Assessment of surgical services and needs in rural district and subdistrict hospitals in Pakistan

Sameen Siddiqi[1], Imran Naeem[1], Shaheen Mehboob[1], Amna Urooba[2], Mashal Murad Shah[2], Iqbal Azam[1], Narjis Rizvi[1], Lumaan Sheikh[3], Asad Latif[4] and Sadaf Khan[2]

[1]Department of Community Health Sciences, Aga Khan University, National Stadium Road, Karachi, Sindh, Pakistan (Correspondence to Sadaf Khan: sadaf.khan@aku.edu). [2]Centre for Global Surgical Care, Aga Khan University, National Stadium Road, Karachi, Sindh, Pakistan. [3]Department of Obstetrics and Gynecology, Aga Khan University, National Stadium Road, Karachi, Sindh, Pakistan. [4]Department of Anesthesiology, Aga Khan University, National Stadium Road, Karachi, Sindh, Pakistan.

Abstract

Background: Provision of essential surgery is important in achieving Universal Health Coverage. However, data on the capacity of first-level hospitals to provide surgical care are currently unavailable in Sindh Province, Pakistan.

Aim: To assess surgical care services and needs in public sector hospitals in Sindh Province, Pakistan.

Methods: Between May and August 2021, we examined surgical care in 15 public sector district and subdistrict headquarters hospitals in Sindh Province, using the consolidated hospital assessment tool adapted from the WHO tool for assessing emergency and essential surgical care. We analysed the data using STATA version 15 and calculated the frequency of essential surgical procedures per 100 000 population for each health facility.

Results: Overall surgical beds density was 0.22 per 100 000 population, with 0.7 certified specialists and 1.4 combined certified and non-specialist physicians offering surgical and anaesthesia care per 100 000 population. Clinical support services were deficient, and only 76% of drugs for anaesthetic and surgical care were available. Outpatient procedures were performed in all facilities, while obstetrics/gynaecology, surgical and trauma-related procedures were performed in 87%, 60% and 53% of facilities, respectively. Three of the 15 hospitals performed the 3 Bellwether procedures.

Conclusion: This study identified multiple deficiencies in infrastructure, workforce, governance, management, and support services for essential surgical services in Sindh Province of Pakistan. To achieve Universal Health Coverage in Pakistan, there is a need for more research on surgical services in Sindh Province to identify other gaps and implement strategies to bridge the gaps.

Keywords: global surgery, anaesthesia, gynaecology, rural healthcare, trauma

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Introduction

Defining the role of rural hospitals in providing surgical care is essential to improving quality and timely surgical access in low- and middle-income countries (LMICs) (*1*). In 2015, the Lancet Commission on Global Surgery (LCoGS) reported that 5 billion people did not have access to safe, affordable and timely surgical care and anaesthesia. Access was poorest in low- and lower-middle-income countries, where 9 out of 10 people could not access basic surgical care, and 143 million additional surgical procedures were needed annually to save lives and prevent disability (*2*). In the same year, the 68th World Health Assembly endorsed a resolution emphasizing strengthening emergency and essential surgical care and anaesthesia as a component of Universal Health Coverage (UHC) (*3*). Almost simultaneously, Disease Control Priorities 3 (DCP3) reported that the provision of essential surgical procedures would avert ≈1.5 million deaths annually in LMICs; that essential surgical procedures ranked among the most cost-effective of all health interventions; and that 28 of the 44 essential procedures would typically be delivered by the surgical platform of the first-level (or district) hospital (*4*). These landmark reports and resolutions were an inflection point in appreciating the importance of global surgery and its key role in the implementation of UHC. They elevated the discourse on essential surgery and showed the way forward for planning and implementing the surgery globally agenda (*5*). Four critical steps in implementing reforms to improve access to surgery globally are: estimating the burden of surgical diseases; assessing gaps in the delivery of essential surgical care; developing a national strategy and plan that address the service gaps; and implementing the national scale-up plan.

Efforts have been made to develop Pakistan's national surgical plan (*6*); however, at best, it is still a work in progress. In Pakistan, it is estimated that acute surgical illnesses result in 187 deaths per 100 000 population

compared with 164 per 100 000 caused by infectious diseases (7). An earlier review that explored the barriers to accessing surgical care in Pakistan identified challenges at many levels, including policy, public awareness, infrastructure, workforce and governance (*8*). A 1983 survey of 12 district hospitals found that the ratio of surgeons was 0.36 per 100 000 population, while the rate of surgical operations was 124 per 100 000 (*9*). More recently, a study in 10 rural hospitals of Pakistan reported a serious shortage in the surgical specialist workforce. Two-hour access was possible for the catchment population of 70% of the hospitals, and on average only 30% of the essential surgical procedures were available per hospital (*10*). Previous studies have reported major gaps in surgical care at the level of rural hospitals, and deeper analysis is required to understand the causes of these problems.

We undertook a follow-up surgical needs assessment study in 6 districts of Sindh Province to better understand gaps in the provision of essential surgical care .

Methods

Study design

This was a mix-method study conducted during May to August 2021 in public sector hospitals of Sindh Province, Pakistan. This paper only presents the quantitative data. A structured questionnaire was used to collect information about the selected district headquarters hospitals (DHQHs) and subdistrict or *Taluka* headquarters hospitals (THQHs) in 6 predominantly rural districts to determine their capacity and readiness to provide essential surgical care, among the 29 districts in Sindh. DHQHs and THQHs are first-level public sector hospitals that should offer selected specialties; primarily internal medicine, obstetrics and gynaecology, paediatrics and general surgery (*11*). These hospitals have limited laboratory and imaging services and are expected to refer complicated cases to higher level tertiary or specialized hospitals.

Sample size and sampling

The districts were categorized by socioeconomic status based on the multidimensional poverty index, education index and vaccination status among mothers and children. Six of the 29 districts in Sindh Province were selected. Purposive sampling was used for facility selection in a ratio of 1:2, which included 5 DHQHs and 10 THQHs. As we could not reach all 29 districts because this was a systems level and not an epidemiological study, we pooled 29 districts in different groups (low, middle and high income) and chose 6 hospitals that carried out surgical care according to population size. The districts were: Badin (3 hospitals), Jacobabad (1 hospital), Naushero Feroze (1 hospital), Shikarpur (2 hospitals), Sukkur (2 hospitals) and Tharparkar (4 hospitals).

Data collection

The quantitative component of the study used a consolidated hospital assessment tool adapted from the WHO Tool for Situational Analysis to Assess Emergency and Essential Surgical Care (*12*). This tool has multiple sections with subsections on general questions, information management, infrastructure, workforce, service delivery and financing. The tool was further adapted to ensure that information on the availability, access, range and quality of general surgical, obstetrics and gynaecology, and anaesthesia-related services could be captured and analysed. The questionnaire was filled by data collectors who had training in medical and health education. Our research associates visited operating rooms, pharmacies, wards and other relevant hospital areas to ensure that the data collected were accurate.

Ethics considerations

The study team for the quantitative component sought information from the hospital leadership, managers and clinicians who were available on the day of data collection. This study received ethics approval from the Aga Khan University's Ethics Review Committee (Ref. No. 2018-0621-793). Data collection and processing were carried out in accordance with the Declaration of Helsinki.

Informed written consent was obtained from all individuals who provided data on hospital capacity. Participants were informed that their participation was voluntary and they had the right to withdraw consent at any time. Each participant was informed about the purpose of the study and its benefits and potential harms before starting the interview.

Data management and analysis

The quantitative data were analysed using STATA version 15. The frequency of essential surgical procedures per 100 000 population for each health facility was calculated. Cross-tabulation of availability of different types of surgical interventions and surgical care drugs by type of health facility was generated. Similarly, the availability and size of certified and nonspecialist surgical workforce by each hospital were calculated and the average size of the certified and nonspecialist surgical workforce was reported. Mean (SD) and median (interquartile range) values for infrastructure were calculated according to type of health facility.

Results

Infrastructure for surgical care

Almost 17% of the total hospital beds in the 15 hospitals were dedicated to surgical care, although in Naushero Feroze, the proportion of surgical beds was 39% (Table 1). Other facilities had beds that were not exclusively for surgical care, but could be used by surgical patients if needed. The population in the 6 districts ranged from 1.0 to 1.8 million, while the density of beds for surgical and intensive/high-dependency care in first-level hospitals varied between 0.06 and 0.37 per 10 000 population. The overall density was 0.22 surgical beds per 10 000. Every hospital had at least one operating room, although in some there were as many as 5. Overall, there were 29

Table 1 Availability of surgical beds and bed density in the 6 study districts

District	Population	Hospitals (DHQ = 5, THQ = 10)	Hospital beds			
			In-patient beds	Surgical/ICU/HDU beds	Surgical/ICU/HDU beds per 10 000 population	Surgical as % of total beds
Badin	1 804 516	DHQH (1)	276	31	0.20	12
		THQH (2)	30	5		
Jacobabad	1 006 297	DHQH (1)	60	10		17
Naushero Feroze	1 612 373	DHQH (1)	103	30	0.37	39
		THQH (2)	50	30		
Shikarpur	1 231 481	DHQH (1)	218	26	0.21	11
		THQH (1)	25	0		
Sukkur	1 487 903	THQH (2)	92	8	0.06	9
Tharparkar	1 649 661	DHQH (1)	174	30	0.33	19
		THQH (3)	110	24		
Total	**8 792 231**		**1138**	**194**	**0.22**	**17**

DHQH = district headquarters hospital; THQH = taluka headquarters hospital; ICU = intensive care unit; HDU = high-dependency unit

operating rooms in the 15 hospitals and 23 recovery rooms. One of the subdistrict hospitals lacked a proper recovery room. Only 2 of the 15 hospitals had ventilators, which meant that only 2 had full intensive care units while the remaining 13 were operating as high-dependency units.

Availability of surgical workforce

We assessed the availability of certified and nonspecialist surgical workforces in the 15 hospitals. There were no certified gynaecologists in 5 (33.3%) facilities, surgeons in 2 (13.3%) and anaesthetists in 5. A full team of certified surgeons, gynaecologists and anaesthetists were absent in 7 of the facilities. In terms of population, there were 0.7 surgical-care-related certified specialists per 100 000 population. When combined with nonspecialist physicians (those who had typically only completed their intern year), the number of available surgical care providers increased to 1.4 per 100 000 population in the 6 districts.

The availability of allied surgical staff was also assessed (Table 3). More than half of the facilities did not have an anaesthesia technician or a scrub nurse, while a nurse anaesthetist was available in 2 of the 15 facilities. The availability of radiologists, pathologists, pharmacists and biomedical technicians was a bigger challenge in these hospitals. Radiologists were unavailable in 12 hospitals, pathologists in 13, pharmacists in 11 and biomedical technicians in 13. One facility had 15 pharmacists, while others did not have any, indicating unmet need in some hospitals.

Table 2 Availability of health care providers at DHQHs and THQHs in 6 districts of Sindh Province

District	Facility	Available certified specialists				Available non-specialist physicians, surgeons, obstetricians, anaesthetists	Density/100 000 population for certified and non-specialist combined
		Surgeon	Obstetrician/ gynaecologist	Anaesthetist	Density/ 100 000 population		
Badin	DHQH (1)	1	4	4	0.8	7	2.3
	THQH (2)	4	1	1		6	
Jacobabad	DHQH (1)	2	6	0	0.8	9	1.7
Naushero Feroze	DHQH (1)	1	1	1	0.6	6	1.6
	THQH (2)	2	3	2		4	
Shikarpur	DHQH (1)	0	0	1	0.6	6	2.0
	THQH (1)	3	2	1		13	
Sukkur	THQH (2)	6	2	1	0.6	3	1.0
Tharparkar	DHQH (1)	3	3	3	0.7	6	1.7
	THQH (3)	2	0	1		3	
Total (N = 15)		24	22	15	0.7[a]	63	1.4[a]
Range		0–6	0–6	0–4		3–13	
Mean±SD		1.6±1.1	1.5±1.7	1.0±1.1		4.2±3.6	

[a]*Density of surgical workforce in the 6 districts per 100 000 population. DHQH = district headquarters hospital; THQH = Taluka headquarters hospital*

Availability of clinical support services

Given the importance of clinical support services, we considered the availability of radiology and imaging services, basic laboratory services, and medication relevant to anaesthesia and surgical care (Table 4). Conventional radiology or X-ray and ultrasound services were available in all health facilities except 2 and 1, respectively. One hospital had a computed tomography scanner, and 2 hospitals had a non-functional magnetic resonance imaging scanner each. One-third of facilities did not provide basic tests such as blood counts, urinalysis or screening for common infectious diseases. Tests related to blood chemistry and coagulation studies were available in 33% and 20% of facilities, respectively. Nine groups of drugs related to anaesthesia and surgical care were assessed, which were available in all facilities, with the exception of muscle relaxants that were available in < 50% of facilities. The overall availability of the list of drugs investigated was 76% for DHQHs and THQHs.

Volume and types of surgical procedures performed

The volume and range of surgical care provided were determined as a measure of surgical outputs (Table 5). Surgical services assessed included 8 outpatient procedures, 8 inpatient obstetric/gynaecological procedures, 8 general surgical procedures, and 12 trauma-related procedures that were expected to be performed at a first level referral or a secondary care hospital. Every facility conducted outpatient procedures. Of the 8 first-level obstetric/gynaecological procedures marked as essential at first-level hospitals by DCP3, at least 1 was performed at 87% of the hospitals. Of the 8 first-level general surgical procedures, at least 1 was performed at 60% of the hospitals. Of the 12 trauma-related procedures, at least 1 was performed at 53% of the hospitals. Tertiary care level procedures, which are typically not done at district and subdistrict hospitals, were performed in Shikarpur (n=495) and Naushero Feroze (n=570) districts.

The highest number of outpatients reported by managers were recorded at facilities in Shikarpur (n = 8800), Tharparkar (n = 6072) and Badin (n = 5832) districts (Table 5). The highest inpatient admissions were recorded at DHQH Shikarpur (n=6583), THQH Badin (n=6270) and THQH Sukkur (n = 4332). DHQH Shikarpur performed the highest number of inpatient obstetric/gynaecological (n = 4536) and general surgical (n = 1778) procedures, whereas THQH Matli in Badin District carried out the highest number of trauma-related procedures (n = 5216). Caesarean section was performed in 11 hospitals, laparotomy in 6 and open fracture reduction in 5. All 3 Bellwether procedures were performed in 3 of the hospitals. The frequency of surgical procedures across the 6 districts was estimated for outpatient procedures at 49 per 10 000 population and for inpatient procedures at 29 per 10 000 population.

Table 3 Availability of surgical allied professionals and support staff in 15 rural hospitals

Facility	Midwife	Nurse anaesthetists	Anaesthesia technicians	Surgical ward nurses	Scrub nurses	Radiologists	Pathologists	Pharmacists	Biomedical technicians
DHQH (n = 5)									
Total no. of providers	14	3	10	47	5	1	1	17	4
DHQH without provider	2/5	3/5	3/5	1/5	2/5	4/5	4/5	2/5	1/5
THQH (n = 10)									
Total no. of providers	22	0	5	18	10	2	1	1	1
THQH without provider	3/10	10/10	5/10	3/10	6/10	8/10	9/10	9/10	9/10
DHQH & THQH (N = 15)									
Total no. of providers	36	3	15	65	15	3	2	16	5
Facilities without provider	5/15	13/15	8/15	4/15	8/15	12/15	13/15	11/15	10/15

DHQH = district headquarters hospital; THQH = Taluka headquarters hospital

Table 4 Availability of radiology/imaging, laboratory services and medicines in 15 rural hospitals in Sindh Province

Facility	Radiology/imaging services					Tracer laboratory services				
	X-ray	Ultrasound	CT scan	MRI scan	Complete blood count	Blood chemistry	Coagulation studies	Urinalysis	Screen for infectious diseases
DHQH	5/5	5/5	1/5	0/5	3/5	2/5	1/5	2/5	4/5
THQH	10/10	9/10	0/10	0/10	7/10	3/10	2/10	7/10	7/10
All facilities	15/15	14/15	1/15	0/15[a]	10/15	5/15	3/15	9/15	11/15

Facility	Drug availability							
	Inhalational anaesthesia	Local anaesthesia & reversal	Perioperative antibiotics	Intravenous fluids	Muscle relaxants & reversal	Intravenous anaesthetics	Vasoactive	Postoperative analgesics & reversal	Obstetrics/ gynaecology drugs
DHQH	4/5	4/5	3/5	4/5	3/5	4/5	4/5	4/5	4/5
THQH	6/10	7/10	8/10	10/10	4/10	6/10	7/10	8/10	10/10
All facilities	10/15	11/15	11/15	14/15	7/15	10/15	11/15	12/15	14/15

[a] *MRI present in 2 facilities but not functional. DHQH = district headquarters hospital; THQH = Taluka headquarters hospital; CT = computed tomography; MRI = magnetic resonance imaging*

Discussion

This hospital-based study demonstrated several deficiencies in infrastructure, trained surgical workforce, and clinical support services for providing the essential surgical interventions recommended by DCP3 at first-level hospitals in LMICs (*4*). On average, there were 0.22 interventions per 100 000 population, which is lower than the estimated requirement based on the LCoGS indicators. The capacity to offer postoperative intensive care was limited and few hospitals had facilities for ventilation. Bellwether procedures were performed in 3 of the 15 hospitals, whereas the other 12 hospitals carried out between 0 and 2 out of the Bellwether procedures.

Availability of certified surgical workforces in the districts was limited, with reliance on nonspecialist workforces for providing care. The LCoGS suggests 20 surgical, anaesthetic and obstetric physicians per 100 000 population (*2*). Shortage of allied surgical staff was more acute for scrub nurses and anaesthesia technicians. Shortage and maldistribution of radiologists, pathologists and pharmacists, who are critical for quality surgical care, was another gap identified. Shortage of these professionals was more acute in the subdistrict (*Taluka*) hospitals.

Based on recent estimates, public health expenditure at the district level in Pakistan does not exceed US$ 12 per capita (*13*). However, the shortage of resources can mostly be attributed to poor management of these hospitals. Poor distribution of surgical workforce, limited opportunities for training and redeployment, shortage of allied surgical staff and clinical support services, lack of quality assurance, and poor management all contributed to the suboptimal state of surgical services in these first-level rural hospitals.

The lack of surgical care in district hospitals is not unique to Pakistan. A study in South Africa has identified multiple challenges including lack of trained staff, limited training opportunities, poor communication, lack of transport, skill–resource mismatch, and ill-defined role of district hospitals (*14*). That study highlighted 5 areas for possible interventions: surgical mentoring, equipment and human resources, surgical packages of care, hub and spoke networks, and monitoring and evaluation.

This study is representative of the situation in first-level public sector hospitals, providing an in-depth assessment of the service inputs, capacity and gaps in delivering essential surgical services. However, the study had some limitations. First, it did not cover the private health sector, which is increasingly being used by the population for seeking health care. Second, it was entirely a facility-based study and did not provide information on the recommended population-based indicators of surgical care (*15*). Third, the data collected were largely based on interviews and observations and less on hospital records because of limited access, quality and completeness of those records. The respondents may have exhibited recall bias.

Table 5 **Number of inpatient and outpatient procedures reported during last 12 months**

District	Facility	Outpatient procedures	Inpatient procedures (first level)			
			Obstetric/ gynaecology	General surgery	Trauma related	Total
Badin	DHQH	3351	0	0	72	72
	THQH	1200	0	0	0	0
	THQH	5832	924	130	5216	6270
Jacobabad	DHQH	1380	2040	0	168	2208
Naushero Feroze	DHQH	2423	721	59	0	780
	THQH	2355	767	176	5	948
	THQH	740	180	96	152	428
Shikarpur	DHQH	8800	4536	1778	269	6583
	THQH	324	180	0	0	180
Sukkur	THQH	1932	453	9	0	462
	THQH	4440	4308	24	0	4332
Tharparkar	DHQH	6072	1260	255	780	2295
	THQH	2604	120	8	538	666
	THQH	1000	240	0	0	240
	THQH	1010	127	0	0	127
Total procedures		43 463	15 856	2535	7200	25 591
Frequency of procedures per 10 000 population		49	18	3	8	29

DHQH = district headquarters hospital; THQH = Taluka headquarters hospital

Despite these limitations, the study has several policy implications that could make a difference to surgical service delivery. It reinforces the opinion that essential surgical services in district hospitals should be made available to the population within the home district. District hospitals can serve as referral centres and provide capacity support to primary care facilities for surgical care, thereby alleviating the burden on urban tertiary care hospitals, while tertiary hospitals can support training and supervision and serve as referral centres for district hospitals (1). A strong relationship between regional and district hospitals through a hub and spoke model is recommended. The federal and all provincial governments in Pakistan recently endorsed a district level essential package of health services that includes up to 30 different essential cost-effective surgical interventions. This requires well-staffed and properly equipped district hospitals to deliver these.

Hospitals are critical for progress towards UHC, which can only be achieved by ensuring that essential surgical services are made available at these facilities. LMICs, especially those with highly populated districts, cannot rely solely on tertiary hospitals for their surgical needs and strengthening district hospitals requires the necessary infrastructure, appropriate workforce and support services to provide essential surgical care, which is a *sine qua non* for UHC.

Conclusion

As LMICs attempt to address the challenges to the provision of essential and emergency surgical care, there is a need to quantify available resources, identify deficiencies and mismatches, and develop strategies to bridge these gaps. This study of 15 rural hospitals in Sindh Province, Pakistan, identified several issues related to governance, infrastructure, workforce and resource allocation. If the goals of UHC relating to surgical and anaesthetic care are to be met, efforts must be made to assess the burden and outcomes of surgical care and the costs incurred.

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Conflict of interest: None declared.

Évaluation des services chirurgicaux et des besoins associés dans des hôpitaux de district et de sous-district en zones rurales au Pakistan

Résumé

Contexte : La prestation de soins chirurgicaux essentiels est importante pour instaurer la couverture sanitaire universelle. Toutefois, les données concernant la capacité des hôpitaux de premier niveau à assurer ces soins sont actuellement indisponibles dans la province du Sindh (Pakistan).

Objectif : Évaluer les services de soins chirurgicaux et les besoins en la matière dans les hôpitaux du secteur public de ladite province.

Méthodes : Entre mai et août 2021, nous avons examiné les soins chirurgicaux dans 15 hôpitaux publics de chefs-lieux de district et de sous-district dans la province du Sindh. Pour ce faire, nous avons utilisé une version adaptée de l'outil d'évaluation consolidé des hôpitaux, dérivé de celui de l'OMS pour l'évaluation des soins chirurgicaux essentiels et d'urgence. Les données ont été analysées à l'aide du logiciel STATA version 15 et la fréquence des interventions chirurgicales essentielles pour 100 000 habitants a été calculée pour chaque établissement.

Résultats : La densité globale des lits chirurgicaux était de 0,22 pour 100 000 habitants, avec 0,7 spécialiste certifié et 1,4 généraliste certifié et non spécialiste, assurant des soins chirurgicaux et anesthésiques pour 100 000 habitants. Les services de soutien clinique étaient insuffisants et seuls 76 % des médicaments utilisés pour l'anesthésie et les soins chirurgicaux étaient disponibles. Des soins ambulatoires étaient dispensés dans tous les établissements, tandis que des interventions obstétricales/gynécologiques, chirurgicales et liées aux traumatismes étaient réalisées dans 87 %, 60 % et 53 % d'entre eux, respectivement. Trois des 15 hôpitaux effectuaient les trois procédures de Bellwether.

Conclusion : La présente étude a mis en évidence de nombreuses lacunes en matière d'infrastructures, de personnel, de gouvernance, de gestion ainsi que de services de soutien liés aux soins chirurgicaux essentiels dans la province du Sindh. Pour parvenir à la couverture sanitaire universelle au Pakistan, il est nécessaire de mener davantage de recherches sur ces services dans ladite province afin d'identifier d'autres lacunes et de mettre en œuvre des stratégies pour y remédier.

تقييم خِدمات الجراحة واحتياجاتها في مستشفيات المناطق الريفية والشُّعب في باكستان

ثمين صديقي، عمران نعيم، شاهين محبوب، آمنة عروبة، مشعل مراد شاه، إقبال عظم، نارجيز رزقي، لومآن شيخ، أسعد لطيف، صدف خان

الخلاصة

الخلفية: تقديم خدمات الجراحة الأساسية أمرٌ مهم في تحقيق التغطية الصحية الشاملة. ومع ذلك، لا تتوفر حاليًّا بيانات عن قدرة مستشفيات المستوى الأول على تقديم الرعاية الجراحية في إقليم السِّنْد، باكستان.

الأهداف: هدفت هذه الدراسة الى تقييم خدمات الرعاية الجراحية واحتياجاتها في مستشفيات القطاع العام في إقليم السِّنْد، باكستان.

طرق البحث: في الفترة بين مايو/ أيار وأغسطس/ آب 2021، قيَّمنا الرعاية الجراحية في 15 مستشفى من مستشفيات القطاع العام الرئيسية في إقليم السِّنْد وشُعَبه باستخدام أداة تقييم المستشفيات الموحدة المشتقة من "أداة منظمة الصحة العالمية لتقييم الرعاية الجراحية الطارئة والأساسية". وقد حللنا البيانات بالإصدار 15 من برنامج STATA، وحسبنا وتيرة الإجراءات الجراحية الأساسية لكل 100000 نسمة على مستوى كل مرفق صحي.

النتائج: بلغت الكثافة الإجمالية لأَسرَّة الجراحة 0.22 لكل 100000 نسمة، مع وجود 0.7 أخصائي معتمد و1.4 طبيب معتمد وغير متخصص يقدمون الرعاية الجراحية والتخدير لكل 100000 نسمة. وتبيَّن وجود نقص في خدمات الدعم السريري، و76٪ فقط من أدوية التخدير والرعاية الجراحية كانت متوفرة. وأُجْرِيَت عمليات للمرضى الخارجيين في جميع المرافق، في حين أُجْرِيَت عمليات التوليد/ أمراض النساء والعمليات الجراحية والإجراءات المتعلقة بالصدمات في 87٪ و60٪ و53٪ من المرافق، على التوالي. وثلاثة مستشفيات من أصل 15 مستشفى محل الدراسة أجرت الثلاثية الجراحية المعيارية (الولادة القيصرية، وفَتْحُ البَطْن الجراحي، وعلاج الكسور المفتوحة).

الاستنتاجات: لقد حدَّدت هذه الدراسة العديد من أوجه القصور المتعلقة بالبنية التحتية، والقوى العاملة، والحوكمة، والإدارة، وخدمات دعم الخدمات الجراحية الأساسية في إقليم السِّنْد في باكستان. ولتحقيق التغطية الصحية الشاملة في باكستان، ثمة حاجة إلى إجراء مزيد من البحوث عن الخدمات الجراحية في إقليم السِّنْد لتحديد الثغرات الأخرى وتنفيذ الاستراتيجيات لسد هذه الفجوات.

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