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The Nature of Career Advice Provided to Undergraduate Allied Health Sciences Students at the University of South Australia

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Abstract

Purpose: The purpose of this study was to investigate the nature of career advice, especially advice concerning postgraduate research training degrees, provided to and by students in five health professional bachelor's degree programs at the University of South Australia. In addition, differences between professional disciplines in terms of career advice and knowledge of current research activities of staff and research degree students were explored. **Method:** A cross-sectional survey of final year students in five disciplines within the School of Health Sciences was used in this study. Information was sought on demographics, the nature of career advice received, advice the respondent would provide to a peer, and knowledge of current research activities. Differences between disciplines were calculated (Odds Ratios, χ^2) with respect to positive responses for advice for postgraduate study (Honours, Masters by Research or PhD) and knowledge of current research activities. **Results:** In 2004, 278 students completed the survey (response rate 82%). The majority of respondents (72%) indicated that career advice was provided throughout their degree. The most frequent career advice was related to postgraduate study (encouraged 28%, discouraged 27%) or work within a specific place of employment immediately upon graduation (encouraged 17%, discouraged 24%). Respondents from physiotherapy were significantly more positive in their responses concerning postgraduate study, experience of research courses, and knowledge of research activities.

Conclusions: While generic advice was provided, there appears to be a lack of specific information relating to career progression and requirements for promotion within different modes of employment. Systematic evaluation of the relationships between career advice provision, employment choices and career progression is required specifically in the allied health professions.

Introduction

The need for career advice during undergraduate education is well recognised within the medical and nursing professions. The findings from a recent major survey of British doctors in training (n= 1,740, approximately 5% of total population of trainee doctors) conducted for the Department of Health by the National Institute for Careers Education and Counselling (NICEC) highlighted the need for better provision of information concerning career and training choices. The career advice and support provided by medical schools during undergraduate training was found to be fragmentary, poorly resourced, and was rated as useful by less than half of the respondents. As a consequence, the most useful career advice and guidance was provided by more experienced peers, senior doctors, family, and friends

who were doctors and peer group.¹ Similar findings have been reported within the nursing profession in that despite a consistently expressed need for organised career advice, such information is not considered a priority within training programs, with the majority of advice provided informally by educators.²⁻⁴

Surprisingly little research has been conducted into the career advice provided to undergraduate students completing university degrees in order to qualify and work as allied health professionals. These degrees include both vocation specific professions (physiotherapy, occupational therapy, radiography, speech therapy, dietetics) as well as broader generic degrees (human movement, exercise physiology, nutrition, counselling). While successful completion of the

degree permits graduates to enter the professional workforce, in a similar way to medicine and nursing, allied health graduates are faced with immediate career choices concerning employment in preferred areas of interest, public versus private employment, the value of postgraduate education, and the development of a career pathway.

As would be expected, the majority of graduates from health professional degree programs progress immediately into the health service industry to work as clinicians in their chosen field. However, the universal move towards clinical management supported by high quality research (evidence-based practice) means that health graduates and academic staff will require a greater understanding of the fundamental role of research training and education. With the move towards evidence-based practice, research skills have moved from a desirable to an essential criterion for many senior positions within government funded health care and are mandatory for progression within the academic industry.

While the majority of contemporary health professional degree programs are likely to include training in research methods, statistics, accessing, critically reviewing, and interpreting original research studies, in general, the day-to-day education of undergraduate health students is primarily focused on the knowledge and skills required for professional clinical practice. Given the nature of these professional degree programs, academic staff are generally recruited and appointed based on expertise in vocational specific skills and knowledge rather than educational or research skills and knowledge. While the number of allied health professional academic staff who hold higher research degrees (Master's by Research, PhD, or professional doctorates) is steadily increasing, these staff are likely to be the minority in many allied health professional schools.

In terms of career advice, a number of studies have indicated that the personal bias of individual academic staff members can influence career decisions both positively (towards areas of the academic's own experience and interest) or negatively (away from areas or careers which the academic does not personally value).^{5,6} Regardless of whether academic staff are actively engaged in research activities or not, the personal behaviours of teaching staff and the views expressed during conversations with undergraduate students are likely to influence the views and perceptions of students with respect to the value of research and academic careers.

The aim of this study was to investigate the nature of career advice provided to and between undergraduate students in five different health care degrees in a School of Health Sciences in an Australian university. A particular focus of this study was the advice provided to and between students regarding postgraduate research training degrees. In addition, differences between professional disciplines in terms of career advice and

knowledge of current research activities of staff and research degree students were explored.

Methods

Ethical approval for this cross-sectional survey of final-year undergraduate students completing bachelor's degrees during 2004 was sought and granted from the Human Research Ethics Committee of the University of South Australia. The School of Health Sciences, University of South Australia provided an opportunity to investigate the career advice provided to and between undergraduate students in five discrete professional disciplines. Four-year bachelor's degree programs are available for physiotherapy and occupational therapy. In addition to the standard degree, the physiotherapy and occupational therapy disciplines offer a bachelor's degree with honours where students complete an honours degree concurrently with the final two years of the professional program. Three-year programs are available for human movement, podiatry, and medical radiation (diagnostic radiography, nuclear medicine, and radiation therapy). It should be noted that in contrast to America where a podiatrist is a physician and surgeon, in Australia, podiatrists complete a specific three or four year degree program and are not required to hold additional medical qualifications.

From 2004, the School of Health Sciences also offered an honours degree (one year full time or equivalent) for students completing bachelor's degree programs. Honours degrees (either one year full time or combined with final two years of four-year degrees) are recognised as the first level of research training. Normally, entry requirements for honours degrees require a credit average (credit grade equals 65 -75% in each unit of study). The School of Health Sciences also offers higher research degrees (Master's by Research or PhD) for graduates holding honours degrees (Hons 1 or 2a) or appropriate Master's degrees.

Survey development

A data collection instrument was designed for this study as no appropriate instrument existed to survey undergraduate students' experiences and perspectives of the career advice provided during tertiary education. A focus group was convened to develop and finalize the data collection instrument.^{7,8} As the survey instrument was intended for use within a broad range of undergraduate health degrees, participation within the focus group was not limited to undergraduate students of the five professional disciplines. Toward the end of 2003, all final-year undergraduate students completing bachelor's degrees within the Division of Health Sciences, University of South Australia were invited to participate in a focus group. Six students (two males and three females) from three professional disciplines (physiotherapy, medical radiation, and nursing) accepted the invitation to participate in the development of this survey instrument.

An independent, experienced moderator facilitated the

focus group. The moderator provided information about the aim of the proposed survey and the role of the focus group in determining the content, format, and the preferred mode of distribution. Discussion was guided via key open-ended questions concerning participants' personal experiences of career advice provided during their degrees, the value of career advice, when and who should provide career advice, knowledge of research pathways and familiarity with current research activities of staff and students. The data from the focus group were collated via whiteboard and hand written notes. Key issues and areas where information should be sought within the survey instrument were identified, and recommendations for format and mode of distribution were noted. Following the focus group, the information provided by participants was reviewed, and a draft survey instrument was created and sent to members of the focus group for further checking, amendments, and clarification. Minor changes to wording and format were made in response to further feedback from participants. With respect to distribution of the survey, participants recommended both paper and electronic versions be made available to students. The recommended mode of distribution was via hard copy presented and completed during a teaching session where all final-year students for specific degree programs were likely to be gathered in the same place and time.

The final survey instrument consisted of 26 open and closed questions within four sections (Appendix 1). Section 1 sought demographic information on the respondents' program, previous qualifications, gender, age, and domestic or international student status. Section 2 sought information on whether respondents had received formal, informal, positive, or negative career advice during the bachelor's degree program, including the source of the advice, what advice was provided, and whether career advice should be provided during the degree. Section 3 sought to elicit the advice a respondent would provide to a peer in several situations (a peer who doesn't know what they want to do after they graduate, a peer intending to enrol in an honours degree or PhD in the following year, and a peer indicating that they want to work as an academic). Section 4 sought information on the respondent's knowledge of research activities occurring within the School of Health Sciences and experience of research training within the bachelor's degree program.

A mutually convenient time to attend a scheduled class was negotiated with each program director to provide information about the study and invite final-year students to participate. The aims and potential outcomes of the survey were presented to each cohort of students. Emphasis was given to the confidential nature of the responses, anonymity of surveys, and the voluntary nature of participation in the survey. Following this explanation, the surveys were distributed and time was allowed for the students willing to participate to complete the survey. Completed surveys were collected and stored separately for each professional discipline. An electronic

version of the survey was created for each professional discipline using the University of South Australia's software program (Tellus). The survey and cover letter were sent via email to all final-year bachelor's degree students within the School of Health Sciences, inviting students who had not had an opportunity to complete a paper copy to participate in the survey. A clear statement was included asking students who had already completed a paper version not to submit an electronic version. A repeat invitation and survey were sent to all students one and two months after the initial email.

Responses to each survey item were entered for all completed surveys into a spreadsheet (Microsoft Excel 2002). A simple descriptive analysis was undertaken where frequencies were calculated for closed questions. Responses to open ended questions were transcribed verbatim and analysed by an independent third party who undertook a review by category for common responses. Potentially, students within this cohort may have been concomitantly undertaking an honours research training program in conjunction with their bachelor's degree program (Bachelor of Physiotherapy or Occupational Therapy) or held a research training degree (honours, Master's by Research, or PhD) prior to undertaking a bachelor's degree within the professional discipline. Odds ratios were used to calculate the likelihood of respondents who already held a research degree or were currently completing an honours degree responding more positively to questions concerning undertaking postgraduate study (honours, Master's by Research, or PhD) or knowledge of current research activities occurring within the School of Health Sciences. Differences between professional disciplines were calculated (χ^2) with respect to positive responses to undertaking postgraduate study (honours, Master's by Research, or PhD), knowledge of current research activities occurring within the School of Health Sciences, and experience of research training.

Results

In 2004, 338 students graduated from the bachelor's degree programs offered by the School of Health Sciences. Of these graduates, 278 completed the survey, giving an overall response rate of 82%. Within professional disciplines response rates varied considerably. Response rates from final-year physiotherapy (96%), medical radiation (92%) and human movement (91%) students suggest that information provided within the survey is likely to be representative of all final students in these professional disciplines. Responses from final-year podiatry (29%) and occupational therapy (41%) students should be interpreted cautiously as the respondents may not be representative of the majority of final-year students in these two professional areas. Table 1 presents the demographic characteristics of respondents. In summary, the ratio of females to males reflected the gender distribution within these bachelor's degree programs (females 68% versus 32% males), 80% of respondents

were less than 25 years of age, approximately 5% of respondents were international students, approximately 7% of respondents held or were currently completing an

honours degree, 9% held an additional tertiary qualification, and 12% held an additional non-tertiary qualification.

Table 1. Respondent demographics for total cohort and professional disciplines. (Note not all respondents answered all questions therefore totals for each question do not add up to 278.)

	Physiotherapy	Occupational Therapy	Podiatry	Medical Radiation	Human Movement	Total responses
2004 graduates	81	49	17	77	114	338
Respondents	78	20	5	71	104	278
Response rate	96%	41%	29%	92%	91%	82%
Qualifications held						
Diploma				5	3	8 (3%)
Bachelor	9		1	2		12 (4%)
Currently completing or hold an honours degree	18					18 (6%)
Graduate diploma			1			1 (< 1%)
Masters						-
PhD						-
Professional qualification eg Registered Nurse		1	1	2		4 (1%)
Non-Tertiary	2				32	34 (12%)
Gender						
Male	20	1		16	53	90 (32%)
Female	58	19	5	55	51	188 (68%)
Age (years)						
18-24	61	16	4	51	88	220 (79%)
25-29	9	2		5	3	19 (7%)
30-34	3			4	2	9 (3%)
35-39		2		6	3	11 (4%)
40-44			1		1	2 (1%)
45-49						-
50-54						-
International students:						
Yes	8			3	4	15 (5%)
No	69	20	5	68	100	262 (94%)

Section 2 sought information on whether respondents had received formal, informal, positive, or negative career advice during the bachelor's degree program. Formal advice was defined as specific lectures or tutorials presenting career options such as working in public or private institutions, international opportunities, or postgraduate study. The majority of respondents indicated that formal advice was provided during each allied health degree program (yes=197, 72%; no= 80, 29%). Formal advice was provided by university staff or clinical supervisors (86%) or people external to the university (professional body or guest lecturer, 44%), predominantly in the form of a scheduled lecture or workshop (96%).

Informal advice was defined as general conversations with a staff member or answers to specific questions concerning career options. A similar number of respondents indicated that they had also received informal advice during their degree program (yes=199,

72%; no=79, 29%). Informal advice was provided by university staff or clinical supervisors (84%), people external to the university (professional body or guest lecturer, 20%), past students and new graduates (7%), or employers (2%). Respondents indicated that informal advice was provided in response to specific questions (53%) and in general conversation (66%).

Positive advice was defined as a staff member encouraging the student to apply for a particular job or work at a particular institution or consider going on to postgraduate study. Approximately half of the respondents indicated that they had been given positive career advice during their degree program (yes=130, 47%; no=148 53%). Negative advice was defined as being advised not to consider applying for a particular job or work at a particular institution or to consider postgraduate study. A minority of students reported that they had been given negative career advice during their time within the bachelor's degree programs (11%). Table

2 presents a summary of the positive and negative career advice reported by respondents across the five

degree programs.

Table 2. Summary of the positive and negative career advice reported by respondents across the five degree programs (Note: percentages calculated out of total number of positive or negative comments.)

	Physio N= 78	Occ Ther N =20	Pod N= 5	Med Rad N= 71	Hum Mov N= 104	Total N= 278
Positive advice could include a staff member encouraging you to apply for a particular job or work at a particular institution or consider going on to postgraduate study. Have you been given any POSITIVE career advice?						
Number of respondents providing comment	40	4	2	23	61	130 (47%)
Total number of comments	54	4	2	23	66	149
To consider doing honours degree, postgraduate study or undertake a specific training program	11			6	25	42 (28%)
Generic advice to work in a specific hospital / field / in first year out	18	1		6	1	26 (17%)
Personal advice based on student performance	9		2	3	9	23 (15%)
General career advice sessions – cannot recall specific content	3	1			11	15 (10%)
Practical advice for finding employment (interview skills, CV writing etc)	4	1		7	3	15 (10%)
Positive job market	4	1		1	5	11 (7%)
Advice on how to meet entry criteria for further study /positions	4				5	9 (6%)
Make use of UG clinical field placements to experience different areas	1				7	8 (5%)
Negative advice is being advised NOT to consider applying for a particular job or working at a particular institution or consider postgraduate study. Have you been given any NEGATIVE career advice?						
Number of respondents providing comment	11			7	13	31 (11%)
Total number of comments	12			7	14	33
Discouraged from honours degree, postgraduate study or specific training program	4			2	3	9 (27%)
Discouraged from working in a specific hospital / field in first year out	3			4	1	8 (24%)
Negative job market	2			1	5	8 (24%)
Poor academic performance will limit job opportunities	2				3	5 (15%)
Personal advice based on student performance or career plan	1				2	3 (9%)

The majority of respondents supported the inclusion of specific information and sessions on career options within the degree program (yes=267, 97%; no= 8, 3%). With respect to the scheduling of career planning sessions within degree program, just over half of the respondents indicated that this should be provided every year (54%), with all other alternatives supported by less than 25% of respondents: only in the final year (14%), in the final half of a degree (20%), in the first half of a

degree (4%) or in the middle of a degree (3%).

Section 3 sought to elicit the advice a respondent would provide to a peer in several situations. Table 3 summarises these responses. These questions were open ended and each individual response could have presented a number of different points. Therefore percentages were calculated based on the total number of comments received.

Table 3. Summary of responses to open ended questions concerning peer advice in a number of scenarios. Number of responses are presented for each professional discipline and overall percentage calculated from the total number of comments for each question.

	Physio N= 78	Occ ther N= 20	Pod n =5	Med Rad N= 71	Hum Movt N= 104	Total student N= 278
One of your classmates tells you that they have no idea what to do next year after completing the degree. What would you say to them?						
Number of respondents providing comment	78	19	5	66	104	272 (98%)
Total number of comments	110	25	6	77	132	350
Seek advice from lecturers or career counsellors	32	12	2	28	62	136 (39%)
Provided advice -experiences enjoyed in the program	28	9	2	4	42	85 (24%)
Get a job and then can decide what to do	28	2		31	1	62 (18%)
Also unsure	10	1	2	5	16	34 (10%)
Do further study until you decide what to do	3			6	7	16 (5%)
Take time off or do unrelated work	9	1		3	4	17 (5%)
One of your classmates tells you that they think they will enrol in the honours program next year after completing the degree. What would you say to them?						
Number of respondents providing comment	78	20	5	68	103	274 (98%)
Total number of comments	111	26	7	84	120	348
Positive uninformative comment (Good on you)	32	15	4	53	80	184 (53%)
Advise to seek further information	10	1	1	6	22	40 (11%)
Unable to do honours after our degree	32	3		1		36 (10%)
Consider workload and hope you like research	9	2		1	5	17 (5%)
Negative uninformative comment (Don't do it)	5	1		9	7	22 (6%)
Get a job first / or study part-time to maintain skills	8	2	2	9	1	22 (6%)
Will not benefit future job prospects	4			2		6 (2%)
Consider the academic requirements for entry	2			1	1	4 (1%)
Consider financial and emotional support issues	3	2		1		6(2%)
Increased options for future career	3			1	4	8 (2%)
One of your classmates who is completing an honours degree tells you that they think they will enrol in the PhD program next year. What would you say to them?						
Number of respondents providing comment	77	18	4	66	95	260 (93%)
Total number of comments	98	31	4	71	121	325
Positive uninformative comment (Good on you)	44	13	3	42	89	191 (59%)
Advise to seek further information	21	3		13	12	49 (15%)
Get a job first/keep practical skills up to date	15	4	1	6	1	27 (8%)
Negative uninformative comment (Don't do it)	6	1		5	11	23 (7%)
Hope you like research/it is a lot of work	3			3	6	12 (4%)
Increased options for future career	4			1	1	6 (2%)
Unable to do PhD after our degree	2			1		3 (< 2%)
Consider the academic requirements for entry	2					2 (1%)
Will not benefit future job prospects	1					1 (< 1%)
Consider financial and emotional support issues					1	1 (<1%)
One of your classmates tells you that they think they would like to work as an academic (Lecturer) after completing the degree. What would you say to them?						
Number of respondents providing comment	74	15	3	31	89	212 (76%)
Total number of comments	89	22	4	34	103	252
Positive uninformative comment (Good on you)	31	8	2	14	60	115 (46%)
Require clinical experience first, and postgrad study	27	3	2	9	3	44 (17%)
Advise to seek further information	6	6			12	24 (10%)
Good job (variety, working with students, good wage)	9			1	12	22 (9%)
Depends on suitability of person	5	4		4	8	21 (8%)
Negative uninformative comment (Don't do it)	3			4	5	12 (5%)
Poor job (poor wage, budget cuts, stressful)	3			2	2	7 (3%)
Do not know how you would become an academic	5	1			1	7 (3%)

Section 4 sought information on the respondent's knowledge of research activities occurring within the School of Health Sciences and experience of research training within the degree programs. Table 4 presents the responses for knowledge of research activities, research degree students, and experience of research training courses for each professional discipline. For open ended survey items seeking to ascertain whether or not respondents could name staff, research projects, or current research degree students, text responses have been analysed and presented according to the following categories: item left blank (no response provided), a statement that indicated a lack of specific knowledge such as "unsure" or "no idea" or "too many to list" (don't know / heaps); naming of staff or projects or student regardless of whether or not these were current research activities within the School of Health Science (number of respondents stating at least one name) or accurately naming current research activities (staff, projects, or research students) within the School of Health Science (number of respondents stating at least one correct name).

The majority of respondents (82%, n= 229) indicated that they did not know whether all staff within the School of Health Sciences were engaged in research activities (9% indicating no, 6% indicating yes, and 3% failing to provide a response). On average, less than half of the respondents could name a staff member or current research project within the School of Health Sciences. For the 51% (n=142) of respondents who provided information, on average only one research project or staff member currently involved in research activities was identified per respondent (mean 1.2 ± 0.2 , range 1 - 4).

Similarly, 83% (n=232) of respondents were unable to name any PhD or Master's by Research student within the School of Health Sciences. Of the 45 respondents who provided names, 32 (12%) provided at least one name of a current PhD or Masters by Research student. The remaining 13 (5%) provided names of staff members (with or without research qualifications) or past research degree students. For the 32 respondents who provided correct names, on average only one research degree student was identified per respondent (mean 1.6 ± 1 , range 1-11).

While all professional health degree programs include courses (subjects) or modules on research training, less than half of the respondents indicated that they had

completed research training courses within their program (46%, n=129). The majority of respondents indicated that they had had a positive (good) experience of research training within the degree program (n=133, 48%).

Odds Ratios determined that responses from students holding or currently completing honours degrees were significantly different (more positive) than students not holding or completing honours degree. Respondents holding or currently completing honours degrees were significantly more likely to answer positively for receiving positive advice to consider or undertake postgraduate study (OR 6.6 : 2.2 – 20.3), negative advice (OR 8.4:1.5 – 43.9), encouraging a peer to undertake an honours degree (OR 12.6: 2.6 – 83.7), encouraging a peer to undertake a PhD (OR 6.6: 1.3 – 46.3), knowledge of research activities within the School of Health Sciences (OR not calculable as all honours students provided a positive response (n= 18, 100%) versus 47.5% of non honours students (n= 259), knowledge of current research degree students (OR 21.6: 6.7 -72.6), and a positive experience of research courses completed as part of the bachelor program (OR 3.1:1.0- 10.2).

All respondents currently completing or holding an honours degree were from the discipline of physiotherapy (n= 18). Over 90% of physiotherapy student respondents provided the name of at least one staff member or research project currently being undertaken within the School of Health Sciences. In other professional disciplines, with the exception of podiatry where the low response rate is likely to have inflated the percentage (4 out of 5 respondents = 80%), less than 45% of respondents correctly identified either staff or current research activities (occupational Therapy 30%, medical radiation 21%, human movement 44%). Differences between professional disciplines were calculated using χ^2 with the hypothesis that the proportion of positive responses would be similar to physiotherapy. Significant differences were calculated between physiotherapy and all other disciplines for receiving positive advice to consider or undertake postgraduate study ($p < 0.001$), encouraging a peer to undertake an honours degree ($p < 0.001$), encouraging a peer to undertake a PhD ($p = 0.02$), knowledge of research activities within the School of Health Sciences ($p < 0.001$), knowledge of current research degree students ($p < 0.001$), and a positive experience of research courses completed as part of the bachelor program ($p < 0.001$).

Table 4. Summary of responses for knowledge of research activities, research degree students and experience of research training courses for each professional discipline.

	Physio N= 78	Occ Ther N= 20	Pod N= 5	Med Rad N= 71	Hum Mov N= 104	Total N= 278
What research is currently occurring within your School? Please name any projects and/or staff.						
Number of staff employed	24	13	3	13	16	69
Research active staff *	13	4	2	0	9	28
Number of staff holding or completing PhD	10	6	1	1	11	29
Number of respondents providing at least one name	71	6	4	15	46	142 (51%)
Number of correctly named project/ staff per respondent (Mean SD range)	2 ± 2 (1-11)	1± 0.4 (1-2)	2± 1 (1-4)	1± 1 (1-6)	2 ± 1 (1-4)	1.6 ± 1 (1-11)
Don't know / "heaps"	4	9	1	34	25	73 (26%)
No response provided	3	5	1	22	33	64 (23%)
Please name any PhD or Master's by research students in your School.						
Current PhD, Master's by Research (M), Honours students (degree with honours = wH, honours degree =H)	12 PhD, 2 M 31 wH /5 H	4, PhD, 2 M, 8wH	2 PhD	2 PhD, 1 M 1H	8 PhD 11H	26 PhD 5 M 56 wH /H N=87
Number of respondents stating at least one name	20	1	1	11	13	45 (16%)
Number of names stated	42	1	1	4	8	56
Number of correct names	31	1	1	1	3	37
Number of respondents stating at least one correct name	17	1	1	7	6	32 (12%)
Number of correctly identified RD students per respondent (Mean SD range)	2 ± 1 (1-4)	1± 0.0 (1-1)	1± 0.0 (1-1)	1± 0.0 (1-1)	1± 0.0 (1-1)	1.2 ± 0.2 (1 - 4)
Don't know / "heaps"	18	9	0	29	28	84 (30%)
No response provided	40	10	4	31	63	148 (53%)
Are all of the academic staff within your school currently doing research?						
Yes	3	2	1	7	5	18 (6%)
No	13			7	4	24 (9%)
Don't know	62	16	4	56	91	229 (82%)
No response provided		2		1	4	7 (3%)
Have you completed any research courses within your program?						
Yes	71	19	4	8	27	129 (46%)
No	7		1	62	69	139 (50%)
No response provided		1		1	8	10 (4%)
Overall has your experience of these research courses been negative(bad) or positive (good)						
Positive	54	11	4	30	34	133 (48%)
Negative	21	8	1	3	1	34 (12%)
No response provided	3	1		38	69	111 (40%)

* Research active based on 2004 research output (publication, successful grant applications or research degree student completions)

Discussion

The results of this investigation reflect the views and recollections of a cohort of final-year health students from five professional disciplines within a single Australian University. The difficulty with generalizing or extrapolating the findings of this study to a wider range of health professions either within Australia or internationally is limited by the diversity of professions

which fall under the broad term of allied health, the differences in educational requirements, credentialing, career structures, role of research training / postgraduate study, and essentially the lack of baseline data on career advice in health professions other than medicine and nursing.

This cohort of final-year Australian students in a variety

of allied health professional degrees reported that both formal and informal career advice (72% in both cases) was imparted throughout the three to four years of study. This advice was provided predominantly by university staff or clinical supervisors in the form of a lecture or workshop. Overwhelmingly, respondents supported the inclusion of specific information and sessions on career options within the degree program (n= 267, 97%), with over half of the respondents indicated that formal career advice should be provided every year (n= 153, 54%). While differences were reflected between disciplines, the most frequent career advice reported by final-year students related to postgraduate study (encouraged 28%, discouraged 27%) or work within a specific place of employment immediately upon graduation (encouraged 17%, discouraged 24%). Compared to the four other professional disciplines, respondents from physiotherapy were significantly more positive in their responses concerning postgraduate study and experience of research courses, and were able to name more staff, research projects and current research degree students.

This cross-section survey presents career advice, in their own words, retained by students and the advice they would offer a peer in several situations. For three of the five professional disciplines, the high response rates indicate that the findings are likely to be representative of all final-year students in physiotherapy, medical radiation, and human movement. However, the responses need to be considered in the light of three caveats. First, while respondents provided information concerning career advice, the degree to which individuals supported or agreed with the advice reported is unknown, though the advice proffered to peers in different scenarios may be a more robust indicator of personal preferences and beliefs. Second, as all respondents were yet to commence full time work within the health industry, it is unclear whether the advice reported by respondents will prove to be useful or accurate or to what degree the perspectives reflected in comments might change after entering the workforce. Third, the respondents represent a single final-year cohort from one university within Australia. The degree to which these responses might consistently reflect further graduating cohorts within the same university or different cohorts of allied health undergraduates within similar universities within Australia or internationally is unknown. Therefore caution should be applied in extrapolating these findings to the career planning needs of allied health practitioners employed within the health sector.

The provision of formal, individual career guidance has been reported to improve the confidence with which undergraduate nursing students participate in career planning activities.⁴ No published studies could be found which reported the type and nature of career advice provided to undergraduate students in physiotherapy, occupational therapy, medical radiation, podiatry or human movement. A small number of studies have reported the relationships between occupational therapy

and physiotherapy student perceptions, work experiences during undergraduate training and career preferences.⁹⁻¹⁴ In general, these studies highlight the impact that clinical placements or specific clinical facilitators have on career preferences. For both physiotherapy and occupational therapy undergraduates, a career in research or academia was rarely expressed as a preference. For example, less than 3% of occupational therapy students studying at one Australian university surveyed on entry and exit for both their immediate and preferred work setting 5 years after graduating indicated a preference for a career in research, postgraduate study, or academia.¹¹ Whereas, research was not reported at all as a preferable area of practice within a cohort of Canadian physiotherapy undergraduates, with clinicians rather than academics identified as the most commonly selected role models.¹²

Lucassen and Merry (2005) recently reported the results of a systematic search of all major databases concerning the impact of early exposure to specific health contexts on later career choices. Limiting the search for studies published in English between 1985 and 2004 and using search terms which included career choice, health students, and allied health occupations, 53 studies were reviewed which included both undergraduate students in medicine, nursing, occupational therapy, physiotherapy, and qualified health practitioners (occupational therapists, psychologists, and social workers). While studies varied considerably in their methodological quality, in general, this body of literature suggested that exposure to specific health contexts during undergraduate training influenced student perception of the health context without necessarily impacting on final employment choice or career path.¹⁵

Within this current study, the advice respondents provided to a peer in several situations reflected both the source and the nature of the advice provided by formal and informal processes. The most frequent responses to a peer who was unsure of what to do after completing the degree was to seek advice from lecturers or career counsellors (39%) or to consider the work experiences they have enjoyed during the bachelor's degree program (24%). With respect to advice provided to a peer concerning undertaking an honours program, PhD, or considering a career as an academic, the commonest response was an uninformative affirmation ("Good on you," "Go for it," "Great") with responses of 53%, 59%, and 46% respectively. While such responses may indicate support and enthusiasm for postgraduate study, it is unknown what proportion of these responses reflects genuine, considered support for such a career pathway versus simple, socially acceptable replies.

When all categories of advice concerning a peer undertaking an honours program, PhD, or considering a career as an academic immediately after graduating from the bachelor's degree were considered, 22% of comments were discouraging ("unable to pursue degree," "Don't do it," "Get a job first," "Will not help future

employment prospects," or "poor job choice" = 203 out of 925 comments). Advice specifically discouraging a peer from considering further study within an honours, masters or PhD program or pursuing an academic career accounted for 6% of all comments ("Don't do it," 57 out of 925 comments). Advice encouraging a peer to delay postgraduate study or working as an academic ("get a job first," "need clinical experience first," or "need to maintain and develop clinical skills") accounted for 10% of all comments (93 out of 925 comments). Erroneous advice concerning the ineligibility of graduates from allied health science degrees from undertaking further studies such as honours, masters or PhD programs was reflected in 6% of all comments (39 out of 673 comments).

In general, respondents demonstrated poor knowledge of current research activities undertaken by the School of Health Science by either staff or research degree students. While 51% (n=142) of respondents were able to name a staff member or research project currently underway in the School, 83% (n= 232) of respondents were unable to name any current PhD or Master's by Research students. Where respondents accurately offered information, on average only 1 - 2 names of current staff, projects, or research degree students were provided per respondent. Unsurprisingly, where respondents correctly nominated current research degree students, these research degree students were employed part time as tutors or clinical instructors within the degree program.

Respondents from the physiotherapy discipline were found to report more positive advice concerning postgraduate study (both received and provided to a peer), have greater knowledge of research activities within the School of Health Sciences, and express a positive experience with research training courses within the degree program. This difference does not appear to result from the presence of a greater number of research active staff as proportionally, physiotherapy (54%) was similar to human movement (56%), though less than podiatry (66%), and greater than occupational therapy (31%) and medical radiation (0%). There are three possible reasons for this difference. Of the 78 physiotherapy responders in this study, 23% held or were currently completing an honours degree (first level of research training). Responders holding or currently completing an honours degree were found only within the physiotherapy discipline and this factor alone resulted in a greater likelihood of respondents answering more positively with respect to postgraduate study, knowledge of research activities, and experience of research training. It might be expected that students currently undertaking a research training program might have a more positive view of research processes and practices and have more immediate access to research activities within the School of Health Sciences. These students also interact and mix with students not involved in the honours program on a day to day basis and as such their views and beliefs may inform a wider peer group.

Secondly, all physiotherapy undergraduates (not involved within the honours programs) complete a research training course (Physiotherapy Project U) in the final year of the bachelor program. This course is based upon active involvement in a large, longitudinal study of spinal health in school children, where undergraduates students are trained in specific measurements skills, undertake data collection within a number of metropolitan based schools, analyse the results, and prepare a report based upon the manuscript requirements for a peer-reviewed journal. The spinal health study commenced in 1998, and each year final-year students complete the annual data collection process, which adds to and extends a research database. This research training program provides an opportunity for undergraduate students to experience research processes and practices in a highly visible, useful, and internationally recognised study.¹⁶⁻¹⁸ Of the 71 physiotherapy respondents providing at least one correct name for any research activities currently occurring within the School of Health Sciences, 55 respondents named the spinal health study (77%) and 35 (49%) nominated an honours student or project, suggesting that participation within the large adolescent spinal health study and interaction with students currently holding or completing an honours degree facilitated knowledge of research activities within the physiotherapy discipline.

Finally, of the five professional disciplines investigated in this study, physiotherapy has the longest history of formal research training programs within the University of South Australia. Physiotherapy graduates commenced entering the University of South Australia PhD program in the late 1980's, occupational therapy and podiatry graduates in the mid 1990's, and human movement and medical radiation graduates in the early 2000's. Similarly, while the Bachelor of Physiotherapy with Honours and the Bachelor of Occupational Therapy with Honours commenced in the early 1990's, the honours program for human movement graduates commenced in the late 1990's. Access to an honours program for graduates from medical radiation and podiatry was not available until 2004. The more positive responses provided by physiotherapy undergraduates may simply reflect the cumulative history and relatively greater numbers of research degree candidates within this discipline.

Overall, it appears that while career advice was provided throughout the undergraduate education of these five professional disciplines, much of this advice was generic and limited to employment or postgraduate studies possibilities within the first 2-3 years immediately after graduation. In addition, the advice appears to be profession directed rather than student specific in terms of their skills and interests, as only 26 respondents reported positive or negative advice given in response to their academic or clinical performance. Apart from generic comments regarding postgraduate study and places of employment, no comments were provided by respondents concerning provision of specific information relative to employment structures (public versus private employment, academic versus research career), financial

remuneration, combining family commitments and employment, strategic career planning, or longer terms goals. It may be that such information was provided during the undergraduate degree programs, but previous studies of medical and nursing students suggest that such information is rarely a priority within professional curricula.¹⁻⁴

The findings of this study present a number of issues which require either immediate rectification or further consideration for the type and nature of advice provided to undergraduate allied health professional students within this School of Health Science. A relatively small number of respondents provided information that indicated a lack of understanding of the structure, hierarchy, and eligibility for entry into postgraduate tertiary degree programs. Of particular concern within a School which offers both degrees with honours (Bachelor of Physiotherapy with Honours, Bachelor of Occupational Therapy with Honours) and stand alone Honours degrees, was the lack of understanding regarding entry requirements and availability of alternative pathways for honours degrees. While the one-year honours degree commenced in 2004, the same year that this cohort of students were completing this survey, the availability and entry requirements do not appear to have been consistently and effectively conveyed to current undergraduate allied health students:

- *"They can't do honours in IBPZ straight after graduating. They'd have to work 2 years, get masters first then apply for honours"* Physiotherapy respondent
- *"OT honours program is done in 4th year, I don't know of any relevant other Honours program that is offered after the completion of OT"* Occupational Therapy respondent

While the commonest response to a peer considering enrolling in an honours or PhD program was a positive affirmation, the theme reflected through a number of response categories was that any choice other than full time clinical employment represented a waste of undergraduate training, would negatively impact upon the development of clinical skills or provide no advantage in future career:

- Re PhD *"YOU'RE A NERD!"* Human Movement respondent
- *"They need to have a break and work out in the community first to gain more experience"* Podiatry respondent
- *"Why a PhD? Why not get some experience first then come back to PhD later."* Occupational Therapy respondent
- *"Work first! Don't be afraid of the real working world and stop hiding behind your books!"* Physiotherapy respondent
- *"I would question whether it would be wise to do this, ie, a further 3 years study then at the end still have no clinical experience. Even if they do want to spend the rest of their career doing research, being so far*

removed from clinical situations may be detrimental". Physiotherapy respondent

- Re honours degree *"will probably make you worse at your job because of the time you spend not practicing. Unless you have a really good plan a further degree would be a waste of time in our field"* Medical Radiation respondent.
- *"No real benefit in the industry"* Medical Radiation respondent

Consistent with this issue was the underlying perspective that students within these five professional disciplines were training for a specific professional vocation rather than completing an academic degree as a basis for ongoing career development. This vocational education perspective appears to also be reflected in the fact that while all professional disciplines have been amalgamated both geographically and administratively within one School of Health Sciences, no respondents expressed interest in a research activity or current research degree student outside of their own professional discipline:

- *The school of medical radiations is a vocational one, producing technicians with a limited but complex set of skills.* Medical Radiation respondent
- *"skills learnt in this applied degree don't really lend themselves to research as such"* Medical Radiation respondent

Conclusion

Given the current allied health professional workforce shortage within Australia, there is no doubt that the health industry will benefit from the majority of allied health graduates commencing immediate employment within the clinical arena. However, the career advice provided to and between the final-year allied health professional students in this study appears to be limited to securing full time employment within the health industry and to consider postgraduate study after gaining sufficient clinical experience in their professional field. Little or no advice was provided concerning career progression and requirements for promotion within different modes of employment (public health industry, private employment, academia, research etc). There is a growing body of evidence that suggests generations of workers born after the mid 1960's are less likely to remain with any one employer for extended periods of time and are more likely to seek at least one change of career within their lifetime.^{19, 20} Given the ongoing changes within health industry, the move toward evidence-based practice and employment expectations of future allied health professional students, the findings of this study support the need for accurate and specific information concerning the relative merits of various employment opportunities. In addition, longitudinal and systematic evaluation of the relationships between career advice provision, employment choices, and career progression is specifically required for the allied health professions.

Postscript: The health professional respondents included within this study completed their bachelor's degrees and graduated at the end of 2004. Five graduates immediately entered the honours program (all Human Movement) and 5 graduates immediately entered the PhD program (Physiotherapy 2, Occupational Therapy 1, Human Movement 2). All other graduates entered the workforce.

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Appendix1

**What career advice is given to final year Allied Health Science students?**

We are interested in knowing what advice is provided to final year students concerning career choices upon graduation. This survey has been approved by the University Human Research Ethics committee, is anonymous and the results are confidential. If you are willing to participate, could you please read and answer the following questions. PLEASE ANSWER HONESTLY

1. Which program are you currently enrolled in?

- Please select one -

2. Are you currently completing an Honours program or do you hold an Honours degree?

Yes

No

3. Do you hold any other qualifications?

Bachelor degree

PhD

Masters degree

Diploma

Graduate Diploma

Professional qualification eg Registered Nurse

4. What is your gender?

Male

Female

5. What is your age?

- Please select one -

6. Are you an international student? Yes No**7. Formal advice might be given as specific lectures or tutorials presenting career options such as working in public or private institutions, international opportunities or postgraduate study. During the program, have you received any FORMAL advice concerning career options when you graduate?** Yes No**8. If YES, please indicate WHO (e.g lecturer, clinical supervisor) gave this advice and HOW (e.g lecture, seminar) this formal advice was provided?**

(Enter text into this box, maximum 2000 characters)

9. Informal advice could include general conversations with a staff member or answers to specific questions concerning career options. During the program, have you received any INFORMAL advice concerning your career options on graduation? Yes No**10. If YES, please indicate WHO (e.g lecturer, clinical supervisor) gave this advice and HOW (e.g response to specific questions, general conversation) this informal advice was provided.**

(Enter text into this box, maximum 2000 characters)

11. Positive advice could include a staff member encouraging you to apply for a particular job or work at a particular institution or consider going on to postgraduate study. Have you been given any POSITIVE career advice? Yes No

12. If you have been given POSITIVE advice, what was the advice?

(Enter text into this box, maximum 2000 characters)

A rectangular text input box with a light gray background and a thin border. It contains a small cursor at the beginning. On the right side, there are three small square buttons: a triangle pointing up, a triangle pointing down, and a square with a diagonal line. On the bottom left, there are two small square buttons: a left-pointing triangle and a right-pointing triangle.

13. Negative advice is being advised NOT to consider applying for a particular job or working at a particular institution or consider postgraduate study. Have you been given any NEGATIVE career advice?

Yes

No

14. If you have been given NEGATIVE advice, what was the advice?

(Enter text into this box, maximum 2000 characters)

A rectangular text input box with a light gray background and a thin border. It contains a small cursor at the beginning. On the right side, there are three small square buttons: a triangle pointing up, a triangle pointing down, and a square with a diagonal line. On the bottom left, there are two small square buttons: a left-pointing triangle and a right-pointing triangle.

15. Should specific information and sessions on career options and career planning be included within your program?

YES

NO

16. If YES please indicate when this advice should be provided? (For example, only in Year 1, only in Year 2, in every year?).

• (Enter text into this box, maximum 2000 characters)

A rectangular text input box with a light gray background and a thin border. It contains a small cursor at the beginning. On the right side, there are three small square buttons: a triangle pointing up, a triangle pointing down, and a square with a diagonal line. On the bottom left, there are two small square buttons: a left-pointing triangle and a right-pointing triangle.

17. One of your classmates tells you that they have no idea what to do next year after completing the degree? What would you say to them?

• (Enter text into this box, maximum 2000 characters)

A rectangular text input box with a light gray background and a thin border. It contains a small cursor at the beginning. On the right side, there are three small square buttons: a triangle pointing up, a triangle pointing down, and a square with a diagonal line. On the bottom left, there are two small square buttons: a left-pointing triangle and a right-pointing triangle.

18. One of your classmates tells you they think they will enrol in the Honours program next year after completing the degree. What would you say to them?

(Enter text into this box, maximum 2000 characters)

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19. One of your classmates who is completing an Honours degree tells you that they think they will enrol in the PhD program next year. What would you say to them?

(Enter text into this box, maximum 2000 characters)

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20. One of your classmates tells you they think they think they would like to work as an academic (Lecturer) after completing the degree. What would you say to them?

(Enter text into this box, maximum 2000 characters)

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21. What research is currently occurring in your School? Please name **any** projects and/or staff.

(Enter text into this box, maximum 2000 characters)

A rectangular text input box with a light gray border. It contains a horizontal scrollbar at the bottom and vertical scrollbars on the right side. The box is currently empty.

22. Please name **any** PhD or Masters by research students in your school.

(Enter text into this box, maximum 2000 characters)

A rectangular text input box with a light gray border. It contains a horizontal scrollbar at the bottom and vertical scrollbars on the right side. The box is currently empty.

23. Are all of academic staff within your school currently doing research?

YES

NO

DON'T KNOW

24. Have you completed any research courses within your program? This could include courses on statistics, research methodology, evidence based practice.

YES

NO

25. Overall has your experience of these courses been....

NEGATIVE (bad)

POSITIVE (good)

26. Is there anything else you would like to tell us?

(Enter text into this box, maximum 2000 characters)

Thank you for completing this survey. It is greatly appreciated.