STAFF/BED AND STAFF/PATIENT RATIOS IN SOUTH AFRICAN PUBLIC SECTOR MENTAL HEALTH SERVICES

Crick Lund, Alan J Flisher

Objectives. To document staff/bed and staff/patient ratios in public sector mental health services in South Africa.

Design. Cross-sectional survey.

Method. A questionnaire was distributed to provincial mental health co-ordinators requesting numbers of full-time equivalent (FTE) staff who provide mental health care at all service levels; numbers of psychiatric beds; and numbers of patients who attend outpatient departments, clinics and community health centres. The information was supplemented by consultations with mental health co-ordinators in each of the nine provinces.

Results. The staff/bed ratio for the country as a whole was 0.3 staff per bed. For the provinces, the staff/bed ratios were as follows: Eastern Cape 0.30, Free State 0.50, Gauteng 0.22, KwaZulu-Natal 0.34, Mpumalanga 0.89, North-West 0.27, Northern Cape 0.26, Northern Province 0.26, and Western Cape 0.59. For the country as a whole, the staff/bed ratios for each category of staff were as follows: total nursing staff 0.25, occupational therapists 0.01, occupational therapy assistants 0.01, social workers 0.01, community health workers 0.00, psychologists 0.00, intern psychologists 0.00, psychiatrists 0.00, psychiatric registrars 0.01, and medical officers 0.00. The ratio of ambulatory psychiatric service staff to daily patient visits (DPV) for the country as a whole was 0.6.

Conclusions. Staff/bed ratios in South African mental health care are low relative to developed countries. Staff/DPV ratios highlight both the need to develop ambulatory care personnel for mental health care, and problems associated with monitoring the delivery and utilisation of mental health services within an integrated health system at primary level.

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Deinstitutionalisation has changed the numbers of available psychiatric staff[1] and the role they play in hospital and community settings.[2,3] Current South African mental health policies emphasise a community-based rehabilitative model of mental health care within a comprehensive integrated health service.[4] This agenda and the ongoing process of deinstitutionalisation provide a challenge to mental health personnel and those who plan and manage human resources to adapt the profiles and roles of staff, in a context of diminished resources and budget cuts.[5]

Within the shifting ground of human resources in psychiatric care, it has become important to provide measures that indicate numbers of available staff. Staff/population ratios[6] provide a global picture of mental health personnel resources in South Africa. However, it is necessary to develop indicators that provide a more refined picture of staffing.

Staff/bed and staff/patient ratios have provided a useful indicator in this regard in international settings,[7-9] and are an important tool for assessing the adequacy of care. For example, in the absence of minimally acceptable staff/patient ratios, psychiatric institutions and state authorities in the USA have received legal challenges about whether personnel shortages compromise the constitutional rights of patients in inpatient treatment.[10] The usefulness of staff/bed and staff/patient ratios lies at least partially in their flexibility. Staff/patient ratios can be used as a global measure (for example, the ratio of all psychiatric staff to all patients) or as a relatively specific measure (for example, the ratio of psychiatrists to patients with severe psychiatric conditions in acute inpatient facilities).

In South Africa, the few data regarding staff/bed and staff/patient ratios have limited utility as they are relatively dated and include only a subset of mental health personnel,[11,12] or are applicable to the Western Cape only.[11] Indeed, the presence of poor information systems and fragmented mental health services hinder the routine collection of data of this nature. This study reports staff/bed and staff/patient ratios in public sector mental health services in South Africa.

METHODS

We distributed a questionnaire to provincial mental health co-ordinators requesting information on numbers of psychiatric staff at all levels of public sector health care in South Africa. The information from the questionnaire was supplemented by consultations with mental health co-ordinators in each of the nine provinces. Staff were reported across all levels of service delivery, including primary health care (PHC) clinics, community health centres (CHCs), outpatient departments (OPDs), district hospitals, regional hospitals, wards of general tertiary institutions or dedicated psychiatric institutions.

This study was confined to clinical staff. Staff/bed and staff/patient ratios were calculated for each of the following staff categories: enrolled nurses, psychiatric nurses, general nurses, occupational therapists (OTs), occupational therapy assistants (OTAs), social workers, community health workers, psychologists, intern psychologists, psychiatrists, psychiatric registrars, and medical officers.

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Because of the integrated system of delivery, it was necessary in certain instances to describe staff in terms of full-time equivalents (FTEs). The number of FTE staff can be derived from the percentage of time each staff member spends in mental health care. Staff/bed ratios were calculated according to numbers of available places or beds on the ward, as opposed to the number of occupied beds. All staff for this ratio were reported as working exclusively in inpatient settings. Staff/bed ratios were calculated using the following formula:

$$\text{staff/bed ratio} = \frac{\text{number of inpatient staff}}{\text{number of available beds}}.$$

In ambulatory care settings, because of the difficulty of ascertaining numbers of actual patients, it was necessary to calculate a ratio of staff to patient visits or attendances, rather than number of patients. This was done using the concept of a daily patient visit (DPV), namely the average number of patients who use the ambulatory service in a day. DPV was calculated by dividing the number of monthly visits (from service records) by 22. All staff in staff/DPV ratios were reported as working exclusively in ambulatory care settings. The following formula indicates how the staff/patient ratio for ambulatory care was calculated:

$$\text{staff/patient ratio (ambulatory care)} = \frac{\text{number of ambulatory care staff}}{\text{DPV (daily patient visits)}}.$$

We estimated that academic staff spend approximately one-third of their time on academic commitments such as teaching, research and university administrative duties. It is therefore necessary to apply the following formula when applying these figures to academic staff:

$$\text{academic staff} = \frac{\text{non-academic staff} \times 4}{3}.$$

RESULTS

The total clinical staff/bed ratio is 0.3 and the total nurse/bed ratio is 0.25 (Table I). The vast majority of psychologists and psychiatrists in inpatient facilities are to be found in Gauteng, the Western Cape and KwaZulu-Natal. However, Gauteng reports the lowest total clinical staff/bed ratio.

The total clinical staff/DPV ratio is 0.6 and the total nurse/DPV ratio is 0.4 (Table II). As a national mean, the staff/DPV ratio of 0.6 implies that there is at least one staff

Table I. Staff/bed ratios in South African mental health services

		Enrolled nurses		Psychiatric nurses		General nurses		Occupational therapists		Occupational therapy assistants		Social workers		Community health workers	
Province	Total beds*	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio
Eastern Cape	2 330	295	0.13	267	0.11	47	0.02	3	0.00	7	0.00	12	0.01	25.00	0.01
Free State	580	48	0.08	168	0.29	21	0.04	13	0.02	8	0.01	10	0.02	2.00	0.00
Gauteng	7 224	564	0.08	603	0.08	83	0.01	39	0.01	84	0.01	35	0.00	0.00	0.00
KwaZulu-Natal	3 083	479	0.16	382	0.12	50	0.02	11	0.00	5	0.00	17	0.01	0.00	0.00
Mpumalanga	152	31	0.20	39	0.26	36	0.23	3	0.02	0	0.00	5	0.03	0.00	0.00
North West	476	22	0.05	54	0.11	12	0.03	2	0.00	6	0.01	5	0.01	1.00	0.00
Northern Cape	107	3	0.03	16	0.15	0	0.00	2	0.02	3	0.03	1	0.01	0.00	0.00
Northern Province	2 807	170	0.06	262	0.09	219	0.08	9	0.00	52	0.02	18	0.01	0.00	0.00
Western Cape	1 400	273	0.19	244	0.17	156	0.11	27	0.02	9	0.01	20	0.01	0.00	0.00
Total	18 159	1 885	0.10	2 035	0.11	624	0.03	109	0.01	173	0.01	123	0.01	28	0.00

	Psychologists		Intern psychologists		Psychiatrists		Psychiatric registrars		Medical officers		Total (nurses)		Total (all staff)	
Province	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio
Eastern Cape	7	0.00	7	0.00	8	0.00	1	0.00	15	0.01	609	0.26	704	0.30
Free State	1	0.00	2	0.00	2	0.00	0	0.00	4	0.01	237	0.41	288	0.5
Gauteng	29	0.00	30	0.00	41	0.01	40	0.01	21	0.00	1 250	0.17	1 585	0.22
KwaZulu-Natal	21	0.01	16	0.01	14	0.00	17	0.01	13	0.00	911	0.30	1 051	0.34
Mpumalanga	1	0.00	0	0.00	1	0.01	0	0.00	14	0.09	105	0.69	134	0.89
North West	0	0.00	1	0.00	0	0.00	0	0.00	9	0.02	88	0.19	131	0.27
Northern Cape	0	0.00	0	0.00	0	0.00	0	0.00	2	0.02	19	0.18	28	0.26
Northern Province	1	0.00	0	0.00	2	0.00	0	0.00	5	0.00	651	0.23	741	0.26
Western Cape	15	0.01	16	0.01	19	0.01	37	0.03	5	0.00	673	0.48	832	0.59
Total	74	0.00	71	0.00	89	0.00	94	0.01	89	0.00	4 544	0.25	5 494	0.3

* At 100% bed occupancy in integrated acute wards in general hospitals.

Table II. Staff/DPV ratios in ambulatory settings in South African mental health services

Province	Visits per month	DPV	Enrolled nurses		Psychiatric nurses		General nurses		Occupational therapists		Occupational therapy assistants		Social workers		Community health workers	
			N	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio
Eastern Cape	26 249	1 193	13	0.01	83	0.07	6	0.01	2	0.00	0	0.00	4	0.00	32	0.03
Free State	3 959	180	0	0.00	22	0.12	13	0.07	0	0.00	0	0.00	0	0.00	0	0.00
Gauteng	29 474	1 340	14	0.01	129	0.10	7	0.00	10	0.01	10	0.01	13	0.01	8	0.01
KwaZulu-Natal	7 769	353	37	0.10	49	0.14	35	0.10	2	0.01	0	0.00	1	0.00	0	0.00
Mpumalanga	6 306	287	70	0.24	33	0.11	29	0.10	3	0.01	0	0.00	8	0.03	8	0.03
North West	6 869	312	259	0.83	246	0.79	245	0.78	12	0.04	3	0.01	92	0.29	91	0.29
Northern Cape	3 386	154	0	0.00	12	0.08	2	0.01	0	0.00	0	0.00	0	0.00	0	0.00
Northern Province	7 091	322	120	0.37	136	0.42	264	0.82	2	0.01	3	0.01	4	0.01	5	0.02
Western Cape	18 840	856	23	0.03	74	0.09	17	0.02	5	0.01	4	0.00	10	0.01	0	0.00
Total	109 943	4 997	536	0.11	785	0.16	617	0.12	37	0.01	20	0.00	131	0.03	144	0.03

Province	Psychologists		Intern psychologists		Psychiatrists		Psychiatric registrars		Medical officers		Total (nurses)		Total (all staff)	
	N	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio	*N*	Ratio
Eastern Cape	4	0.00	3	0.00	2	0.00	1	0.00	3	0.00	102	0.1	170	0.1
Free State	0	0.00	0	0.00	0	0.00	0	0.00	1	0.01	35	0.2	42	0.2
Gauteng	23	0.02	18	0.01	20	0.01	31	0.02	11	0.01	149	0.1	298	0.2
KwaZulu-Natal	10	0.03	7	0.02	7	0.02	5	0.01	5	0.01	121	0.3	174	0.5
Mpumalanga	1	0.00	0	0.00	4	0.01	1	0.00	7	0.03	132	0.5	167	0.6
North West	9	0.03	8	0.03	11	0.04	1	0.00	113	0.36	750	2.4	1 261	4.0
Northern Cape	0	0.00	0	0.00	1	0.1	0	0.00	0	0.00	14	0.1	14	0.1
Northern Province	0	0.00	0	0.00	1	0.00	0	0.00	14	0.04	520	1.6	552	1.7
Western Cape	10	0.01	5	0.01	12	0.01	12	0.01	11	0.01	114	0.1	195	0.2
Total	55	0.01	40	0.01	57	0.01	50	0.01	165	0.3	1 937	0.4	2 873	0.6

DPV = daily patient visits.

member for every two patients who attend the service daily. There are few OTs and OTAs rendering a mental health service in ambulatory care.

Discussion

Staff/bed ratios in South African mental health services are considerably lower than those in developed countries. For example, the national mean nurse/bed ratio is a quarter of that in psychiatric hospitals in the UK,[13] which between 1983 and 1986 reported a 1:1 nurse/bed ratio (excluding managers and tutors) for both mental handicap and psychiatric hospitals. In 368 facilities in eight National Health Service districts in the UK in 1996, staff/bed ratios were reported as 1.27 in acute wards and 0.95 in long-stay wards.[14]

There is considerable inequity between provinces in terms of staff/bed ratios. In spite of qualitative reports of relatively well-developed services in Gauteng,[15] the total staff/bed ratio in that province is the lowest in the country. This indicates that inpatient staff resources are stretched in spite (or because) of relatively large numbers of beds. Lifecare facilities are included in staff/bed ratios for Gauteng, and, given evidence of low staff/bed ratios in these facilities,[16] it is likely that these facilities drag down actual staff/bed ratios in provincial facilities.

The Western Cape and the Free State are relatively well resourced. In the Western Cape, the nurse/bed ratio of 0.48 reported in the present study was consistent with the ratio of 0.45 reported previously.[11] High staff/bed ratios in the Free State seem to be at least partially due to the reduction of psychiatric bed numbers during the last 10 years.[17] In developing countries, deinstitutionalisation generally results in more favourable staff/bed ratios.[1] In the case of the Free State, the challenge is to maintain present staff/bed levels, and simultaneously to concentrate on the development of staff resources in community settings. For the rest of the country, there is an urgent need to improve staffing levels for inpatient care.

The reported staff/bed ratios are limited by the following factors. First, staff/bed ratios for Mpumalanga appear inflated relative to qualitative accounts during the provincial workshops that staffing in inpatient care is grossly inadequate. This inaccuracy seems to be due to overreporting of numbers

of nurses with a psychiatric training (who do not necessarily render a psychiatric service), and corresponding low numbers of psychiatric beds. Second, because of limitations of the questionnaire it was impossible to obtain data about staff in separate 'acute' and 'medium-long stay' categories. We therefore provided the cruder overall figure of staff to total beds. Third, this study focused exclusively on clinical staff. With a view to calculating budgets, several provinces generate staff/bed ratios for total staff, including administrative, cleaning and maintenance staff. Because the focus of this study is on the need for clinical staff, these findings should be adjusted to include provincial estimates of the need for support staff on staff establishments when comparisons are conducted.

Staff/DPV ratios reveal the low numbers of patients who are reported to use ambulatory care facilities, relative to staff. In the Northern Province and North West, total nurses and total staff appear to outnumber patients! There are several possible explanations for these patterns: (*i*) underreporting of patient attendances at clinics and hospital outpatient departments, for example by using numbers of patients on the register as opposed to the actual patients who received services; (*ii*) overreporting of staff numbers in ambulatory care, for example by including all integrated staff, rather than those FTE staff who render a psychiatric service; (*iii*) diminished staffing resources resulting in staff taking on inappropriate responsibilities as managers and administrators; and (*iv*) problems of patient access to services, which lead both to patient underutilisation of services, and to considerable staff time being spent on travel.

For these reasons the figures in Table II should be interpreted with caution. These methodological difficulties provide a useful indication of problems with information gathering in mental health services, particularly in the context of the integration of mental health into general health services at primary level. Differing levels of integration in provinces, and differing interpretations of the meaning of integration, further complicate this situation (L Muller, K Ensink, C Zissis, N Leon, B Robertson — Developing District Level Integrated Mental Health Services in the Western Cape. Unpublished report, Department of Psychiatry, University of Cape Town, 1999).

The findings of the present study indicate that staff/DPV ratios are complex and informed by a range of factors. These factors are likely to change with shifts in policy and treatment practices in mental health care. Likely changes in future include increased detection of patients with severe psychiatric conditions at ambulatory care level; increased management of patients by psychiatric community services; the development of information systems, with changes in the reporting of the number of patients who use the services, and the number of staff who render a FTE mental health service within an integrated system; and shifting staff roles, from containment to proactive roles of rehabilitation and mental health promotion.

Because the staff/DPV ratio is contingent on a range of different factors, it may mask important changes. Some of the changes listed may lead to increases in reported patient visits (such as improved information systems and improved detection and management at community level), while some may lead to increased reporting of staff numbers in ambulatory settings (such as improved reporting of FTE mental health staff and training of general health workers in mental health). These factors need to be monitored closely, alongside staff/DPV ratios, in order to develop more sophisticated ways of monitoring ambulatory services in the community.

In conclusion, existing staff/bed ratios are well below levels of care reported in international literature. The reporting of staff/DPV ratios has highlighted the problem of information gathering in mental health services, particularly in the context of integration. For this reason it is important that other indicators of ambulatory services (for both staff and patients) are developed, in order to monitor changes. However, these methodological limitations should not obscure the *prima facie* observation that personnel in ambulatory care are underresourced. Relative to the emphasis of current mental health policies on psychosocial rehabilitation,[4] there is an urgent need for the development of rehabilitation skills, not only as the domain of rehabilitation staff, but as an integral part of mental health care. In the majority of provinces (excluding those with extremely low levels of hospital care) the development of ambulatory care staff, based in the community, is an urgent priority.

This paper reports on the initial stages of a project to develop norms and standards for the care of South Africans with severe psychiatric conditions. The project was initiated by the Directorate: Mental Health and Substance Abuse of the Department of Health and awarded as a tender to the Department of Psychiatry at the University of Cape Town, in collaboration with the Centre for Health Policy at the University of the Witwatersrand. The views expressed in this paper are those of the authors, and not those of the Department of Health.

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STAFF/POPULATION RATIOS IN SOUTH AFRICAN PUBLIC SECTOR MENTAL HEALTH SERVICES

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Objective. To document existing staff/population ratios per 100 000 population in South African public sector mental health services.

Design. Cross-sectional survey.

Method. A questionnaire was distributed to provincial mental health co-ordinators requesting them to provide the number of full-time equivalent (FTE) staff responsible for mental health care at all service levels. These data were supplemented by consultations with mental health co-ordinators in each of the nine provinces. Population data were obtained from preliminary findings of the 1996 census.

Results. The overall staff/population ratio per 100 000 population was 19.5, with an interprovincial range of 5.7 - 31.5. The staff/population ratios per 100 000 population for selected personnel categories (with the interprovincial ranges in brackets) were as follows: total nursing staff 15.6 (4.4 - 28.4), occupational therapists 0.4 (0.1 - 0.8), occupational therapy assistants 0.5 (0.0 - 1.3), social workers 0.5 (0.1 - 0.9), community health workers 0.3 (0.0 - 1.0), psychologists 0.3 (0.0 - 0.7), intern psychologists 0.3 (0.0 - 0.7), psychiatrists 0.4 (0.1 - 0.8), psychiatric registrars 0.4 (0.0 - 1.2), medical officers 0.4 (0.2 - 1.3), pharmacists 0.2 (0.1 - 1.1), and pharmacy assistants 0.2 (0.0 - 0.6).

Conclusions. Relative to international settings, there are low levels of mental health staff provision in South Africa, and there is a large amount of variability between provinces. There are considerable challenges in monitoring mental health staff resources within an integrated health service.

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Shortages of mental health personnel,[1] and their inequitable distribution,[2,3] have been a cause of concern in recent South African mental health services literature. In the context of provincial health budget cuts and related voluntary severance packages, there has been concern that mental health personnel have become severely depleted. This is of particular salience as current national mental health policies prioritise the

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