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Diagnostic composition of published outpatient and inpatient counts in Saudi Ministry of Health mental health departments, 2024: a descriptive aggregate analysis

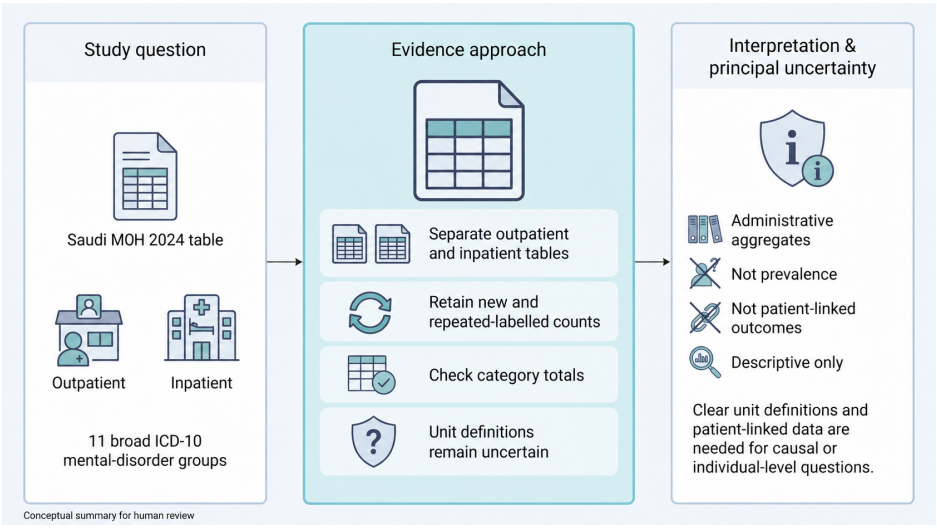
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ABSTRACT



Graphical abstract

Background: Population surveys estimate mental-disorder burden and treatment gaps, whereas administrative summaries describe reported counts recorded by health systems. These quantities are easily conflated. The Saudi Ministry of Health (MoH) published 2024 outpatient and inpatient counts for 11 broad ICD-10 mental-

disorder groups, with new and repeated portions. This study provides a transparent description of the table while keeping interpretation within its measurement limits.

Methods: We extracted the six count columns and diagnostic codes from Table 4-18 of the official MoH Statistical Yearbook 2024. An immutable workbook hash, row arithmetic, and published marginal totals were checked before analysis. For each setting, we calculated diagnostic shares and the proportion labelled repeated, then summarized between-setting differences with the top-three share, Herfindahl index, and total-variation distance. No patient linkage, uncertainty interval, hypothesis test, or denominator beyond the table was introduced.

Results: The source reported 698,772 outpatient counts and 23,698 inpatient counts. Mood disorders (27.28%), schizophrenia-spectrum and delusional disorders (24.58%), and neurotic/stress-related/somatoform disorders (17.73%) comprised 69.58% of outpatient counts. Schizophrenia-spectrum and delusional disorders (33.54%), mood disorders (23.28%), and psychoactive-substance-use disorders (18.51%) comprised 75.34% of inpatient counts. The inpatient share exceeded the outpatient share by 13.20 percentage points for substance-use disorders and 8.96 points for schizophrenia-spectrum disorders; it was 9.88 points lower for neurotic/stress-related/somatoform disorders. Repeated-labelled counts represented 80.33% of the outpatient total and 45.83% of the inpatient total. All 11 within-row additions and all six column sums matched the publication.

Conclusions: The reported diagnostic composition differs between MoH mental-health outpatient and inpatient published counts in 2024. These are descriptive properties of administrative aggregates, not disorder prevalence, admission risk, readmission, or care quality. Clear unit definitions and patient-linked data are required before those questions can be answered.

Source and interpretation note for Figure 1. Author synthesis of the evidence and results presented in the text and native manuscript tables. Pictograms, arrows and repeated document icons are schematic; they do not denote counted records, measured effects, new patient data or proven local benefits.

Keywords: mental health services; Saudi Arabia; administrative data; ICD-10; outpatient; inpatient; service composition

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Introduction

Mental disorders contribute substantially to disability worldwide, yet receipt of treatment represents only a subset of population need [1,2]. The Saudi National Mental Health Survey (SNMHS) showed that the occurrence, severity, and treatment of common disorders must be assessed separately: a household survey estimates disorder prevalence, while treatment questions establish whether respondents received care [3,4]. In that survey, only 13.7% of respondents with a 12-month DSM-IV/CIDI disorder reported treatment during the same interval [4]. Barriers to seeking or continuing treatment may influence who accesses services represented in routine health-system records [5]. An administrative table therefore has a different denominator and meaning from a household survey. It describes its own reported counts but cannot establish unmet need by itself.

Saudi Arabia has also developed national service-coordination data. An analysis of psychiatric electronic referrals through the Saudi Medical Appointments and Referrals Centre described 10,033 referrals in 2020–2021, and a related study examined acceptance of 9,722 requests [6,7]. These are important access measures, but a referral request is a different source measure from the yearbook's setting-specific counts. A 2025 multisource Saudi analysis also included Ministry of Health mental-health reports for 2018 and displayed outpatient/inpatient ICD-10 patterns [8]. That paper places service figures within a wider synthesis of population surveys; it confirms earlier work on this broad comparison but does not establish the unit or comparability of the 2024 table. We therefore do not claim that this is the first Saudi outpatient/inpatient comparison. Clinical studies supply a third viewpoint. A multicentre cross-sectional clinical sample compared inpatient and outpatient diagnoses using data obtained primarily through chart review and supplemented by interviews; a separate psychotropic-medication analysis used the same six hospitals and field dates, with possible participant overlap

not established by the reports [9,10]. Their observed patients and clinical detail cannot be substituted for national administrative counts, while the administrative counts cannot reproduce their patient-level comparisons.

The MoH Statistical Yearbook 2024 provides a defined opportunity to examine these distinctions. Its Table 4-18 reports outpatient and inpatient columns, each divided into “new,” “repeated,” and total, for 11 ICD-10 groups in MoH mental-health departments [11]. The public worksheet supplies exact numerators but does not explain whether the counted units are unique people, attendances, admission episodes, or another reporting unit. It does not link outpatient and inpatient rows, give catchment populations, describe referral or discharge events, or state whether an individual can appear in multiple diagnostic groups. The safest contribution is therefore a transparent description of the table's internal composition, accompanied by explicit limits on inference.

The research question was: **How did the published 2024 distribution of reported counts across the 11 ICD-10 diagnostic groups differ between MoH mental-health outpatient and inpatient columns, and how were each setting's counts divided between the source's new and repeated labels?** This question is narrower than epidemiological prevalence or risk. It can nevertheless inform audit and planning. Different diagnostic mixes imply that a single mental-health total conceals the distribution of published counts across diagnostic groups and settings. Reproducibility is particularly important when published tables are reused in dashboards, resource discussions, and secondary research.

We prespecified no causal hypothesis. A 2024 single-year source can describe a contemporary reporting profile; it cannot establish that service need increased, that a programme changed demand, or that any setting provided better or worse care. The study follows the reporting principles of RECORD and STROBE insofar as they apply to secondary analysis of aggregate routinely collected data [12,13]. The source boundary, extraction locations, and every derived measure are supplied so a reader can distinguish a directly published count from our calculation.

Methods

The Ministry lists the 2024 workbook in its 2025 archive. Independent recalculation of worksheet 4-18 reproduced all six published column totals. The 698,772 outpatient counts and 23,698 inpatient counts describe recorded activity. The aggregate table cannot identify unique people or link events across settings.

Design, setting, and data source

This was a single-year descriptive secondary analysis of a publicly accessible aggregate workbook, not a study of individual patients. The primary source was the Saudi MoH Statistical Yearbook 2024, worksheet 4-18, entitled “Outpatients and Inpatients in Mental Health Departments, MOH, According to Main Disease Groups of ICD-10, 2024G” [11]. Its source line identifies the General Directorate of Mental and Social Health. The table pertains to MoH mental-health departments and does not purport to include all private or other governmental providers. The source year is 2024; we did not combine it with a survey year or infer a longitudinal trajectory.

We fixed the analysis input as the official workbook downloaded on 28 September 2026 (SHA-256 a482e1f88c13b24246312fdb4696e3f9c49f2dd9459d56ef585f47bb47032c83), retained for provenance. A second download from the same MoH URL on that date had SHA-256 959a27fbe4a7e-f7b5726c679303d3251aea8b638370289b8d055705e53ea2649. A package comparison found differences only in document-properties and custom-XML parts; the worksheet XML and the Table 4-18 cell values were unchanged. We therefore retain the frozen input hash as the analysis provenance while citing the official workbook URL [11]. This comparison establishes file-level provenance for the retained analysis, not a Ministry source-owner statement about versions. Rows 6–16 of worksheet 4-18 hold the 11 diagnostic groups; row 17 is the published total. Columns B–D hold outpatient new, repeated, and total counts; E–G hold inpatient new, repeated, and total counts; H contains the ICD-10 group; and I contains the source's English descriptor. The extraction script, source-row locator, CSV, and analysis summary are retained for reproducibility. We neither transcribed numbers from a PDF nor treated a graph as data.

The unit of analysis was the **published diagnostic-group-by-setting count**. “Outpatient” and “inpatient” are the source's setting labels, and “new” and “repeated” are its subcolumn labels. Because the workbook gives no operational definition or identifier, we deliberately do not call the repeated column a count of returning people or readmissions. The groups are broad ICD-10 ranges, not individual diagnoses. For readability, this article calls F70–F79 “intellectual disability”; the table uses the older term “mental retardation.” F99 denotes an unspecified mental-disorder group in the source rather than a missing-data count. We retain the underlying code to make the mapping inspectable.

Source validation and variables

The extraction script checked the workbook SHA-256 before loading the worksheet. Within each of the 11 rows, outpatient new plus outpatient repeated had to equal outpatient total, and the same identity had to hold for inpatient counts. Each of the six derived column sums had to match its published row-17 marginal total. Negative, noninteger, or unexpected diagnostic-code entries would terminate extraction. This validates transcription and internal arithmetic; it cannot validate how the MoH originally collected, deduplicated, or classified records.

The primary variables were outpatient total and inpatient total for each ICD-10 group. The setting share for a group was its count divided by its respective setting total, multiplied by 100. The share difference was inpatient share minus outpatient share in percentage points. Separate repeated-labelled proportions were calculated as repeated divided by total within each setting and diagnostic group. All shares and differences were calculated from unrounded integer counts and rounded to two decimal places for display; displayed components may not sum or subtract exactly because of rounding. We did not divide inpatient group counts by outpatient group counts to estimate admission risk: the table has no linked cohort and the two columns may use different units. Nor did we divide counts by Saudi population to estimate incidence or prevalence.

Three complementary distributional summaries were used. The top-three share gives a simple measure of the proportion occupied by the largest groups in each setting; the Herfindahl index, calculated as the sum of squared group shares expressed as fractions, describes concentration across all listed groups; total-variation distance, half the sum of absolute group-share differences, expresses overall separation between the two distributions in percentage points. These measures describe different features of the published margins and have no clinical or resource-allocation thresholds. We did not calculate confidence intervals or significance tests because no sampling design, stochastic model, or data on ascertainment error were available for these published aggregate counts.

The composition calculations use a closed distribution within each setting. Every diagnostic share uses the same setting total, and the 11 shares exhaust that published total. This means that the rows are not independent percentages: a greater share for one group necessarily leaves less share for some combination of the others, even if no individual pathway is observed. The inpatient-minus-outpatient differences consequently sum to zero before rounding. A positive difference for one category and a negative difference for another describe the redistribution of a fixed total share, not a demonstrated clinical exchange of patients between those diagnoses. The source table contains no observations of such exchanges. [11]

Total variation uses this accounting property by taking half the sum of absolute share differences. The factor of one half prevents counting the positive and negative sides of the same compositional separation twice. Its percentage-point scale is therefore a distance between two published distributions. It should not be read as the proportion of patients who would need a different treatment, the proportion misclassified, or the fraction whose setting changed. Those readings require individuals and a rule for matching them across states. Here the two vectors come from separate setting margins whose underlying count units and linkage are undefined. [11]

The top-three summaries require a further distinction. The three largest groups are selected separately within each setting, so the outpatient and inpatient summaries contain different category sets. Their difference describes how much of each setting's own margin is occupied by its leading groups. It is not the change in one fixed diagnostic basket. Readers wishing to compare the same basket would have to name its codes first and use them in both columns; that is a different summary from the ranked top-three measure reported here. Pre-

serving the group identities alongside the total prevents a ranking statistic from being mistaken for a clinical cohort. [11]

The Herfindahl index also depends on the category scheme. It squares each of the 11 source-group fractions and adds them, giving larger fractions more influence on the result. Splitting one broad source range into narrower diagnoses, or combining ranges, would change that index even if the total number of recorded units did not change. Therefore its meaning is bound to the worksheet's 11 ICD-10 group definitions. The present comparison uses the identical scheme in both settings, but it cannot be compared uncritically with an index from a source using individual diagnoses or a different grouping system. No such regrouped calculation was performed. [11]

The repeated-labelled proportion has a different denominator again. For an individual row it is repeated divided by that row's total, while the full-setting value is the sum of repeated counts divided by the sum of total counts. The latter is a count-weighted result; it is not an unweighted average of the 11 row percentages. Small groups consequently contribute less to the setting margin than large groups. This matters when reading the low F50–F59 inpatient proportion alongside the overall inpatient value: the row is numerically exact within its published denominator, but it does not have the same contribution to the overall margin as F20–F29. None of these weights represents patient severity or service priority. [11]

Display precision is separate from this denominator logic. Source integers are used to compute each share and the share difference before rounding. Subtracting two already rounded shares can produce a one-hundredth percentage-point difference from the displayed difference, and adding rounded rows can slightly miss 100%. Such discrepancies are expected consequences of display rounding, not evidence of a changed raw count. A reproducibility check should therefore return to the integers and the stated setting totals, rather than require every printed decimal to act as an exact input. Table 1 retains those integers precisely so that readers can perform that check. [11]

These transformations also specify what an independent reanalysis would be checking. Recalculating the shares, ranked summaries and concentration measures verifies the mapping from the extracted integers to the reported outputs. It cannot verify the Ministry's original case capture or determine whether one person generated several recorded units. Both stages matter, but they require different evidence. The first can be challenged using the retained worksheet coordinates and formulas; the second requires the reporting dictionary and, where appropriate, a separately governed source audit. Agreement at the first stage should therefore be reported as computational agreement rather than validation of clinical completeness. [11]

After inspecting the table, we added an explicitly exploratory sensitivity calculation that omitted F99 and recomputed the two setting distributions among the ten specified ICD ranges. This asks whether the observed between-setting contrast depends mainly on the unspecified category. It is not a claim that F99 is invalid, and the primary analysis retains all 11 published groups. We did not collapse categories into clinically invented severity strata. In particular, a broad ICD-10 range may contain heterogeneous diagnoses and service needs. The source provides no basis to impose a severity ranking or to model a particular person's probability of hospitalization.

Bias, missingness, and interpretive safeguards

The table contains positive or zero counts for all 11 listed groups and all six count columns. It does not contain a row for records with missing setting, unknown diagnosis outside F99, or a nonreported provider. Thus “no missing cells” is an arithmetic property of the extracted worksheet, not a claim that routine reporting is complete. Diagnostic coding, reporting coverage, and different service models could shape the displayed distribution. We had no facility identifiers, age, sex, nationality, severity, length of stay, or case-mix adjustment fields in this table. Such factors cannot be recovered from a margin by statistical modelling.

We treated literature as context rather than as a substitute denominator. The SNMHS is a household survey with a defined population and diagnostic interview, including work on lifetime and age-of-onset patterns [14], Saudi youth [15], women [16], comorbidity [17], and stigma [18]. These studies explain why population burden,

access, and published health-system counts should be considered together while remaining distinct; their participants and time windows are not interchangeable with the MoH table. Likewise, qualitative inpatient accounts illuminate quality domains that raw administrative counts cannot measure [19]. No patient records were accessed.

Reproducibility here means reproducing arithmetic from this fixed workbook release. It does not establish that the reported unit, diagnostic classifications, or coverage are valid or stable across settings or years. The source hash and row and marginal checks bind the extraction to one file and can reveal transcription errors or a changed release; they cannot detect systematic reporting errors in the source. Any annual comparison should first use a versioned codebook and document changes in category definitions, facility coverage, and reporting practice.

Results

Published totals and diagnostic composition

The source reported 698,772 outpatient and 23,698 inpatient counts across the 11 ICD-10 groups in 2024. The outpatient total comprised 137,432 new-labelled and 561,340 repeated-labelled counts; the inpatient total comprised 12,837 new-labelled and 10,861 repeated-labelled counts. All rows and margins reconciled exactly. These figures are reported counts within MoH mental-health departments, not estimates of the number of Saudi residents with a disorder.

Table 1 presents each group's count and within-setting share. Mood disorders (F30–F39) ranked first for outpatients, at 190,608 or 27.28%, followed by schizophrenia-spectrum and delusional disorders (F20–F29), 171,731 or 24.58%, and neurotic, stress-related and somatoform disorders (F40–F48), 123,882 or 17.73%. Together these three categories accounted for 69.58% of the outpatient total. The inpatient ranking differed: F20–F29 contributed 7,948 or 33.54%, F30–F39 contributed 5,518 or 23.28%, and psychoactive-substance-use disorders (F10–F19) contributed 4,387 or 18.51%. Those three groups accounted for 75.34% of the inpatient total.

Table 1. Diagnostic composition of reported outpatient and inpatient counts in MoH mental-health departments, 2024.

ICD-10	Diagnostic group	Outpatient count (share, %)	Inpatient count (share, %)	Difference (pp)
F00-F09	Organic mental disorders	15,585 (2.23)	1,582 (6.68)	+4.45
F10-F19	Psychoactive substance use	37,120 (5.31)	4,387 (18.51)	+13.20
F20-F29	Schizophrenia-spectrum and delusional	171,731 (24.58)	7,948 (33.54)	+8.96
F30-F39	Mood disorders	190,608 (27.28)	5,518 (23.28)	-3.99
F40-F48	Neurotic, stress-related and somatoform	123,882 (17.73)	1,859 (7.84)	-9.88
F50-F59	Behavioural syndromes associated with physiological disturbance	11,942 (1.71)	332 (1.40)	-0.31
F60-F69	Adult personality and behaviour	9,810 (1.40)	619 (2.61)	+1.21
F70-F79	Intellectual disability	37,890 (5.42)	382 (1.61)	-3.81
F80-F89	Psychological development	26,572 (3.80)	109 (0.46)	-3.34

ICD-10	Diagnostic group	Outpatient count (share, %)	Inpatient count (share, %)	Difference (pp)
F90-F98	Childhood-onset behavioural and emotional	15,780 (2.26)	104 (0.44)	-1.82
F99	Unspecified mental disorders	57,852 (8.28)	858 (3.62)	-4.66
Total	All listed groups	698,772 (100.00)	23,698 (100.00)	—

Note. Source: Saudi MoH Statistical Yearbook 2024, Table 4-18, rows 6–17 [11]. Shares use the respective setting total; differences are inpatient minus outpatient shares. Calculations use unrounded counts and are rounded to two decimals for display, so displayed components may not sum or subtract exactly. Groups are broad source ICD-10 ranges; F70–F79 is called “mental retardation” in the source and is labelled “intellectual disability” here. These are reported counts, not unique patients or admission risks.

The largest positive inpatient-minus-outpatient share difference was for F10–F19, at 13.20 percentage points; F20–F29 was 8.96 points higher and organic mental disorders (F00–F09) 4.45 points higher. The largest negative difference was F40–F48, at −9.88 points; F99 was −4.66 points, F30–F39 −3.99 points, and F70–F79 −3.81 points. Figure 2 displays these arithmetic contrasts without suggesting that the outpatient records led to the inpatient records. Total variation distance between the two 11-part compositions was 27.82 percentage points. The Herfindahl index was 0.1818 for outpatient shares and 0.2141 for inpatient shares, describing a somewhat more concentrated inpatient mix within the categories reported.

Figure 2. Difference between inpatient and outpatient shares by source ICD-10 group, 2024.

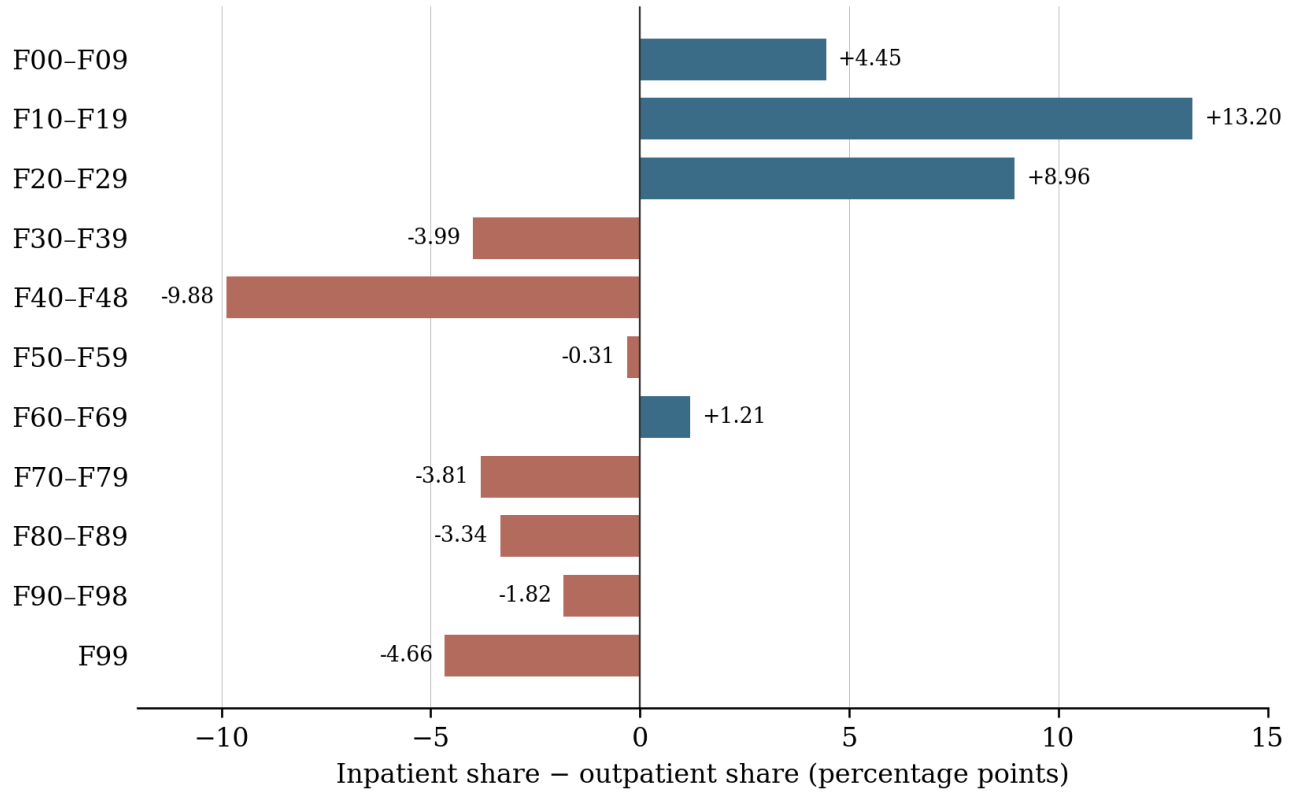


Figure 2 note. Bars show inpatient share minus outpatient share in percentage points, calculated from the published counts in MoH Statistical Yearbook 2024, Table 4-18 [11]. The chart compares aggregate compositions, not linked patients or admission probabilities.

New and repeated labels

Table 2 preserves the source's new and repeated partitions for every diagnostic group. Overall, 80.33% of outpatient counts and 45.83% of inpatient counts were repeated-labelled. Among the three most frequent outpatient groups, repeated-labelled proportions were 83.96% for F30–F39, 86.98% for F20–F29, and 76.52% for F40–F48. For the inpatient column, F20–F29 and F30–F39 had repeated-labelled proportions of 55.06% and 54.46%, respectively, while F10–F19 had 40.76%. The F50–F59 inpatient proportion was 11.14%, but its denominator was 332 published counts; this is an exact proportion of published aggregate counts (332 inpatient counts for this group), not a patient-level proportion; the source does not define the counted unit.

Table 2. Published new and repeated partitions within each setting and diagnostic group.

ICD-10	Outpatient new	Outpatient repeated (%)	Inpatient new	Inpatient repeated (%)
F00-F09	4,343	11,242 (72.13)	1,201	381 (24.08)
F10-F19	7,354	29,766 (80.19)	2,599	1,788 (40.76)
F20-F29	22,353	149,378 (86.98)	3,572	4,376 (55.06)
F30-F39	30,565	160,043 (83.96)	2,513	3,005 (54.46)
F40-F48	29,089	94,793 (76.52)	1,289	570 (30.66)
F50-F59	3,040	8,902 (74.54)	295	37 (11.14)
F60-F69	2,938	6,872 (70.05)	379	240 (38.77)
F70-F79	8,924	28,966 (76.45)	232	150 (39.27)
F80-F89	9,366	17,206 (64.75)	78	31 (28.44)
F90-F98	4,653	11,127 (70.51)	74	30 (28.85)
F99	14,807	43,045 (74.41)	605	253 (29.49)
Total	137,432	561,340 (80.33)	12,837	10,861 (45.83)

Note. Source: Saudi MoH Statistical Yearbook 2024, Table 4-18 [11]. Diagnostic group names corresponding to each ICD-10 code are in Table 1. Parenthetic percentages use each group's setting total, except the total row, which uses the full setting total. “New” and “repeated” are the publication's labels; the unit and deduplication rules are not defined in the public table. No row should be interpreted as readmissions or returning unique patients.

The group-level rank and repeated-label differences answer separate questions. A high share in a setting means a group occupies more of that setting's published total; it does not mean an individual in that group is more likely to enter that setting. A high repeated-labelled proportion means the publication placed more of that group's setting counts in its “repeated” column; it does not identify longitudinal return, episode duration, or readmission. Without person-level linkage, neither a transition matrix nor a new-to-repeated pathway can be constructed.

In the exploratory sensitivity analysis excluding F99, 640,920 outpatient and 22,840 inpatient counts remained. The three largest specified groups were unchanged in each setting; they accounted for 75.86% of specified outpatient counts and 78.17% of specified inpatient counts. Total variation distance was 27.09 percentage points, close to the 27.82 points obtained when all 11 groups were retained. The main compositional contrast therefore did not arise solely because F99 occupied a different share across settings. This calculation does not determine why a record was coded F99 or whether its inclusion varies across facilities.

Discussion

The 2024 MoH table shows a substantial compositional distinction between outpatient and inpatient mental-health reporting. In outpatient counts, mood and stress-related categories occupied much of the table alongside schizophrenia-spectrum disorders. In inpatient counts, schizophrenia-spectrum and psychoactive-substance-use groups took markedly larger shares. The difference is not subtle: the three largest inpatient groups comprised three quarters of that setting's total, and the whole-distribution difference measured by total variation was 27.82 percentage points. These findings define a concrete published-count profile. They do not explain why the profile differs.

A multicentre Saudi diagnostic study described a clinical sample from six hospitals using chart data supplemented by interviews [9]. A related psychotropic-medication analysis used the same hospitals and field dates but a different reported sample size; the publications do not establish whether participants overlapped, so they should not be treated as independent samples [10]. A 2025 multi-source analysis also displayed 2018 Ministry of Health outpatient/inpatient ICD-10 patterns [8]. The present work examines the later 2024 table, includes its new/repeated columns, and checks row and marginal arithmetic. It is an updated descriptive analysis, not the first Saudi comparison and not a trend study: the source units and reporting rules across years have not been shown to be comparable.

F20–F29 had a larger share of the published inpatient counts; the aggregate cannot indicate clinical acuity or explain the setting distribution. A Saudi retrospective cohort reports individual-level findings on schizophrenia readmission over one year [20]. The yearbook's “repeated” inpatient column should not be equated with that cohort's readmission measure. Similarly, medication-pattern research in a Tabuk mental-health hospital describes treatment within a facility, a dimension that the 2024 table does not measure [21]. A count of inpatient F20–F29 records cannot, by itself, show whether continuity of care improved.

Reporting definitions and facility-level variation may affect displayed margins, but this workbook cannot separate those influences from clinical case mix. Two services with the same national ICD totals could differ in geographical access, lengths of stay, staffing, and coding practice. The higher inpatient Herfindahl index describes only the mix of the listed diagnostic groups; it does not mean care was concentrated in a few hospitals or that resources were distributed proportionately. Those questions require facility and workforce denominators absent from Table 4-18.

F10–F19 made up 5.31% of reported outpatient counts but 18.51% of inpatient counts. The arithmetic difference of 13.20 percentage points is the largest between-setting contrast in this table. The table cannot distinguish differences in clinical pathways from reporting or coding differences. We did not label this contrast as a hospitalization rate or infer a causal explanation. Survey and clinic studies document treatment barriers among people with mental disorders, but that evidence operates at another level of analysis from these aggregate counts [5,22]. A next study would need standardized reporting-unit definitions, patient linkage, diagnosis validation, and a clearly enumerated source population before estimating pathways or risks.

The new/repeated split may aid operations only if defined. The yearbook does not say whether repeat denotes an attendance, episode, person, or ongoing case; these aggregate proportions therefore cannot be read as patient return frequencies. The MoH could improve secondary use by defining the counted event, classification period, diagnostic assignment, and repeat rule. Studying transitions among referral, outpatient and inpatient services would require privacy-protected linked records and an accountable data owner.

The aggregate cannot estimate unmet need. SNMHS household analyses distinguish lifetime from 12-month treatment and depend on a defined population frame and standardized interview [4,23,24]. Dividing 2024 counts by survey prevalence would mix years, populations, age eligibility, provider scope, diagnostic constructs, and count units, producing an uninterpretable quotient. E-referral analyses describe requests and acceptance, not the yearbook's diagnostic counts [6,7].

The F99 unspecified group deserves attention as a coding category rather than an inferred error rate. It accounted for 8.28% of outpatient and 3.62% of inpatient counts. Without access to coding rules or charts, we

cannot distinguish undifferentiated clinical presentations from documentation or classification practices. Reclassification of some F99 records could alter other group shares; the results here are therefore descriptive of reported coding. The source also uses an older English label for F70–F79. We modernized that descriptor in prose while retaining the ICD code and disclosure in table notes, preserving traceability without endorsing outdated terminology.

The F80–F89 and F90–F98 groups had much smaller inpatient than outpatient shares. Even here, assigning a pathway would be hazardous. Some care for childhood-onset or developmental conditions may occur in paediatric, rehabilitation, community, or non-MoH settings that are outside the yearbook table; the data cannot show whether that happened. The source's broad categories also do not distinguish adult patients with persistent childhood-onset disorders from children. Saudi survey work has characterized mental disorders among young people [15], but its household frame cannot be treated as a direct denominator for these two administrative rows. Future service mapping should specify age, provider sector, and whether diagnostic coding represents primary or associated conditions before interpreting such apparent differences.

The study's strengths are its exact source binding, whole-table inclusion, transparent arithmetic, and careful definition of analytical scope. Each of 11 rows reconciled, and all six sums equalled the yearbook totals. The extraction script and row-level data needed to reproduce the calculations are retained but are not publicly available, so an external reader cannot yet rerun them. The limitations are equally material. The publication supplies no sampling or reporting-completeness assessment, patient identifiers, event definitions, diagnostic validation, facility distribution, age or sex by diagnostic group, or information on multiple diagnoses. It covers MoH mental-health departments only. A single year cannot establish trend or seasonality. The Herfindahl and total-variation measures are purely descriptive of published shares and have no clinical threshold. These restrictions are why we report no P values, confidence intervals, or claims of patient-level association.

For decision makers, the appropriate immediate use is a precise description of the published counts and an agenda for better measurement. The setting-specific profiles identify which broad categories dominate reported counts, but they cannot determine optimal beds, staffing, or regional allocation without workload, acuity, duration, geography, and unmet-need data. Qualitative evidence from Saudi inpatient service users further shows that experience and quality require direct study rather than inference from volume [19]. Linking the MoH aggregate with clinically validated, ethically governed patient-level pathways would be a substantive next step. Meanwhile, all secondary summaries should carry the setting, year, data-source scope, and count-unit caveat.

An improved annual table could retain the accessible format while defining “new,” “repeated,” setting, unit, deduplication across visits and diagnoses, unclassified records, and coverage by cluster and facility. These definitions would prevent published counts from being misread as patient rates. A data-owner-governed coding audit could assess classification quality. A versioned extract should preserve table identifier, year, source row, code range, definitions, and a change log. Facility, region, and age denominators would show where national margins arise without releasing person-level records. Transition analyses require a separately governed linked dataset with encounter dates, deduplication, diagnostic rules, and follow-up windows specified before analysis. This separates descriptive monitoring from analyses requiring stronger privacy, ethics, and data-owner safeguards.

Figure 3 compares the reported percentage shares of 11 diagnostic groups within outpatient and inpatient published aggregate counts.

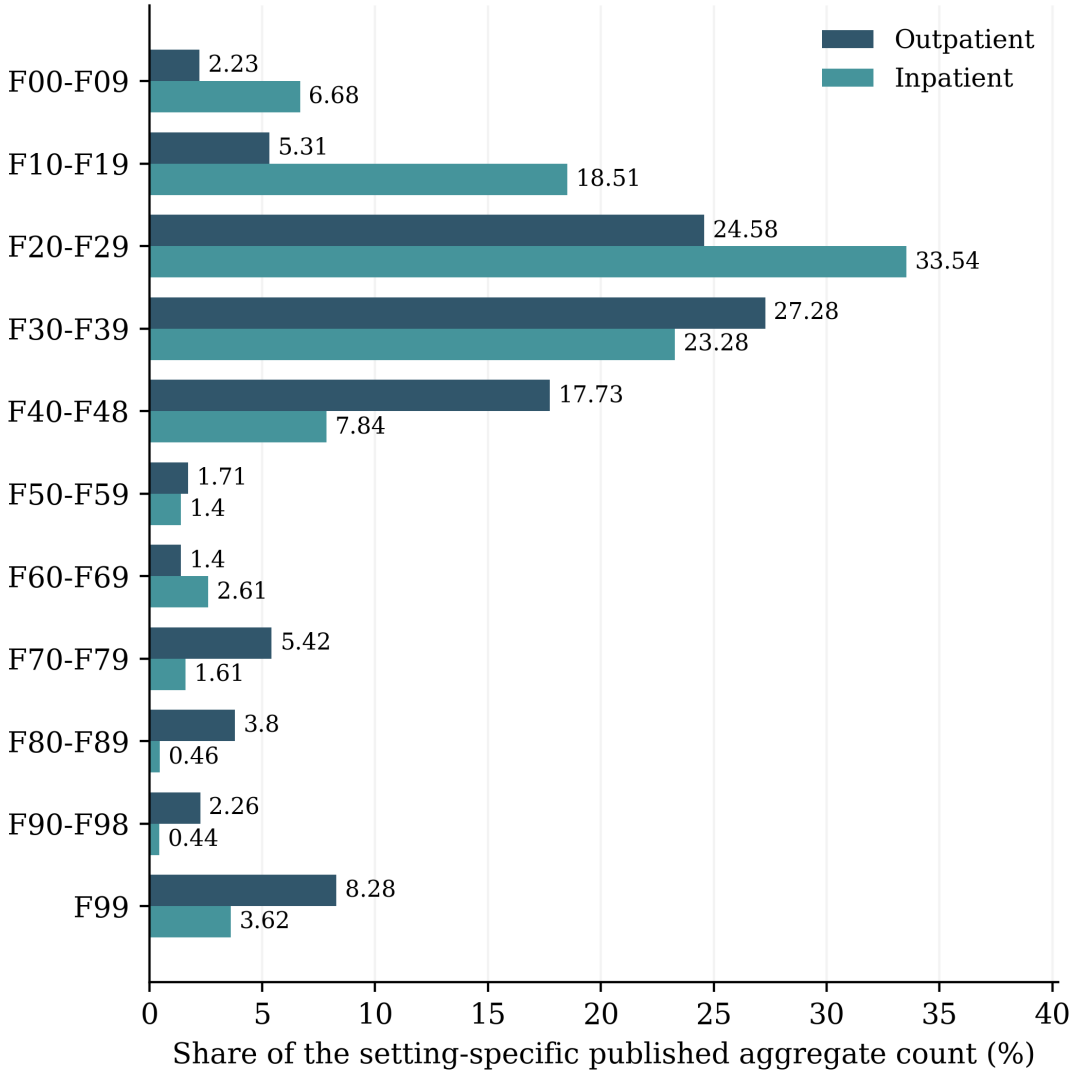


Figure 3. All 11 diagnostic groups; fractions calculated from Table 1 integer counts. Published count units are undefined; these are within-setting administrative compositions, not prevalence, admission risk, readmission or care quality.

Source and interpretation note for Figure 3. Measured public aggregate cells and derived descriptive shares; no patient-level or causal estimates. Source anchor: Table 1; MoH worksheet 4-18 rows 6–16 [11].

Conclusion

In the MoH's published 2024 mental-health department table, 11 ICD-10 groups accounted for 698,772 outpatient and 23,698 inpatient counts. Mood, schizophrenia-spectrum, and stress-related groups led the outpatient column; schizophrenia-spectrum, mood, and substance-use groups led the inpatient column. The “new” and “repeated” partitions also differed, but their underlying unit is not defined in the public table. The analysis supplies a transparent description of published-count composition and a clear boundary around what cannot be inferred. Patient-linked data and explicit reporting definitions are necessary to examine care transitions, readmissions, prevalence, or quality.

Declarations

Data availability: The cited public MoH workbook is the data source. The extraction script, extracted counts, and analysis summary are not available in a public repository.

Ethics and consent: Only a public aggregate table was analyzed. No person-level data or participant contact was involved.

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