ORIGINAL ARTICLE

Socio-demographic Profiles and Referral Patterns of Paediatric Patients in the Emergency Department of a Tertiary Hospital, in a Resource Limited Setting

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ABSTRACT

Background: Quality emergency care stands as a vital pillar within a well-functioning health system. Ensuring timely and effective care for critically ill children is paramount for positive outcomes. Although referrals for expert care are common, the absence of a profound understanding of socio-demographic characteristics and the lack of an organized referral and feedback system can significantly compromise the delivery of optimal care. Addressing these gaps is essential to uphold the standard of care and enhance the overall effectiveness of the healthcare system. **Methods:** This was a cross-sectional observational study design, conducted at the children emergency room (CHER) of the University of Benin Teaching Hospital, Benin-City, Edo state. All patients below the age of 18 years, who were medically referred to CHER over the period of 4 months were recruited. All the data obtained were then documented using a structured questionnaire, which contained information on the socio-demographic data and Referral Patterns. All collected data underwent thorough checks for completeness, appropriately coded, and were subjected to analysis using IBM-SPSS version 26. **Results:** A total of 525 patients were seen at CHER over the period of 4 months, out of which 300 (57.1%) were referred; predominantly males (64.7%). Children below the age of 6 months had the highest referrals (36.7%), while subjects whose fathers had no formal education had the lowest (2.7%) p<0.001. Medical officer cadre had the highest number of referrals (162 [54.0%], p<0.001). Most of the referral contained the presenting complaints 206 (68.7%), working diagnosis 170 (56.7%) and reason for the referral 190 (63.3%), however, less than half had details of examination findings (144, 48.0%), investigations done (94, 31.3%) and treatment offered (116, 38.7%). Very few (2.7%) of the referring health workers/ facilities requested for a feedback p<0.001. **Conclusion:** The socio-demographic profile and referral patterns play a pivotal role in shaping the quality of care for paediatric patients. Therefore, there is an imperative need for comprehensive education and awareness initiatives on medical referrals.

Keywords:

Keywords: Socio-Demographic, Referral, Pattern, Tertiary

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Introduction

Medical referral represents a vital process wherein a healthcare professional situated at one level of medical facility directs a patient to another healthcare worker or facility equipped with the necessary resources to manage the patient's condition effectively.[1] This referral mechanism operates bi-directionally; patients may be referred from lower levels of care to higher levels to ensure optimal management of their conditions, or conversely, from higher levels to lower levels to maintain continuity of care and facilitate follow-up procedures.[2] This structured system of referrals ensures that patients receive appropriate (and specialized) care tailored to their specific medical

needs, enhancing the overall quality and effectiveness of healthcare services.[2,3]

A robust emergency care system, encompassing seamless referrals and transfers to suitable healthcare facilities, stands as a cornerstone of an efficient healthcare system. Yet, persistent delays in seeking care, diagnosing conditions, and referring patients for specialized tertiary care significantly impact the health outcomes of infants and children. This issue persists even in regions with well-established emergency medical systems.[4]

The referral system in Nigeria faces numerous challenges, as highlighted by several studies.[5-10] Primary Health Care facilities often lack readily available referral forms and essential resources such as telephone directories, in addition to the lack of effective pre-referral communication or insufficient documentation, which continue to pose hurdles in delivering timely and acute medical care. Moreover, the existing referral system lacks mechanisms for providing feedback about the patients who have been referred.[5,6] Several factors contribute to these challenges, including inadequate knowledge among healthcare workers regarding the referral process, inadequate road networks hindering timely transportation, and limited awareness about available healthcare facilities. Similarly, issues such as poor public awareness, patient non-compliance, individual patient's preferences, economic constraints due to poverty, and insufficient support systems have significantly impacted the effectiveness of the referral system.[7-10] These multifaceted challenges underscore the complexity of the issues faced by the referral system in Nigeria.

In the intricate realm of healthcare, every patient's journey is a unique story, shaped by their individual characteristics and the healthcare system they navigate. The dynamic interplay between socioeconomic factors and medical referrals significantly impacts the delivery of healthcare, especially in settings where resources like manpower and documentation tools are limited.[4] This research embarks on a crucial exploration into the socio-demographic profiles and referral patterns of paediatrics patients seeking care in the Children's Emergency Room (CHER) of the University of Benin Teaching Hospital, in order to strengthen the process of the referral system in Nigeria.

Methods

This is a cross-sectional observational study Design, conducted over a 6 months period (June – November 2023) at the CHER of the UBTH, Benin-City, Edo state. Benin City is in the southern part of Nigeria, known for its diverse population. In 2022, the city had an estimated population of 4,777,000, with a growth rate of 3.52%. The people here are mainly farmers and civil servants. The UBTH is an 860-beded tertiary care facility with catchment areas of services not only to Edo State but also to nearby Delta, Ondo, and Kogi States.

The CHER of the Child Health Department, is where the study was conducted. It includes a 31- bed ward including a Paediatric casualty room. The unit is staffed with two consultants and six residents. On average, it attends 100 to 200 children per month of which 40-55 are referral.

On presentation all referred patients are registered by the Hospital. The study enrolled a cohort of medically referred children admitted to CHER whose parents/guardians consented to the study.

The study was approved by the Research Ethics Board of UBTH [Reference NO: ADM/E22/A/VOL.V11/4831197] After admission to the CHER the guardians of eligible children were approached for consent in the guardian's language. Children were enrolled after written informed consent was obtained with liberty to deny or opt out without any consequences. A structured questionnaire detailing information on the socio-demographic data (information on age, gender, ethnicity, socioeconomic status, and residence of the children.) and referral patterns (type, source, cadre of the referring person, reasons and feedback of referral) was collected by the researcher. All collected data underwent thorough checks for completeness, appropriately coded, and subjected to analysis using IBM-SPSS statistical software, version 26.

Results

A total of the total 525 patients were seen at CHER over the period of 6 months, 300 (57.1%) were medically referred and where predominantly males (64.7%). Children below the age of 6 months had the highest form of referral (36.7%). Children from the Bini tribe (33.3%) were the most referred. Children from the rural areas had the lowest number of referred subjects 37 (12.3%) as seen in Table 1 below.

Table 1: Demographic characteristics of the subjects

	Frequency	Percentage (%)	χ^2	p-value
Age (Months)				
< 6	110	36.7	265.227	<0.001*
6-12	26	8.7		
13 – 24	30	10		
25 – 36	20	6.7		
37-48	12	4		
49-60	2	0.7		
>60	100	33.3		
Gender				
Male	194	64.7	25.813	<0.001*
Female	106	35.3		
Ethnicity				
Bini	100	33.3	138.107	<0.001*
Esan	28	9.3		
Etsako	4	1.3		
Ibo	54	18		
Yoruba	28	9.3		
Hausa	26	8.7		
Others	60	20		
Address				
Core Urban	129	43	70.507	<0.001*
Urban slum	47	15.7		
Semi urban	87	29		
Rural	37	12.3		

χ^2 = Chi-square Goodness of Fit Test; * = significant P – value.

Lowest percentages of the referrals were seen among the fathers of subjects who were at the extreme of the age groups, elderly fathers who were above 60 years had 3.3% of the total referred subjects while young fathers of 20 years and below had no referred subject, (P<0.001). Fathers with no form of education had the lowest percentages of the referred subjects (2.7%). Married men had the highest number of referred subjects 274 (91.3%), as seen in table 2 below.

Table 2: Demographic characteristics of the Fathers of referred children

	Frequency	Percentage (%)	χ^2	P-value
Age of Father (Years)				
<20	0	0	156.967	<0.001*
21 - 30	38	12.7		
31 - 40	133	44.3		
41 - 50	83	27.7		
51 - 60	36	12		
>60	10	3.3		
Highest Education				
Tertiary	107	35.7	192.613	<0.001*
Secondary	157	52.3		
Primary	28	9.3		
Nil	8	2.7		
Religion				
Christian	294	98	276.480	<0.001*
Islam	6	2		
Marital Status				
Married	274	91.3	955.467	<0.001*
Single	14	4.7		
Separated	6	2		
Divorced	4	1.3		
Widowed	2	0.7		
Marriage type				
Monogamy	264	88	404.720	<0.001*
Polygamy	10	3.3		
Co-habiting	26	8.7		

χ^2 = Chi-square Goodness of Fit Test; * = significant P – value.

Mothers between the age group of 31-40 years had the highest number (129, 43%) of referred patients, (p=<0.001). Mother with low parity (1-3) had the highest number of referred patients (212, 70.7%), p=<0.001. Mothers married in a monogamous setting had the highest number of referred patient 85.5%, as seen in Table 3 below.

Table 3: Demographic characteristics of the Mothers of referred children

	Frequency	Percentage (%)	χ^2	P-value
Age of Mother (Years)				
<20	6	2	191.233	<0.001*
21 - 30	96	32		
31 - 40	129	43		
41 - 50	59	19.7		
51 - 60	10	3.3		
>60	0	0		
Parity				
1-3	212	70.7	208.640	<0.001*
4-6	76	25.3		
>6	12	4		
Highest Education Mothers				
Tertiary	98	32.7	146.053	<0.001*
Secondary	145	48.3		
Primary	53	17.7		
Nil	4	1.3		
Religion				
Christian	291	97	265.080	<0.001*
Islam	9	3		
Marital Status				
Married	254	84.7	787.333	<0.001*
Single	23	7.7		
Separated	11	3.7		
Divorced	5	1.7		
Widowed	7	2.3		
Marriage type				
Monogamy	256	85.3	326.280	<0.001*
Polygamy	15	5		
Co-habiting	29	9.7		
Family size				
1-3	84	28	90.960	<0.001*
4-6	174	58		
>6	42	14		

χ^2 = Chi-square Goodness of Fit Test; * = significant P – value.

Parents belonging to the low socio-economic class had the highest number of referred patients, (126, 42.0%), p=<0.001, as shown in the table 4 below

Table 4: Housing and Socioeconomic status of the parents

		Freq	%	χ^2	P-value
Housing	Single room	55	18.3	302.520	<0.001*
	Multiple of single rooms	154	51.3		
	Terrace flat	54	18.0		
	Detached building	15	5.0		
	Duplex	12	4.0		
	Others	10	3.3		
Family SES	Low	126	42.0	108.140	<0.001*
	Middle	157	52.3		
	High	17	5.7		

χ^2 = Chi-square Goodness of Fit Test; Freq = frequency; % = percentage; * = significant P – value.

Written referral was the commonest type of referral (68.7%) seen at CHER and were mostly initiated by the managing health care worker (89.0%). Medical officers where the cadre with the highest number of referrals (162, 54.0%). Majority of the referral where from the secondary care facilities (71.7%), which are mainly situated within Benin-City where UBTH is located (77.0%). There was no patient who spent < 24 hours at the referring center before presenting at CHER. This is as seen in Table 5 below.

Table 5: Pattern of the Referrals

		Freq	%	χ^2	P-value
Referral Type	Verbal	94	31.3	41.813	<0.001*
	Documented	206	68.7		
Initiation	Health workers	267	89.0	419.180	<0.001*
	Client	23	7.7		
	Others	10	3.3		
Status of Health worker	Nurse/Midwife	26	8.7	261.367	<0.001*
	Medical officer	162	54.0		
	Medical Specialist	76	25.3		
	Not indicated	5	1.7		
	Others	31	10.3		
Source	Maternity/Nursing home	30	10.0	836.847	<0.001*
	Clinic	39	13.0		
	Hospital	215	71.7		
	Pharmacy	7	2.3		
	TBA	3	1.0		
	Others	3	1.0		
	Not Stated	3	1.0		
Location	Benin City	231	77.0	260.540	<0.001*
	Rest of the State	22	7.3		
	Neighbouring states	47	15.7		
	Not stated	0	0.0		
Length of Stay	<24hours	0	0.0	222.260	<0.001*
	1 - 2	221	73.7		
	3 - 4	51	17.0		
	>4	28	9.3		
Identity of the health care facility	Yes	206	68.7	41.813	<0.001*
	No	94	31.3		
Name of healthcare worker to made the referral	Yes	182	60.7	13.653	<0.001*
	No	118	39.3		
Signature of the healthcare worker who made the referral	Yes	148	49.3	0.053	0.817
	No	152	50.7		
Qualifications	Yes	72	24.0	81.120	<0.001*
	No	228	76.0		

χ^2 = Chi-square Goodness of Fit Test; Freq = frequency; % = percentage; * = significant P – value.

Most of the referral (written/verbal) contained the presenting complaints (206, 68.7% [p=<0.001]), working diagnosis (170, 56.7% [p = 0.021]0 and reason for the referral (190. 63.3% [p=<0.001]), however had fewer examination findings (144, 48.0%), investigations done (94, 31.3%) and treatment offered (116, 38.7%). Only few (2.7%) of the referring health worker/ facility requested for a feedback, p=<0.001. One-hundred and sixty-nine (56.3%) of referred patients' diagnoses were not in concordance with working diagnoses at CHER (p = 0.028). Ninety-seven (32.3%) of the referred patients were discharged against medical advice (DAMA). This is as shown in the table below.

Table 6: Components of the referral and outcome of the referred subject

		Freq	%	χ^2	P-value
Presenting complaints	Yes	206	68.7	41.813	<0.001*
	No	94	31.3		
Examination findings	Yes	144	48.0	0.480	0.488
	No	156	52.0		
Working diagnosis	Yes	170	56.7	5.333	0.021*
	No	130	43.3		
Investigations carried out	Yes	94	31.3	41.813	<0.001*
	No	206	68.7		
Progress or deterioration made by patient while being managed	Yes	96	32.0	38.330	<0.001*
	No	204	68.0		
Treatment offered	Yes	116	38.7	15.413	<0.001*
	No	184	61.3		
Was the reason for referral stated	Yes	190	63.3	21.333	<0.001*
	No	110	36.7		
Reason for referral	1	22	7.3	391.400	<0.001*
	2	30	10.0		
	3	55	18.3		
	4	173	57.7		
	5	14	4.7		
	6	6	2.0		
Was there request for feedback	Yes	8	2.7	55.153	<0.001*
	No	292	97.3		
Outcome	1	138	46.0	26.780	<0.001*
	2	65	21.7		
	3	97	32.3		
Concordance of diagnosis	Yes	131	43.7	4.813	0.028*
	No	169	56.3		

χ^2 = Chi-square Goodness of Fit Test; Freq = frequency; % = percentage; * = significant P – value.

Reason for referral: **1** – the hospital is under my HMO (health management organisation). **2**- lack of bed space at the referring facility. **3**- need for expert care. **4**- deteriorating condition. **5**- lack of finance to continue care at the referring facility. **6**- others.
Outcome = 1- discharged and alive, 2- died, 3 – discharged against medical advice (DAMA)

Discussion

Provision of timely and optimal care to critically ill children is crucial for good outcome. With the development of specialized paediatric critical care units, referral from community, district or other peripheral healthcare facilities has gained greater momentum.[11]. A noteworthy observation was the significant percentage (57.1%) of patients necessitating admission who were referred, primarily from

secondary care facilities. Ezhumalai *et al*[3] and Treleaven *et al*[12,] in their studies noted also a similar significant percentage of 73% and 69.2% respectively. In contrast, a study conducted at another teaching and tertiary care hospital reported a substantially lower admission rate of only 22.5% among referred patients[13]. The higher admission rate in our facility can be attributed to various factors. Notably, our hospital stands as the sole tertiary-level subspecialty public sector healthcare institution catering for the three neighbouring states. The absence of organised emergency and intensive care services, coupled with a lack of expertise in peripheral hospitals, places the burden of a substantial number of referrals and subsequent admissions squarely on our institution. Children originating from rural areas exhibited the lowest percentage of referrals to CHER, a trend potentially influenced by factors such as considerable distances, prevalent lack of awareness, and deeply entrenched traditional beliefs that impact the referral process. Consequently, the imperative for enhanced health education and community awareness, targeting both healthcare professionals and the wider community, cannot be over-emphasized. This underscores the critical need for comprehensive initiatives aimed at enlightening both healthcare workers and the community at large. The majority of the hospital's referred patient population consists of males (64.7%), a trend reminiscent of studies conducted in tertiary facilities in Vietnam. [12,14] This pattern potentially reflects a prevailing inclination toward seeking medical care for male children in our local context. The majority of children referred to our facility were less than 6 months, likely due to the complexities involved in managing infants and the challenges of obtaining intravenous access in this age group. Most referrals came from the Bini tribe, which is understandable given the hospital's location in Benin City, where this tribes constitutes the majority.

Parents with limited or no formal education exhibited the lowest rate of referred children being admitted to CHER. This phenomenon can be attributed to a pervasive lack of awareness within this demographic category. Often, parents in this category might opt to continue seeking care at nearby primary health centres due to their lack of understanding about the severity of their child's (deteriorating) health condition. Additionally, financial constraints might compel them to avoid additional expenditures. This finding resonates with previous research studies [6,8,12] emphasizing the critical role of parental education in healthcare decision-making processes.

The precise transmission of patient details via a thoroughly documented referral letter is pivotal, especially in the case of ill children, as it ensures the seamless continuity of care. When crucial information regarding the clinical status and prior treatments is missing, it creates significant challenge for the receiving healthcare facility. In our specific context, where patients often lack awareness of the treatments they receive, healthcare providers at the receiving end heavily rely on the documentation or verbal information provided by the referring doctor. Our findings indicated a substantial percentage of medical referrals to CHER lacked vital information, especially essential details like conducted investigations and the progression of the disease before the patient's arrival at our facility. Similar studies indicates that almost a third of specialist referrals made by health care workers lack vital clinical details, rendering them insufficient.[15,16] In a tertiary paediatric Emergency Department in India, 69% of brought in-dead referrals cases were noted to lack adequate information in the referral notes.[17] Similarly, a study evaluating the quality of general practitioner referrals to a tertiary care hospital in South Africa revealed that critical components such as pre-referral treatments (6.3%), laboratory tests (8.3%), and special tests (4%) were rarely mentioned in referral letters.[18] These omissions pose significant obstacles to maintaining the necessary continuum of care.

An overwhelming majority of medical referrals (97.3%) did not include a request for feedback from our institution. This indicates a notable lack of interest in ascertaining the outcomes of patients referred by healthcare providers at lower-level medical facilities. This indifference can ultimately impede the motivation to enhance their clinical skills, knowledge base, and expertise. Furthermore, it underscores the importance of alleviating the burden on tertiary hospitals by fostering a mechanism for referring patients back to primary and secondary facilities when appropriate. A significant percentage, 43.7%, of children referred medically were discharged against medical advice at CHER. This statistic highlights the persistent challenges faced at this level of care. These challenges can be attributed to the worsening economic woes with inflation rates, ignorance, and cultural norms that hamper the completion of treatment and ensuring full recovery before discharge.

Conclusion

The socio-demographic profiles and referral patterns play a pivotal role in shaping the quality of care for paediatric patients. Therefore, there is an imperative need for comprehensive education and awareness initiatives. These efforts are essential not only to understand the intricacies of patient backgrounds but also to enhance the standards of care and ensure a holistic and tailored approach to meet each child's needs.

Limitations

Limitations acknowledged in this study include recall bias, limited generalizability as it's a single-centre study.

Conflict –of-interest statement: None

Authors' contribution:

First author – data collection, literature review and research write-up

Second author – review of the write up

Third author – data collection, literature review

References

1. El-Sheemy HR. Referral system role in Family Medicine, 2016. [Cited 5th October,2023]. Available from https://www.slidesshare.net/HatemAlSheemy/referral-system.69752157.
2. Oluseye OM, Kehinde DR, Akingbade O, Ogunlade OL, Onyebigwa OO, Oluwatosin OA. Knowledge and utilization of referral system among health care workers in selected primary health care centres in Oyo State, Nigeria. Journ of Com Med and Pri Health Care. 31 (1) 67-75
3. Ezhumalai, G., Jayashree, M., Nallasamy, K. et al. Referrals to a pediatric emergency department of a tertiary care teaching hospital before and after introduction of a referral education module - a quality improvement study. BMC Health Serv Res 20, 761 (2020). https://doi.org/10.1186/s12913-020-05649-w
4. Rothschild M, Gilboa S, Sagi H, Berger I, Wolach B. Referral, admission, and discharge patterns in a pediatric emergency department in Israel. Pediatr Emerg Care. 1993;9(2):72-76. doi:10.1097/00006565-199304000-00003
5. Findley SE, Afenyadu G, Okoli U, Baba H, Bature R, Mijinyawa S et al. Implications of the SURE-P MCH National Village Health Workers Experience in Northern Nigeria for the Road Map for Village Health Workers in Nigeria. Journal of Community Medicine & Health Education 2016; 6:419 doi: 10.4172/2161-0711.1000419
6. Abodunrin OL, Akande TM, Osagbemi GK. Awareness and perception toward referral in health care: A study of adult residents in Ilorin, Nigeria. Annals of African Medicine 2010; 9(3): 176-180.
7. Asuke S, Ibrahim MS, Sabitu K, Asuke AU, Igbaver II, Joseph S. A comparison of referrals among primary health-care workers in urban and rural local government areas in North-Western Nigeria. Journal of Medicine in the Tropics 2016; 2(18): 93-97. [Cited 9th October, 2023].
8. Eskandari M, Abbaszadeh A, Borhani F. Barriers of referral system to health care provision in rural societies in Iran. Journal of Caring Sciences 2013; 2(3):229-236
9. Peters DH, Garg A, Bloom G, Walker DG, Brieger WR, Rahman MH. Poverty and access to health care in developing countries. Annals of the New York Academy of Sciences 2008; 1136(1): 161-171.
10. Bakeera SK, Wamala SP, Galea, S, State A, Peterson S, Pariyo GW. Community perceptions and factors influencing utilization of health services in Uganda. International Journal for Equity in Health 2009; 8(1): 25.
11. Bhattacharya S. Health system strengthening-Focusing on referrals: An analysis from India. JOJ Nurse Health Care. 2017;2(4):555592. [Google Scholar].
12. Treleaven E., Pham, T.N., Le, D.N. et al. Referral patterns, delays, and equity in access to advanced paediatric emergency care in Vietnam. Int J Equity Health 16, 215 (2017). https://doi.org/10.1186/s12939-017-0703-y
13. Sankar J, Singh A, Narsaria P, Dev N, Singh P, Dubey N. Prehospital transport practices prevalent among patients presenting to the pediatric emergency of a tertiary care hospital. Indian J Crit Care Med Peer-Rev Off Publ Indian Soc Crit Care Med. 2015;19(8):474–478. [PMC free article] [PubMed] [Google Scholar]
14. Tuan T, Dung VTM, Neu I, Dibley MJ. Comparative quality of private and public health services in rural Vietnam. Health Policy Plan. 2005;20:319–27.

15. Font F, Quinto L, Masanja H, Nathan R, Ascaso C, Menendez C, et al. Paediatric referrals in rural Tanzania: the Kilombero District study - a case series. BMC Int Health Hum Rights. 2002;2(1):4. doi: 10.1186/1472-698X-2-4. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

16. Xiang A, Smith H, Hine P, Mason K, Lanza S, Cave A, et al. Impact of a referral management "gateway" on the quality of referral letters; a retrospective time series cross sectional review. BMC Health Serv Res. 2013;13:310. doi: 10.1186/1472-6963-13-310. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

17. Praveen K, Nallasamy K, Jayashree M, Kumar P. Brought in dead cases to a tertiary referral paediatric emergency department in India: a prospective qualitative study. BMJ Paediatr Open. 2020;4(1):e000606. doi: 10.1136/bmjpo-2019-000606. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

18. Langalibalele M, Benjamin L-M. Quality of general practitioner referral letters to a south African tertiary hospital: determinants of quality content and good practice. J Public Health Epidemiol. 2011;3(11):482–488. [Google Scholar]

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