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Original Research

Why do pharmacists leave the profession? A mixed-method exploratory study

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Abstract

Background: Recent New Zealand policy documents aim for pharmacists to be retained, and promote the provision of extended clinical pharmacy services. However, younger pharmacists have expressed dissatisfaction with the profession on informal social for a.

Objectives: To explore the characteristics, and perspectives of pharmacy as a career, of recent Bachelor of Pharmacy (BPharm, four-year degree) graduates who have left, or are seriously considering leaving the New Zealand pharmacy profession in the near future and where they have gone, or plan to go.

Methods: We conducted a cross-sectional study with a mixed-method explanatory sequential design. An anonymous online survey among those who completed their pharmacy undergraduate degree (BPharm or equivalent) in 2003 or later and who had left or who were seriously considering leaving the New Zealand pharmacy profession in the next five years, was open from 1st December 2018 to 1st February 2019. Recruitment occurred via University alumni databases, pharmacy professional organisations, pharmaceutical print media, social media and word-of-mouth. Ten semi-structured interviews were then conducted with a purposive sample of survey respondents. Descriptive statistics were generated from the quantitative data and qualitative data were analysed using manifest content analysis.

Results: We received 327 analysable surveys of which 40.4% (n=132) were from those who had already left the New Zealand pharmacy sector at the time of the data collection and the rest (59.6% n=195) were those working within the sector, but seriously considering leaving the profession. Reasons most commonly reported for studying pharmacy were having an interest in health and wanting to work with people. The most common reasons for leaving, or wanting to leave, were dissatisfaction with the professional environment, including inadequate remuneration, and a perceived lack of career pathways or promotion opportunities. A wide range of career destinations were declared, with medicine being most frequently reported.

Conclusions: Most of the reasons for leaving/considering leaving the profession reported relate to the values and features of the pharmacy profession such as the professional environment, remuneration and career pathways. These findings are consistent with other studies and may represent a barrier to achieving the aims of recent health policy documents.

Keywords

Pharmacy; Pharmacists; Students, Pharmacy; Career Choice; Vocational Guidance; Career Mobility; Attitude of Health Personnel; Remuneration; Health Policy; Qualitative Research; Cross-Sectional Studies; New Zealand

INTRODUCTION

Knowledge regarding workforce attrition (leaving) rates and the reasons for leaving professions are a vital element enabling the efficient planning and management of the healthcare workforce.[1] A recent rapid review of 51 studies published worldwide since 2005 found that attrition rates of healthcare workers, and more specifically, voluntary attrition are understudied and under-reported.[2] The studies retrieved data primarily from doctors, nurses, midwives and community health workers. The most common general reasons given for leaving a health profession were low remuneration, a lack of professional development and educational opportunities, weak regulation, unsatisfactory working conditions, high-stress levels and low job satisfaction.

The potential of pharmacy and the opportunities brought about by driving factors such as changes in population demographics, the increasing prevalence of long-term conditions, health workforce shortages and advances in technology and medicine have long been recognised internationally by the World Health Organisation (WHO) and pharmacy organisations, such as the International Pharmaceutical Federation (FIP).[3-6] The Nanjing Statements published by FIP in 2017 guide Schools of Pharmacy worldwide to develop and expand their curricula to prepare graduates for a future that moves pharmacy away from the provision of medicines and towards the provision of extended clinical pharmacy services.[7,8] In line with international trends, many extended pharmacist roles and services are proposed in New Zealand national documents.[9-11]

In New Zealand (NZ), a career in pharmacy begins with an undergraduate degree, a four-year Bachelor in Pharmacy (BPharm) followed by a one-year pre-pharmacist registration training programme (internship) usually in a community or hospital pharmacy setting, under the supervision of a registered pharmacist preceptor. The curricula of New Zealand Schools of Pharmacy have been redesigned in recent times to ensure that graduates can fulfil roles expected of them currently, but also those expected of them in the future.[12,13] Postgraduate qualifications and training available for pharmacists in New Zealand are regularly reviewed to ensure that pharmacist capabilities facilitate pharmacists' future role expansion.

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Despite this apparent co-ordinated and considered approach from government and pharmacy stakeholders, recently graduated pharmacists have expressed dissatisfaction with the profession on informal social fora and more recently in a report.[14] Not all NZ BPharm graduates become pharmacists, and not all pharmacists remain in the workforce.[15]

In 2018, there were 3787 pharmacists registered as practising in New Zealand. Pharmacy Council of New Zealand data reports that approximately 200 newly qualified pharmacists join the register annually (approximately 5% from overseas). Pharmacists work in a variety of settings, but most typically in community pharmacy (78.1%, 2018 in NZ) and hospital (12.8%, 2018 in NZ).[16]

Exploring reasons for people entering and leaving the profession is important for health workforce planning to ensure it meets community needs, the needs of the profession, the priorities and activities of professional bodies and to inform BPharm recruitment strategies, curricula and postgraduate papers. The focus of this study was to gain a better understanding of those lost to, or wanting to leave the pharmacy profession in New Zealand. Specifically, this study sought to explore the characteristics of those individuals who completed their pharmacy undergraduate degree (BPharm or overseas equivalent) in 2003 or later and who had left, or who were seriously considering leaving the New Zealand pharmacy profession in the next few years. It also sought to elicit their perspectives on pharmacy as a career, specifically their reasons for studying pharmacy, their reasons for leaving (or potentially leaving the profession) and what career area they had moved to, or wished to move to. A separate section of the survey elicited views on key NZ policy documents for pharmacists and pharmacy organisations. A manuscript from these data has been submitted elsewhere.

METHODS

Study design

This was a cross-sectional mixed-methods explanatory sequential study where a quantitative online survey phase was followed by a qualitative interview phase.[17] The purpose of the qualitative phase was to add the richness of participants' voices to the quantitative data.

Instrument design

The survey tool was developed through an iterative process of testing with academics and pharmacists. Questionnaire development was informed by literature and the tacit knowledge of the study team.[18-20] The survey questionnaire comprised predominantly of closed questions with some open-ended questions. It was organised into five domains following an eligibility screening question. The domains were: respondent demographics (age, gender, ethnicity, country and location of residence); pharmacy education (qualification, educational institution and internship details); reasons for studying pharmacy; pharmacy practice (duration, place [country and location], area (geography), role/position, earning, satisfaction); and reasons for leaving or seriously considering leaving the pharmacy profession. The questionnaire items required binary, Likert-scale, selections from a list of options or free-text responses. Towards the end of the survey, respondents were asked to express their willingness to be contacted for a follow-up 30-minute semi-structured interview, and, provide contact details if they were. Respondents were informed that this would remove the anonymity of their responses but assured that their identity would be kept confidential by the research team.

For the qualitative phase, a semi-structured interview guide was developed by the research team to further investigate interviewees' survey responses. The guide was piloted with one person who met the inclusion criteria for the study and as a result adjustments were made to the interviewer's approach and the probes used.

All survey participants could enter a separate prize draw to win one of two NZD100 vouchers. All interviewees received a NZD30 voucher.

Participant recruitment and data collection

For the quantitative phase, the online survey was available between 1st December 2018 and 1st February 2019. The survey was built within the Qualtrics survey management platform hosted by the University of Auckland (Qualtrics, Provo, Utah, USA). The intended participants in the Qualtrics online survey were all individuals who had completed a BPharm degree in NZ from 2003 onwards (approximately 3,000, most aged between 22 and 38 years old) and who had already left, or were seriously considering leaving the NZ pharmacy profession in the next five years. Overseas qualified pharmacists with a BPharm or MPharm (Masters of Pharmacy) degree awarded since 2003 who had moved to NZ, registered, and worked as a pharmacist before leaving or considering leaving the profession, were also eligible to participate.

Participant recruitment occurred through a range of pharmacy organisations and other means. University of Auckland and University of Otago alumni organisations sent out a recruitment message to all those who had graduated with a BPharm degree from 2003 onwards on behalf of the study team. The message contained a link to the participant information sheet and survey. Administrators of the Facebook pages of various pharmacy and medical organisations based in in New Zealand and Australia were also invited to post the survey advertisement on their pages. In addition, Twitter was also used to promote the survey. The advertisements and information sheet encouraged pharmacists, friends, and colleagues to raise awareness of the work and to forward the survey information and recruitment link to anyone they knew or believed was eligible to participate.

For the qualitative phase, the demographic information and survey responses of the survey participants indicating a willingness to participate were explored and ten respondents with differing views and demographics were identified through stratified purposive sampling.[21] A member of the research team contacted those identified via e-mail to determine if they were still willing to be interviewed. If this was the case, a participant information sheet and a consent form were sent to them. Once written consent had been obtained, the interviews were conducted

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via telephone or via video (Zoom platform) using the interview guide.

Data analysis

The survey response data were exported from Qualtrics to Microsoft Excel. The first round of data cleaning was completed in Excel and the data then exported to RStudio (version 1.2.5019). A frequency table of all quantitative variables was generated, reviewed, and the dataset was further cleaned. Descriptive statistics were used to summarise the data. The age and ethnicity of the respondents were categorised consistent with the NZ Pharmacy Council workforce demographic reports. The proportionate differences of the selected variables viz. age, gender, ethnicity and area pharmacy practised in of our sample were compared with the distribution of the total practising pharmacists as per the record in the Annual Demographic Report 2018 of the NZ Pharmacy Council.[16]

The differences in the proportions of the categorical variables in the study sample and that of the population were tested using chi-Squared test at $p<0.05$ level.[22] The variables were further recoded into broader categories during the bivariate and multivariate analyses as per the frequency distribution of the categories, e.g. age (years): under 30 and 30 and above, years since graduation: less than 5 years and more than 5 years, years practised pharmacy: less than 5 years and more than 5 years.

A binary outcome variable (Status lost) was generated for all the respondents: 'Lost' as those who had left the pharmacy profession at various stages (i.e. didn't complete their internship, completed their internship outside New Zealand and had never practised in New Zealand, internship completed but never practised pharmacy and those not practising at the time of the survey (but not because they could not get a job), and all the remaining respondents were categorised as 'Potential loss', meaning they are still practising in the pharmacy profession in NZ but are seriously considering leaving it in the near future ('Potential loss' = 'Total' number of respondents minus those who have actually left ['Lost']).

The reasons for studying pharmacy and for leaving/or wanting to leave the pharmacy profession were categorised into four and three broad domains respectively. First, simple frequency distributions of the individual responses (multiple responses per individual provided) to determine the most common (most cited) reasons, and then these were grouped into the respective domains as informed by the literature.[23] The domains were: Personal interest/Intrinsic motivation, Extrinsic – features/face values of the pharmacy profession, Forced choice (applicable only to the reasons for studying pharmacy), and Others. 'Forced choice' indicates a respondent felt forced to study pharmacy, for example, due to family pressure. These categories were then further analysed to explore differences between the 'Lost' group and the 'Potential loss' group of study participants. Each of the reason responses, except 'Others', were recoded into a dichotomous variable (0=No, 1=Yes) and regressed accordingly.

Logistic regression analyses were carried out to investigate the relationship between the outcome variable (lost status, 'lost'=0 and 'potential loss'=1') and the key demographic variables (age, gender, ethnicity, country of residence/country of undergraduate pharmacy qualification, educational institution pharmacy qualification obtained at, year since graduated, highest pharmacy qualification, years practised pharmacy in NZ and area last practised pharmacy in NZ. Then, multiple logistic regression was carried out for the selected variables – age, gender, ethnicity, highest pharmacy qualification, and areas last practised pharmacy in NZ.

Table 1. Socio demographic characteristics of participants

Demography	Frequency (%)	Population	Test of Diff
Gender			p=0.09
Female	197 (60.2)	2,353 (67.7)	
Male	126 (38.5)	1,097 (32.2)	
Diverse and self-described	3 (0.9)		
Missing (n=1)			
Age group			p<0.01
20-29	185 (56.6)	1,056 (31.0)	
30-39	132 (40.4)	1,012 (29.7)	
40-49	6 (1.8)	695 (20.4)	
50-59	2 (0.6)	641 (18.8)	
Missing (n=2)			
Ethnicity			p<0.01
Asian, Chinese, South East Asian, Other Asian	155 (47.4)	969 (28.5)	
NZ European	107 (32.7)	1,557 (45.7)	
African, Indian, Middle Eastern	45 (13.8)	488 (14.3)	
Māori	6 (1.8)	51 (1.5)	
Other European	5 (1.5)	193 (5.7)	
Pacific	3 (0.9)	38 (1.0)	
Others	6 (1.8)	108 (3.2)	
Country of Residence			
New Zealand	301 (92.0)	NA	
Overseas	25 (7.6)	NA	
Missing (n=1)			
Total (overall)	**327 (100.0)**	**3,404 (100.0)**	

Note: Population=Number of total registered practising pharmacists aged 20-59 years (N=3404 out of the total 3787 practising pharmacists), as at 30 June 2018. NA=disaggregated data is not available for the age group 20-59 years old.

For the qualitative data analysis, the free text responses in the survey questionnaire were categorised using manifest content analysis.[24] The audio-recorded interviews were subsequently transcribed using a transcription service (Rev.com, Austin, Texas) then checked for accuracy by a team member and amended where necessary. Aligning with the purpose of the interviews, the transcripts were then coded manually using the survey response categories as a coding frame.

Ethics

The study was approved by the University of Auckland Human Participants Ethics Committee for three years on 6th September 2018, reference number 021578.

RESULTS

The online survey dataset yielded a total of 360 unique entries (participants). Three people did not complete the online consent, giving a sample size of 357 available for inclusion in the study. After completing a rigorous data cleaning process by checking each of the variables, a dataset containing 327 cases was used for further analyses. The removed cases were: graduated before 2003 (n=3), and responses missing information about education, internship or working status (n=27).

It was not possible to accurately estimate the response rate as limited information is available regarding the prevalence of loss from the profession.[16] However, an approximation of the proportion of eligible NZ pharmacists completing the survey is 10.6% (317/3,000) as approximately 200 students graduate with a BPharm annually.

The socio-demographic and the pharmacy profession characteristics of the study participants and all practising pharmacists are shown in Table 1 and Table 2.

Of those who were eligible to practice pharmacy in NZ (n=301), eight people (2.6%) had never practiced pharmacy

Table 2. Education and professional characteristics of participants

Education and Work	Frequency (%)
Country of undergraduate pharmacy qualification	
New Zealand	317 (96.9)
Overseas	10 (3.1)
NZ institutions graduated from	
University of Auckland	169 (53.3)
University of Otago	148 (46.7)
Years since graduated pharmacy qualification	
Less than 5 years	120 (36.7)
5-10 years	129 (39.4)
More than 10 years	78 (23.9)
Highest pharmacy qualification	
BPharm	234 (71.6)
Postgraduate Diploma	31 (9.5)
Postgraduate Certificate	30 (9.1)
Masters	15 (4.6)
PhD	12 (3.7)
Other	3 (0.9)
Postgraduate Certificate prescribing	1 (0.3)
Missing (n=1)	
Internship status	
Completed	301 (92.0)
Ongoing	10 (3.1)
Not done or did not complete	16 (4.9)
Place of internship (ongoing only)	
New Zealand	9 (90)
Australia	1 (10.0)
Ever practised in pharmacy profession (among those who completed internship)	
Yes	293 (97.3)
No	8 (2.7)
Missing (n=1)	
Ever practiced in pharmacy profession in NZ (among those who completed internship)	
Yes	289 (96.0)
No	11 (3.7)
Missing (n=1)	
Setting last practised pharmacy in NZ	
Community	200 (69.2)
Hospital	60 (20.8)
Other	27 (9.3)
Missing (n=2 among those who ever practised in NZ)	
Years practising as a pharmacist in NZ (among those who ever practised in NZ)	
Less than 2 years	48 (16.6)
2-5 years	139 (48.1)
6-10 years	72 (24.9)
More than 10 years	29 (10.0)
Missing (n=1)	
Total (overall)	327 (100.0)

Table 3. Features of current NZ pharmacy practice

Work characteristics	Frequency (%)
Currently working in pharmacy profession in NZ	
Yes	185 (64.0)
No	103 (35.6)
Missing (n=1)	
Role/position of those working currently	
Employee	111 (60.0)
Locum-pharmacist	22 (11.9)
Manager	40 (21.6)
Self-employed	9 (4.9)
Unemployed (temporary)	3 (1.6)
Working hours of those employe	
Full time	85 (76.6)
Part time	18 (16.2)
Casual	3 (2.7)
Missing (n=5)	
Remuneration of those currently working as pharmacists (NZD)	
<48,000	30 (16.5)
48,000-69,000	49 (26.9)
70,000-99,000	87 (47.8)
>100,000	11 (6.0)
Prefer not to say	4 (2.2)
Missing (n=1)	
Degree of satisfaction with the current pharmacy profession in NZ (Among the currently working and internship ongoing groups)	
Satisfied	10 (5.1)
Neutral	37 (19.0)
Unsatisfied	147 (75.4)
Missing (n=1)	
Regret for studying pharmacy (Among the Lost group and internship ongoing)	
No	79 (66.4)
Yes	40 (33.6)
Regret for leaving the pharmacy profession in NZ (Among the Lost group + practising pharmacy outside NZ)	
Yes	12 (9.8)
No	110 (90.2)

following internship completion, and another three had practiced only in Australia; a loss of 3.6% for NZ at this point. Participants most commonly practised in a community setting (69.2%), followed by in a hospital setting (20.8%). Among those who had ever practised pharmacy in NZ (n=289), 64.0% reported practicing as a pharmacist at the time of the survey (Table 3). Sixty percent of them were employee pharmacists (79.6% full-time workers), a fifth (21.6%) were working as managers and 11.9% worked as locum pharmacists. Almost half of the currently working respondents were earning NZD70,000-99,000 annually. Unsurprisingly, given the nature of the study and the inclusion criteria, most of the respondents (n=147, 75.4%) reported being 'Unsatisfied' with the NZ pharmacy profession. Of those who had left the NZ profession, 90.2% did not regret leaving but only one-third reported regretting studying pharmacy.

Table 4 shows that some of the features/characteristics of the participants are likely to be different between those already left (lost) and those still in the profession but seriously considering leaving in the future (potential loss). Age, years since graduated and years practised pharmacy in NZ (all representing the duration of their engagements in the pharmacy sector), and setting last practiced pharmacy in NZ are likely to differ across the groups. The results of the logistic regression analysis give indications of the direction of the relationship, i.e. who are more likely to be in the system despite the fact that they are considering leaving in the near future (Potential loss, n=196) compared to those who already left (Lost, n=131). Participants aged 30 and above [OR=0.56 (0.36, 0.88)], and those who had graduated more than 5 years ago [OR=0.35 (0.21, 0.57)] are less likely to be working in pharmacy when they are unsatisfied (potential loss) but those who had practised pharmacy in NZ for five years or longer are 2.2 times more likely to still be working as a pharmacist in NZ.

Table 5 shows what had influenced respondents to enrol in the pharmacy undergraduate degree programme, what they had expected from the profession and what made them leave/consider leaving the profession. Personal interests (intrinsic motivation) such as 'A keen interest in health' (14.5% of the total responses) and 'A desire to work with and help people' (13.4%) followed by the extrinsic factors related to the pharmacy profession like perceived 'Job security' (11.1%) and 'Pharmacy is a trusted profession' (9.1%) were the most popular reasons for pursuing pharmacy as a career choice. Slightly over 1 in 10 (10.4%) of the responses belong to the 'Forced choice' category: 'Did not get into first choice' (6.6%) and 'Pressure from family' (3.8%). Altogether, almost half (48.0%) of the responses belong to the 'Intrinsic' categories. The prevalence of the responses is similar for both categories of study participants i.e. the lost group and the potential loss group.

Contrastingly, almost three-quarters (72.7%) of the reasons for leaving/considering leaving the profession fall under the 'Extrinsic' category: 'Dissatisfaction with the pharmacy

Table 4. Distribution of the 'lost' group and 'potential loss' group across key study variables

Characteristics	Lost	Potential loss	p-value	Un-adjusted OR (95%CI)	Adjusted OR (95%CI)
Gender					
Female	71 (36.0)	126 (64.0)		Reference	Reference
Male	58 (46.0)	68 (54.0)		0.670 (0.426, 1.056)	0.784 (0.468, 1.316)
Age group (years)					
Under 30	63 (34.1)	122 (65.9)	<0.05	Reference	Reference
30 and above	67 (47.9)	73 (52.1)		0.562 (0.357, 0.881)	0.492 (0.294, 0.816)
Ethnicity-regrouped					
European	40 (35.7)	72 (64.3)		Reference	Reference
AIM*	13 (28.9)	32 (71.1)		1.367 (0.654, 2.972)	1.280 (0.572, 2.979)
ACSEAOA*	71 (45.8)	84 (54.2)		0.657 (0.397, 1.079)	0.660 (0.368, 1.171)
MPO*	7 (46.7)	8 (53.3)		0.634 (0.212, 1.932)	0.434 (0.134, 1.400)
Country of residence					
New Zealand	105 (34.9)	196 (65.1)	NA‡		
Overseas	25 (100.0)	0			
Country of undergraduate pharmacy qualification					
New Zealand	129 (40.7)	188 (59.3)			
Overseas	2 (20.0)	8 (80.0)			
NZ institutions					
University of Auckland	66 (39.1)	103 (60.9)		Reference	
University of Otago	63 (42.5)	85 (57.5)		0.864 (0.551, 1.355)	
Years since graduated					
Less than 5 years	30 (25.0)	90 (75.0)	<0.05	Reference	
More than 5 years	101 (48.8)	106 (51.2)		0.349 (0.210, 0.568)	
Highest pharmacy qualification					
BPharm	94 (40.2)	140 (59.8)		Reference	
Masters or PhD	16 (53.3)	14 (46.7)		0.587 (0.270, 1.261)	0.944 (0.375, 2.429)
Postgraduate Cert	8 (25.8)	23 (74.2)		1.930 (0.859, 4.770)	1.576 (0.646, 4.169)
Postgraduate Diploma	12 (38.7)	19 (61.3)		1.063 (0.498, 2.349)	1.102 (0.459, 2.734)
Highest pharmacy qualification (2 categories)					
BPharm only	94 (40.0)	141 (60.0)		Reference	
BPharm +	36 (39.1)	56 (60.9)		0.957 (0.581, 1.563)	
Years practised as a pharmacist in NZ					
5 years or less	79 (42.2)	108 (57.7)	<0.05	Reference	
More than 5 years	24 (23.5)	78 (76.5)		2.192 (1.341, 3.622)	
Setting last practised pharmacy in NZ					
Community	65 (32.3)	136 (67.7)	<0.05	Reference	Reference
Hospital	23 (38.3)	37 (61.7)		0.774 (0.427, 1.422)	0.679 (0.335, 1.383)
Others	15 (55.6)	12 (44.4)		0.385 (0.167, 0.867)	0.391 (0.159, 0.939)

The variables that relate to only those working currently do not apply here (e.g. Current role, hours, earning)
OR(CI) = Odds Ratio (95% Confidence Interval)
*AIM = African, Indian, Middle Eastern; ACSEAOA = Asian, Chinese, South East Asian, Other Asian; MPO = Maori, Pacific and Others
‡ NA – Not applicable (meaningful)- cell value zero

professional environment' (25.0%), 'Lack of career pathways and opportunities' (24.0%) and 'Under-utilisation of pharmacists' skills and knowledge' (20.6%). Of the small proportion of the 'Intrinsic' reasons mentioned (227 of 934 responses), only a few relate to individual choices or personal circumstances, e.g. four responses for 'Ill health', and 69 responses for 'Relocated overseas'.

When survey participants were asked for further details regarding their dissatisfaction with the professional environment, they reported 'Lack of recognition of pharmacy from government, other health care professionals, or the public', 'Inadequate remuneration for services provided' and 'Lack of consistent and effective representation of the pharmacy profession at high levels to ensure pharmacy is always considered/consulted' as the commonest reasons. These responses account for 18.9%, 18.4% and 16.1% of the responses received for this probing question respectively. Other reasons included: 'Too much emphasis on making a profit in community pharmacy' (12.3%), 'Poor working conditions'(10.8%), 'A lack of support from management within the pharmacy profession' (10.5%), and 'A lack of professionalism in the profession' (7.5%).

Similarly, regarding the perceived 'Lack of career pathways and opportunities' which is the second most commonly cited reason (24.0%) for leaving or considering leaving the pharmacy profession, 'Lack of a clear and appealing progression pathway', 'Lack of promotion pathways', and 'Lack of innovation', made up 33.7%, 32.1% and 22.0% of the responses within this probing question respectively. 'Under-utilisation of pharmacists' knowledge and skills as a reason for dissatisfaction made up 20.6% of the overall responses. This category comprises a 'Lack of involvement in patient care' (47.6%) and 'Low/no clinical roles' (52.4%).

Most free text responses aligned with the categories above. Additional reasons for dissatisfaction provided by some respondents related to a recent introduction of discount and supermarket pharmacies leading to reduced profitability of independent community pharmacies, the lack of cohesiveness of pharmacy organisations, high compliance costs and poor working conditions. A small number of respondents stated experiencing negativity and a lack of support from other pharmacists;, a lack of job

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Table 5. Reasons for entering and leaving or seriously considering leaving the NZ pharmacy profession

Reasons (multiple responses)	Total		Lost		Potential loss	
	N	%	N	%	N	%
Reasons for entering the profession						
Category 1: Forced choice						
Did not get into my first choice	103	6.6	42	6.5	61	6.7
Pressure from family members	59	3.8	30	4.6	29	3.2
Category 2: Personal interest/Intrinsic motivation						
Keen interest in health * Odds Ratio (0.59, 0.36-0.97)	227	14.5	99	15.2	128	14.0
Desire to work with and help people	209	13.4	88	13.5	121	13.2
Keen personal interest in or aptitude for science	185	11.8	86	13.2	99	10.8
Health profession involving little physical or bodily fluid contact	107	6.8	43	6.6	64	7.0
Personal calling	23	1.5	6	0.9	17	1.9
Category 3: Extrinsic - Features/face value of the pharmacy profession						
Attractive remuneration/ salary	90	5.8	34	5.2	56	6.1
Job security* Odds Ratio (0.53, 0.33-0.83)	173	11.1	70	10.8	103	11.3
Trusted profession	143	9.1	57	8.8	86	9.4
Recognition and status	88	5.6	37	5.7	51	5.6
Attractive working hours	87	5.6	37	5.7	50	5.5
Wanted to manage my own business	53	3.4	16	2.5	37	4.0
Category 4: Others						
Others - miscellaneous	18	1.2	6	0.9	12	1.3
Total	**1565**	**100.0**	**651**	**100.0**	**914**	**100.0**
Reasons for leaving (multi-response)						
Category 1: Personal (Intrinsic reasons)						
Studying or working in other field	154	16.5	60	15.7	94	17.0
Relocated overseas * Odds Ratio (0.25, 0.14- 0.44)	69	7.4	45	11.7	24	4.3
Ill health	4	0.4	3	0.8	1	0.2
Category 2: Extrinsic - Features/face value of the pharmacy profession						
Dissatisfaction - professional environment * Odds Ratio (2.85, 1.64–5.02)	234	25.0	80	20.9	154	27.9
Lack of career pathways and opportunities	224	24.0	86	22.5	138	25.0
Under-utilisation - skills and knowledge	193	20.6	72	18.8	121	21.9
Pharmacy as a stepping stone	29	3.1	13	3.4	16	2.9
Category 3: Other						
Others	27	2.9	24	6.3	3	0.5
Total	**934**	**100.0**	**383**	**100.0**	**551**	**100.0**

Heatmap: the intensity of the colour represents increasing proportions of responses within each category
*Significant differences among the 'Lost' group and the 'Potential lost' group, Odds Ratio with 95% Confidence Interval in italics. All others are not significant at 5% level of significance.

security; a blaming, bullying culture; harassment; a boring, monotonous environment; too many pharmacy graduates each year; and not having their ideas taken seriously.

The heat-map in Table 5 illustrates that the patterns of reasons across the 'Lost' group and 'Potential loss' group are very close which is consistent with the regression analysis results. There are no significant differences in the reasons given for studying pharmacy and those given for leaving the profession among the 'lost' group and the 'potential loss' group except for two of the reasons for studying pharmacy: 'Job security' [OR = 0.53 (0.33 - 0.83)] and 'Keen interest in healthcare' [OR = 0.59 (0.36 - 0.97)] and two of the reasons for leaving the profession: 'Dissatisfaction with the professional environment' [OR = 2.85 (1.64 – 5.02)], and 'Relocated overseas' [OR = 0.25 (0.14 – 0.44)].

Quotes from those interviewed illustrate the extrinsic reasons reported by survey respondents for their dissatisfaction with the profession.

- Lack of recognition from public, government and other health care professionals:

  "I used to be on the [X] District Health Board clinical advisory committee, and I discovered an institutional hostility towards pharmacists. I found that very difficult, that pharmacists are seen as shopkeepers, they're seen as having commercial interests that override health best practice." Participant 3; female, left profession

  "I just feel like we are treated like crap from doctors, from patients. They just seem to see us as glorified retail assistants and I don't really want to be working in that sort of role for the rest of my career…At the moment there is still quite a lot of old school doctors around who kind of are a bit "Doctor knows best" attitude but yep particularly when I'm dealing with younger doctors I find they are actually, yep they're actually quite supportive of pharmacists." Participant 7; male, left profession

- Inadequate remuneration:

  "I think our pay is honestly shocking comparative to our level of responsibility and, yeah, the expectations of us especially as newly-registered pharmacists…I have friends who are nurses and doctors and that type of thing and it seems that they have a clear pay scale proportionate to experience, and when they have a lack of experience, they have a lower pay but that lower pay comes with increased supervision and

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increased support." Participant 6: female, community pharmacist

- Lack of consistent and effective representation at high levels:

  "I chose it [pharmacy] because there was a representation and a governing body and that's one aspect I'm a little disappointed with… I think that the [national pharmacy advocacy and training body], together with the [pharmacy regulatory body] need to step up and represent us as our own entity and promote our services and facilitate the means to meet those services, otherwise we're going to be left behind." Participant 4; female, community pharmacist

- Lack of career pathways and opportunities:

  "There's no progression, you are a pharmacist when you come out of pharmacy school, and unless you do anything different, at 65 you're still dispensing and there's no clear path, there's no leadership, there's no mentor system, there's nothing for new leaders wanting to come through." Participant 3; female, left profession

  "I feel like pharmacists can't specialise, because no-one is going to pay you. Now, I'm not saying it's all about pay, all about pay, all about pay, but generally if you want additional specialisations to any type of work, any type of health care, any kind of doctor or anything like that, if they do specialise and study further into a field, they are going to come out as with a bigger title, and probably a bigger salary. But in pharmacy, no such thing exists in pharmacy. No such thing." Participant 1; male, community pharmacist

  "I wouldn't be surprised if a lot of pharmacists have left the profession simply because they got bored, it wasn't challenging enough to keep them engaged as a profession because there's no room for growth. Because the scope is so small, there isn't really room to find challenges within that scope, or find engaging challenges within that scope. Yeah, so it was okay, I feel like I got what I needed from my time in pharmacy, but yeah, I just found it a little bit limited...At the time, I thought, okay, I'll specialise. Maybe if I get my post-grad qualifications, it'll open more doors, and I'll find more challenging work after I get my post-grad. Did my post-grad and it was pretty much more nothing." Participant 5; female, left profession

  "I'm three years out now. I think I can definitely see a need for post grad, but I think tailored post grad. So, if you're going to work in the pharmacy setting… the community pharmacy setting, there should be a pathway that's working into hospital, should be a pathway that's, working into public health. That's another area we could be targeting, but I think that, yeah, we're just becoming a bit stagnant." Participant 4; female, community pharmacist

- Under-utilisation of pharmacists' skills and knowledge:

  "Pharmacists shouldn't have to keep proving themselves all the time, we're constantly proving ourselves, proving our value. That should be a given." Participant 3; female, left profession

  "I'm not sure what the solution is but I feel like there's a better way to utilise that clinical knowledge that pharmacists have developed while at uni …. like the pharmacy schools say that pharmacy is more than just dispensing tablets but … I fail to see that because every role that I've worked in...yep dispensing tablets at the hospital pretty much, correcting doctors handwriting on the charts is not adding any real clinical value... If you compare us to doctors or nurses, they can do a lot more than us. Whereas we have all the knowledge to do the extra than what we are doing but we are not allowed to and I just feel like I am very constrained in pharmacy that I can do a lot more but legally I can't" Participant 7; male, left profession

  "At the moment from what I've seen hospital pharmacists already take a wide range of roles, in management of patients, they're very helpful in the day to day running of the ward. … It's just the community. It's more about community I think that's the role is not utilised too well." Participant 8; male, left profession

- Unsupportive professional environment

  "…I've actually been really disappointed with the lack of professionalism. My internship year I was subject to bullying from the owner. And my preceptor, who was the co-owner, allowed it to continue. That was direct bullying." Participant 4; female, community pharmacist

  "The culture is almost very much like, you've got to make it on your own, and if you kind of fall behind, you're kind of left behind. And I just don't think that's a very supportive environment for someone who's fresh out of university to be thrown into." Participant 5; female, left profession

The views above support the pattern of career change pursued or sought by study respondents. Figure 1 shows where responding pharmacists (n=109) have gone or plan to change career path to after pharmacy. The most popular destination was medicine with 28 respondents going on to, or planning to study medicine. Indeed 56.9% (n=62) went on to, or were planning, an alternative career in a different aspect of health. However, other respondents had moved, or had plans to move into, a variety of different non-health related fields.

Interviewees also suggested areas where the profession or environment could improve:

- Service integration:

  "You got the doctor and the nurse and GP all looking after their health, and some of these

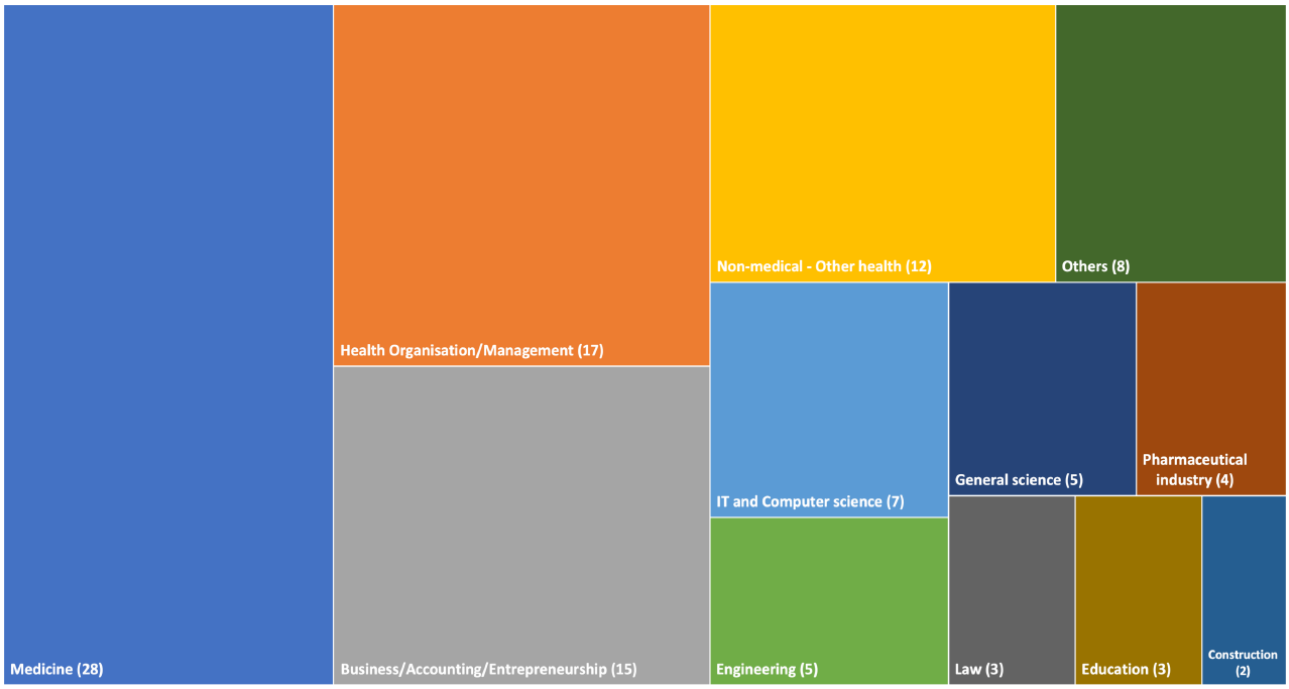

Figure 1. Where people have gone or plan to go to as a career after pharmacy
The numbers in the parenthesis denote the number of responses for each category where the total responses for this analysis is 109. Others category includes one each of: Non-health consultancy, Creative industry, Research non-pharmacy, Government, International relations, Medical publishing, Parent at home and Undecided

[pharmacy] services are just like a cherry on top, but I feel like the GP and the nurse are taking care of the main health care problems of this patient and we're just kind of doing little tit bits and bobs where I feel like we need to be running in line with, we're running kind of parallel to what the doctor's doing because we are helping them, we are helping their health problems, but we're not in line with necessary in line with what the doctor's doing, really. I feel like we need to see more integration between the two." Participant 1; male, community pharmacist

"… often we are having meetings with a wide range of professions or groups or bodies across the health system. It's very rare that we have a pharmacist in the room. What that means is a whole service is developed without thinking about pharmacy or whole teams around frailty and older people are thought about without poly medicines or some of these really crucial parts of the system." Participant 9; female, left profession

- Role extension:

"It's one of the main dissatisfactions I have with the profession, to be honest, is that a lot of the times we're just playing the whole gatekeeper of medicine's role and just dispensing medicines. Yeah. I don't want to blame the older pharmacists, but I think some of the older pharmacists do hold on to their core dispensing role quite strongly and they are often the business owners as well." Participant 6; female, community pharmacist

"I think the future of pharmacist role in New Zealand is going to be very much managing cases, this is where I think pharmacists should be headed is managing patient cases where doctors diagnose and then hand over to pharmacists to manage the medicines care." Participant 4; female, community pharmacist

- Opportunities for change:

"…the nature of how a lot of services are run, they're kind of centred around the pharmacies, and it's like the pharmacy profession equates itself in some ways to the physical pharmacies. Whereas understanding that a pharmacy and a pharmacist are two different things. …I think it's kind of limiting that the practice of pharmacy is tied to a location, a physical location versus, say, being able to practice independent location." Participant 5; female, left profession

- Self-responsibility:

"I do think that as a profession too, we need to stand up and if we want to be treated with more respect then we need to act like professionals and, I guess, get the public to respect our boundaries more by explaining things instead of just taking things on the shoulder and staying quiet because you don't want to lose a customer type-attitude." Participant 6; female, community pharmacist

"Every day you see all these opportunities for the pharmacy profession and it's not just up to the Guild or the Society, it's up to individual clinicians to champion the role and the profession and what

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> they can provide… I think pharmacy is a young profession, there's a lot of young people in the profession and there are so many good ideas and willingness to change and how to do things better and improvements, from people that may not have been in the profession very long… I think I would like to see no pharmacist touching a pill." Participant 9; female, left profession

DISCUSSION

This study set out to explore the characteristics and perspectives of pharmacy as a career from recent BPharm graduates (graduating 2003 onwards) who had left, or were seriously considering leaving the NZ pharmacy profession in the near future. If the study recruited most of the eligible NZ graduates, our data suggest that at least 10.6% (327/3,000) of them have left, or are seriously considering leaving the profession in near future. In reality, the proportion is likely to be higher due to not all eligible individuals participating. In addition previous workforce data reporting retention rates support this figure being an underestimation.[25]

The New Zealand Health Strategy and the Pharmacy Action Plan 2016-2011 describe a vision of pharmacists working in a broader variety of settings.[10] The plan also seeks to attract students and retain pharmacists who possess the appropriate skill mix to support the expansion and development of new models of care, and to offer higher-level medicines optimisation services.[11] Accurate data on attrition rates are essential to informed workforce planning decision-making but unfortunately these data are no longer published in New Zealand for pharmacy. Inconsistent data collection was found to be a worldwide issue by Castro Lopez *et al*.[2] Attrition is also a concern as studying pharmacy is a substantial investment and commitment for students and their families. Whilst considering leaving does not necessarily equate to leaving, Reitz *et al*. found a significant association between behavioural intention and actual turnover and retention in nurses.[26]

Limitations of the study include not using a validated instrument to measure job satisfaction, and not exploring the viewpoints and alternative career pathways of all eligible people. In addition, this study only solicited the views of a self-selected sample of relatively newly qualified pharmacists who had left or were considering leaving the profession; it does not present a representative view of all recently qualified pharmacists or earlier graduating pharmacists (prior to 2003) considering leaving the profession. There is also potentially an element of responder bias where former pharmacists felt less inclined to participate in this study, with only those holding strong views or having poor experiences responding. It is important that the health workforce represents the community that it serves. Cultural differences in normative practices for choosing careers, including pharmacy, have been reported and it is possible that cultural influences on leaving pharmacy may exist in New Zealand.[23,27,28] However, we were unable to explore this in our study and further research is warranted. Resource constraints limited the study to only ten interviews of purposively chosen respondents. These were used to provide a better understanding of these individual's views and experiences and provide illustrative examples rather than attempting to achieve transferability to all dissatisfied pharmacists'. To understand the dissatisfaction of current pharmacists in a more comprehensive manner, it is proposed that a further study be undertaken.

Having a keen interest in health, science or a desire to work with and help people were the most common reasons given for choosing to study pharmacy. This aligns with other recent studies looking at reasons for choosing pharmacy as a career and the findings of a UK study exploring pharmacists' professional identities.[29-31] The NZ competence standards and policy documents relating to pharmacy in New Zealand raise no alarm bells of an intrinsic mismatch between the reasons for studying pharmacy and the practice of pharmacy.[9-11,32] However, dissatisfaction with the professional environment, the lack of career pathways and opportunities, and under-utilisation of skills and knowledge were the most commonly reported reasons for leaving the profession in our findings. These factors have been found to be decisive in shaping an individual's behaviour towards career change in other settings.[33] Our findings are consistent with other studies, including the one that informed our questionnaire.[18,19]

Furthermore, the reasons for leaving are very similar to those reported by American hospital pharmacists dissatisfied with their career and leaving almost forty years ago (1982).[34,35] The situation reported then, specifically the presence of enabling policies and curricula, boredom and the "obsolescence of skills and abilities" are still applicable to today, as illustrated by our study. Some of the solutions proposed in 1982, such as roles with increased clinical interactions, and promotions based on merit, competence and time in the role, are also reflected by our survey respondents.[34] In addition, our findings are in line with a systematic review of the global pharmacy workforce, which identified workload, job satisfaction, working conditions, roles and responsibilities, training and policies as factors affecting pharmacist retention.[36] Overall, pharmacists' pay and benefits, and opportunities for promotion and advancement were the reasons pharmacists cited most frequently for leaving a job and remaining in a job. These findings are echoed in other studies from around the world.[37-39]

When considering participants' dissatisfaction with pharmacy leadership, findings of a recent study of Swedish registered nurses' work satisfaction may offer some guidance. Karlsson *et al*. reported that nursing leadership may be able to increase intention to stay in the profession by meeting employee nurses needs for appreciation, a better work environment, competence development and professional career development.[40] Similarly, a focus on enhancing the management and leadership skills of pharmacists through incorporating them more into undergraduate curriculum was proposed to help retention by enabling promotion into senior roles.[41-42]

As in other countries pharmacy organisations in NZ have developed standards for the development of extended roles and career development.[43-45] However, there appears to be a mismatch between what these documents promote and what pharmacists experience in the workplace, according to our respondents. There is a risk that newly qualified pharmacists may have lost relevant clinical skills

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and knowledge before they, the profession, and patients can realise the benefits of these frameworks.

A strategy with the potential to mitigate this, and help to address some of the other issues raised in this study and others, is to initiate a national mentorship programme for newly qualified pharmacists. The Māori Pharmacists' Association and the Pacific Pharmacists' Association and some other organisations already provide support and mentoring to their younger members/junior employees. However, a national approach may have merit. The quality of mentoring was identified as an influence on advanced pharmacy practice in a Canadian study and mentoring has been comprehensively discussed in the recent work of Desselle, *et al*. and Mantzourani, *et al*.[46-48]

Interestingly, although most participants who had left did not regret leaving pharmacy two thirds did not regret studying pharmacy. The interviews and Figure 1, showing where pharmacists go after pharmacy, provide some insights into this phenomenon, finding that the skills and knowledge gained when undertaking a BPharm degree can be successfully transferred into many different areas, not just health-related. It can also be seen that the career changes reported would likely address some of the reasons for respondents' dissatisfaction with the pharmacy profession including wanting to experience better remuneration, use their clinical skills more, experience less stressful work conditions and wanting to be able to progress up a defined career structure. A study of pharmacists who retrained as doctors, however, found that sometimes reality does not always match expectations.[49]

Implications

It may be that a key to moving forward meaningfully and addressing many of the extrinsic areas of dissatisfaction is for experienced pharmacists to provide support and co-design the future of the profession with its younger members. A start has already been made with the recent publication of the findings from an early career pharmacists' consultation by the Pharmaceutical Society of New Zealand which includes ten recommendations for action.[14] One of these pertains to mentoring and another to alternative models of pharmacy service delivery and remuneration, which, although aligning with the future-focussed policy documents, are also associated with additional workplace pressures.[50-52]

The experience of bullying reported by a small number of respondents is concerning. Research is underway to further explore the issue of bullying in pharmacy in NZ.

CONCLUSIONS

Recent policy documents aim for skilled pharmacists to be retained to provide extended clinical pharmacy services. Undergraduate and postgraduate curricula changes prepare graduates for these roles. However, the reasons for leaving/considering leaving the profession reported in this study suggest support and changes are required to the professional environment, remuneration and career pathways in order for the potential of the profession to be realised.

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PREVIOUS PUBLICATION

A version of this study by the was presented at the Life Long Learning in Pharmacy (LLLP2021) conference.

CONFLICT OF INTEREST

All the authors declare no conflict of interest.

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