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Skills Acquired during Baccalaureate Degree: Evaluation Study among Practicing Pharmacists in Sudan.

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Research Article

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Abstract

Objective: The objective was to elicit the opinions of Sudanese practicing pharmacists about the skills acquired during their basic degree study period. **Methods**: A cross sectional survey was conducted during the period of May to August 2010 in Khartoum and Gezira states. A convenient random method of sampling was used. **Results:** Overall 495 pharmacists participated in the survey. Females 59.2%, younger pharmacists 94.8%, holders of Bachelor Degree of Pharmacy 80.8% and pharmacists working in private sector 72.3% were dominant. Drug dispensing 21.6%, monitoring patients' therapeutic progress 21% and Public education 19.4% were the most skills that did not attained. The patients' referral 28.1%, working with other health care providers 26.1%, ADRs monitoring 23.8% and patients' counseling 21.6%, were the least used skills as reported by the participants. **Conclusion:** The study revealed that most of the Sudanese universities pay a little attention to train their graduates on different pharmacy practice skills.

Keywords: *Acquired skills, Baccalaureate Degree, Evaluation, Pharmacists, Sudan.*

Introduction

The profession of pharmacy is continuing to undergo a dramatic shift in focus from product oriented to patient-centered care[1]. As a consequence; the mission of pharmacy education also shifted to educate pharmacists to provide services for safe drug preparation and distribution, collaborative drug therapy management, medication therapy management, and medication reconciliation[2]. The challenge for schools of pharmacy will therefore be to provide education that will qualify graduates with the knowledge, skills, and attitudes to produce competent graduates able to change the currently available pharmacy practice[3]. The curriculum must produce graduates who have sufficient basic skills in all areas to be able to build on that fundamental knowledge over a lifetime of practice[3]. Communication skills are highly recommended to be included in the curriculum in order to produce a desirable graduate[4]. Interpersonal communication skills are important for pharmacists and are needed in counseling patients, communicating with physicians, or interfacing with associates[5]. So training of pharmacy students to work collaboratively and communicate effectively with other health care providers is mandatory[6]. Communication skills, for pharmacists are important to understand the patients and their health problems; gain the patient's trust and engage patients to open up in their conversations[7]. Communication with patients includes understanding their concerns and beliefs, eliciting relevant information, and explaining options they can make informed decisions about treatment[8]. Appropriately written communication to physicians to resolve drug therapy problems can be an effective strategy for drug therapy changes[9]. Counseling patients regarding their medications is an important responsibility for pharmacists and an excellent learning opportunity for students[5]. Over the counter counseling is the most proper means in a pharmacist/patient communication process[10]. Positive outcomes can be achieved by educating and counseling patients to prepare and motivate them to comply with treatment and monitoring plans[11]. In addition to having the prerequisite clinical skills;

graduates of pharmacy must be able to function effectively in multi health professional teams in order to contribute to quality patient care[12]. Pharmacists are often the only health care providers focusing patient education on medication: how to take it, what to expect, and side effects and drug interactions[5].

The Sudan is witnessing an increased demand of pharmacy education. Education quality limiting factors like sufficient and qualified pharmacy teaching staff, well designed and currently updated curricula, along with proper infra-structured and well equipped institutional facilities urge such type of qualitative studies.

The objective of this study was to elicit the opinions of Sudanese practicing pharmacist about the skills acquired during their basic degree study period.

Material and Method

Study Design and study area:
A cross sectional survey was conducted during the period of 1st May -31 th August 2010 in two states in Sudan; namely Khartoum and Gezira.
Inclusion Criteria: All pharmacy practitioners graduated from Sudanese faculties of pharmacy and working at the time of data collection in the territories and different localities of Khartoum and Gezira states.

Participants' Selection and Enrolments:
A convenient sampling method was used to generate the sample size of the participants in this study. Two lists of pharmacists' registers were obtained from both, the General Directorate of Pharmacy, Federal Ministry of Health, Khartoum and the Pharmacy Administration, State Ministry of Health, Gezira. A proportionate random sample of the study participants was prospectively selected from different health care facilities namely: pharmacy administration, drugs' regulatory affairs, drugs' supply departments, industry and academia. Accordingly 100 and 400 (n=500) practicing pharmacists were randomly stratified from Gezira and Khartoum states respectively. The stratification meant to represent practicing pharmacists based on their rate of occurrence in the private and public sectors.

Data Collection Instrument:
Data was collected by self-administered questionnaire, which was developed by the research team. The questionnaire consisted of four parts. The first part (*n=11 questions)* dealt with pharmacist demographic characteristics and basic information on: gender, age, Pharmacy Degree, graduation year, university of graduation……etc. The second part of the questionnaire (*n=7 category questions)* classifying the nature of the work of the respondents. The third part of the questionnaire was deigned to collect data on the evaluation of the skills acquired during the basic degree study period by using Knowledge Likert Scale (*n=17*). The last part was composed of seven questions verifying training on behavioral skills during undergraduate course period. The data was collected by the final year students, Batch Number 29 as part of their training session in research topics. The questionnaire was pretested for internal consistency and then piloted with random convenience sample (25 pharmacists). Then some modifications were done to best address the study's objectives. The questionnaire was approved by the Research Committee, Faculty of Pharmacy, University of Gezira, Sudan. No ethical clearance was needed, only respondents' consents were obtained.

Data Analysis:
Statistical analysis was performed using the statistical software package SPSS windows version14.0. The differences in the participants' responses were analyzed with chi-square test; the .05 level of significance was used as the cutoff point for statistical significance.

Outcome Measures:
The outcome measure was the difference in responses in Sudanese pharmacy practitioners' opinions toward the under graduate acquired skills in different faculties of pharmacy.

Results

Respondents' Background Characteristics
Overall 500 pharmacists responded to the questionnaire. Five (1%) questionnaires were rejected to incomplete data. The distribution of participants by their background characteristics in the current study revealed slight dominance in female pharmacists 293 (59.2%) compared to male ones 202 (40.8%). The younger and recently graduated pharmacists; 20-30 year; 469 (94.8%)- were dominating other age groups. No significant difference was shown when correlating gender to age (*p=0.219*). Four hundred and thirty five (87.9%) obtained their Pharmacy Degrees from public (Governmental) universities. Most of the pharmacists 400(80.8%) in this study were holding Bachelor Degree of Pharmacy Significant difference was observed when cross tabulating gender to the obtained postgraduate degrees (*p= 0.002).* Different disciplines of private sector namely full private pharmacies and pharmaceutical industries were the most preferred ones by the majority of the questioned pharmacists 358 (72.3%). The pharmacy practitioners' distribution in different work sectors was highly significant, to the respondent's age *(p<.01)*. There was a significant difference when gender was correlated with the sector of the profession (*P=.028)*. Table (1) shows the distribution of participants by their background characteristics.
Acquired Skills: Respondents' opinions on skills acquired during undergraduate study period

revealed that, public education as an important skill in practice was fully used by 116(23.4%) and not studied by 96(19.4%) of the respondents, (*P= 0.108*). Only 121 (24.4%) of the pharmacists who reported the full use of drug dispensing, however 107(21.6%) of them not studied the dispensing skills, (*P= 0.116*). Among the responded pharmacists; 127(25.7%) were fully used patient counseling skills, while 80 (16.2%) were not taught this type of skill *(P=0.447).* The number of participants who not subjected to listening 81(16.4 %) and managing therapeutics outcomes 88(17.8%) skills showed the respective significance difference: (*P*= .009 and .049). In contrast managing patients' therapeutics progress skill was not studied by 104 (21.0%) of the pharmacists, least used by 100(20.2%) and fully used by 92 (18.6%), *(P= 0.000)*. Both of study and use patterns of working in team and reporting of adverse drug reactions showed the respective significance association, *(P=0.045)* and *(P= 0.217).* Table (2) shows respondents' opinions on skill obtaining topics.

Table1. Distribution of Participants by Background Characteristics

Background characteristic	n(%)
Gender	
Male	202 (40.8%).
Female	293 (59.2%)
Age	
20-30 year	469 (94.8%)
31-40 year	21 (4.2%)
> 40 year	5 (1.0%).
University type	
Public	435 (87.9%)
Private	60 (12.1%)
Pharmacy degree	
B.Pharm	400(80.8%)
Master	80 (16.2%)
PhD	15 (3.0%).
Sector of work	
Private	358 (72.3%)
Public	125 (25.3%)
Both	12 (2.4%)
In- service Training	257 (51.9%).
Had	238 (48.1%)
Not had	

Communication Skills:

Respondents' opinions on communication skills. Overall; 141 (28.5%) were fully used communication skills in their daily practice while 112 (22.6%) least used it, 72 (14.5%) not studied it, and 62 (12.7%) often used it, (*P= 0.002)* Figure (1). Shows respondents' opinions on communication skills.

Generally; the percent of males participants 54 (26.7%) not studied the communication skills was more than females 50 (17%); however females fully used these skills in their practice were 76(25.9%) compared to their males colleagues 37 (18.3%). The communication skills were least used by 48 (16.4%) females and 33(16.3%) of males, (*P=0.223*). Participants aged< l 25 years fully used the communication skills 69 (23.4%) compared to those > years of age 43 (21.8%). While 68 (23%) of respondents whose ages were < 25 years were not studied these skills compared to 36 (18.2%) in the age range 26-45 years *(P=0.018).*

Participants holding postgraduate degrees in pharmacy 12 (24%) were fully used the communication skills compared to 101 (22.7%) holding BPharm. degrees. Communication skills were not studied by 13(26%) of those holding postgraduate degrees compared to 91 (20.4%) of BPharm degrees holders. The participants reported least use of the communication skills according to their sector of work as follow: private 69 (19.3%) and public 11(8.8%). However; 39 (31.2%) in the public, 68 (19%) in the private sector fully used these skills during daily practice. Seventy seven (21.5%) of the private sector pharmacists, 25 (20%) of public did not study communication skills at all *(P=0.002).*

Participants' Opinions on Acquired Behavioral Skills

Professional training activities also were not provided during the undergraduate courses in faculties of pharmacy in some Sudanese universities. The pharmacists who were well trained to patient information provision during their undergraduate study were 230 (46.5%); however 141(28.5%) did not receive adequate training on it *(P= 0.017)*. Out of the responding pharmacists 222(44.8%) were well trained to dispensing, while 117 (23.6%) were not *(P=0.167).* Two hundred and thirteen (43%) of the total respondents reported that they were well trained to work with team compared to 148 (29.9%), *(P=0.013)*. In contrast when the pharmacists asked about the behavior with other pharmacy team 201 (40.6%) and 131(26.5%) respectively reported that, they were well trained and not trained at all (*P=0.022*). Table (3) shows respondents' opinions on training topics.

Regarding the training on patient health education; 194 (39.2%) disclosed that they were well trained however 132 (26.7%) were not (*P=0.456*). The respondents who were well trained to behave with supervisors and employees were 190 (38.4%), while 148(29.9%) were not trained to this behavioral skill during the undergraduate study period; (*P=0.156*). Working with other health care professionals showed the least number of pharmacists who were well trained to this skill 190 (38.4%) and 181 (36.6%) were not at all received training on it (*P=0.419*).

Discussion and Conclusion

Overall; the obtained results highly indicate the fact that most Sudanese universities pay a little attention to the training of their graduates on different skills that qualifying the graduates to be capable of active involvement especially in patients care practices.

Skill	Least used %age	Not really/ %age	Don't know /%age	Often used/ %age	Fully used/ %age	Not studies/ %age	*p* value/ universities correlation
Communication	112/22.6	70/14.1	37/7.5	63/12.7	141/28.5	72/14.5	0.002
Public Education	109/22	25/5.1	53/10.7	96/19.4	116/23.4	9619.4	0.108
Research	120/24.2	57/11.5	55/11.1	79/16.0	83/16.8	101/20.4	0.254
Statistics	130/26.3	56/11.3	79/16.0	81/16.4	68/13.7	81/16.4	0.499
Planning	107/21.6	58/11.7	69/13.9	89/18.0	88/17.8	84/17.0	0.099
Drug Dispensing	10621.4	67/13.5	29/5.9	65/13.1	121/24.4	107/21.6	0.116
Patient Counseling	107/21.6	51/10.3	47/9.5	83/16.8	127/25.7	80/16.2	0.447
Management	82/16.6	49/9.9	62/12.5	94/19.0	109/22.0	99/20.0	0.090
Listening	105/21.2	30/6.1	65/13.1	78/15.8	136/27.5	81/16.4	0.009
Managing Therapeutics outcomes	94/19	80/16.2	47/9.5	93/18.8	93/18.8	88/17.8	0.049
Managing Patients Therapeutics Progress	100/20.2	49/9.9	60/12.1	87/17.6	92/18.6	104/21.0	0.000
Team work	129/26.1	58/11.7	46/9.3	99/20.0	80/16.2	83/16.8	0.022
ADR Reporting	118/23.8	62/12.5	51/10.3	92/18.6	80/16.2	92/18.6	0.045
Patient Referal	139/28.1	55/11.1	62/12.5	68/13.7	93/18.8	78/15.8	0.217
Supply Management	117/23.6	84/17	45/9.1	93/18.8	70/14.1	86/17.4	0.128

Table: 2 **Respondents Opinions on Skills Obtaining Topics (n=495)**

** Denotes statistically significant*

Table: 3 Respondents Opinions on Training Topics

Behavior with	Well trained / %age	Partially trained /%age	Not trained /%age	*P* Value/ Universities Correlation	Total/%age
Other Pharmacy Team	201/40.6	163/32.9	131/26.5	0.022*	495/100
Other Health Professional	174/35.2	140/28.3	181/36.6	0.419	495/100
Supervisors & Employees	190/38.4	133/26.9	172/34.7	0.156	495/100
Team Working	213/43	134/27.1	148/29.9	0.013*	495/100
Dispensing	222/44.8	156/31.5	/23.6	0.167	495/100

The dispensing refers to the process of preparing and giving out medicine to a named person on the basis of a prescription [13]. Proper dispensing requires dispenser who is well trained in reading and interpretation of prescriptions and has the ability to communicate well with patients and physicians. The current study revealed that 23.6% of respondents admitted that they were not trained on this skill. Most faculties of pharmacy send their students to a training period under the supervision of a licensed pharmacist in community pharmacies. The objectives of this training are many; it gives the students a good opportunity to be familiar with community pharmacy practice and to develop their skills to communicate with the public. But unfortunately this activity is not supported; in most cases; with theoretical background on dispensing process. As a result the students sometimes may dispense prescriptions without interpretation of its content and counseling the patient about their illness to intervene when appropriate.

The study showed that (22%) of the participants least use public education and (19.4%) did not study this skill during undergraduate course. The number of medicines circulating in the pharmaceutical market in Sudan was markedly increased in the last two decades. Diverse sources of information about these medicines are now available. The pharmacist can be the only source of providing the patients with evidence-based unbiased information through effective public education[14]**.** Patient education also is of importance in increasing patient compliance to treatment. To provide public education pharmacist should know about their patients' cultures, especially health and illness beliefs, attitudes, and practices[15]. They should be aware of patients' feelings toward the health system.

The provision of proper patient care can be better achieved through multidisciplinary inputs from those involved in the process of care. Pharmacist as a drug specialist became a more integral part of the health care delivery team[1]. This team work requires knowledge of others' roles as well as the ability to

communicate and interact with them [16]. The current study revealed that nearly one third of pharmacists fully used communication skills and 12.7% of them often used it in their daily practice. In this respect a gender variation was observed in the use of these skills in practice. The use of these skills by more females than males may be attributed to the nature of females in being more patient than males in the establishment of pharmacist–patient relationship through counselling and education. Majzub *et al* assured that both pharmacists and students alike agree on the importance of communication skills to not only benefit the lives of the patients as a main agenda, but also the members in their workplace as a whole[7].

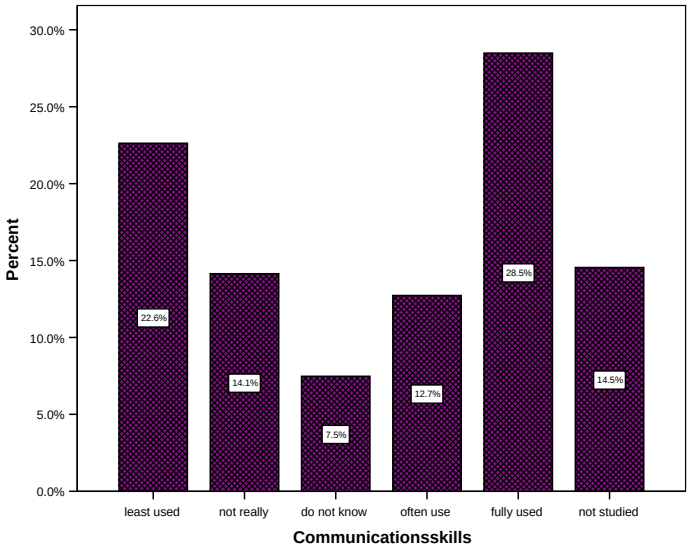

Figure 2: Respondents' Opinions on Communication Skills

In the results of the present study showed that 28.1% of the respondents least used the patient referral skill in their practice. In pharmacy practice in Sudan there are no well defined boundaries between prescriptions only drugs and over- the- counter ones. Pharmacists especially in community pharmacies treat minor diseases and some other conditions that really need referral. The reasons for this behaviour are many and complex; but the economic factors in addition to patients' beliefs and pharmacist attitudes are the most ones.

Patient counselling is the provision of medication information orally or in written form to the patients or their representative or providing proper directions of use, advice on side effects, storage, diet and life style modifications[17]. As an important skill patients' counselling was fully used by 25.7% of the respondents in their practice however it was not studied by 16.2% and 21.6% of respondents were least used it. Since the pharmacy is the patient's last point of contact with the health system before using a medication; pharmacists are the last line of defence against medication error [18]. This can be achieved by proper patient counselling and provision of information that needed for rational use of medication and prevention of complications resulting from non-adherence. Not using this skill in pharmacy practice in Sudan may be due to the fact that the working environment is not organized in a manner that permits such activity to be conducted for both patient and pharmacist. In addition; some practicing pharmacists may ignore the importance of the counselling process and just dispense the medications without further interaction.

The results generally showed that the Sudanese curricula studied by most participants are not focus on training the students for important clinical skills; like monitoring patients' therapeutic progress and managing therapeutic outcomes of patients. These skills are important for the pharmacists when engaged in pharmaceutical care process[14]. Incorporating such skills as part of the undergraduate curricula will increase the ability of the students to intervene in the treatment plan when it is appropriate later when they start to practice the profession and strengthen their competency. The study showed that a considerable number of the respondents was partially trained or not trained on important behavioural skills; like how to behave with other pharmacy team, other health professionals, supervisors and employees. The pharmacy team is composed of personnel's with different backgrounds. Each one of them has a specific role according to his job description. The technical manager in most cases is the responsible pharmacist. So in order to perform his mission as a group leader the pharmacist should be trained to behave with the pharmacy staff. The training program during the basic degree study period should subject the student to build a positive relationship with the pharmacy team and supervisors. This is important as exchange of experience and solving problems during the practice need collaboration between the staff members. In addition working in group increases self-confidence and motivate the whole group to better performance and increase the level of competency.
The results of the current study revealed the fact that most Sudanese universities concentrate on conventional method of teaching pharmacy and paying little attention to equip the graduates with important skills especially those needed to practice new emerging concepts in pharmacy practice today. The outcome of this research reflecting the negligence of most pharmacy institutions in Sudan to the importance of the skills' instruction to the pharmacy students during their undergraduate course of the study. The obtained data could raise awareness in many developing countries with similar type of pharmacy education and may encourage forward moves for change.

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AUTHORS' CONTRIBUTIONS

Authors contributed equally to all aspects of the study.

PEER REVIEW

Not commissioned; externally peer reviewed.

CONFLICTS OF INTEREST

The authors declare that they have no competing interests.