

# Evaluation of counseling environmental alteration on pharmacy–patient communication qualifications

## A case–control study

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### Abstract

The closed pharmaceutical counseling room was so hard to be established for most of hospitals in China since limited space in the out-patient lobby, which dramatically affected the qualification of medication consultant. Few reports studied the importance of closed pharmaceutical counseling room construction.

To investigate the necessary of closed pharmaceutical counseling room construction in the outpatient lobby.

The closed pharmaceutical counseling room was established and equipped with hospital electronic information system, patient education flashes, and we-Chat in web. We collected the pharmaceutical counseling records before and after counseling room establishment and analyzed the results systematically.

After the consulting venue transferred to the closed space, methods adopted by pharmacists in patient educations were diversification. Numbers of counseling people were increasing 4 folds after room establishment and questions were transferred from drug information supply to high professional pharmaceutical relation such as the usage of respiratory devices, drug–drug interaction, and so on.

The alterations of consultant space provided a powerful platform on security, properly and suitable of patients' medication usage, keep the medication errors and poor compliance out of the serious consequence, and improve hospital satisfaction. Therefore, it is necessary in outpatient lobby to develop the independent room for medication service.

**Keywords:** outpatient, pharmaceutical consultations, satisfaction, space

## 1. Introduction

As one part of important components of hospital pharmacy, outpatient pharmacist consultation supplies the convenient professional service for patients.<sup>[1]</sup> So many researches had been evidenced the pharmacist's role in the therapeutic management and medication adherence.<sup>[2–7]</sup> In China, over 202 million elders of 60 years of age or older are accounting for 14.90% of the population at the end of 2013.<sup>[8]</sup> With the increasing of aging population, chronic diseases raise rapidly.<sup>[9,10]</sup> Chronic-disease deaths have accounted for 85% of the total death and 70% of the total burden of diseases in China.<sup>[11]</sup> Many of them did not know how to take medicine correctly and safely.<sup>[12]</sup> Crowd and noisy

hospital environment, over-loaded physicians, and innumerable patients limited hospital staffs to supply more professional services.

So, many reports have proved that pharmacist oriented counseling services played the key roles on such regions as chronic conditions self-medication managements,<sup>[13,14]</sup> adverse drug event reduction,<sup>[15]</sup> over-the-counter therapy management,<sup>[16]</sup> and so on. Otherwise, Wibowo et al<sup>[17]</sup> also found some barriers that influenced the pharmacist services. Besides poor pharmacist availability, business orientation, and weakness of IT systems support, insufficient of counseling areas/rooms was also the limitation.

Beijing Shijitan Hospital is a tertiary district general hospital with the 1100 beds in an urban area of Beijing in China. The counseling window was opened as early as in 2003 near the outpatient pharmacy. According to the request of Beijing municipal administration of hospitals, the pharmaceutical counseling center in the hospital was set up on April, 2014. The space was transferred from open window to private room, and the computer equipment with electronic medical information system was provided. In this paper, we retrospectively reported the effects resulted from the alternation of counseling environment and assure the necessity of independent space setting in the outpatient care lobby.

## 2. Methods

### 2.1. Settings

The area of pharmaceutical counseling center was about 12 m<sup>2</sup> near the outpatient pharmacy. Landmark and the guiders will

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lead the patients to the place. Basic equipments were provided such as telephone, pharmaceutical reference books, computers connected with website and hospital information system, and television with the drug education flashes. The pharmacists could see the whole prescription contents by the hospital information system if the patient could not remember his or her medications.

## 2.2. Consultant pharmacist training

All of the consultant pharmacists are completed 2-year rotation in the pharmacy and 1-year rotation in at least 4 clinical departments. After then, participants were assured to pass the paper-based tests and the living technique exams. Finally, they must attend the living trainings organized by Beijing municipal administration of hospitals. The main contents of trainings were included the communication techniques with medical staffs and patients, medication therapies of chronic diseases, and analysis of counseling cases. Pharmacists special on Chinese traditional medicines are also on guard as same as the general consultant pharmacists.

## 3. Ethical review

This study was exempted from ethics approval from our institutional review board and the requirement for informed consent, because this retrospective study was using the exiting data and did not affect subjects' rights.

### 3.1. Data collection

Since the pharmaceutical counseling room was set up on April 1, 2014 (1-1), the recordings among April 1 to December 31, 2014 and 2015 were collected as the data of postpharmaceutical counseling center, compared with the same period in 2013 as the open window pharmaceutical counseling service. All the data were analyzed statistically and retrospectively. The counselors were distinguished to patients, patients' relatives, or medical staffs. People would be recorded as the different person if he/she came to the counseling room in different day. People who went to the counseling room along with his/her relatives would be recorded as patients. Otherwise, if the patient's relative was alone here, he/she would be recorded as patient's relatives. The consultant problems were classified to the professional consultant problems and miscellaneous according to the counseling contents. Questions were recorded item by item even 1 counselor might ask more than 1 question.

### 3.2. Statistical analysis

Ratio of counseling cases before and after counseling room setting was calculated as number of counseling people divided by number of visiting out-patients. Statistics for counseling demographics was used by nonparametric chi-square test and for types of consulting problems between 2 consultant spaces were used by nonparametric Kruskal–Wallis H test.  $P < 0.05$  was considered statistically significance. SPSS16.0 was utilized as the statistic software.

## 4. Results

### 4.1. The method comparison of patient education utilizations

The thick glass was separated pharmacists to patients during the period of the counseling window. After private room was

**Table 1**

**Method comparison of pharmaceutical education before and after counseling room setting.**

Methods of pharmaceutical educations	Opened window	Independent counseling room
Face to face communications	Separated by the glass	Yes
Telephone communications	Yes	Yes
Agents with devices	No	Yes
"Q and A" in the we-chat	No	Yes
Educational flashes	No	Yes

established, face to face communications were realized and telephone connections were gradually accepted by the patients. Furthermore, based on the internet, pharmaceutical we-Chat was built up professionally, and the part of "Q and A" was satisfied with those patients who were disabling. The placebo with respiratory device such as inhaler and turbuhaler was also supplied in the consultant room, which was convenient for pharmacists to instruct the device carefully and patiently. We also cooperated with the IT information center to make the cartoon flashes according to the professional instructions. All these flashes could be shown on the television in the consultant room. Differences of counseling methods before and after counseling room setting are shown in Table 1.

### 4.2. Patient demographics before and after independent space set up

As shown in Table 2, results were shown that numbers of consultant patients were increasing gradually, and the ratio was enhanced 4 folds in 2015 more than that in 2013. As to the counseling characteristics (Table 3), female elder patients were always the main counseling population both before and after counseling room set up. After private space built, age of the counseling people was extended to the middle age (50–64 years) as shown in Table 3.

### 4.3. Difference between consultant problems before and after independent space set up

All the consultant problems were divided into 2 types including the professional pharmaceutical problems and miscellaneous. The professional pharmaceutical problems were mainly included the counseling of indications, usage and dosage, medication suggestions, adverse drug reaction, drug–drug interaction, pharmaceutical knowledge, and so on. Problems such as supplement of agent, price and storage conditions, disputes settlement, and brand name counseling are classified as miscellaneous problems. As shown in Table 4, before the counseling room was set up, the ratios of professional problems

**Table 2**

**Ratios of counseling cases before and after counseling room setting.**

	Precounseling room (2013)	Postcounseling room (2014)	Postcounseling room (2015)
Counseling people	1103	2006	4981
No of visiting out-patients	1,122,903	1,146,293	1,242,275
Ratio, %	0.10%	0.17%	0.40%

**Table 3****Counseling demographics.**

Characteristics	Precounseling room (2013)	Postcounseling room (2014)	Postcounseling room (2015)
	Number, % N=1103	Number, % N=2006	Number, % N=4981
Counseling identities			
Patients	894 (81.05%)	1510 (75.27%)	3845 (77.19%)
Patients' relatives	195 (17.68%)	404 (20.14%)	1054 (21.16%)
Medical staffs	14 (1.27%)	92 (4.59%)	82 (1.65%)
<i>P</i>	<0.01	<0.01	<0.01
Sex			
Male	Reference	Reference	Reference
Female	798 (71.53%)	1255 (62.56%)	3025 (60.73%)
<i>P</i>	<0.01	<0.01	<0.01
Age group in years			
18–49	127 (11.51%)	330 (16.45%)	708 (14.21%)
50–64	174 (15.78%)	725 (36.14%)	2153 (43.22%)
65–84	795 (72.08%)	936 (46.67%)	2080 (41.76%)
≥85	7 (0.63%)	15 (0.75%)	40 (0.8%)
<i>P</i>	<0.01	<0.01	<0.01

**Table 4****Types of consulting problems between 2 consultant spaces.**

Types of consultant problems	Precounseling room (2013)	Postcounseling room (2014)	Postcounseling room (2015)	<i>P</i>
	Ratios, % N=1103	Ratios, % N=3270	Ratios, % N=5262	
Professional consultant problems	4.08% (45)	51.24% (1675)	30.03% (1652)	<0.01
Indications, usages, and dosages	1.18% (13)	11.59% (379)	19.05% (623)	<0.01
Medication suggestions	0.27% (3)	9.31% (305)	6.06% (319)	<0.01
Drug adverse reactions	0.18% (2)	4.94% (161)	2.83% (149)	<0.01
Medication-related attentions	0.36% (4)	4.92% (155)	5.54% (181)	<0.01
Pharmaceutical knowledge	0.09% (1)	3.69% (121)	1.75% (92)	<0.01
Drug–drug interactions	1.27% (14)	12.81% (419)	2.21% (116)	<0.01
Utilizations methods of drugs with device	0.27% (3)	2.34% (76)	1.29% (68)	<0.01
Diseases counseling	0.00% (0)	1.35% (44)	0.67% (35)	<0.01
Agents identifications	0.45% (5)	0.90% (30)	0.68% (36)	<0.01
Miscellaneous	95.92% (1058)	48.76% (1595)	69.97% (3682)	<0.01
Drug supply	92.38% (1019)	40.09% (1311)	63.17% (3324)	<0.01
Medical process	0.91% (10)	3.64% (119)	2.09% (110)	<0.01
Price and storage conditions	1.54% (17)	1.49% (49)	3.43% (112)	0.035
Disputes settlement	0.18% (2)	1.31% (43)	1.33% (70)	<0.01
Brand name counseling	0.18% (2)	1.39% (46)	1.33% (17)	<0.01
Counseling of healthy policy	0.00% (0)	0.53% (17)	0.38 (20)	0.002
Agents qualities	0.00% (0)	0.18% (6)	0.13% (7)	0.106
Period of validity	0.73% (8)	0.13% (4)	0.38% (20)	0.175
Total	1103	3270	5262	

were only 4.08%. People were questioned mainly on the drug supplements (92.38%). The miscellaneous questions were on 95.92% ( $P < 0.01$ ). After the counseling room was set up, the ratios of professional consultant problems were on 51.24% in 2014 and 30.03% in 2015 and had significant difference as that compared with the same period in 2013.

## 5. Discussion and conclusions

Pharmaceutical consultant is always as one important part of the main services in the hospital. Reports had proved that pharmacists' oriented communications with patients improved patients' medication adherence and treatment satisfactions.<sup>[18]</sup> Schommer and Wiederholt<sup>[19]</sup> also concluded that pharmacy environments affect communication between community pharmacists and patients. Our study assured this point. We mainly

discussed the quality effects on the pharmaceutical service with the alteration of consultant environment. Private environment supplied the quiet and comfortable space not only for the patients but also for the pharmacists themselves. Depend on the room dominant position, the methods of patient pharmaceutical educations were realized diversified and multimedia were adopted such as cartoon flashes, we-Chat communication one by one. All of these evolutions were benefit for the pharmacists to enhance their counseling qualifications. All these improvements were attached to the counseling room.

Counseling people were increased 4 folds in 2015 compared to in 2013. On the one hand, with the development of the pharmaceutical counseling center, more and more people realized the importance of drug safety and accuracy. A number of them got used to visit the pharmaceutical counseling center after take medicine from the pharmacy. On the other hand, to those

patients that took multiple agents or used drugs with devices, clinicians would positively recommend them to receive the pharmaceutical service. These two may be the main reasons for the rise in consultant numbers.

After pharmaceutical counseling center opened, the questions people put forward to were more professional than before. Besides asked the information of drug supplement, people gradually found that pharmacists could provide especial pharmaceutical service such as the usage instructions of respiratory device, accurate administration time, recognition the drug-related diseases, and so on. The interactions between Chinese herbal medicines and western drugs or take-medicine orders were also usually the person concentrated on. All these demands were potentially digged out since the counseling room was constructed. Private space, quiet circumstance, and free talk encouraged pharmacists talk with counseling people more patiently and particularly.

As to satisfaction, Yang et al.<sup>[20]</sup> once reported that both patients and pharmacists have low levels of satisfaction with the current medication counseling service offered by community pharmacists because lack of time. In our study, this contradiction was resolved. The transformation of counseling location assures adequate service time. Although we did not investigate people satisfaction systematically by questionnaire, thank-you letters were received and most people would give oral thanks after consult completion.

There were several limitations to this study. First, limitation of recording software, nearly 1% counseling records were missing after the counseling room was set up, which might affect the accuracy of the numbers. Fortunately, the missing data were so fewer and had less effect on the results. Second, the satisfactions of patients were not investigated by questionnaire survey although we received so many thank-you letters. Since the main goal of this study was to verify the necessary of consultant room construction, the subjective feelings of patients were weakened.

In conclusion, with the counseling room established, the consultant qualities were increased dramatically. Diversified methods of consultant services improved patient education outcomes. Medications of patients were made sure to be safe, accuracy and suitable dependent on the counseling room establishment. So, it is much more possible for the hospitals to set up the independent pharmaceutical counseling room even though the space in out-patient lobby was extremely limited.

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