

Between 1966 and 2003 the University of the North (UNIN) Pharmacy Programme trained 582 pharmacists, most of them Africans (black) from disadvantaged backgrounds. UNIN is putatively credited with having trained most of the black pharmacists in South Africa, but there are no data to back such claims. In January 2005 UNIN merged with the Medical University of Southern Africa (MEDUNSA) to form the University of Limpopo. The present study aimed to establish the whereabouts of the 1966 - 2003 UNIN pharmacy graduates, and to investigate the factors that may have influenced their career choices, the progress they have made, and satisfaction with their present work. A preliminary account of this work was presented at the EQUINET Regional Meeting on Equity in the Distribution of Health Personnel (7).

## MATERIALS AND METHODS

*Study design:* This was a descriptive study, using a semi-structured, self-administered questionnaire, focus group discussions and in-depth group interviews. We obtained contact information on the graduates from multiple sources including the University, the South African Pharmacy Council (SAPC), and the graduates themselves.

*Subjects:* From 1966 to 2003 UNIN produced 582 pharmacists, of whom 449 were registered by SAPC and at least 30 were dead. We established the whereabouts of 381 UNIN-trained pharmacists practicing in South Africa. We used convenience sampling, with the intention to include all those we were able to contact. Participation in the questionnaire survey, focus group discussions or in-depth interviews was therefore based on accessibility and availability of graduates.

*Questionnaire survey:* We sent out the questionnaire to 233 (out of 381) graduates for whom reliable contact information was obtained. The questionnaires were sent by fax ( $n = 15$ ), e-mail ( $n = 23$ ), hand-delivery to work places ( $n = 89$ ) and by post ( $n = 106$ ). Follow up telephone calls were made in case of no response after three weeks.

*Focus group discussions and in-depth group interviews:* Three focus group discussions were held, two in Limpopo Province and one in Gauteng Province, comprising of seven, nine and six participants,

respectively. In addition, three in-depth interviews/discussions were held with a group of two in KwaZulu-Natal Province (Durban), a group of two in the Limpopo Province (at the University), and a group of four in the Eastern Cape Province (Port Elizabeth). The choice of venue(s) for the focus group discussions and in-depth interviews was informed by availability of graduates.

*Data handling and analysis:* (i) MS Excel was used to calculate various frequencies, proportions or percentages. Responses for open-ended questions were grouped into broad categories before analysis. Appropriate statistical tests (Chi-square test, ANOVA, or Student t-test) were done using SPSS or Primer statistical programmes. (ii) Focus group discussions and in-depth interviews were transcribed and the transcripts compared to the investigators' notes for veracity. The data were analysed in terms of the broad themes using marker keywords.

## RESULTS

### (a) Questionnaire survey

The questionnaire response rate was 55.4% ( $n = 129$ , 67 males and 54 females), but eight questionnaires were excluded because they were incomplete. The respondents included interns (22.3%), pharmacy managers or owners (20.7%), pharmacists (14.0%), community service pharmacists (10.7%), senior pharmacists (8.3%), principal pharmacists (8.3%) and chief pharmacists (4.1%). Most of the 121 respondents ( $n=73$ , 60.3%) work in the Limpopo Province, with 65.5% working within 200 km of their original homes. Eighty five (70.2%) are of rural origin, and 36 (29.8%) of urban origin. Fifty six (46.3%) work in rural areas, while 65 (53.7%) work in urban areas. Respondents of rural origin were more likely to work in rural areas than those of urban origin; of the 56 who work in rural areas, only four were of urban origin ( $X^2 = 23.522$ , 1 d.f.,  $P < 0.001$ ).

Seventy six (62.8%) respondents work in the public sector, 36 (29.8%) in the private sector, while seven (5.8%) work in both private and public sector. (Table 1). Fifty nine of the 76 (77.6%) public sector pharmacists are of rural origin, while 23 (63.9%) of private sector pharmacists are of urban origin. The association between origin and sector of work was statistically significant ( $X^2 = 16.579$ , 1 d.f.,  $P < 0.001$ ).

Table 1

*Place of work for the 121 respondents*

Workplace <sup>1</sup>	No.	% of respondents
Public hospital	66	54.6
Retail Pharmacy	25	20.7
Academic	7	5.8
Two private sector jobs	6	5.0
Private sector + Public hospital	4	3.3
Private sector + Academic institution	3	2.5
Government Department	3	2.5
Industry	3	2.5
Private Hospital	2	1.7
Retired	1	0.8
Unemployed	1	0.8

<sup>1</sup> Public sector includes public hospital, academic institutions and government departments

The most common reasons for taking up the present job are as shown in Table 2. Notably, pay was the sole reason in only 3.6% of responses, and was combined with other reasons in 18.8% of responses.

When asked why they changed or would change jobs, 28.0% of the respondents gave no reason; the pay was cited in 24.3%, opportunity for professional development in 11.2%, the combination of pay and opportunity for professional development in 10.3%, while job satisfaction was cited in 5.6%, of responses.

On whether or not they would opt to do pharmacy again, there were 118 responses, of which 63 (53.4%) respondents said they would do pharmacy again, 45 (38.1%) said they would not, while ten (8.5%) were not sure. On whether or not they would encourage or recommend their children to do pharmacy the responses are as shown in Table 3. The most common reasons cited by those who would opt to do pharmacy again were the nature of the profession (38.2%) and employment prospects (17.5%). Most common reasons for those who would not opt to do pharmacy again were poor pay and conditions of service (22.8%), and restrictive legislation and government interference (21.2%). The main reason for recommending children to do pharmacy was the employment opportunities for pharmacists; while poor pay, restrictive legislation and government interference, the need for the child

to make own choice and dispensing doctors were the most common discouraging factors.

The income distribution was below R 50 000 for five respondents; between R50 000 - 150 000 for 72 respondents; between R 151 000 and 250 000 for 33 respondents, between R 251 000 and 400 000 for eight respondents, and more than R 400 000 for two respondents. Sixty five (57.5%) respondents indicated a job satisfaction score of seven and above. Job satisfaction ratings were not related to the income, with some of the lowest earning respondents reporting job satisfaction scores of ten out of ten. Table 4 shows the relationship between the job satisfaction rating and how the respondents felt their expectations had been met.

Most urban respondents (73.4%) stated that their expectations were partly met or not met at all, compared to 51% of the rural-based respondents who said their expectations were fully met or met to a large extent. This difference in fulfillment of expectations was statistically significant ( $X^2 = 10.387$ , 3 d.f,  $P < 0.05$ ).

The most common frustrating factors and fulfilling aspects of the practice of pharmacy among the respondents are shown in Table 5.

Figure 1 shows where the respondents would like to be in the next 5, 10 and 20 years. Note the declining numbers of those who would remain in the public sector (especially the hospitals) with time.

Most respondents (n=98, 81%) would like to be involved in the Pharmacy Programme at their alma mater, in areas such as advising and encouraging students (17), alumni association activities (8), offering platforms for student experiential learning (10), participation in the teaching of students (12), and research and postgraduate studies (7).

General views and suggestions on the pharmacy profession and the future of pharmacy in South Africa were broadly for better recognition of the

profession, increased role of pharmacists in the health system and for better relationships between pharmacy and government, SAPC and other professions. Respondents were equally divided between optimism (e.g. that the future of pharmacy was bright) and pessimism (e.g. the pharmacy profession was doomed). Nevertheless, even the pessimistic ones indicated that pharmacy has a future if certain improvements are made.

**Table 2**

*Motivation for taking up present job*

Reason	No.	% responses
Opportunity for professional development	21	18.8
Service to community	19	17.0
Professional development and service to community	16	14.3
No other choice	13	11.6
Pay and Professional development	8	7.1
Pay and two or more other reasons	8	7.1
Professional development and two or more other reasons	7	6.3
Professional development and proximity to family	4	3.6
Pay	4	3.6
Pay and service to community	4	3.6
Proximity to family and two or more other reasons	4	3.6
Proximity to family	3	2.7

**Table 3**

*Would you encourage your child to do pharmacy?*

	Encourage child to do pharmacy**		
	Yes	No	Don't know
Would parent do pharmacy again?			
Yes*	30	21	12
No	4	30	11
Do not know	0	5	5

\* Of the 63 pharmacists who would opt to do pharmacy again, only 30 (47.6%) would encourage their children to do pharmacy.

\*\* Those who would opt to do pharmacy again were more likely to encourage their children to do pharmacy than those who would not do pharmacy again if they were to go back in time ( $X^2 = 26.475$ ; 4 degrees of freedom,  $P < 0.01$ ).

**Table 4***Relationship between job satisfaction and expectations score*

Expectations met	No.	Mean job satisfaction score* $\pm$ SEM
Completely (a)	7	9.0 $\pm$ 0.38
To a large extent (b)	33	7.8 $\pm$ 0.34
Partly (c)	54	6.7 $\pm$ 0.28 <sup>1</sup>
Not at all (d)	12	5.5 $\pm$ 0.61 <sup>2</sup>

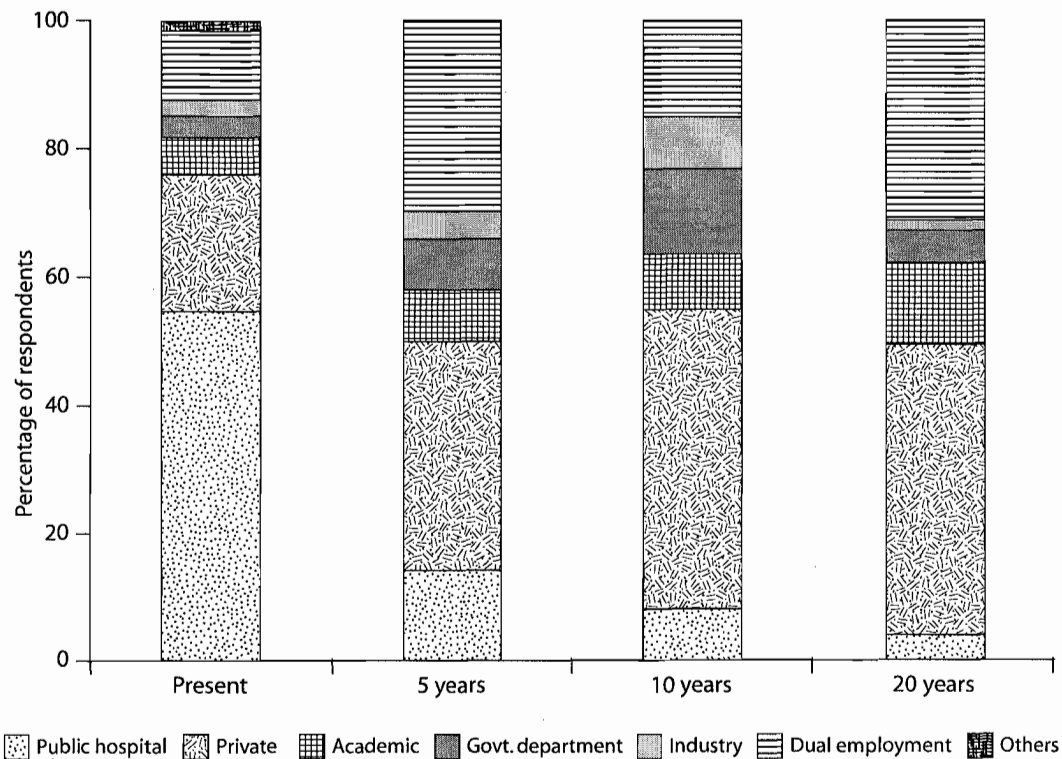
\* Respondents were asked to state their job satisfaction on a scale of 1 to 10

<sup>1</sup> P < 0.05 compared to (a);<sup>2</sup> P < 0.05 compared to (a) and (b)**Table 5***Most frustrating and fulfilling aspects of pharmacy practice*

(a) Frustration	No.	% of responses
None (no frustration so far)	9	13.6
Doctors	9	13.6
Government (Legislation, price cuts, attitude)	8	12.1
Lack of recognition	6	9.1
Poor pay	6	9.1
Heavy workload	6	9.1
Lack of drugs in public hospitals	5	7.6
No support from seniors	4	6.1
Medical aids	3	4.5
Internship exam	2	3.0
Lecturers	2	3.0
Patient attitudes	4	6.1
Apartheid	1	1.5
Community service	1	1.5
<b>(b) Fulfilling</b>		
Interactions with patients	56	72.7
Interactions with other professionals	5	6.5
Made a change	3	3.9
Professional development	3	3.9
Challenges on the job	2	2.6
Detect and correct prescription errors	2	2.6
Involvement in ARV programme	2	2.6
Manage resources/big company	2	2.6
First black pharmacist to own pharmacy in town	1	1.3
First salary	1	1.3

**Figure 1**

The career preferences for the respondents over the next 5, 10 and 20 years, based on where they would like to be. Presently 65% are in public sector placements (hospitals, academic institutions and government departments) with 56% in public hospitals. In five years time, only 24% will be in the public sector, with 12% in public hospitals. In ten years time, 23% will be in the public sector, but only 6% will be in public hospitals. And in 20 years time, only 11% of respondents will be in the public sector, and only 2% see themselves being in public hospitals. The Private category includes those who will be in retail pharmacy and those who would like to do non-pharmacy related business



**(b) Focus Group Discussions**

The purpose of the focus group discussions and in-depth interviews was to explore the reasons for the choices made by the pharmacy graduates, the problems encountered in the field, the expectations the graduates had as they left pharmacy school and the extent to which the reality in the field differs from the expectations.

Common expectations upon graduating from pharmacy school were: respect within the health care system, a good working environment with good conditions of service (including good pay), opportunity for interaction with patients, and a united profession with supportive seniors. In the words of one participant, ".... a strong, proud and vibrant profession, instead we found that pharmacy is not a united profession."

The perception was that pharmacy was not a valued profession, and pharmacists are not seen as important members of the health team, "As evidenced by how poorly we are paid". Many participants were frustrated by the lack of facilities and opportunity to counsel patients. Some participants observed that pharmacists are individualistic and do not look after themselves as a profession. Many pointed to unrealistic patient expectations of pharmacists, for example demands for items not prescribed to be dispensed and patient expectation of instant service from the pharmacists. As summed up by one participant, "Patients will wait for hours to see a doctor but are very impatient at the pharmacy, for them ten minutes at the pharmacy is too long." It was the view of many that administrators think pharmacists are too demanding. However, a minority of participants

reported good experiences at work, such as when doctors are grateful for the correction of prescription errors. One stated, "Knowledgeable pharmacists are valued by others who consult them. Doctors can be corrected without them being rude or defensive, what matters is the approach of the pharmacist."

The most pressing problems highlighted were the lack of recognition as a valuable profession; lack of incentives in addition to poor pay, and the apparent exclusion of pharmacists from decision making and administrative structures in the public sector. As observed by one participant, "Apart from the miserable salary there is nothing else."

The ideal situation for the pharmacists would include better working conditions with higher pay, better housing and more involvement of pharmacists in the management of the hospitals. Suggestions for attraction of pharmacists to the public sector and rural areas included revision of the rural and scarce skills allowances, and the establishment of promotion procedures for automatic progression from one rank to another with commensurate pay adjustment. The infrastructure in the rural areas - e.g. roads, schools, recreational and shopping facilities - will have to be improved in order to attract pharmacists.

While acknowledging that the training they received was good or very good, the participants felt that there were many areas in which the pharmacy programme at their university should improve. Suggestions in this regard included the use of active learning strategies that are student-centred and student-directed, greater emphasis on clinical and experiential learning, improvement of the research base of the programme and postgraduate studies. The need to avoid information overload was mentioned in all discussions.

## DISCUSSION

It was apparent from the present study that not many of the UNIN pharmacy graduates have emigrated. Opportunities for professional development and service to the community were the major pull factors for the pharmacists, while poor pay would be a major push factor for changing jobs. This is consistent with earlier findings that remuneration and salaries are potentially the most influential push factors among health professionals (3).

Limpopo Province has a higher percentage of pharmacists in the public sector than any other

province in South Africa, being 46.8% compared to 14.9% nationally (6). The higher proportion of Limpopo-based pharmacists in the public sector could be partly due to the fact that many UNIN pharmacy graduates are from Limpopo Province, many (62.8%) are in the public sector, and many work within 200 km from their original homes. The majority of respondents were of rural origin, which is a historical reflection of the type of UNIN pharmacy students (8). That rural origin was predictive of the likelihood to work in a rural posting and in the public sector is in conformity with other studies to the same effect (9, 10).

To make rural postings attractive requires a general improvement in working conditions, including provision of schools for children and shopping facilities. That will need a multi-sectoral approach; otherwise initiatives that focus on the pay alone, such as the rural or scarce skills allowances may not succeed in attracting or retaining health professionals in such areas (11). Strategies that include non-financial incentives, such as improvements in infrastructure and facilities and on-the-job recognition will have to be explored for retention of HRH (12). Most respondents felt that the future of pharmacy in South Africa could be bright, subject to pharmacists' concerns being addressed.

There were a number of limitations in the study. We did not have contact details for up to 39% of the target group. The study was conducted in the wake of the new legislation and the ensuing court battles over medicine prices and dispensing fees, which made many pharmacists, especially those in the private sector, angry, dejected, demoralised and reluctant to participate in the study. That contributed to the response rate of 55.4% in the questionnaire survey, and may partly account for the relatively more respondents from the public than private sector. Some of the views expressed by the respondents need to be interpreted in that context, and may not necessarily be applicable to all the graduates of our programme. That we obtained responses mainly from public sector pharmacists may partly be due to the fact that it was easier to establish the contacts of those from the public sector than those in the private sector. Nevertheless, the qualitative data from the focus group discussions and in-depth interviews affirmed the questionnaire-generated information, and therefore lend credence to the main inferences.

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## FACTORS INFLUENCING THE DISTRIBUTION OF PHARMACY GRADUATES OF THE UNIVERSITY OF THE NORTH, SOUTH AFRICA

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## FACTORS INFLUENCING THE DISTRIBUTION OF PHARMACY GRADUATES OF THE UNIVERSITY OF THE NORTH, SOUTH AFRICA

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### ABSTRACT

**Objective:** To establish the whereabouts of pharmacists trained at the University of the North (UNIN), and the factors that influenced their career choices.

**Design:** Descriptive, cross-sectional study using quantitative and qualitative approaches.

**Setting:** Department of Pharmacy, University of Limpopo, South Africa.

**Results:** Most of the 582 pharmacy graduates from UNIN (1966 - 2003) work in South Africa. The questionnaire was sent to 233 graduates and 129 (55.4%) responses were received, of which 121 were analysed. Eighty five (70.2%) respondents were of rural origin; 46.3% work in rural areas and 62.8% in the public sector. Graduates of rural origin were more likely to work in rural areas and the public sector than those of urban origin. Job satisfaction was not related to income. Professional development and service to the community were more commonly cited motivations for taking up the present job than pay. However, 25% of respondents would change jobs for better pay. The most fulfilling aspects of pharmacy practice were interactions with patients, while the most frustrating ones were doctors, restrictive legislation, lack of recognition for the pharmacy profession and poor pay. The focus group discussions and interviews reinforced the above views, with suggested areas for improvement e.g. conditions of service, rural infrastructure and pharmacist involvement in the health system.

**Conclusions:** Most UNIN-trained pharmacists are within South Africa. Pharmacists of rural origin were more likely to work in rural areas and the public sector than those of urban origins. Both financial and non-financial incentives are needed to attract pharmacists to underserved areas.

### INTRODUCTION

Human resources for health (HRH) are the most important component of any health system, as the skills mix determines the quantity and quality of service rendered. Indeed, the World Health Report 2006, *Working Together for Health* was devoted to HRH issues (1). The South African health system has many inequities, especially between rich and poor areas, and between the private and public sectors. There are wide disparities in the distribution of health professionals between the private and public sectors; whereas the private sector serves less than

20% of the population, it consumes 58% of total health expenditure and has a higher proportion of most health care professionals except for nurses (2-5). The distribution of pharmacists is a case in point - only 14.9% of the pharmacists registered in South Africa work in the public sector (6). This in turn translates into a low national public sector distribution of pharmacists at 3.1/100 000 population, varying between 2.1 (Eastern Cape Province) and 6.4 (Western Cape Province) (6). The distribution of HRH is determined by push factors, which move health personnel out of, and pull factors which attract them to an area (3).

In conclusion, most of the UNIN-trained pharmacists work within South Africa. Rural origin pharmacists work mostly in the public sector, mainly government hospitals, and are more likely to work in rural facilities than their colleagues of urban origin. The most common reasons for taking up the present job were opportunity for professional development and service to the community, but many respondents would change jobs for better pay. Perceived unfair legislation and regulations, poor pay and the lack of recognition are some of the most frustrating factors for pharmacists. A multi-sectoral approach will be needed to solve the inequitable distribution of pharmacists between the private sector and public sector, and between urban and rural areas in South Africa.

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