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Original Article

PERCEPTIONS OF PATIENTS' CARE GIVERS REGARDING CLINICAL PHARMACISTS AND THEIR PRACTICE IN A DEVELOPING COUNTRY

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ABSTRACT

Objective: The aim of the study was to report the perception of the care givers of the patients who have come across clinical pharmacists in their treatment course in a developing country like Pakistan.

Methods: A cross sectional survey was conducted in leading tertiary health care settings of Pakistan from March 2013 to November 2013 which targeted the care givers of patients treated in those health care settings. Prior to handing the questionnaire the care givers of patients were informed and a written consent was obtained. The responses of the patients were documented and analyzed by SPSS v 20. Their perceptions were tested with chi square test for association and significance was accepted at p-value <0.05.

Results: A total of 294 questionnaires were given to patients' care givers out of which 200 consented to participate and returned filled questionnaires giving a response rate of 68%. Majority (65%) appeared to be aware of pharmaceutical care/ clinical pharmacy services. Association existed between the awareness and perception of it having an impact (*p-value <0.01)* and clinical pharmacist promoting cost effectiveness in therapy *(p-value <0.05).* Association existed between awareness and care givers' personal experience with a clinical pharmacist resolving any medication therapy related issue during treatment *(p-value <0.01).* Finally, the awareness with opinion regarding the role of clinical pharmacists in the health care system was also found to be significant. *(P-value <0.01)*

Conclusion: The care givers of the patients who are aware of clinical pharmacy practice and clinical pharmacists have the very positive perception regarding the services and its impact on the health care system.

Keywords: Perception, Patient, Care givers, Clinical Pharmacist, Tertiary care, Pakistan.

INTRODUCTION

Clinical pharmacy or pharmaceutical care is a service provided by the clinical pharmacists to augment the positive patient outcomes and ensuring rational medication use [1]. In the developed countries, this service is well recognized and incorporated not only in hospitals but community pharmacies as well in the form of a full fledge service executed by clinical pharmacists. The difference between the conventional pharmacy and clinical pharmacy is the fact that the former focuses on the drug development and the latter encompass patient oriented courses empowering clinical dimension of Pharmacy [2].

Clinical pharmacy or pharmaceutical care is a novel term in developing countries. Countries like Pakistan where the practice of pharmacy is evolving and are in process of developing the pharmaceutical care services by incorporating the recently over hauled pharmacy curriculum ingrained pharmacists. These pharmacists are empowered in patient oriented courses such as clinical pharmacy [3]. It was reported on a number of occasions that the health care system of the country and its professionals are working to incorporate the clinical pharmacists and the health care authorities of Pakistan are formulating the legislation in the said regard. Moreover, academicians have also joined the league and are seen raising awareness in the medical and allied health community as well as in general public [4, 5].

The perception of the health care professionals and patients of Pakistan were reported to be very encouraging and they called for inclusion of pharmacists in health related issues [5-7]. However, no study has reported the perceptions of the general masses i. e. the care givers that usually accompany and witness the treatment of their loved ones. The need of identifying their perception is imperative since the health care professionals HCPs are aware of the clinical pharmacists and can easily rationalize their importance on the basis of the knowledge and experience. The patients on the other hand might rate the pharmaceutical care and a clinical pharmacist's service depending on the outcome of their treatment. Hence their response can be driven by the treatment outcome which might pose a likelihood of bias. In such case, a care giver's response can establish what the general public of a developing country like Pakistan perceives about the aforesaid [8]. The aim of the study was to observe what the patients' care givers perceive about pharmaceutical care and clinical pharmacists.

MATERIALS AND METHODS

A quantitative cross sectional survey was conducted in tertiary health care settings of Pakistan for 6 months which targeted the care givers of patients treated in those health care settings.

Duration of study

The study was carried out for a period of 6 months i. e. March 2013 to August 2013.

Inclusion and exclusion

The inclusion and exclusion criteria were set as all those who happened to be the family member of a patient being treated were included. However, one care giver was selected per patient. All patients and non care givers were excluded from the study.

Study instrument

The research instrument consisted of a structured questionnaire in English and Urdu language which contained questions related understanding and perceptions about pharmaceutical care or clinical pharmacy services.

Piloting and validation

The study instrument was validated by a team of experts for suitability. A small pilot study was conducted in a hospital before commencing the study. The results of the pilot study were not included in the main data.

Patient consent and approval

Prior to handing the questionnaire the care givers of patients were informed and a written consent was obtained. Moreover, the study was approved by the ethical committee of the Research Review Board, Clifton Hospital, Karachi, Pakistan.

Statistical analysis

The responses of the patients were documented and analyzed by SPSS v 20 (Statistical Package for Social Sciences version 20). The survey analyzed their opinions and perception in the context of clinical pharmacy practice and clinical pharmacists. Hypothetical results were derived by running the Chi square X^2 test for association and documenting the expected values which are theoretically calculated to quantitatively demonstrate a non significant association or no association between variables under investigation. Figures were included where appropriate to demonstrate a comparison between the actual and expected counts of variables in the results section. The perceptions of care givers were tested with same by comparing the expected and actual counts and finding out the significance which was accepted at *P-value <0.05.*

RESULTS

A total of 294 questionnaires were given to patients' care givers out of which 200 consented to participate and returned filled questionnaires giving a response rate of 68%. The results are expressed in different sections i. e. Demographic and social information as well as associations of demographics and social variables.

Demographic and social information

In terms of gender, the almost equal proportion of the male and female care givers was reported who accompanied their loved ones with the number slightly in favor of the females (N = 104, 52%) than males (N = 96, 48%). The care givers were asked if they have ever heard about clinical pharmacy services (CP) or pharmaceutical care (PC). Most of care givers (N = 130, 65%) appeared to be aware and understood the term. However, a third (N = 62, 31%) did not know and few (N = 8, 4%) were unaware of the meaning of the phrase although they heard the term pretty often.

Furthermore, they were asked if they believe a clinical pharmacist can enhance patient health outcome. Majority of the care givers responded in favor (N = 169, 84.5%) however a small number of the target group (N = 22, 11%) were against it. Very few care givers (N = 9, 4.5%) did not know. Moreover, when the question of minimizing medication errors by a clinical pharmacist was asked, the bulk of the target group responded in affirmative (N = 180, 90%), a very small number did not consent to the aforesaid (N = 14, 7%) and few seemed unaware (N = 6, 3%). Additionally, similar responses were observed for reduction of adverse drug reactions by clinical pharmacists i. e. Mass (N = 149, 74.5%) responded in favor, less than a quarter in negative (N = 42, 21%) and few did not know (N = 9, 4.5%).

In addition to this, they were asked if they believed cost effective therapy is promoted by pharmacists to which a greater proportion of the target group agreed (N = 143, 71%) and less than a fifth (N = 37, 18.5%) disagreed, a tenth of the target group proportion (N = 20, 10%) seemed unaware.

In response to the question of a clinical pharmacist enhancing patient's quality of life, slightly more than half of the target group (N =121, 60.5%) approved the aforesaid however almost similar number was seen in those care givers who disagreed with the statement (N = 41, 20.5%) and those who did not know (N = 38, 19%). The trend was the same when they were asked about counseling by pharmacists can invest confidence in patients as the bulk was seen in agreement (N = 134, 67%) and a similar proportion seemed unwelcoming to the idea (N = 37, 18.5%) and unaware (N = 29, 14.5%).

Furthermore, when they were inquired about suggesting their patient to be counseled by a pharmacist, a 50:50 ratio was obtained as almost half responded in favor (N = 91, 45.5%) and half against it (N = 91, 45.5%), few seemed unaware (N = 18, 9%).

Lastly, they were asked if they believed the clinical pharmacists have impacted the health care system in a positive way and the majority appeared to consent (N = 175, 87.5%) while the few did not (N = 20, 10%). An almost negligible percentage appeared to be unaware (N = 5, 2.5%). The results are also tabulated in table 1.

Table 1: Summary of demographic and social information

S. No.	Variable	Sample (N)	Percentage (%)	Cumulative (%)
1	**Gender**			
1.1	Male	96	48%	48%
1.2	Female	104	52%	100%
1.3	**Total**	**200**	**100%**	**100%**
2	**Ever heard about clinical pharmacy program and/or clinical pharmacist?**			
2.1	Yes	130	65%	65%
2.2	No	62	31%	96%
2.3	Do not know	8	4%	100%
2.4	**Total**	**200**	**100%**	**100%**
3	**Clinical pharmacist enhance patient health outcomes**			
3.1	Yes	169	84.5%	84.5%
3.2	No	22	11%	95.5%
3.3	Do not know	9	4.5%	100%
3.4	**Total**	**200**	**100%**	**100%**
4	**Clinical pharmacist minimize medication errors**			
4.1	Yes	180	90%	90%
4.2	No	14	7%	97%
4.3	Do not know	6	3%	100%
4.4	**Total**	**200**	**100%**	**100%**
5	**Clinical pharmacist minimizing adverse drug reactions**			
5.1	Yes	149	74.5%	74.5%
5.2	No	42	21%	95.5%
5.3	Do not know	9	4.5%	100%
5.4	**Total**	**200**	**100%**	**100%**
6	**Clinical pharmacist promote cost effectiveness**			
6.1	Yes	143	71%	71%
6.2	No	37	18.5%	90%
6.3	Do not know	20	10%	100%
6.4	**Total**	**200**	**100%**	**100%**

7	**Clinical pharmacist enhance patient quality of life**			
7.1	Yes	121	60.5%	60.5%
7.2	No	41	20.5%	81%
7.3	Do not know	38	19%	100%
7.4	**Total**	**200**	**100%**	**100%**
8	**Clinical pharmacist boost patient confidence by counseling**			
8.1	Yes	134	67%	67%
8.2	No	37	18.5%	85.5%
8.3	Do not know	29	14.5%	100%
8.4	**Total**	**200**	**100%**	**100%**
9	**Do you suggest your loved ones to be counseled by clinical pharmacist**			
9.1	Yes	91	45.5%	45.5%
9.2	No	91	45.5%	90%
9.3	Do not know	18	9%	100%
9.4	**Total**	**200**	**100%**	**100%**
10	**Clinical pharmacist have impacted the health care system in a positive way**			
10.1	Yes	175	87.5%	87.5%
10.2	No	20	10%	97.5%
10.3	Do not know	5	2.5%	100%
10.4	**Total**	**200**	**100%**	**100%**

Associations of variables

The awareness of care givers was tested for association with perception of clinical pharmacy services having a positive impact on health care system. An association existed between the two *(P-value <0.01).* A total of N = 121 care givers appeared to be aware of clinical pharmacy service as compared to hypothetical number of N = 114 care givers as well as those not aware of the clinical pharmacists were observed at N = 51 as compared to hypothetical N = 54, the unaware care givers were seen at N = 3 as compared to N = 7, calculated by chi square X^2. Figure 1 illustrates the findings.

Further to this, the awareness of tested with perception of a clinical pharmacist promoting cost effectiveness in therapy. A significant association existed *(P value <0.05).* It was reported that care givers aware of the clinical pharmacists and promoting cost effective therapy were observed surged at N = 100 as compared to hypothetical N = 93.

The observed number of care givers not aware of clinical pharmacists and not in agreement with a clinical pharmacist promoting cost effective therapy seemed to drop as it was observed at N = 21 as compared to hypothetical N = 24.1. The details are given in Fig. 2.

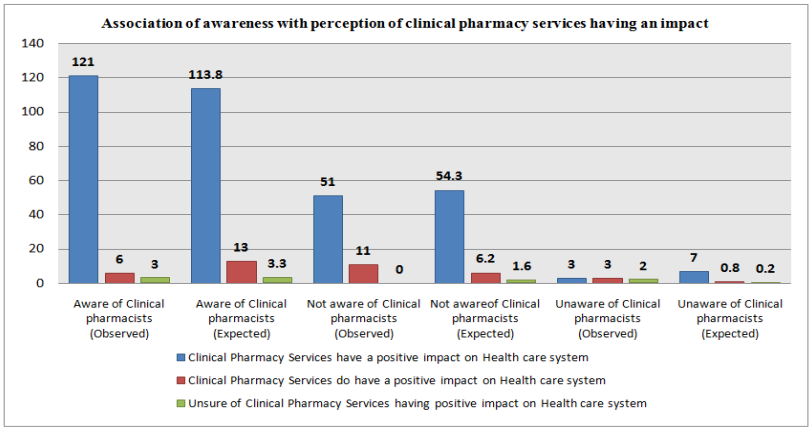

Fig. 1: Association of awareness and perception of clinical pharmacy services having an impact on health care system

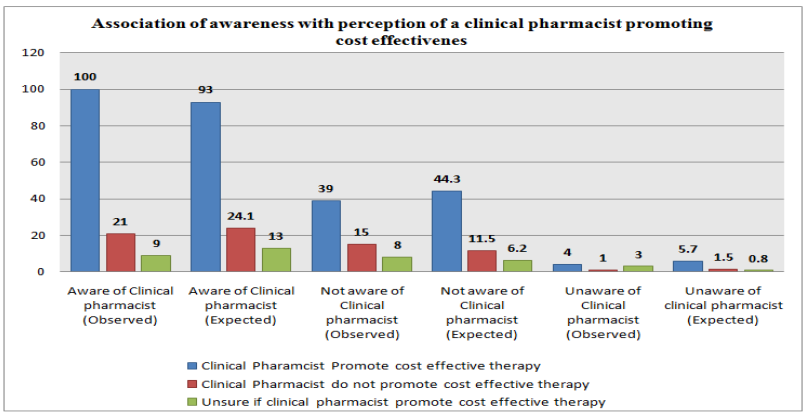

Fig. 2: Association of awareness with perception of a clinical pharmacist promoting cost effectiveness.

In addition to this, the perception of awareness was also tested with care givers' personal experience with a clinical pharmacist resolving any medication therapy related issue during patient treatment. The chi square test found a significant association between the two *(P value <0.01)* as the number of care givers personally witnessing a clinical pharmacist resolving a medication issue was reported at N = 34 against hypothetical expected number of N = 26.7. At the same time, the number of care givers not having any personal experience with a clinical pharmacist resolving any medication issue seemed to drop and was reported at N = 86 against an expected count of 91.7. Fig. 3 describes the findings.

Finally, the awareness was tested for association with opinion regarding the role of clinical pharmacists in the health care system and a significant association was observed *(P value <0.01).* A surge in the number of the care givers aware of clinical pharmacists and believe in their strong in the health care system was evident N = 70 as compared to the expected hypothetical number of N = 58.5. Additionally, the number of those aware care givers not believing in a strong role of the clinical pharmacist in the health care system dropped to N = 44 as compared to the expected N = 57.2. The details are illustrated in Figure 4 and a summary of the associations between variables is tabulated in table 2.

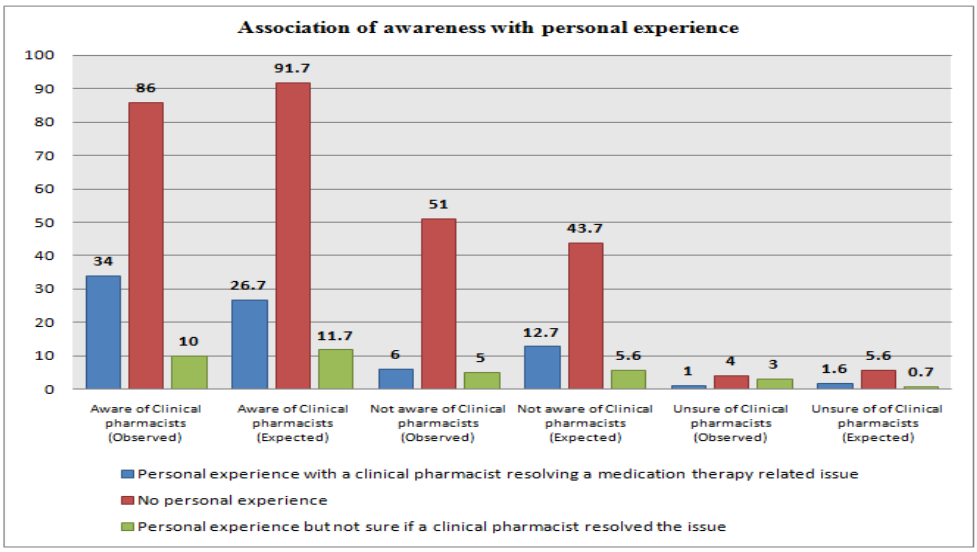

Fig. 3: Association of awareness and personal experience with a clinical pharmacist

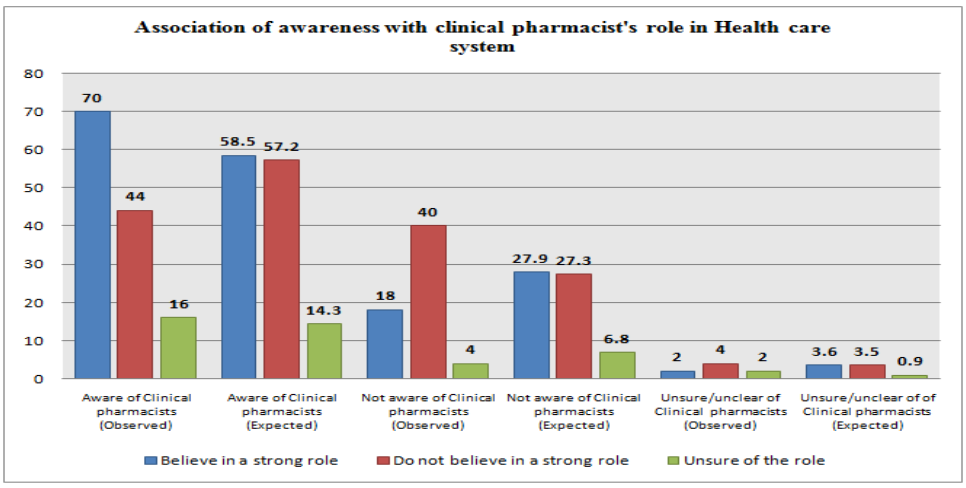

Fig. 4: Association of awareness and opinion regarding role of a clinical pharmacist

Table 2: Summary of associations of variables

S. No.	Variables	Observed (N)	Expected (N)	*P-value*
1	**Association of awareness with clinical pharmacy services having an impact**			
1.1	Aware of CP/PC and perceive a positive impact	121	113.8	
1.2	Aware of CP/PC and do not perceive a positive impact	6	13	
1.3	Aware of CP/PC and unsure of a positive impact	3	3.3	
1.4	Not aware of CP/PC and perceive a positive impact	51	54.3	*<0.01*
1.5	Not aware of CP/PC and do not perceive a positive impact	11	6.2	
1.6	Not aware of CP/PC and unsure of a positive impact	0	1.6	
1.7	Unsure of awareness and perceive a positive impact	3	7	
1.8	Unsure of awareness and do not perceive a positive impact	3	0.8	
1.9	Unsure of awareness and unsure of a positive impact	2	0.2	

2	**Association of awareness with perception of clinical pharmacist promoting cost effectiveness**			
2.1	Aware of CP/PC and perceive clinical pharmacists promote cost effectiveness	100	93	
2.2	Aware of CP/PC and do not perceive clinical pharmacists promote cost effectiveness	21	24.1	
2.3	Aware of CP/PC and unsure if clinical pharmacists promote cost effectiveness	9	13	
2.4	Not aware of CP/PC and perceive clinical pharmacists promote cost effectiveness	39	44.3	*<0.05*
2.5	Not aware of CP/PC and do not perceive clinical pharmacists promote cost effectiveness	15	11.5	
2.6	Not aware of CP/PC and unsure if clinical pharmacists promote cost effectiveness	8	6.2	
2.7	Unaware of CP/PC and perceive clinical pharmacists promote cost effectiveness	4	5.7	
2.8	Unaware of CP/PC and do not perceive clinical pharmacists promote cost effectiveness	1	1.5	
2.9	Unaware of CP/PC and unsure if clinical pharmacists promote cost effectiveness	3	0.8	
3	**Association of awareness with personal experience**			
3.1	Aware of CP/PC with positive personal experience	34	26.7	
3.2	Aware of CP/PC with no personal experience	86	91.7	
3.3	Aware of CP/PC with personal experience but unsure of its positive impact	10	11.7	
3.4	Not aware of CP/PC with positive personal experience	6	12.7	*<0.01*
3.5	Not aware of CP/PC with no personal experience	51	43.7	
3.6	Not aware of CP/PC with personal experience but unsure of its positive impact	5	5.6	
3.7	Unaware of CP/PC with positive personal experience	1	1.6	
3.8	Unaware of CP/PC with positive personal experience	4	5.6	
3.9	Unaware of CP/PC with personal experience but unsure of its positive impact	3	0.7	
4	**Association of awareness with perception of the role of clinical pharmacists in health care system of Pakistan**			
4.1	Aware and believe in a strong role of clinical pharmacists in the country	70	58.5	
4.2	Aware and do not believe in a strong role of clinical pharmacists in the country	44	57.2	
4.3	Aware and unsure of the role of clinical pharmacists in the country	16	14.3	
4.4	Not aware and believe in a strong role of clinical pharmacists in the country	58.5	18	*<0.01*
4.5	Not aware and do not believe in a strong role of clinical pharmacists in the country	40	27.3	
4.6	Not aware and unsure of the role of clinical pharmacists in the country	4	6.8	
4.7	Unaware and believe in a strong role of clinical pharmacists in the country	2	3.6	
4.8	Unaware and do not believe in a strong role of clinical pharmacists in the country	4	3.5	
4.9	Unaware and unsure of the role of clinical pharmacists in the country	2	0.9	

DISCUSSION

Clinical pharmacy is a rapidly developing field of health care aimed at augmenting positive health outcomes for patients and the health care professionals providing the specialized service are termed as the clinical pharmacists. [1, 2] In the developed countries it is already well established however in developing countries like Pakistan, majority of the allied health professionals and patients recognize the role of a clinical pharmacist. [5, 6]

However, a neutral and impartial response could be achieved by the care givers who usually witness the service, first hand. The study investigated the perception of care givers of patients who were admitted and treated in tertiary health care settings of Pakistan. It was assumed as a hypothesis that the role of clinical pharmacists is now acknowledged more openly in the general public. The study asked general questions related to this, the purpose was to get an idea of the perception of care givers with the core focus on whether clinical pharmacists and their practice were of any benefit to their loved ones.

Answering the simple question of knowing and understanding the majority (65%) appeared to be aware of pharmaceutical care. However, a third of care givers never heard of clinical pharmacists and their practice. Few, although aware of the term but were unclear of its meaning and understanding in perspective of providing benefit to their loved ones. In this context, Khan MU *et al* 2013 reported the patients' understanding to be primitive in a survey conducted in Pakistan during 2012 [6]. This increase in awareness can be due to the recent development in the health care system of Pakistan and the open acknowledgement of health care professionals such as physicians [4, 7]. It was significantly associated *(P value <0.05)* with their perception of pharmaceutical care or clinical pharmacy services having a positive impact on the health care system. Those who were aware of this might have critically evaluated the benefits this service has.

Majority of those who were unclear in their minds about the clinical pharmacist and their practice responded in favor of having an impact on the health care system. This might be due to the fact that patients and their care givers are usually not aware of the medical complexities and generally believe in whatever that is advised by their physicians [9]. In such case, a physician might be the influencer [4].

The perception of clinical pharmacist promoting cost effectiveness was also tested with awareness. The association was significant *(P value <0.05)* as those who seemed aware of the pharmaceutical care or clinical pharmacy services also supported this notion, however those unaware did not agree, the care givers who although heard the term but unclear in meaning did seem to agree with this concept. The case was again highlighting the physician's influence. However, another theory that can be presented to prove this concept is the patient counseling by a pharmacist in which a description of cheaper brands and their information is also a core focus especially in those countries where patients have to pay direct medical and health cost [10].

The perception of awareness was also tested association with their personal experience witnessing a clinical pharmacist resolving any medication therapy related issue during patient treatment. Statistical significance was observed. *(P value <0.01)* Although the majority did not experience such situation but computing the theoretical results by chi square X^2 demonstrated a significant number of those observed as compared to what was expected in theory. This observation endorsed the finding of previous studies which reported that involvement of pharmacists in health care system will lead to decrease medication errors. [7, 5, 6]

CONCLUSION

The care givers of the patients who were aware of pharmaceutical care or clinical pharmacy service and clinical pharmacists have very positive perception regarding the services and its impact on the health care system. It reiterates the fact that clinical pharmacy is rapidly developing and getting noticed in the general public of a developing country like Pakistan.

Limitation

Some of the care givers were reluctant to give their response and hence the response rate was low.

CONFLICT OF INTEREST

The authors declare no conflict of interest exists.

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response. We would also like to thank the interpreters who assisted voluntarily during response gathering.

Statement of consent

An informed, written consent was obtained from the patient's care givers prior to data collection.

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