ABSTRACT

Purpose: to identify factors that led Speech and Language Pathology and Audiology students to choose the career as well as the information they would have liked to receive before entering College. Methods: exploratory, descriptive, cross-sectional study. SLP-Audiology students of undergraduate courses in the University of São Paulo (Bauru, São Paulo and Ribeirão Preto campus) and graduate students (Bauru campus) were asked to complete, anonymously, an online questionnaire consisting of 10 questions about their career choices and about the sources and adequacy of information regarding the SLP-Audiology profession before college entrance examination. Results: the questionnaire was answered 201 individuals (144 undergraduates and 57 graduates). SLP-Audiology was the first career option for 119 (59.2%) of the participants. Interest in the profession was the motivator of choice for 42% of the participants. For 58% of respondents, the University status, the candidate/vacancy ratio and the influence of family members, among others, led to the SLP-Audiology career choice. Profession guides were the main sources of information and 80% of respondents were not satisfied with the information received before entering College, most indicating they would like to learn more about the areas where SLP-Audiologists can work. Conclusion: factors unrelated to career affinity where the motivator for the choice of SLP-Audiology profession for most participants. There is need to intensify the information process about this career especially among high school students. 

KEYWORDS: Career Choice; Education, Higher; Speech, Language and Hearing Sciences

INTRODUCTION

One of the most significant moments on the education of an individual is the end of high school, a period where the student has to choose whether to join an institution of higher education based on factors such as their socioeconomic profile. One option is enrolling at an undergraduate course that may offer different habilitations and usually last four years.

The National Health Council has recognized fourteen higher-education careers within health-related fields: biomedicine, biology, physical education, nursing, physiotherapy, medicine, veterinary medicine, nutritional sciences, dentistry, psychology, social work, occupational therapy and SLP-Audiology.

As far as the latter is concerned, the foundations of this career in Brazil were set in the sixties, with the creation of an SPL-Audiology undergraduate course at the University of Sao Paulo (USP) in 1960 and, a year after, at the Pontifical Catholic University (PUC) of Sao Paulo. In 1976, with the approval of a course
speech-language pathologists who chose this career and whether there is information they would have liked to receive before applying to college.

**METHODS**

This exploratory, descriptive, cross-sectional study was conducted at the Department of SLP-Audiology, College of Dentistry, University of São Paulo (USP), under the approval of the Research Ethics Committee of this institution (protocol reference number 048/2009).

Participants voluntarily in this research students regularly enrolled in the first to fourth years of SLP-Audiology undergraduate courses at University of São Paulo in the campuses of Bauru (classes of 40 students), Ribeirão Preto (classes of 30) and São Paulo (classes of 25), as well as alumni from Bauru campus, from the classes of 2007 to 2010 (convenient sample).

Invitations to take part on this study were sent to every SLP-Audiology department on behalf of their respective undergraduate studies coordinators, who were kindly requested to forward them to all students and alumni. Information regarding the study was then attached to the invitations, along with an online address through which an Informed Consent Form and a participation questionnaire were made available.

Each participant was required to sign a copy of the Informed Consent Form and, after that, to anonymously fill in an online 10 item questionnaire (2 open, 3 semi-open and 5 closed questions) on the following aspects of the profession of SLP-Audiology: (a) career options within university and (b) the degree and sources of information participants had on the profession prior to applying to college (Figure 1). The questionnaire, developed by the authors of this study, was available at kwiks surveys.com, an online free platform.

Data obtained was processed by means of descriptive statistics.
1. Considering the different careers available when applying to college, how would classify the course of SLP-Audiology in terms of your personal preferences?
   □ main (1st) option  □ secondary (2nd) option  □ tertiary (3rd) option

2. If you answered “secondary” or “tertiary” option on the previous question, proceed to the next one. Otherwise, go straight to question number 4.
   Were you accepted to the other (non SLP-audiology) undergraduate programs you applied to?
   □ Yes  □ No

3. If you chose YES on question 2, answer the following question:
   Why did you pick the course of SLP-Audiology among all programs you were accepted to?
   □ Campus localization  □ Influence from family and/or friends
   □ University reputation  □ Other reasons (please give details)

4. Your first contact with SLP-Audiology was given by
   □ Career fairs  □ Booklets with information regarding careers
   □ Internet  □ Family/friends
   □ Vocational orientation  □ Talks
   □ SLP-Audiology professionals  □ Others. Please, inform:

5. Besides SLP-Audiology, did you apply to any other majors/degrees at university?
   □ No, this was my only option.
   □ Yes (please list as many options as desired).

6. Why did you choose to major in SLP-Audiology?
   □ Interest in SLP-Audiology profession  □ Low candidate to vacancy ration
   □ Campus localization  □ Influence/suggestion family/friends
   □ University status / prestige  □ Others. Please, inform:

7. As far as your current knowledge on the profession of SLP-Audiology goes, would you consider appropriate the idea you had on the topic prior to applying to college?
   □ Yes  □ No

8. Do you promote the career of SLP-Audiology to college applicants?
   □ Yes  □ No

9. Do you promote the career of SLP-Audiology to other people (family, friends etc)
   □ Yes  □ No

10. Is there any information you would have liked to receive before applying to college concerning the career of SLP-Audiology? Please specify

11. Do you have any comments or suggestions to the authors of this study?

Figure 1- Questionnaire – SLP-Audiology as a higher education option
RESULTS

This study counted with 201 individuals (144 undergraduates regularly enrolled in the year of 2011 and 57 alumni from the campus of Bauru) out of the 437 eligible candidates (380 undergraduates and 57 alumni), which corresponds to response rates of 37% (144 out of 380) and 100% (57 out of 57), respectively. Participants were aged between 17 and 39 years (20.62 years, in average). Table 1 show the distribution of undergraduate participants in terms of their year (1st to 4th) at university.

Table 2 shows whether individuals had the career of SLP-Audiology as their main choice when applying to college, that being the case for 119 participants (59.2%). Although 2 participants had preferences for other careers, they did not answer the question regarding approval in the college entry exam.

Table 3 shows whether individuals had the career of SLP-Audiology as their only choice when applying to college. Out of the 201 participants, only 54 (26.8%) applied exclusively for this career. The remaining 147 participants also applied for other careers (degree/majors) at college.

Table 1 – Distribution of undergraduate participants in terms of their year at university (N=144)

<table>
<thead>
<tr>
<th>Campi</th>
<th>1st year n (%)</th>
<th>2nd year n (%)</th>
<th>3rd year n (%)</th>
<th>4th year n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bauru</td>
<td>19 (95)</td>
<td>32 (86,5)</td>
<td>33 (82,5)</td>
<td>37 (79)</td>
<td>121 (84)</td>
</tr>
<tr>
<td>Ribeirão Preto</td>
<td>0 (0)</td>
<td>2 (5,5)</td>
<td>3 (7,5)</td>
<td>3 (6)</td>
<td>8 (5,5)</td>
</tr>
<tr>
<td>São Paulo</td>
<td>1 (5)</td>
<td>3 (8)</td>
<td>4 (10)</td>
<td>7 (15)</td>
<td>15 (10,5)</td>
</tr>
<tr>
<td>Total</td>
<td>20 (100)</td>
<td>37 (100)</td>
<td>40 (100)</td>
<td>47 (100)</td>
<td>144 (100)</td>
</tr>
</tbody>
</table>

Table 2 - Priority on choosing SLP-Audiology at the entry exam for college (n=201)

<table>
<thead>
<tr>
<th>School year</th>
<th>Deg Fonoaudiologia (n=201)</th>
<th>Approval in their first career option (n=80)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st option</td>
<td>2nd option</td>
</tr>
<tr>
<td></td>
<td>n %</td>
<td>n %</td>
</tr>
<tr>
<td>1st year</td>
<td>10 4,9</td>
<td>9 4,5</td>
</tr>
<tr>
<td>2nd year</td>
<td>25 12,4</td>
<td>12 5,9</td>
</tr>
<tr>
<td>3rd year</td>
<td>23 11,4</td>
<td>12 5,9</td>
</tr>
<tr>
<td>4th year</td>
<td>31 15,4</td>
<td>11 5,5</td>
</tr>
<tr>
<td>Alumni</td>
<td>30 14,9</td>
<td>16 7,9</td>
</tr>
<tr>
<td>Total</td>
<td>119 59</td>
<td>60 30</td>
</tr>
</tbody>
</table>
Regarding information participants would have liked to receive before choosing the career of SLP-Audiology (Table 4), out of 123 respondents only 23 (17%) were satisfied with the information received. The majority of people (n=103, 77%) reported they were willing to receive further information on the career, specially with respect to the employment of SLP-Audiologists. Some participants found it necessary to have knowledge on the core curriculum (n=7, 5.5%) and on the minimum wages allowed by law (n=2, 1.5%).

Table 3 – Other careers to which candidates applied prior to entering college (number of answers = 212)

<table>
<thead>
<tr>
<th>Health / Biological Sciences (69.8%)</th>
<th>Humanities (22.2%)</th>
<th>Exact sciences (8%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapy (n=27; 12.69%)</td>
<td>Pedagogy (n=7; 3.29%)</td>
<td>Chemistry (n=4; 1.88%)</td>
</tr>
<tr>
<td>Biology (n=23; 10.8%)</td>
<td>Journalism (n=4; 1.88%)</td>
<td>Forest engineering (n=2; 0.94%)</td>
</tr>
<tr>
<td>Medicine (n=22; 10.34%)</td>
<td>Radio and TV (n=3; 1.41%)</td>
<td>Agronomic engineering (n=3; 0.94%)</td>
</tr>
<tr>
<td>Psychology (n=20; 9.4%)</td>
<td>Audiovisual (n=1; 0.47%)</td>
<td>Graphic Design (n=1; 0.47%)</td>
</tr>
<tr>
<td>Occupational Therapy (n=13; 6.11%)</td>
<td>Law studies (n=3; 1.41%)</td>
<td>Information system (n=2, 0.94%)</td>
</tr>
<tr>
<td>Dentistry (n=10; 4.7%)</td>
<td>Music (n=3; 1.41%)</td>
<td>Informatics (n=1, 0.47%)</td>
</tr>
<tr>
<td>Biomedicine (n=9; 4.23%)</td>
<td>Language studies (n=2; 0.94%)</td>
<td>Computer science (n=2; 0.94%)</td>
</tr>
<tr>
<td>Nursing (n=6; 2.82%)</td>
<td>History (n=2; 9.4%)</td>
<td>Chemical engineering (n=1; 0.47%)</td>
</tr>
<tr>
<td>Veterinary Medicine (n=6; 2.82%)</td>
<td>Management (n=2; 0.74%)</td>
<td>Electrical engineering (n=1; 0.47%)</td>
</tr>
<tr>
<td>Physical Education (n=4; 1.88%)</td>
<td>Translation (n=1; 0.47%)</td>
<td>Civil engineering (n=1, 0.47%)</td>
</tr>
<tr>
<td>Zootechnics (n=1; 0.47%)</td>
<td>Public Affairs (n=1; 0.47%)</td>
<td></td>
</tr>
<tr>
<td>Gerontology (n=3; 1.41%)</td>
<td>Social Services (n=1; 0.47%)</td>
<td></td>
</tr>
<tr>
<td>Biotechnology (n=3; 1.41%)</td>
<td>Biblioteconomia (n=1; 0.47%)</td>
<td></td>
</tr>
</tbody>
</table>

Multiple answers were allowed on questions concerning the factors that led participants to the choice of SLP-Audiology (Figure 2) and the main sources of information available on this career (Figure 3).

Out of the 191 individuals who answered the question on their current degree of knowledge about this career, 112 (58.6%) claimed that the perception they had on the matter prior to applying to college does not correspond to reality.

Table 4 – Information that participants would have liked to receive when applying to college

<table>
<thead>
<tr>
<th>Category</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fields of employment</td>
<td>“I didn’t have a clue that SLP-audiologists can work in so many areas, I thought we only took care of people with speech/hearing disorders”</td>
</tr>
<tr>
<td></td>
<td>“I didn’t know SLP-audiologists could work in hospitals, schools and private businesses.</td>
</tr>
<tr>
<td></td>
<td>“The profession of SLP-Audiology must be widespread to outsiders think it only concerns stuttering.”</td>
</tr>
<tr>
<td>Core Curriculum</td>
<td>“I didn’t know how deeply topics were covered by freshman classes (Physiology, Anatomy and Histology)”</td>
</tr>
<tr>
<td></td>
<td>“I would like to know that this is a full time course and there are no time for other activities”</td>
</tr>
<tr>
<td>Minimum wages</td>
<td>“I would like to know that the profession of SLP-Audiology does not minimum wages”</td>
</tr>
</tbody>
</table>
Regarding the spread of information regarding the profession, out of the 191 participants who chose to answer this question, 182 (95.8%) reported they promote the career of SLP-Audiology to family and friends and 160 (83.8%) reported they spread information on the career to college applicants.

**DISCUSSION**

As far as the number of participants in the study goes, it should be highlighted that even though researches made by online means have their advantages (low costs, fast data collecting, possibility of reaching specific populations, convenience and easiness on asking and answering questions), there are also disadvantages, such as the low response rates to online questionnaires. This explains the 37% response rates for undergraduate students found on this study, which may be seen as reasonable. The fact that 85% of the students were from Bauru campus (Table 1) can be attributed to increased opportunities for publicity and more interest for participation in research since the study has been conducted on this site.

SLP-Audiology was the main career option for 119 (59%) of the total number of participants (Table 2), in accordance to another research that found that 54% of students enrolled in SLP-Audiology undergraduate courses in public universities from the State of Sao Paulo had this as their main option when applying to college.

Off all 82 participants who did not have SLP-Audiology as their main career option, 80 answered the question about being accepted at the career of their preference (Table 2). Also, 43.7% (n=35) of participants opted to major in SLP-Audiology over their alleged main career option (any undergraduate program other than SLP-Audiology) even though they were accepted by both programs. The main reasons for that were the localization of campi and the reputation of the university. It has been shown on other researches that the location (distance from home/work) and tradition/reputation of an institution of higher education are among the most popular factors that lead individuals to the choice of their careers/majors.

It is also observed from Table 2 that the number of SLP-Audiology majors who have this career as their main choice tends to decrease throughout the years. The design used in this study does not allow identifying the reasons for this finding; nevertheless, this should still be brought into attention. A survey made by the Regional SLP-Audiology Council (2nd region) in the state of Sao Paulo has shown a decrease in the number of professionals, which might be due to the reduced demand for this career.

At first, the low demand for this career is associated to its relative performance on the market (employability), since this is a factor that directly affects career choices by college applicants. A study has shown a positive and significant effect on the importance of a profession's average wage when an individual chooses their career. However, a decrease on the demand for SLP-Audiology undergraduate courses is also observed in other countries such as the United States in spite of their expanding labour market. There, a research made with 1090 college students has shown that only 1% opted for a career on the fields of Speech Science and Speech Disorders.

Another factor that might contribute to the low demand for this profession is social status. Of 13 higher level professions (social worker, biologist, dentist, nurse, engineer, pharmacist, physical therapist, speech therapist, physician, psychologist, sociologist and chemical) staggered by undergraduates and graduate of the University of Sao Paulo, SLP-Audiology occupied the 7th or 8th positions in accordance with the scaling method used. The professions of Medicine, Dentistry and Engineering, in this order, were evaluated as the most prestigious.

In fact, along with the retirement of current professionals, the low demand on the career has been the cause of insufficiency of Audiology professionals. This deficiency is a global phenomenon - an analysis made with 62 countries has shown that 86% of them do not have enough professionals to meet their own needs.

This scenario is quite worrying considering that, at the same time, a combination of trends will result on a higher demand for SLP-Audiologists on the following decades: advances in medicine will entail higher life expectancy rates and therefore bring significant demographic changes such as population aging, meaning that the number of people with neurological and hearing disorders will tend to increase with time. These advances are also responsible for increases on the survival rate of preterm babies, trauma victims and stroke survivors, individuals who will most likely need treatment by an SLP-Audiologist. Furthermore, policies on early identification of disorders (e.g. hearing newborn screening) and on the inclusion of people with special needs on education will increase the demand for professionals trained on these areas.

In Brazil, the Federal SLP-Audiology Council has indicated the existence of a gradual yet non-uniform growth of this profession, with increases on job offers.
on the field. Recent advances, such as mandatory hearing screenings on newborns, the recognition of new fields of specialization and changes in the of therapy sessions authorized by the National Regulatory Agency for Private Health Insurance and Plans also promise to boost important areas.

On this study, it was verified that 54 students (26.9%) applied exclusively for the career of SLP-Audiology whereas 73.1% of participants also applied for other courses, not necessarily on the field of health. Such is a common phenomenon as it has also been shown by another study where SLP-Audiology undergraduates also applied for other careers on the areas of Biology and Humanities. A research with 391 undergraduates from different degrees/majors has shown that 52% of the participants applied for multiple careers. Another research with 655 college freshmen from 23 different major fields of study has pointed out that 47.1% of individuals applied exclusively for one major whereas the remaining 28.1% and 24.8% of people applied, respectively, for two or more degrees/majors not all necessarily on the same area.

The interest on the profession of SLP-Audiology was reported to be the main motivating factor leading to this career choice by 42% of participants. Interviews made with SLP-Audiologists indicated that the career’s rehabilitative character was a determinant factor to the choice of their careers. Questionnaires answered by college students in the USA also indicated that in 58% of cases careers were chosen with basis on their interest on or passion for the area.

It should be highlighted on Figure 2, however, that for most participants (58%) the choice for the career of SLP-Audiology was made due to other reasons. Data from the FUVEST, the Foundation in charge of organizing the entry exam at University of Sao Paulo, has shown that from the years of 2009 to 2011 the candidate-to-vacancy ratio for the career of SLP-Audiology (considering all campi, Sao Paulo, Bauru and Ribeirao Preto) varied from 4.2 to 8.45:1. This upper limit of 8.45 decreases to 5.01 when taken into consideration only applicants who have finished high school. For comparison purposes, the average candidate to vacancy ratio to all careers on the field of “Biological Sciences” on the last three years has been around 14 to 15:1.

The reputation of the University of Sao Paulo also contributed to the choice of profession by participants. Another study conducted in private universities has shown that the institution’s image (respectability, social status) is a major attractor to students. Such reputation is often build through excellence on services provided.

With respect to the influence of parents and relatives observed on the present study, an analysis of the literature available on the field has revealed that the influence of parents on their children’s career choice continuously occur in the interactions within the family unity. This influence involves not only objective and practical actions (e.g. financial support, dialog and other initiatives for vocational exploration) but also subjective ones which are often not clear nor conscious - e.g. support, approval/disapproval on the students’ choices, outcomes expectations, plans and dreams that parents make for their children, among others. All these variables may enable or limit their children vocational development and their process of choosing a career.

On the item “others” participants indicated items such as “lowest financial investment” (since it is a public university) and “existence of student aid/support programs” at the University of Sao Paulo (e.g. the provision of food and housing for students in need of financial support).

 Relatives, friends and booklets on career possibilities were the main source of information about the SLP-Audiology career for college applicants (Figure 3). It has also been verified by another study that family and friends were the main information source for undergraduates on their respective courses. SLP-Audiologists from the State of Minas Gerais have also reported their first contact with the profession had occurred through booklets on careers options and also through individuals with speech/hearing disorders.

Another relevant fact is that 58.6% of participants indicated their insufficiency of knowledge on SLP-Audiology as of when applying to college, in accordance to other researches that have shown that 40% of SLP-Audiology undergraduates had little knowledge on the career and that 68% of college students were unaware of the profession of audiology.
individuals consider themselves to be, the more they reaffirm their decisions – the converse is also valid.

In other areas, heads of private higher education institutions have employed certain marketing techniques in order to increase the exposure of career options to students in earlier stages of their education. In the USA, professionals associations and universities have targeted students

The present study has also demonstrated that the majority of participants (77%) would have liked to receive more information, when applying to college, on the different fields where SLP-Audiologists are employed. The amount of information one has on a given profession influences their decision-making process on the matter. The better informed
with awareness campaigns on the profession of audiology 23.

People who choose their careers with little knowledge and distorted, idealized or stereotyped visions on the field are more likely to experience feelings of disappointment and regret regarding their degree/major choice at university, sometimes leading students to drop out of college or switch degrees/majors 24.

In that sense, the Dean of Culture and Extension of the University of Sao Paulo has created the initiative “USP and careers” with the intent of providing students with subsides to enable them to make conscious career choices, with the help of their relatives and teachers. This program encompasses the publishing of a catalog, a visit calendar for high-school students and preparatory courses for vestibular (an exam that grants access to university based on the candidates’ grades and on their career choices) and the organization of career fairs. In career fairs, students are brought into contact with all undergraduate courses offered by the university and can clarify their ideas with respect not only to professions and their employability but also to the college application process 25.

Internet has been widely used mainly for its free/public character and easiness on quickly obtaining and providing up-to-date information 26. With that in mind, the Health Channel from “IPTV USP” has created the series of informative videos “Health Professions” which allowed the promotion of 14 health-related undergraduate courses offered by USP.

The video “Career of SLP-Audiology” is available for free access at the website http://migre.me/90iLj (IPTV/USP). In this brief documentary, information is provided on the profession in many aspects: history, fields of specialization, current job offer in the market, perspectives for the career, professional profiles, characteristics of the different undergraduate courses offered by USP and their core curriculum among others.

Another factor that contributes to the spread of information on the profession is the action of other undergraduate students. According to the present study, 95.8% of participants promote their career to family and friends. This percentage falls to 83.8% concerning promotion to college applicants.

This fact reinforces the need of greater investments in strategies that bring current and future college students together, answering possible questions that may arise with respect to the career and its fields of employment. This interaction adds to the promotion of the profession and arousal of interest on the same by applicants on SLP-Audiology.

■ CONCLUSION

Interest in the profession was the motivating factor for the choice of the career of SLP-Audiology for 42% of participants. For most of them (58%), however, such choice was motivated by other factors such as the reputation of the university and the low candidates to vacancy ratio for this course. Throughout the years, there has been a decrease on the number of SLP-Audiology freshman who had this career as their main option, suggesting a possible decrease on the number of applicants for this career.

More information on the career of SLP-Audiology should be available to college applicants, especially concerning the different fields of employment of this profession.
RESUMO

Objetivo: identificar junto aos alunos dos Cursos de Fonoaudiologia: fatores que levaram a esta escolha de carreira e informações que gostariam de ter recebido sobre esta profissão antes do exame vestibular. Métodos: estudo exploratório, descritivo, transversal. Discentes dos cursos de graduação em Fonoaudiologia oferecidos pela Universidade de São Paulo nos campi de Bauru, São Paulo e Ribeirão Preto e egressos do campus de Bauru foram convidados a preencher anonimamente, um questionário online composto por 10 questões a respeito de suas opções de carreira universitária e sobre as fontes e suficiência de informação a respeito da profissão Fonoaudiologia quando da inscrição no exame vestibular. Resultados: responderam ao questionário 201 sujeitos (144 graduandos e 57 egressos). A Fonoaudiologia foi a primeira opção de carreira para 119 (59,2%) dos participantes. O interesse pela profissão foi o motivador de escolha para 42% dos participantes e o status da universidade, a relação candidato/vaga e a influência de familiares, dentre outros, para 58% dos respondentes. Os guias de profissões foram as principais fontes de informação sobre a carreira. Cerca de 80% dos sujeitos não estavam satisfeitos com as informações que receberam antes do vestibular, a maioria indicando que gostariam de saber mais sobre o campo de atuação do fonoaudiólogo. Conclusão: fatores não relacionados à afinidade ou pendor pela profissão levam à opção pela carreira Fonoaudiologia para a maioria dos participantes. Há necessidade de intensificar a veiculação de informações sobre a profissão, sobretudo o seu campo de atuação para candidatos ao exame vestibular.

DESCRITORES: Escolha da Profissão; Educação Superior; Fonoaudiologia

REFERENCES