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Choosing the pharmacy course: The need for guidance and counseling in preparation for higher education

MARY ANNE LAURI[2], MARIA CORDINA[1], JOSEF LAURI[3], DIONE MIFSUD[2]

[1]*Department of Clinical Pharmacology and Therapeutics, Faculty of Medicine and Surgery, University of Malta, Malta*

[2]*Department of Psychology, Faculty of Education, University of Malta, Malta*

[3]*Department of Mathematics, Faculty of Science, University of Malta, Malta*

Abstract

Background: Students sometimes join the pharmacy course without having adequate information on which to base their choice. It is being argued that career guidance professionals should play a major role in helping students make the right choice. This could be an important factor in student retention and satisfaction.

Aim: This paper aims to investigate the decisions taken by a cohort of students joining the first year of the Faculty of Medicine and Surgery at the University of Malta.

Methodology: The Gordon Personal Profile Inventory was administered to student during the first semester of their first year. A short satisfaction questionnaire was administered to the same cohort during the first semester of the second year.

Results: Almost one fourth of the participants said that had they sought professional help they would have probably chosen a different course.

Conclusion: Appropriate career guidance and counseling is essential for students to learn how to make informed choices regarding future careers as well as how to deal with issues regarding management of transitions and contingencies.

Keywords: *counseling, guidance, Pharmacy course, student satisfaction*

Introduction

Deciding which course to follow at a tertiary educational institution is an important and sometimes difficult decision for students. This decision determines whether they are happy during their studies, whether they complete their studies with success and later on whether they are fulfilled in the profession they had chosen. Since work fulfillment is very important for mental health and wellbeing, it is being argued that students should be provided with the right guidance before they choose a course of study. Moreover, since it is important for the educational institution to have a good track record of successful students, career guidance and counseling is an aspect which should be given due importance.

University programs aimed at providing a solid professional base tend to attract students who see their course of studies as an extremely useful tool in helping them to pursue their chosen career. Career research focusing on post-secondary students during the late twentieth and early twenty first focused on the timing and the factors that influence career choice (Taylor 1992; Payne 2003; White 2007). White (2007) suggests that the most important choices facing this age group include whether to continue studying or not, the choice of the educational institution and the choice of educational programme based on attained qualifications. Other studies (Barrick, Mount & Gupta, 2003; Lounsbury, Steel, Gibson & Drost, 2008) have suggested that occupational interests and personality are overlapping determining factors in career choice. These are important since personal fulfillment at work many times means a better propensity to develop the necessary emotional resilience to tackle work oriented stress and paves the way for career satisfaction and life satisfaction (Lounsbury, Park, Sundstrom, Williamson and Pemberton, 2004)

Standardized tests and Inventories

Sometimes, in career guidance and counseling, professionals use standardized tests or inventories to find out the traits and personality profile of individuals. These tools, together with an interview, enable the professional to guide the student to make an informed choice. One such test is the Gordon Personality Profile–Inventory (GPP-I). This instrument, which is a combination of the Gordon Personal Profile (GPP) and the Gordon Personality Inventory (GPI), measures eight well established personality traits which are ascendancy, responsibility, emotional stability, sociability, cautiousness, original thinking, personal relations and vigor. It is self-administered and respondents select statements in a forced-choice tetrad format.

*Correspondence: Maria Cordina, *Department of Clinical Pharmacology and Therapeutics, Faculty of Medicine and Surgery, University of Malta, Malta*, Email: maria.cordina@um.edu.mt

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Aim

In this paper, this instrument was used to map the personality profiles of students following courses in the Faculty of Medicine and Surgery at the University of Malta. The analysis of the GPP-I scores and how these could be used is discussed in greater detail in Cordina *et al*, 2010.

Method

The Gordon Personality Profile - Inventory (GPP-I) global edition was administered in the first semester to first year undergraduate students in the Faculty of Medicine and Surgery, that is students reading for a degree in Pharmacy and those reading for a degree in Medicine (N=148). A short satisfaction questionnaire consisting of 9 questions addressing satisfaction with choice of course the seeking of guidance and counselling was administered during lecture hours to the same cohort during the first semester of the 2nd year. Students were informed of the purpose of the study and were also informed that participation was voluntary. The results of GPP-I as well as the satisfaction questionnaire were analysed using SPSS. In this paper the analysis will focus on the results of the satisfaction questionnaire however reference to the GPP-I profiles of the same cohort will be made.

Besides descriptive statistics, t-tests were carried out in order to find out whether there were differences between the cohort of students studying medicine and those studying pharmacy. Chi-square tests were also used to analyse the differences in the percentages of students who had sought professional advice and those who would wish to change the course chosen in the first year. Finally Multiple Correspondence Analysis (MCA) was also used to discover associations between various variables.

Ethical approval for the study was obtained from the Research Ethics Committee of The University of Malta.

Results

The response rate of the GPP-I was 89.8% while that for the questionnaire was 87%. Information about student numbers in populations and samples are given in Table 1.

Table I: Number and gender of students in courses and samples

	Medicine	Pharmacy
Registered students in the 1st year	N=79	n= 69
Gender of registered students	Males=41	Males=21
	Females=38	Females=48
Respondents GPP-I	70	63
Gender of respondents	Male=35	Male=20
	Female=35	Female=43
Students starting 2nd year	77	48
Gender of Students	Males=40	Male=11
	Females=37	Female=37
Respondents Questionnaire	N=64	n=42
Gender of respondents	Males=31	Males=8
	Females=33	Females=34

*Student number in medicine went down to 77 as two students repeated year 1 while those in pharmacy went down to 48 because 17 students dropped out and 4 repeated.

The gender ratio in the two courses was interesting. In the first year, the ratio of males to females in the cohort of pharmacy students was 1:2 while that in medicine was approximately 1:1. In the second year, the ratio changed to 1:3 in pharmacy but remained approximately 1:1 in Medicine. This imbalance between males and females in the cohort studying pharmacy is also reflected in the gender of the respondents.

Table II provides the results of a comparison between male and female GPP-I scores for the first year cohort of faculty students. With the exceptions of responsibility, personal relations and cautiousness, males tended to score higher than females in all traits. Males obtained significantly higher scores in the traits of ascendancy, sociability and self-esteem.

Since the ratio of females to males is higher in the pharmacy course, it would be expected that traits normally associated with female students following a course in pharmacy and medicine, such as sociability, responsibility, vigilance and vigour (Scott et al. 2007; Cocolas et al. 1997) are higher in the sample of pharmacy students where the ratio of females to males is 3:1. This was not found to be true for this cohort of students and there were no significant changes between personality traits of pharmacy students and medical students. When standardized scores on the GPP-I of every student were classified as low, medium or high according to a predetermined scale, there were no statistically significant differences for any of the subscales. The percentage of students in each course with high scores on each of the eight subscales is tabulated in Figure 1.

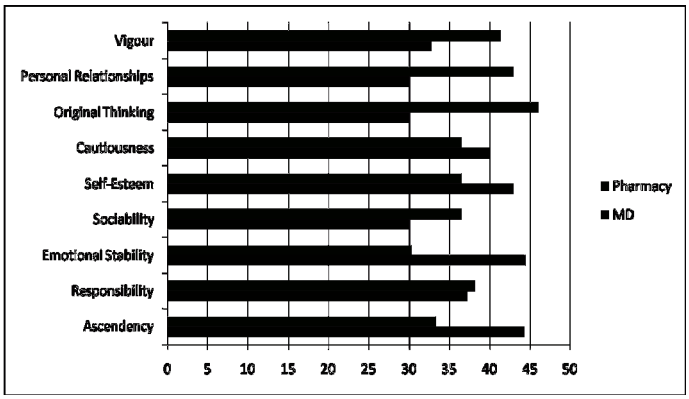


Figure 1: The percentage of medicine and pharmacy students who scored Average to High on each of the items of the GPP-I

Student Choices

In the questionnaire administered in the second year, students were asked for reasons as to whether they were happy with the course and why. Respondents who answered in the positive (85%) gave various reasons, the most frequent being that they are confident that the course chosen led to a fulfilling career. The differences in the reasons given by pharmacy students were not significantly different from those of medical students except for one. Pharmacy students, more than medical students, believed that they had a financially

Table II: GPPI mean raw scores for personality traits for incoming male and female students of the Faculty of Medicine and Surgery

Personality Trait	Male	Female	95 % Confidence Interval of difference in means		p-value
	Mean SD	Mean SD	Lower	Upper	
Ascendancy	22.09 5.63	18.92 6.14	1.098	5.237	0.003**
Responsibility	22.32 4.97	23.92 5.28	-3.392	0.200	0.081
Emotional Stability	20.78 6.36	18.97 5.28	-0.197	3.812	0.077
Sociability	22.61 6.24	20.28 6.30	0.148	4.523	0.037*
Self-Esteem	87.81 14.46	82.10 16.46	0.256	11.174	0.040*
Cautiousness	22.23 5.80	23.38 6.23	-3.258	0.962	0.284
Original Thinking	24.14 5.60	23.15 5.36	-0.912	2.895	0.305
Personal Relations	20.18 5.68	21.09 5.57	-2.865	1.049	0.361
Vigour	23.34 5.76	23.08 4.89	-1.581	2.092	0.783

*p<0.05, **p<0.01

rewarding career ahead (chi-square=9.15, df=1, p=0.002) as illustrated in Table III.

Table III: Numbers of students giving reasons why they are happy with course

	Medicine	Pharmacy	p-value for difference in proportions
Course as expected	6	7	0.450
Supportive lecturers	2	2	1.000
Fulfilling career ahead	42	30	0.850
Financially rewarding	10	19	0.002*
To help people	26	16	0.850
Other reasons	4	0	0.150
Total number of respondents	64	42	

*p<0.05

Respondents were also asked whether they had sought professional advice from a counselor or career advisor about the course they were wished to follow at university. Only 20% of sample had sought advice. This could be one of the possible reasons why almost a quarter of the students withdrew from the pharmacy course in the first year and 8% had to repeat year one of either the pharmacy or the medical course. When asked whether they think they would have chosen another course had they sought professional advice, 22.6 % of the students said they would have while another 16% of students said they were unsure.

In the next section we shall give some data analysis investigating the relationship between choice of course, gender, seeking professional advice and the desire to change course. The results of this analysis have important implications with regard to career counseling of pre-university students joining the Faculty of Medicine and Surgery.

Table IV: Number of students who think would or would not change course

	Same course	Unsure	Change course	No answer	Number of Respondents
Medicine	42	11	8	3	64
Pharmacy	20	6	16	0	42
Total	72	17	24	3	106

Associations between variables

Associations between the variables 'SOUGHT PROFESSIONAL ADVICE' (Yes/No), 'WOULD WANT TO CHANGE COURSE' (Yes/No/Unsure), 'GENDER' (Male/Female) and 'COURSE' (Medicine/ Pharmacy) were studied in more detail. The univariate associations given by the significance level of the Pearson chi -squared test is summarized in Table V.

The significance of the association between GENDER and COURSE is to be expected, since it has become traditional over the years that Pharmacy is one of the courses in which a good majority of enrolments comes from female students. There is no significant association between GENDER and WOULD CHANGE COURSE. Moreover, if this association is controlled for choice of course, it still remains true that neither for the medical students nor for the pharmacy students were there any associations between gender and the wish to change course. Neither is there any significant association between GENDER and SOUGHT PROFESSIONAL ADVICE. There is also no significant association between SOUGHT PROFESSIONAL ADVICE and WOULD CHANGE COURSE. But here the role of gender is not to be totally discounted. When this association is controlled for

Table V: Significance of Pearsons' chi-squared coefficient

	Sought professional advice	Would change course	Gender	Course
Sought professional advice		n.s.	n.s.	<0.001
Would change course			n.s.	0.01
Gender				0.002

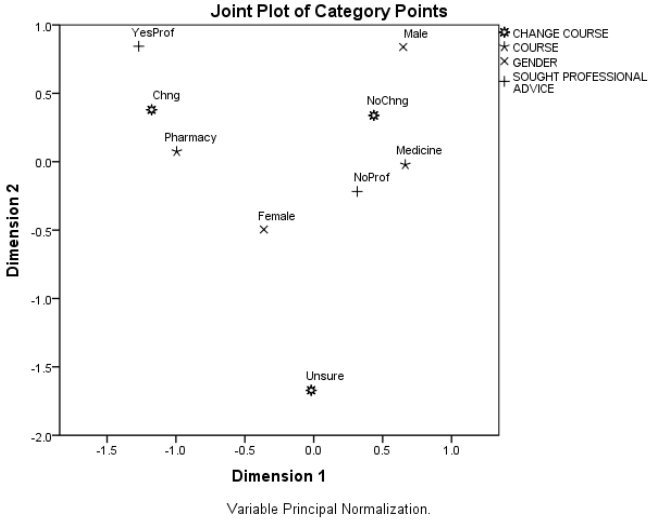
gender it turns out that while for females there is still no significant association between seeking professional advice and wanting to change course, there is a significant association (df=2, p=0.009) for males, with those male students who sought advice being more likely to want to change course than those who did not. These figures therefore indicate that pharmacy students are more likely to have sought professional advice and more likely to want to change course. This observation will be analysed in the discussion below.

Following this univariate analysis it was decided to analyse the four variables GENDER, SOUGHT PROFESSIONAL ADVICE, WOULD CHANGE COURSE and COURSE in a multivariate fashion using Multiple Correspondence Analysis (MCA).

MCA is similar in principle to factor analysis in that it tries to reduce the dimensionality of a data-set, but in this case, the variables are categorical. MCA assigns numerical values to subjects so that subjects in the same categories are as close together as possible while subjects in different categories are far apart. The categories themselves are given numerical values based on those given to the subjects within them. These values are called category quantifications. By comparing how close or far apart these categories are in terms of their quantifications, one can try to discover associations between the variables. When MCA gives a two-dimensional solution, the proximity or otherwise between categories can be visually exhibited in a two-dimensional plot.

MCA analysis carried out indicated that a two-dimensional solution is quite reasonable in this case. The first dimension accounted for 43% of the variance in the sample and the second dimension accounted for 29% of the variance, with a mean Cronbach's alpha of 0.403. Figure 2 shows the category quantifications for the four variables plotted along the two dimensions extracted by the MCA.

Figure 2: Joint quantification plot of the categories of the four variables analysed with MCA

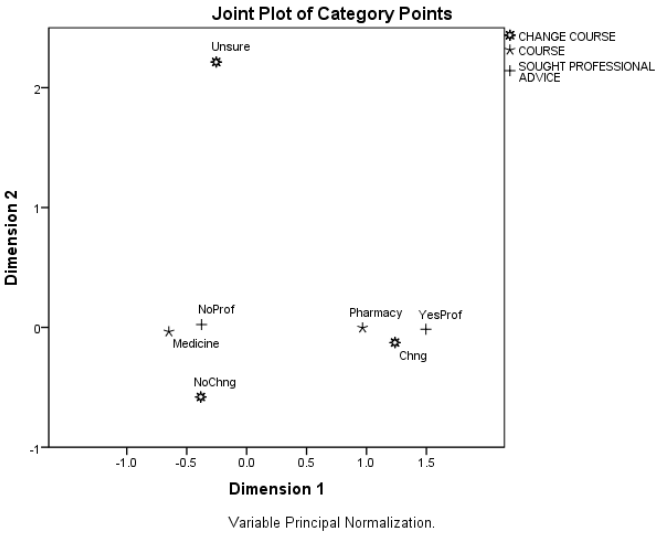


It seems clear that the first dimension discriminates between students who would not want to change their course on the one hand and those who would on the other. The second dimension seems to discriminate between those who are unsure of their choice of course and those who have more fixed opinions, be it to change or not to change their course. However, the "Unsure" category does not seem to be associated with any of the categories of the other variables.

On the other hand, medical and pharmacy students are clearly delineated along the first dimension with the medical students associated with not wanting to change course and pharmacy students wanting to change. This plot also confirms that medical students are generally those who have not sought professional advice before joining their course while pharmacy students are more likely to have sought this advice, although the association for pharmacy students in this plot is not as close as for medical students. This analysis confirms the observation made above that pharmacy students are more likely to want to change course and to have sought professional advice. Those students who are uncertain about the course form a separate category with no strong association to any of the other factors.

Since it is not clear whether gender is a crucial factor in this analysis, a second MCA was carried out using only the variables SOUGHT PROFESSIONAL ADVICE, WOULD CHANGE COURSE and COURSE. The MCA here showed that a two-dimensional solution is even more indicated than in the previous analysis, with the first dimension accounting for 54% of the variance and the second dimension accounting for 34%, and a mean Cronbach's alpha of 0.361. Figure 3 shows the category quantifications for the three variables plotted along the two dimensions extracted by the MCA.

Figure 3: Joint quantification plot of the categories of the three variables analysed in the second MCA



The first dimension even more clearly now separates those students who would not want to change their course from who would want to. The positioning of medical students along this

dimension confirms that they are less likely to want to change their course. In general, we again see that pharmacy students are more likely to want to change course and to have sought professional advice. This observation which has been confirmed by all the statistical tests that we have carried out will be a main focus of our discussion below.

The second dimension now clearly discriminates between those who are unsure of their choice of course and those who, one way or the other, have a clearer idea. It is also clear from this plot that the "Unsure" category cannot be associated with any of the other categories of the other variables.

Discussion

We believe that the results presented above have important implications regarding career guidance of students wanting to join a health related course and possibly also for other courses. It also has implications for decision makers in higher educational institutions.

In this paper we will only discuss the dynamics involved in choosing the medical and pharmacy course. The data shows that only 5 medical students, 8% of the sample of medical students, had asked for professional advice while in the case of Pharmacy there were 16, that is 38% of the sample, a difference which is statistically significant (Chi-square=14.35, df=1, $p< 0.001$). Also, only 13% medical students said they would want to change their course compared to 38% pharmacy students, another statistically significant difference (Chi-square=8.74, df=2, p=0.01). Interestingly there seems to be a strong association between seeking advice and wanting to change course. This could be understood in the light of perceptions regarding the pharmacy, nursing and medical courses and how students, in quite a number of cases, join the Medical and Pharmacy course at the University of Malta.

Many students aim to join the course in Medicine but because the course requires high entry requirements (Grade B or better in all Intermediate and Advanced Level examinations) many students do not make the grades. In the case of pharmacy the required grades for joining the course are lower (pharmacy requirements are pass at grade C in chemistry and pass at advanced and intermediate level examinations) . On their entry form, students are asked to put down their first and second preference courses. From records in the University's Admission Office, 11.6% students out of the pharmacy cohort had chosen medicine as their first choice but had to follow their second choice, pharmacy, because they did not make the grades. Moreover, students who do not expect to obtain the required high grades generally do not even choose Medicine as their first option because they know the stringent entry requirements. Therefore one reason why students in the Medical course were less likely to seek professional advice could have been that they wanted to follow Medicine in the first place and achieved the grades to be able to join. For this reason, they did not need to seek professional advice. For the same reason, these students would be less likely to want to change course.

In the case of pharmacy students, one reason why more of them sought professional advice could be that a substantial number of these students did not obtain or did not expect to obtain the required grades to study medicine, their preferred option (Private communication, Student Advisor Services). They therefore were more likely to seek information and guidance about their second choice, and this would often be Pharmacy which is also a five year course and is offered by the same faculty. Whilst nursing is perhaps more closely related to medicine, in Malta, it is only recently that this profession has acquired status. It was first offered as an undergraduate degree in 1988 as opposed to Medicine which has been offered for many decades. The nursing course also has lower requirements than both medicine and pharmacy. This could possibly reinforce perceptions that the pharmacy course and the medicine course, both offered by the Faculty of Medicine with a history of 400 years, are more prestigious. This may also be the reason why students who failed to get the required grades for Medicine tended to choose Pharmacy, rather than nursing, and while pharmacy students in our sample were more closely related to wanting to change course. From a career guidance point of view it is interesting that more than 22% of the respondents said that they would want to change their course and another 16% were unsure. Therefore 38% of the whole sample were either unsure of their choice of course or would want an outright change. Moreover 24.6% students withdrew from the course in the first year of Pharmacy whilst nobody resigned from Medicine, though some students had to repeat the year.

Looking at the alternative courses mentioned by students in our sample who said that they would want to change their course is very revealing. One third of the whole sample said that, if they had to choose again, they would have chosen a B.Sc in Chemistry and Biology, or in Medical Laboratory Science or a science related course. But 13% students said they would change their area of study completely and would follow courses in Law, Education, Arts, Architecture, Restoration and Engineering. This may indicate that the choices these students had made were not informed choices, with possible long term negative effects. Students who would want to change the area of study so radically must have had different expectations from the course they chose. Guidance, even at the stage of choosing what subjects to take at the pre-tertiary level is therefore important. The results of these wrong decisions could be quite drastic.

Conclusion

This paper focused on choices which students make when completing pre-tertiary education and the implications and ramifications that may result from these choices. The choice of a wrong course raises questions as to what happens in the short interim period between the publication of post-secondary exam results and the subsequent choice of course, especially for those who would not have obtained the grades which would have secured them a place in their first choice course. For this particular group of students this interim period may be too short and too emotionally laden. These students have to go through the process of accepting that they have not made the grades, while possibly their friends would have. This may have adverse effects on their self-esteem. They would also need to choose another course to make up for their 'failure'. The chances of taking wrong decisions in this scenario are great and therefore students should be

counseled that instead of rushing into choosing another course, they should try to better their grades.

Good guidance at all the appropriate stages of educational development is essential. The results in this paper highlight the need for students to make informed choices. Guidance and counseling professionals should perhaps not only include information about the course to be chosen but should also include emotional tools enabling students to prepare for contingencies that may arise. These needs suggest that guidance work with post-secondary students may need to focus more on the management of transitions and contingencies than it has done so far.

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