

Information Literacy Skills of Incoming First-Year Pharmacy Students: Survey Results

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Abstract

Objective:

- To assess the information literacy of entering first-year professional pharmacy students to obtain a baseline measurement of library knowledge. Students with a bachelor's degree on entry were compared to students without a bachelor's degree.

Methods:

- A survey tool was developed and administered during orientation, prior to any course instruction. Questions focused on basic library skills, and asked students to rate their confidence in their answers to these questions. Demographic data was collected on age, sex, previous instruction on using the library, and degree status. The data were analyzed by calculating the means and SD's for scores and using a t-test to compare groups. Categorical data was analyzed by calculating frequencies and percentages and comparing groups with a Chi-square test.

Results:

- A total of 100 surveys were returned out of the class of 101, a 99% response rate. Most students were female (66%) and between 20 and 25 years of age. Of the respondents, 56 students had their bachelor's degree; 9 students had some library instruction prior to entering pharmacy school. Self-assessed confidence was the same for students with and without degrees (2.7 vs. 2.6; $p = 0.771$). On the skills questions the groups performed similarly ($p > 0.12$) except that students without a degree were more willing to ask a librarian for help ($p = 0.033$) and tended to know more about how to obtain a book through inter-library loan ($p = 0.072$).

Conclusion:

- With the exception of asking for help, there were no significant differences between students with and without bachelor's degree on entry to the professional program. The results provided an overview of library knowledge and provided a baseline measurement of their skill level, which allowed the librarian to address the weaker areas.

Purpose

- The purpose of the survey was to determine the information skills of first-year pharmacy students prior to entering pharmacy school and if there was a difference in skill levels of students with bachelor's degree versus students who did not have a bachelor's degree.

Methods

Design:

- The survey tool included 9 information literacy skill based questions, 1 competency question, and 4 demographic questions
- This study was approved by the University of Arizona Human Subjects Research and IRB

Subjects:

- First-year professional pharmacy students were eligible to participate in this study

Data Collection:

- Data was collected using a paper questionnaire
- The questionnaire was distributed during their incoming orientation to the library
- Prior to any formal instruction about the library or library services, the students were asked to participate by filling out the survey
- Students were given 20 minutes to fill out the survey

Data Analysis:

- Each skill level question was assigned a score and averages were calculated
- T-test was used to calculate the p-value

Table 1: Survey Questions

1. Please identify parts of the following article citation.
2. You are asked to locate the following book in the library, Goodman & Gilman's The Pharmacological Basis of Therapeutics. Describe the steps you would take to find it.
3. When searching the library catalog, what type(s) of information is available?
4. If you needed a book or an article that is not owned by the library, what service would you use to obtain this book?
5. For each resource below, please indicate whether it is a primary, secondary, or tertiary resource.
6. From the list below, select which tool(s) are used to manage citation and help create bibliographies.
7. Please locate the rate of myocardial infarction among women over the age of 50. What is the incidence and prevalence of this disease among this population? Provide three resources you would use, in order of preference, to locate this information.
8. What does MeSH stand for?
9. Imagine that you would like to consult with the pharmacy librarian about a literature search that you need to do. Select the best strategy for consulting with the librarian.
10. Please reflect on how you think you did on this assessment of your pharmacy information skills and select the number that best represents your score, 1 being the lowest and 5 being the highest

Results

Table 2: Demographics

Items	Bachelor Degree	No Bachelor Degree	P-value
Number of Students	56 (56%)	44 (44%)	-
Gender			0.006
Male	18	2	
Female	37	29	
Age			0.002
≤ 20	0	5 (11%)	
> 20 ≤ 25	42 (75%)	38 (86%)	
> 25 ≤ 30	10 (18%)	0	
> 30	4 (7%)	1 (2%)	
Library Instruction¹ (Yes/No)	9/46	4/35	0.398
Confidence²	2.68 (0.79)	2.64 (0.61)	0.771

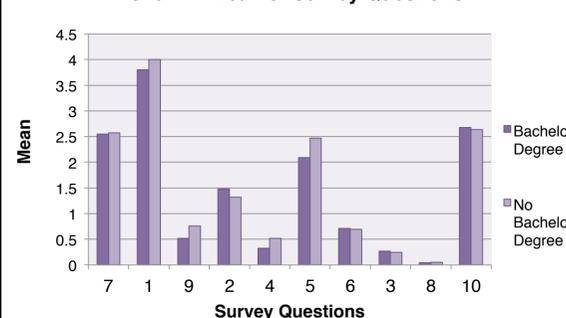
¹Everyone who had library instruction had a lecture taught within another course. One person with a degree did not answer the question about library instruction and five without degrees did not respond.

²The range of confidence is where 1 = did not know anything and 5 = understood everything.

Table 3: Library Skills Knowledge of Students With and Without a Bachelor Degree

Question	% Correct	Bachelor Degree Mean, (SD)	No Bachelor Degree Mean, (SD)	P-value
7	85	2.55 (0.78)	2.57 (0.85)	0.846
1	78	3.8 (1.13)	4.0 (1.16)	0.808
9	61	0.52 (0.50)	0.76 (0.43)	0.033
2	46	1.48 (0.83)	1.32 (0.93)	0.391
4	40	0.32 (0.47)	0.52 (0.50)	0.072
5	37	2.09 (1.31)	2.47 (1.48)	0.139
6	34	0.71 (0.87)	0.69 (0.86)	0.729
3	7	0.27 (0.77)	0.24 (0.75)	0.446
8	3	0.04 (0.19)	0.05 (0.21)	0.709
10	-	2.68 (0.79)	2.64 (0.61)	0.771

Chart 1: Mean of Survey Questions



Key Findings

- Response rate: 99%, 100 out of a class of 101 responded to the survey
- Only one comparison was significant, Q9 showed that students who did not have degrees were more willing to ask for help and consulting with a librarian
- There was a trend with students without degrees to know how to obtain a book if the library does not have it

Substantial Knowledge of:

- For Q7, 85% of students answered correctly and provided resources to locate information about cardiovascular diseases and incidence and prevalence. Top 3 resources named: PubMed, Google Scholar, Textbook
- For Q1, 78% were correct in identifying parts of an article citation. Most commonly missed were identifying the journal issue number and journal volume number

Moderate Knowledge of:

- For Q9, 61% of students showed they were willing to ask for help by consulting a librarian. However, many students also indicated that they will first try Google and then Wikipedia before coming to a librarian for help
- For Q2, 46% of students answered correctly in how to locate a book in the library, demonstrating students have a general understanding of locating specific information.
- For Q4, about 40% know how to obtain a book or article through inter-library loan

Limited Knowledge of:

- For Q5, 37% of students correctly identified resources that were primary, secondary or tertiary.
- In Q6, 34% of students were familiar with citation managers EndNote and Refworks
- In Q3, 7% of students knew what was contained in the catalog and many indicated they did not know what was in the catalog.
- In Q8, 3% knew or were aware of Medical Subject Heading

Confidence Level

- Q10 indicated that students were somewhat confident in their knowledge of information skills. On average both students with (mean = 2.68) and without degrees (mean = 2.64) indicated they "knew a bit."
- 81% of students have not taken a course in library instruction and only 14% had some library instruction through a lecture in another course

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Conclusion

- Overall information literacy knowledge of incoming students was fair
- There was no difference of incoming students' information knowledge; averages for students with and without bachelor's degrees were similar
- Students without degrees were more willing to consult with a librarian for help on using library resources
- Students without degrees were more likely to know how to obtain books/articles not owned by the library
- Skill levels of both groups were similar based on the information from the questionnaire

Future Direction

- Results from this survey provided quantitative results about the information skill level of incoming first-year pharmacy students. These results were taken into consideration when providing instruction about resources, library services and searching techniques. Since many students were not familiar with the catalogue and utilizing library services such as inter-library loan, these topics were covered extensively in the first library lecture. After the survey, a follow-up focus group was conducted during their second semester. At the end of their first year, a post-test was given to measure any changes in student's information knowledge.

Limitations & Acknowledgements

- It was assumed that questions on this survey tool were an accurate assessment of information literacy skills. This study only reflects the incoming Class of 2015's knowledge of information skills at the University of Arizona. Students without degrees may or may not have attended a community college or a 4-year university.
- The PI would like to acknowledge the American Association of College of Pharmacy (AAP) New Pharmacy Faculty Research Award Program (New Investigator Award) for funding this project. The PI would also like to acknowledge the collaborators Marion Slack, Sandra Kramer, and Clara Ehrman and library graduate student Christina Wyles for their help on this project.