of the criteria scope and version (psychotropic-only vs overall PIMs; Beers 2015 vs Beers 2019/2023) should be reported in future Saudi studies as well as stratify the prevalence of PIMs per psychiatric diagnosis (depression, anxiety, bipolar disorder, dementia, schizophrenia) and by drug class, use modern criteria versions, and should control the heterogeneity by comorbidity and frailty.

Possibility of bias, certainty, and quality of evidence. Observational designs involving routine data are subject to confounding and selection bias, and prescription data do not necessarily reflect actual drug exposure. Formal JBI risk-of-bias assessment enhances the quality of transparency, whereas the GRADE-type certainty assessment can be used to contextualize the quality of inferences based on prevalence estimates when extending the evidence base to under-studied situations[3,32,38]. Including decisions should also be explicitly explained by the reviewers, and low-quality sources should be avoided.

Future suggestions to improve the final systematic review. When more eligible Saudi geriatric psychiatry studies are located, the subgroup meta-analyses by the version of protocol registration, setting, diagnosis, and sensitivity analysis without higher risk-of-bias

studies are advisable.[30,31]. Author contact would facilitate the extraction of diagnosis-specific estimates and enhance precision.

Global evidence interpretation. Meta-analyses around the world report a significant variation in the prevalence of PIM depending on the setting, criteria, and case-mix, with outpatient and long-term care settings typically having higher prevalence.[33]. The international geriatric psychiatric estimates conform to the upper end of the international estimates in this review and strengthen the idea that geriatric psychopharmacology requires specific attention and quality-enhancement investment in Saudi health systems.[33].

Further Background: Tools of Screening and Implementation.

PIM criteria and feasibility choice. AGS Beers Criteria are standard surveillance tools, which are updated on a regular basis; it is recommended to use the current ones to align with current risks and recommendations and review others selectively according to the priorities of a particular health system and the availability of information to those.

Framing of workflow integration and patient safety. Spotlight on medication safety interventions has focused on system design, standardized alerts, pharmacist participation, and monitoring of high-risk medication exposure in geriatric psychiatry [8,18]. In line with deprescribing evidence and processes, high-priority signals in geriatric psychiatry include CNS-active polypharmacy, long-term benzodiazepine use, high anticholinergic burden, and antipsychotic exposure in the presence of dementia [9,10,11,37].

Protecting against substandard evidence. Systematic reviewers, in situations where there is little local evidence, are advised to fully explain the inclusion of studies and to take into account indexing and journal practices to prevent the importation of bias from predatory or low quality of methodology publications [38]. The use of PRISMA-spreading reporting and systematic risk-of-bias techniques enhances defensibility and diminishes the danger of desk rejection arising out of unclear techniques or outcomes [1,2,3].

Evidence on the use of PIPMs in Psychiatric Populations Relates.

The international psychiatric research also provides more background to Saudi estimates.

As noted by Sharma and colleagues (2021) in a prospective study with explicit criteria, potentially inappropriate psychotropic use was frequent among older adults with psychiatric illness, and benzodiazepines, including clonazepam, commonly contributed to potentially inappropriate exposure by the criteria the authors used.

Even wider generalizations support polypharmacy as a fundamental predictor of PIM/PIPM exposure. A systematic review and meta-analysis have underscored the finding that polypharmacy and hyperpolypharmacy are highly correlated with possibly inappropriate medication use across settings and regions, and that this finding is replicated in the global arena, whereby drug-layered pharmacotherapy is typically prevalent in outpatient and long-term care (7,27,34).

In the case of Saudi research, the international reporting conventions should be adopted to enhance the comparability and meta-analytic rigor. Suggested minimum outputs are: overall PIM prevalence; the prevalence of psychotropic polypharmacy in classes (benzodiazepines/Z-drugs, tricyclic antidepressants, antipsychotics); CNS-active polypharmacy indicators; and adjusted predictor models considering the burden of comorbidity and number of medications.[9,10,11,13,27,34].

Quality Indicators and Saudi Implementation Framework.

The translation of PIM evidence into better outcomes would mean integrating medication safety work into outpatient psychiatric processes. Medication safety in polypharmacy has been promoted as a patient-safety priority by the World Health Organization, which underlines the need to perform systematic medication review and follow-up [18]. These priorities can be actualized in Saudi systems by (i) decision support, (ii) clinical pharmacy services, and (iii) quantifiable quality indicators.[8,18].

High-risk medication exposure (e.g., extended benzodiazepine treatment, several co-occurring CNS depressants, high anticholinergic burden) can be identified by decision support. Applying modern explicit criteria (Beers 2023 and/or STOPP/START v3) helps comply with the current recommendations and allows the option to customize it to the specifics of the region and reduce the alert fatigue level by emphasizing high-priority

signals and offering others as alternativeoptions[9,13].

An intervention that is practical in geriatric psychiatry is pharmacist-led medication therapy management. The identification, shared decision-making, taper planning, and withdrawal/relapse monitoring stages are also specifically applicable in mood and anxiety disorders and are identified in quality measures of benzodiazepine deprescribing and can be translated into local care pathways [19,20,21].

At the system level, the proportion of older psychiatric outpatients with 1 PIM or higher, benzodiazepine exposure exceeding the recommended timeframe, and the prevalence of CNS-active polypharmacy can be tracked quarterly, and results (falls, delirium, ED visits) can be attributed to it. It is also reasonable to use anticholinergic burden monitoring because there is evidence of an association between increased anticholinergic burden and falls risk[37].

Limitations

A small number of eligible Saudi geriatric psychiatric studies with extractable outcomes is the most critical limitation, as it limits the applicability of pooled estimates to depression-only or anxiety-only populations. Heterogeneity in the scope and version of criteria was also a limitation, as it limits the ability to apply these estimates to depression-only or anxiety-only groups.

Because routine data types in observational studies are subject to selection bias, unmeasured confounding, and exposure misclassification when there is no record of actual prescription use. Systematic risk-of-bias evaluation enhances transparency, and some level of certainty grading would assist in putting into perspective the strength of the findings based on prevalence data. [3,32,38].

Clinical Recommendations of Mood and Anxiety Disorders in Elder Adults.

The prevention of excessive sedative load, the avoidance of high-risk substitutions, and periodic reevaluation of the current signs can be approached as methods of reducing risks in late-life mood and anxiety disorders. To begin with, pharmacotherapy should be chosen with a biased preference towards medications that are safer in geriatrics when it is

required, and avoid anticholinergic medications in as many instances as possible since they are associated with cognitive changes and falls [9,10,11,37].

Second, benzodiazepines and Z-hypnotics are to be considered limited in time and with concise termination strategies, particularly in cases of prescription due to insomnia or situational anxiety. In cases of long-term use, it is advisable to taper gradually under observation of withdrawal and symptoms reoccurrence; structured deprescribing procedures and quality indicators offer convenient frameworks for defining taper courses and follow-up periods.[19,20,21,25,39].

Third, CNS-active polypharmacy should be explicitly discussed in terms of medication review. The use of polypharmacy in psychiatry has been discussed with the view that sometimes combinations are clinically indicated but should be reported with clear justification, goals, and periodic review to prevent long-term use, which is not beneficial to patients [34,35].

Fourth, non-pharmacologic and collaborative-care interventions would decrease the use of sleep and anxiety-related symptoms with the help of sedatives. Though the evidence base was not the subject of the current review, the inclusion of non-drug alternatives in care pathways is in line with the principles of deprescribing and can assist in maintaining symptom control with minimal medication-related harms[19,20,21].

Saudi Geriatric Psychiatry Future Research Agenda.

In order to facilitate a policy-relevant evidence base capable of being published, Saudi research ought to focus on multi-region datasets that capture a variety of service models and prescribing settings. Research must state a comprehensive diagnostic composition and give diagnosis-stratified PIM prevalence of depression, anxiety, bipolar disorder, schizophrenia, and dementia that can allow meta-analysis and design specific interventions aimed at specific conditions. [1,2,4,17].

It is necessary to standardize. Even with the use of multiple criteria, future researchers should cross-map the differences and provide sensitivity analysis results to demonstrate that prevalence varies with the tool used to measure polypharmacy [9,10,11,12,13,31].

Analytical models need to be multimorbidity-adjusted, frailty proxy-adjusted, and service-adjusted (e.g., number of prescribers, specialty mix), and should analyse outcomes that are plausibly due to PIM exposure, e.g., falls, delirium, hospitalization, etc. The use of the prescribing data in the relationship with outcomes will enhance causal plausibility and emphasize the high impact of deprescribing targets. [26,31,37].

There is also the need to conduct intervention research. Outpatient psychiatric pragmatic trials of pharmacist-led pharmacist review and collaborative deprescribing would be a method to measure whether PIM reduction affects patient outcomes and lowers costs in the Saudi situation. They should be tried according to the recommendations of the deprescribing process and include the outcomes of the implementation in terms of acceptability, feasibility, and sustainability [19,20,21,18].

Lastly, there should be synthesis work on the basis of PRISMA reporting and clear risk-of-bias and certainty grading. This will enhance defensibility and minimize the chances of desk rejection occasioned by ambiguous procedures or undetermined conclusions[1,2,3,32,38].

Enhancing Systematic Review Workflow Final Submission.

To be submitted to the journal, the review process is supposed to be reproducible. It involves providing full database-specific search strategies (exact syntax, searched fields, date limits, and the exact date each search was conducted), reporting on de-duplication processes, and providing reporting on screening decisions with a PRISMA flow diagram and full-text exclusion reasons[1,2,3].

Pilot data extraction is recommended, and where possible, the extraction must be done in duplicate, with an explicit data dictionary specifying each item (e.g., what constitutes polypharmacy, what are the categories of psychiatric diagnosis, etc.). The origin of any disagreement should be recorded. In cases where the studies provide only partial psychiatric data on subgroups, contacting the authors can lead to the extraction of mood/anxiety-specific estimates of prevalence or predictors, making them more precise and less indirect[2,3].

Lastly, effect measures and proportion-to-proportion transformation justification should be explicit, and sensitivity analysis examining criteria scope differences (psychotropic-only versus overall PIMs) and study risk-of-bias judgements should be provided. Subgroup meta-analyses and some degree of certainty summaries over GRADE would allow the reader to interpret the extent of confidence they should place on pooled prevalence estimates and predictor inferences when more eligible studies are identified[30,31,32].

The requirements of systematic reviews by an editor have been more focused on clarity in the presentation of the results. The reviewers also usually desire an explicit narrative synthesis as to why pooling was or was not reasonable, how the heterogeneity was understood, and whether the results can be resistant to different analytic decisions. Ambiguity can be minimized with the help of the existence of suggested guidelines on random-effects interpretation and clear tables indicating which PIM item corresponds to which version of applied criteria[2,31].

Pre-specifications on how overlapping samples and repeated reports of the same health system will be treated should also be specified by the reviewer, where possible, to prevent a count of the prevalence pooling twice. This involves verifying study periods and environments, picking the most comprehensive data where there is a possibility of overlap, and including these choices in the methods and the supplementary material.[2,3].

In combination, the steps enhance the level of transparency, minimize bias, and increase faith in the pooled prevalence estimates[1,2].

It is a rigor that gives more practical conclusions to clinical practice.

Conclusion

In Saudi Arabia, older adults exposed to psychiatric care seem to be exposed to PIM more often than in other conditions, and scarce available evidence indicates that around one-half to two-thirds of patients might have at least one PIM/PIPM, which supports the importance of standardized screening, pharmacist-led review, and structured deprescribing pathways [4,17] Compared to other conditions, it seems that older adults exposed to psychiatric care in Saudi Arabia are more likely to have PIM exposure, and the levels of available evidence

demonstrate the need to focus on diagnosing and

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