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Composition and concentration of recorded digital service channels in Eastern Saudi Arabia: an exploratory analysis of Ministry of Health administrative counts for 2024

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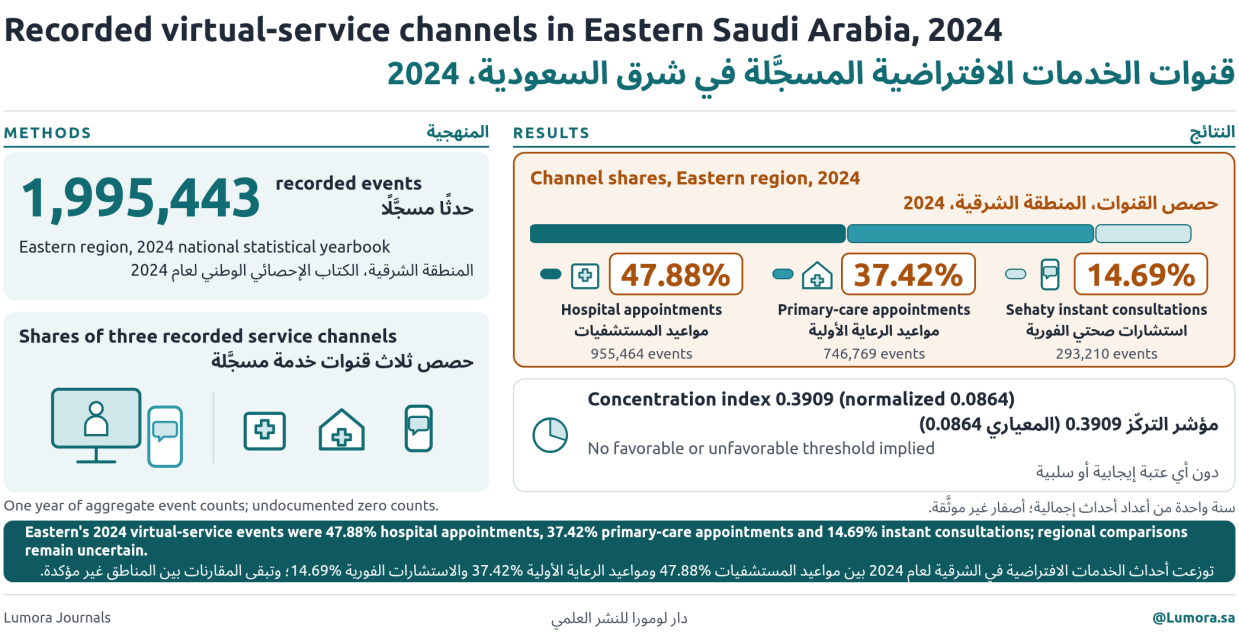
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Graphical abstract



Graphical abstract: Eastern's 2024 virtual-service events were 47.88% hospital appointments, 37.42% primary-care appointments and 14.69% instant consultations; regional comparisons remain uncertain. Designed by the Lumora Journals production team using hand-coded HTML/SVG rendered in Google Chrome.

Abstract

Background: Aggregate administrative records can describe how recorded digital-service activity is distributed across service channels, but they cannot identify unique users, substitution for in-person care or clinical effects. This study describes the recorded channel composition of Eastern Saudi Arabia in the 2024 Ministry of Health (MOH) virtual-activity table and examines how far regional comparisons from that table can be supported.

Methods: A descriptive secondary analysis used sheet 4-71 of the MOH Statistical Yearbook 2024 (completed primary-care and hospital virtual appointments and Sehaty instant consultations). Twenty health-cluster rows were mapped to thirteen administrative regions and five published analytical regions; two national service rows were kept unallocated. Channel shares and the Herfindahl–Hirschman concentration index (with its normalized form) were computed from summed counts and reconciled with the official total. Sensitivity analyses used the two appointment channels only and excluded clusters with a zero Sehaty count.

Results: Eastern recorded 746,769 primary-care appointments, 955,464 hospital appointments and 293,210 Sehaty consultations (1,995,443 events; shares 37.42%, 47.88% and 14.69%; index 0.3909, normalized 0.0864). The national total was 9,314,304 events, of which 42,359 were unallocated. The Sehaty field was zero for the Riyadh First, Riyadh Second and Jeddah Second clusters; the source does not state whether these are true zeros or non-reporting. Central had the highest three-channel index (0.4706), but with the two appointment channels only, Northern had the highest index (0.5842) and Eastern the lowest (0.5075).

Conclusions: Sheet 4-71 supports a reproducible description of Eastern's recorded channel mix. It covers a small part of national Sehaty activity, and regional comparisons of Sehaty shares and concentration

depend on undocumented zero counts. It does not establish population uptake, unique-user access, substitution, quality or clinical effectiveness.

Keywords: Telemedicine; Remote Consultation; Primary Health Care; Health Services Administration; Saudi Arabia

Introduction

What service composition can answer

Administrative digital-service records are often cited as evidence of a changing health system, but their direct information is narrower: they count activity recorded under particular service labels during a reporting period. When several labels are reported together, the records can describe how the recorded total is distributed across them. They cannot show how many people received care, whether digital contact replaced an in-person visit or whether outcomes changed.

This study uses the virtual-activity sheet of the 2024 MOH Statistical Yearbook, which reports, by health cluster, completed primary-care virtual appointments, completed hospital virtual appointments and instant consultations through the Sehaty platform. Eastern is the focal region because it recorded the largest three-channel total and the highest primary-care share of the thirteen administrative regions in this sheet; the other regions are reported for context. The sheet is not the full national digital volume: the Ministry reported more than 51 million instant and virtual consultation appointments through Sehaty in 2024 [1], whereas the sheet records 1.95 million Sehaty consultations and 9.31 million events in all. Its scope, rather than national digital activity, is therefore the subject of this analysis.

Related Saudi evidence

Saudi studies of digital care address a national virtual-hospital model [2], virtual-clinic use reported by 10,000 patients [3], a digital-first primary care model during the 2023–2024 Hajj seasons [4] and telemental-health use at one medical city [5]. Specialty and experience studies (capsule telemedicine, inflammatory bowel disease, audio-only gynecology and teleophthalmology) [6–9], studies of provider awareness, perceptions, satisfaction and telenursing barriers [10–13] and pandemic-period studies of use, app evaluation and adoption [14–17] concern patients, professionals or periods that an annual channel table cannot represent. They help identify what the table does not measure; they do not supply outcomes for it.

The concentration index

Channel concentration is summarized with the Herfindahl–Hirschman index, which ecology knows as Simpson's index: the sum of the squared channel shares [18]. With three channels it ranges from one third (equal shares) to one (all activity in one channel); the normalized form, $(H - 1/3)/(1 - 1/3)$, rescales this range to 0–1. With three categories the index adds little beyond the shares themselves, and its value depends on the category system. It is retained only as a single summary of how unevenly a region's recorded activity is spread, always reported beside the three shares, with no threshold or clinical meaning attached.

Overlap and objective

The closest yearbook-based study, a regional analysis of MOH capacity and recorded utilization for 2016–2024 [19], analyzes hospitals, beds, physicians, nurses, primary health care centers and their encounters, outpatient visits and inpatient admissions; it includes no virtual-care indicator. Its overlap with this study is

therefore limited to the source series and the regional framework. The objective of this study is to describe Eastern's recorded three-channel composition from sheet 4-71, with the thirteen administrative regions, five analytical regions, cluster rows and unallocated national services retained, and to document which comparisons the sheet does and does not support.

The question was specified after inspection of the source; the study is exploratory and was not registered. The literature review used PubMed records and abstracts and is not a systematic review.

Methods

Design and analytical units

This is a one-year descriptive secondary analysis of published aggregate counts. Source observations are service rows, not patients: twenty health-cluster rows and two national rows (SEHA Virtual Hospital and Others). Cluster rows were aggregated to the thirteen administrative regions and then to five published analytical regions; Eastern is both an administrative region and an analytical region.

The primary objective was to describe the shares of Eastern's recorded three-channel total contributed by each channel. Secondary objectives were to report the concentration index and to compare the other regions. No patient-level probability, population rate, clinical effect or effect of artificial intelligence was estimated. Reporting follows the relevant items of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) and REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) statements [20,21].

Primary workbook and extraction

The source is the official MOH Statistical Yearbook 2024 workbook (https://www.moh.gov.sa/en/Ministry/Statistics/book/Documents/Statistical-Yearbook-2024.xlsx), sheet 4-71, "Number of Completed Virtual Appointments at Ministry of Health Facilities by Health Cluster, 2024G" [22]. Its fields are completed virtual appointments for primary health care centers, completed virtual appointments for hospitals, virtual instant consultations via the Sehaty platform and their total. The sheet gives no definitions or notes for these fields and does not state how Sehaty consultations are credited to health clusters. The SHA-256 digest of the downloaded workbook is 959a27fbe4a7ef7b5726c679303d3251aea8b638370289b8d055705e53ea2649.

All twenty-two component rows were extracted with their row number and source label; the total row was used only for reconciliation. Each count had to be a nonnegative integer, and each row's three fields had to sum to its total. These checks detect transcription errors; they cannot show whether every service event was recorded.

Mapping health clusters to administrative areas

Cluster rows were mapped to administrative regions using the workbook's correspondence of health clusters and administrative regions [22] (Table 1): the Riyadh First, Second and Third clusters to Riyadh; the Makkah, Jeddah First, Jeddah Second and Taif clusters to Makkah; the Eastern, Al Ahsa and Hafr Al Batin clusters to Eastern; and each other cluster to the region of the same name. The SEHA Virtual Hospital and Others rows were not assigned to any region, because the sheet gives no recipient location and allocating national services by institution location or population would be an unsupported assumption. They are reported as unallocated national services and included only in the national total.

Table 1. Source rows of sheet 4-71 with their administrative and analytical regions and recorded counts, 2024

Source row (sheet 4-71)	Administrative region	Analytical region	PHC	Hospital	Sehaty	Total
Riyadh First Health Cluster	Riyadh	Central	83,893	308,349	0	392,242
Riyadh Second Health Cluster	Riyadh	Central	241,962	236,731	0	478,693
Riyadh Third Health Cluster	Riyadh	Central	88,941	155,741	29,268	273,950
Makkah Health Cluster	Makkah	Western	115,001	110,295	291,289	516,585
Jeddah First Health Cluster	Makkah	Western	109,096	93,386	129,753	332,235
Jeddah Second Health Cluster	Makkah	Western	109,195	124,170	0	233,365
Taif Health Cluster	Makkah	Western	45,635	275,927	121,052	442,614
Madinah Health Cluster	Madinah	Western	39,995	284,510	97,488	421,993
Qassim Health Cluster	Qassim	Central	392,698	622,424	108,703	1,123,825
Eastern Health Cluster	Eastern	Eastern	437,274	445,058	90,470	972,802
Al Ahsa Health Cluster	Eastern	Eastern	283,163	323,198	150,761	757,122
Hafr Al Batin Health Cluster	Eastern	Eastern	26,332	187,208	51,979	265,519
Asir Health Cluster	Asir	Southern	203,728	257,202	246,455	707,385
Tabuk Health Cluster	Tabuk	Northern	70,793	125,371	33,967	230,131
Hail Health Cluster	Hail	Northern	49,845	102,252	40,083	192,180
Northern Borders Health Cluster	Northern Borders	Northern	45,139	167,827	71,973	284,939
Jazan Health Cluster	Jazan	Southern	277,819	461,004	87,141	825,964
Najran Health Cluster	Najran	Southern	152,079	113,645	181,130	446,854

Source row (sheet 4-71)	Administrative region	Analytical region	PHC	Hospital	Sehaty	Total
Al Baha Health Cluster	Al Baha	Southern	35,898	57,923	76,569	170,390
Al Jouf Health Cluster	Al Jouf	Northern	23,318	56,923	122,916	203,157
SEHA Virtual Hospital	Unallocated	Unallocated	0	27,891	0	27,891
Others	Unallocated	Unallocated	0	0	14,468	14,468
Total (official row)			2,831,804	4,537,035	1,945,465	9,314,304

Notes. Source: Ministry of Health Statistical Yearbook 2024, sheet 4-71 [22]; cluster names as in the source. PHC, completed primary-care virtual appointments; Hospital, completed hospital virtual appointments; Sehaty, Sehaty instant consultations. Zeros are reported as in the source, which does not state whether a zero is a true zero or non-reporting. SEHA Virtual Hospital and Others are national rows kept unallocated.

Five broad analytical groups

The thirteen regions [23] were grouped into five published analytical regions [24]: Central (Riyadh, Qassim), Western (Makkah, Madinah), Eastern (Eastern), Southern (Asir, Jazan, Najran, Al Baha) and Northern (Tabuk, Hail, Northern Borders, Al Jouf). These are reporting groups, not administrative divisions or independent samples; counts were summed within each group before shares were computed.

Counts, channel shares and concentration

For each region, the denominator is the sum of the three channel counts (Table 2). A channel share is its count divided by this total, and the concentration index is the sum of the squared shares expressed as fractions, with its normalized form as defined above. The counts are events: one person may generate several, and no identifier is available, so shares describe recorded events, not residents or patients.

Two sensitivity analyses addressed the Sehaty field, which is zero in three cluster rows (Table 1). Shares and indices were recomputed (a) for the two completed-appointment channels only, for which the normalized index is (H − 1/2)/(1/2), and (b) for all three channels after excluding the clusters with a zero Sehaty count. Events per 1,000 residents were computed with the 2022 census population of each region as the denominator [25]; because the census precedes the reporting year and events are not persons, these rates describe recorded activity relative to population size, not uptake.

Table 2. Operational definitions and interpretation limits of the descriptive quantities

Quantity	Calculation or definition	Claims the quantity does not support
Channel share (%)	Channel count divided by the three-channel recorded event total	Population use, unique-user probability or clinical benefit
Concentration index (Herfindahl–Hirschman)	Sum of squared channel fractions in the fixed three-category partition (range 1/3 to 1)	Quality, maturity, monopoly or appropriate clinical balance
Normalized concentration index	(index − 1/3)/(2/3), range 0 to 1; (index − 1/2)/(1/2) for two channels	Comparison across different category systems

Quantity	Calculation or definition	Claims the quantity does not support
Zero Sehaty count	Value 0 in the Sehaty field of a cluster row	Confirmed absence of Sehaty activity (true zeros and non-reporting cannot be distinguished)
Unallocated national service	SEHA Virtual Hospital and Others rows kept outside the regions	A sixth region or an assumed geographic allocation of patients

Notes. Source: Ministry of Health Statistical Yearbook 2024, sheet 4-71 [22]. / means division of aggregate totals; % means percentage.

Integrity checks and presentation

National sums of each field were compared with the official total row. Counts are shown with thousands separators, shares to two decimals and indices to four; calculations used unrounded values. Figure 1 shows the three channel shares for each administrative region.

Uncertainty and claims excluded

The counts are administrative totals, not a probability sample, so no confidence intervals or p-values were computed. Reporting completeness, event definitions, repeat users and the attribution of national services are uncertainties that the source does not quantify.

Results

National reconciliation and unallocated activity

The component rows reconciled exactly with the official national totals: 2,831,804 completed primary-care appointments, 4,537,035 completed hospital appointments and 1,945,465 Sehaty consultations, totaling 9,314,304 events. The SEHA Virtual Hospital (27,891 hospital appointments) and Others (14,468 Sehaty consultations) rows contributed 42,359 unallocated events, so the regionally allocated subtotal was 9,271,945 (Table 3).

The Sehaty field was zero for the Riyadh First, Riyadh Second and Jeddah Second clusters and for the SEHA Virtual Hospital row (Table 1). Riyadh's 29,268 Sehaty consultations were all reported by the Riyadh Third cluster, while the Riyadh First and Second clusters reported 870,935 appointment events and no Sehaty consultations. All three Eastern clusters reported nonzero counts in every field.

Table 3. Recorded digital-service events by channel across thirteen administrative regions and unallocated national services, 2024

Administrative region / unallocated service	Completed primary-care appointments	Completed hospital appointments	Sehaty instant consultations	Recorded three-channel total
Riyadh	414,796	700,821	29,268	1,144,885
Makkah	378,927	603,778	542,094	1,524,799
Madinah	39,995	284,510	97,488	421,993
Qassim	392,698	622,424	108,703	1,123,825
Eastern	746,769	955,464	293,210	1,995,443
Asir	203,728	257,202	246,455	707,385

Administrative region / unallocated service	Completed primary-care appointments	Completed hospital appointments	Sehaty instant consultations	Recorded three-channel total
Tabuk	70,793	125,371	33,967	230,131
Hail	49,845	102,252	40,083	192,180
Northern Borders	45,139	167,827	71,973	284,939
Jazan	277,819	461,004	87,141	825,964
Najran	152,079	113,645	181,130	446,854
Al Baha	35,898	57,923	76,569	170,390
Al Jouf	23,318	56,923	122,916	203,157
Unallocated national service	0	27,891	14,468	42,359
National total	2,831,804	4,537,035	1,945,465	9,314,304

Notes. Source: Ministry of Health Statistical Yearbook 2024, sheet 4-71 [22]; cluster rows aggregated as in Table 1. The first two fields are completed appointments; the third is instant consultations. SEHA Virtual Hospital and Others are unallocated national services. Events are not unique users.

Eastern's three-channel composition

Eastern recorded 746,769 completed primary-care appointments, 955,464 completed hospital appointments and 293,210 Sehaty consultations (total 1,995,443), the largest total of the thirteen regions, with shares of 37.42%, 47.88% and 14.69%. The Eastern, Al Ahsa and Hafr Al Batin clusters contributed 972,802, 757,122 and 265,519 events; hospital appointments made up 70.51% of Hafr Al Batin's total (187,208 events).

Eastern's concentration index was 0.3909 (normalized 0.0864), between the equal-share value of one third and complete concentration in one channel. No favorable or unfavorable threshold is implied.

Broad analytical-region comparisons

Central recorded 2,268,710 events (35.59% primary care, 58.33% hospital and 6.08% Sehaty), Western 1,946,792 (21.52%, 45.63% and 32.85%), Southern 2,150,593 (31.13%, 41.37% and 27.49%) and Northern 910,407 (20.77%, 49.69% and 29.54%) (Table 4).

The three-channel concentration indices were 0.4706 for Central, 0.3624 for Western, 0.3909 for Eastern, 0.3437 for Southern and 0.3773 for Northern (normalized 0.2059, 0.0436, 0.0864, 0.0155 and 0.0660). Central's low Sehaty share, and hence its highest index, arises largely from its two clusters with a zero Sehaty count.

Table 4. Composition and concentration of three recorded digital channels across five analytical regions, 2024

Analytical region / national service	Recorded three-channel total	Primary-care share (%)	Hospital share (%)	Sehaty share (%)	Concentration index	Normalized index
Central	2,268,710	35.59	58.33	6.08	0.4706	0.2059

Analytical region / national service	Recorded three-channel total	Primary-care share (%)	Hospital share (%)	Sehaty share (%)	Concentration index	Normalized index
Western	1,946,792	21.52	45.63	32.85	0.3624	0.0436
Eastern	1,995,443	37.42	47.88	14.69	0.3909	0.0864
Southern	2,150,593	31.13	41.37	27.49	0.3437	0.0155
Northern	910,407	20.77	49.69	29.54	0.3773	0.0660
Unallocated national service	42,359	0.00	65.84	34.16	0.5502	0.3253

Notes. Source: Ministry of Health Statistical Yearbook 2024, sheet 4-71 [22]. The five analytical regions are published reporting groups, not administrative divisions; grouping as in reference [24] (Table 1, footnote a; Table 2, footnote b). Concentration index: Herfindahl–Hirschman index, the sum of squared unrounded fractional shares (range 1/3 to 1 for three channels); normalized index = (index − 1/3)/(2/3). Central includes two clusters, and Western one cluster, with a zero Sehaty count (Table 1).

Sensitivity analyses

Restricted to the two completed-appointment channels, the primary-care share was 37.90% in Central, 32.05% in Western, 43.87% in Eastern, 42.94% in Southern and 29.48% in Northern, and the ordering of concentration changed: Northern had the highest normalized index (0.1685) and Eastern the lowest (0.0150), with Central at 0.0586 (Table 5). After excluding the clusters with a zero Sehaty count, Central's Sehaty share was 9.87% and its index 0.4384 (normalized 0.1576), still the highest of the five regions, but this rests on two of Central's four clusters; Western's Sehaty share rose to 37.33%. The broad-region comparison of concentration therefore depends on how the zero Sehaty counts are interpreted.

Table 5. Sensitivity of channel composition and concentration to the zero Sehaty counts, five analytical regions, 2024

Analytical region	Two channels: primary-care share (%)	Two channels: index	Two channels: normalized index	Excluding zero-Sehaty clusters: clusters retained	Sehaty share (%)	Index	Normalized index
Central	37.90	0.5293	0.0586	2 of 4	9.87	0.4384	0.1576
Western	32.05	0.5645	0.1289	4 of 5	37.33	0.3709	0.0563
Eastern	43.87	0.5075	0.0150	3 of 3	14.69	0.3909	0.0864
Southern	42.94	0.5100	0.0200	4 of 4	27.49	0.3437	0.0155
Northern	29.48	0.5842	0.1685	4 of 4	29.54	0.3773	0.0660

Notes. Source: Ministry of Health Statistical Yearbook 2024, sheet 4-71 [22]. Two appointment channels: primary-care and hospital completed appointments only; normalized index = (index − 1/2)/(1/2). Excluding zero-Sehaty clusters: Riyadh First and Riyadh Second (Central) and Jeddah Second (Western) removed; Eastern, Southern and Northern unchanged; normalized index = (index − 1/3)/(2/3).

Population denominators

Relative to the 2022 census population, Eastern recorded 389.34 events per 1,000 residents, against 288.17 for all allocated regions combined; Southern had the highest rate (493.17) and Western the lowest (191.62) (Table 6).

Table 6. Recorded three-channel events relative to the 2022 resident population, five analytical regions, 2024

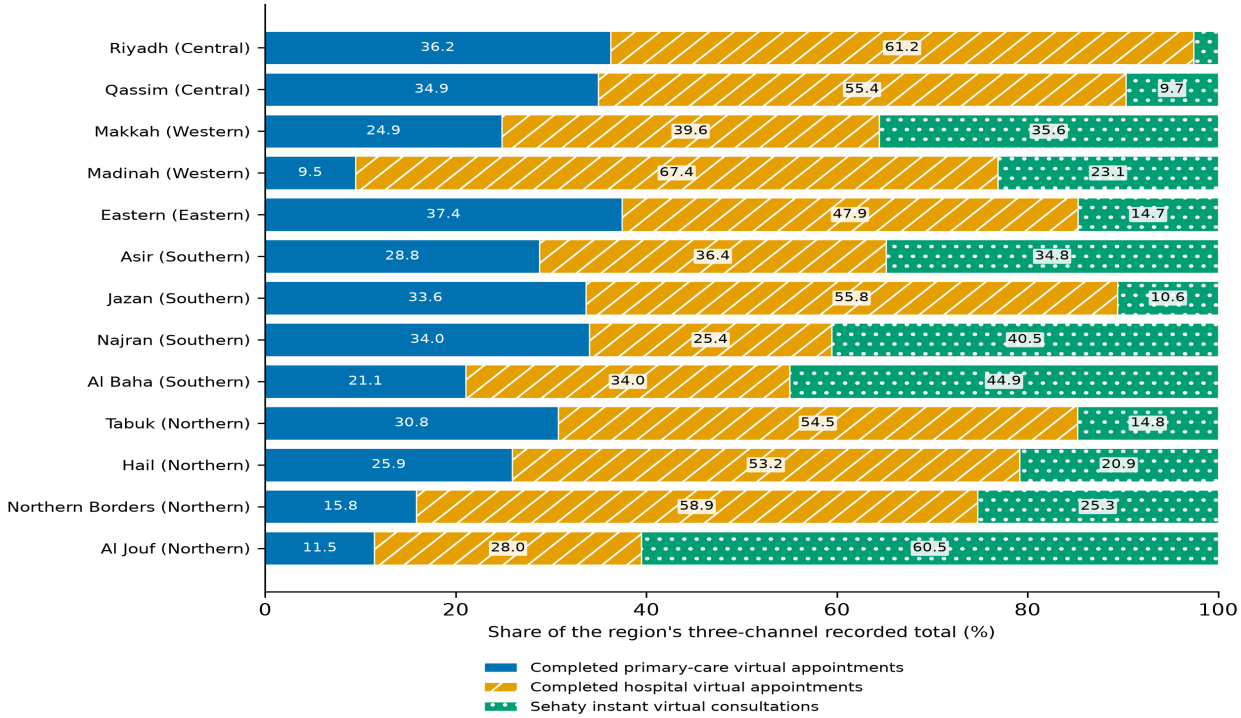
Analytical region	Population (2022 census)	Recorded events	Events per 1,000	Primary care per 1,000	Hospital per 1,000	Sehaty per 1,000
Central	9,927,927	2,268,710	228.52	81.34	133.29	13.90
Western	10,159,446	1,946,792	191.62	41.23	87.43	62.95
Eastern	5,125,254	1,995,443	389.34	145.70	186.42	57.21
Southern	4,360,756	2,150,593	493.17	153.53	204.04	135.59
Northern	2,601,841	910,407	349.91	72.68	173.87	103.36
All regions (allocated)	32,175,224	9,271,945	288.17	88.01	140.14	60.02

Notes. Counts: Ministry of Health Statistical Yearbook 2024, sheet 4-71 [22]; population: 2022 census [25]. Rates use the 2024 counts and the 2022 population and are descriptive only; events are not persons. The unallocated national-service rows (42,359 events) are excluded.

Administrative detail

Across the thirteen administrative regions, the primary-care share ranged from 9.48% in Madinah to 37.42% in Eastern, and the Sehaty share from 2.56% in Riyadh to 60.50% in Al Jouf (Figure 1; Table 3). This ordering is not an access or performance ranking.

Figure 1. Composition of recorded digital-service events by channel and administrative region, Saudi Arabia, 2024.



Notes. Source: Ministry of Health Statistical Yearbook 2024, sheet 4-71 [22]. Bars show each channel's share of the region's three-channel total; the analytical region is given in parentheses. Colors follow the Okabe–Ito palette, with diagonal hatching for hospital appointments and dots for Sehaty consultations; shares below 6% are not labeled. Riyadh's Sehaty share (2.6%) comes from one of its three clusters (Table 1). Events are not unique users.

Discussion

Meaning of the Eastern profile

Eastern's recorded virtual activity was led by completed hospital appointments, followed by primary-care appointments and Sehaty consultations. These are event shares within one sheet: the same total could reflect many events by few users or few events by many, and the sheet cannot distinguish them.

The closest Saudi studies measure different objects. The survey of 10,000 virtual-clinic users counted patients and their self-reported changes in emergency and primary care visits [3], whereas sheet 4-71 counts recorded events by cluster and cannot show substitution. The Hajj evaluation reported 516,585 virtual consultations through Sehaty for the 2024 season [4]; the same number is the 2024 three-channel total of the Makkah Health Cluster in sheet 4-71 (115,001 + 110,295 + 291,289). The two figures may therefore rest on the same administrative records, but the sheet alone cannot confirm this, and any comparison requires confirming the counted object, period and scope.

The denominator as a reporting decision

Summing the three fields is defensible for describing composition because they share a source table and an official total, but it does not make their clinical content equivalent: a completed hospital appointment and an instant consultation may differ in time, purpose and place in a care pathway. Counting each as one event is an administrative convention.

The completion label applies to the first two fields only, so the denominator is described as recorded events across three channels, not completed consultations.

National virtual services and regional attribution

Sehaty and the SEHA Virtual Hospital are national platforms [2], and the sheet does not state whether their activity is credited to clusters by patient residence, by the cluster providing the service or not at all. The zero Sehaty counts of two Riyadh clusters and of Jeddah Second may therefore reflect attribution or reporting practice rather than an absence of activity; the source does not allow true zeros to be distinguished from non-reporting. Until the attribution rule is known, Sehaty shares and the concentration indices that depend on them should not be used to rank regions. For the same reason, the national rows were kept unallocated rather than assigned by institution location or population.

The sheet is also not the national digital volume. Its 1.95 million Sehaty consultations are a small fraction of the more than 51 million instant and virtual consultation appointments reported for Sehaty in 2024 [1]. The difference may reflect scope (MOH facilities and health clusters), definitions or attribution, which the source does not explain.

Limitations

The analysis covers one year and has no counterfactual, so it cannot show whether digital encounters replaced, supplemented or duplicated in-person care, and pandemic-period studies [14–16] are not a baseline for it. The sheet has no user identifiers, population denominators, specialty, time or outcome fields and no variable describing artificial-intelligence tools, so it supports no statement about access, quality, clinical effectiveness or artificial intelligence [26]. Reporting completeness, the meaning of the zero Sehaty counts and the attribution of national services are unknown. The concentration index depends on the three-category partition and should not be used as a performance score.

Strengths

Every row was reconciled with the official total; the thirteen administrative regions, five analytical regions, cluster rows and unallocated national services are all reported; the zero counts are examined in sensitivity analyses; and the extracted data and code are supplied. Exact reconciliation verifies consistency with the official sum, not the completeness of the underlying records.

Relation to prior work and further research

Compared with the regional yearbook analysis [19], which has no virtual-care indicator, this study adds a reproducible description of the virtual-activity sheet, its cluster-level zero counts and the dependence of regional concentration comparisons on them. Its value is descriptive and depends on clarification of the zero counts and of how Sehaty consultations are attributed to clusters.

Further studies would need the Ministry's field definitions and attribution rules, editions with the same fields for other years, population denominators for the reporting year and, for questions of access or substitution, person-level data with an appropriate design.

Conclusions

In the 2024 MOH sheet 4-71, Eastern Saudi Arabia recorded 746,769 completed primary-care virtual appointments, 955,464 completed hospital virtual appointments and 293,210 Sehaty instant consultations (shares 37.42%, 47.88% and 14.69%; concentration index 0.3909). The sheet covers a small part of national Sehaty activity, and comparisons of Sehaty shares and concentration between regions depend on zero Sehaty counts in three clusters whose meaning is not documented. The results describe recorded event composition only, not access, substitution, quality or clinical effectiveness.

Declarations

Ethics: This study analysed published aggregate administrative records from the publicly available Ministry of Health Statistical Yearbook 2024 [22]; it involved no newly recruited participants, no newly collected clinical observations and no access to identifiable individual records. This study was exempt from ethics review because the data are public (secondary analysis of public, aggregate data).

Study status and related submissions: The analysis plan was written after inspection of the source table, and the study is exploratory. Related analyses of other tables of the same Ministry of Health yearbook, using the same five-region framework, have been submitted separately to this journal and are listed in the cover letter.

Data Availability Statement: No new data were generated. All data analysed are aggregate counts published in sheet 4-71 of the Ministry of Health Statistical Yearbook 2024 [22]. Supplementary File S1 contains the extracted source rows, the cluster-to-region mapping, the analysis and figure code, the results file and the SHA-256 digest of the input workbook.

Funding: This research received no funding.

Conflicts of Interest: The authors declare no competing interests.

Author contributions: [Pending: CRediT author contributions and confirmation that all authors approved the final version — to be supplied by the authors]

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Abbreviations

Abbreviations. MOH, Ministry of Health; STROBE, Strengthening the Reporting of Observational Studies in Epidemiology; RECORD, REporting of studies Conducted using Observational Routinely-collected health Data; SHA-256, Secure Hash Algorithm with a 256-bit digest. SEHA and Sehaty are source-listed service names.

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