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Career Goal Change in the Medical Field:

Gender Differences and the Pay Gap

Danielle Meirow

Grand Valley State University

Abstract

This study analyzes the rates at which students in their undergraduate years alter their career aspirations within the medical field. Additionally, it investigates the causes of this change. Primary data was collected through a survey e-mailed to all Grand Valley State University Allied Health Sciences and Biomedical Sciences majors, while additional personal anecdotes were gathered through one on one interviews. All information was compared along traditional, binary gender lines to determine if differences exist between males and females. This study found, while males and females experience similar overall rates of career goal change, women alter their career goals to professions with lower median pay at greater rates than men. Women's career goal change was more greatly influenced by a desire for flexibility in work life and concern that family life would conflict with career goals, whereas men's career goal change was influenced more heavily by not wishing to accumulate debt and pressure from someone they know.

Introduction*Description of the Problem*

The educational opportunities for women in all fields have vastly expanded since the passage of Title IX of the Educational Amendments in 1972, which prohibits sex discrimination in educational programs or activities that receive federal funding (National Women's Law Center 1). However, women in science, technology, engineering, and math remain underrepresented in educational fields that are pathways to high wage careers (National Women's Law Center 1). Even though the Equal Pay Act of 1963 ensures equal pay for equal work, research as recent as 2013 makes it clear women are still only paid 77% of what men are paid (Corbett 2). One of the

contributing factors to this gap is the types of careers women choose. (Corbett 8). This is particularly relevant in the medical field. While women are now matriculating to medical school at 47%, this rate is low compared to the percentages of women in other less prestigious and lower paid health professions (Jolliff, Leadley, et al. 6). Women make up 88.6% of students in nursing baccalaureate programs (Rosseter 1) and 61% of physician assistants (American Association of Physician Assistants 3). Women's lower representation in the highest paying career is reflective of the overall representation of women in the workforce.

Literature Review - The Leaky Pipeline

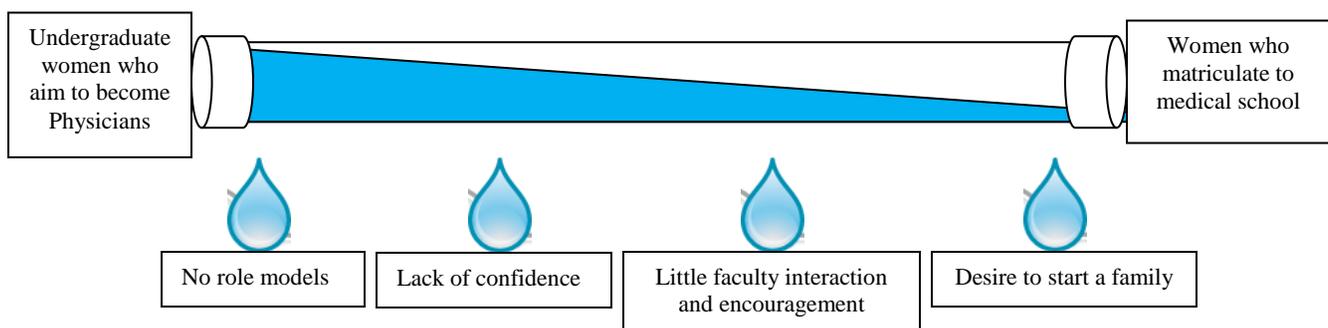
One metaphor that has been useful in explaining women's differing level of progression through education is the "leaky pipeline." The "leaky pipeline" is an ironic term that challenges the concept of a pipeline to success that would begin with encouraging young girls in science in early education and channel them to scientific jobs at college graduation. This metaphor helps to visualize the dwindling number of women who continue their education into graduate programs, doctorate programs, and jobs in academia as they progress through these steps. I use the leaky pipeline in my study to visualize the dwindling number of women who are pursuing the goal to enter a high level career in the medical field, specifically as a physician, as they progress through their education, apply become accepted to a graduate program, and ultimately reach their goal.

Pell identified several critical periods when the risk of leakage is particularly high in her article, "Fixing the Leaky Pipeline: Women in Academia." These four critical periods are: 1) early childhood, 2) adolescence, 3) sophomore year of college, and 4) the latter part of graduate school and job entry period (Pell 2844). Most research that has examined the leaky pipeline effect since has done so at the graduate or post-graduate level, whereas my research examined

the leaky pipeline effect for undergraduate students pursuing continued education and careers in the medical field. This time period should adequately capture the critical period of students' sophomore year of college.

Researchers have also looked at reasons for the leaky pipeline and ways to stop the leaks. Lack of self-confidence and fear of failure has been cited as one of the most common issues that leads to the leaky pipeline effect (Pell 2845). Support in advising to pursue goals may be one simple way to encourage women into higher level and higher paid careers (Pell 2845). Classroom teaching may also have a notable impact on the leaky pipeline. Overall fewer students participate in the college classroom than in high school and those that do participate are twice as likely to be male (Pell 2845). Faculty are also more likely to make eye contact with male students, less likely to interrupt them, and overall more likely to interact with them (Pell 2845, Blickenstaff 379). Fitting into gender roles has also been discussed as a cause of the leaky pipeline. From an early age boys and girls are separated into "opposite sides" both literally and figuratively, which infects children's ideas of appropriate career goals and aspirations (Thorne). Additionally, women in science careers have previously reported the expectation of being a primary caregiver for children as a major obstacle in their path to success (Blickenstaff 381).

Figure 1. Visualization of the Leaky Pipeline for Women becoming Physicians



The only study that has specifically looked at the leaky pipeline effect for undergraduates pursuing careers in medicine focused primarily on underrepresented minorities (Barr, et. al. 503). This study followed freshmen students who indicated on a survey that they hoped to become physicians. They were asked at the end of their sophomore year to indicate the change in their level of interest in this career path. The researchers found that underrepresented minorities and women both had lower levels of interest than when they had started their undergraduate education (Barr, et. al. 503). My research focused specifically on women and is therefore unique in its focus. The study mentioned examined only Stanford University's students, so it is valuable to have results from another region in the United States (Barr, et. al. 504).

Literature Review - Influences on Career Choice

In her ground breaking work, "Why So Slow? The Advancement of Women," Virginia Valian argues that all people, both men and women, have gender schemas – or specific ideas about sex differences, which lead to men consistently being overrated in the work place and women being underrated (Valian 2). These unconscious hypotheses about difference lead to the accumulation of advantage in all social realms, which has impacted the rate at which women advance in professional life (Valian 4). Valian goes on to argue, "If a job is predominantly held by men, we see it as a masculine job, emphasize its masculine characteristics, and, correspondingly, value it more highly (Valian 114)." The inverse is true for jobs traditionally held by women. This has certainly been the case for medical professions in the United States, as women move into a certain healthcare role, both the prestige and pay change in relation to the influx (Valian 115). Women's desire to fit within their own schema and professionals

corresponding enforcement of schemas may play a large role in the types of professions women choose.

Preference for medical specialties with controllable lifestyles has increased among U.S. medical students in recent years, which may represent a larger social trend (Dorsey, Jarjoura, and Rutecki 1173). According to Dorsey, Jarjoura, and Rutecki, “Individuals aged 24 through 38 years in 2003 reportedly want time to devote to life outside work and thus weigh lifestyle more heavily when choosing jobs (Dorsey, Jarjoura, and Rutecki 1174).” In a 2005 follow-up study, the same researchers determined that the increase in preference for specialties with controllable lifestyle could not simply be attributed to the larger proportion of women becoming physicians (Dorsey, Jarjoura, and Rutecki 791). However, when controllable lifestyle was investigated with a more specific focus on the decision to have a family this was found to be a more significant influence for women than men (Sanfey, et. al. 1086).

In an article investigating tradeoffs between career and family, Sasser predicted that “women’s greater household obligations may affect their demands for working conditions and lead women to trade off high earnings for family friendly jobs (Sasser 480).” She found this to be true. Not only were women more likely to work in less lucrative specialties, but they were also more likely to hold salaried positions in institutional settings instead of owning their own practice (Sasser 484). Sasser argues that these choices are what contribute to the gender earnings gap among physicians. I hypothesize that similar choices are being made by women before this point, specifically when they are choosing which profession to enter within the medical field. These career choices may contribute to the pay gap between men and women that exists throughout the United States.

Research Question

My research had two goals. The first was to address the degree to which students who aim to pursue high level careers in the medical field, specifically as physicians, experience the leaky pipeline effect during their undergraduate studies and ultimately choose other educational paths and careers within the health professions. The second was to discern the influences that may be causing students to change their career goals. Both career goal change and influences on change were analyzed to see if there were differences between males and females. I hypothesized that women would be more likely to change career goals and to lower their career aspirations (based on median annual income) than men. I further predicted that women would be more significantly influenced by social factors such as pressure from others or wanting to start a family, whereas men would be more significantly influenced by financial concerns.

Methods

This study utilized two methods: a web-based survey and individual interviews. With the design help of the GVSU Statistical Consulting Center, I created the survey using the website Survey-Monkey. The survey had three main sections: (1) career goal change throughout undergraduate studies, (2) influences that affected career goal change, and (3) demographic information. For a complete outline of my survey questions, see Appendix 1. The Office of Institutional Analysis emailed my survey to all Allied Health Science and Biomedical Sciences majors—about 2000 students. The return rate was high, almost 20% with 396 student respondents. Information from 31 students who did not complete all parts of the survey was not used in the analysis.

To recruit participants for the interview portion of my research, participants were asked to e-mail me after they had completed the survey. Ultimately, ten participants contacted me indicating a willingness to speak with me directly and I conducted eight interviews. These semi-structured interviews allowed participants to provide greater depth and insight into the factors that influenced their decisions to change their career goals. Questions asked in the interview included (1) student's educational and career goals throughout their lifetime, (2) steps taken towards those goals, (3) influences that encouraged or discouraged them from those goals, and (4) the level of support shown by others. The list of interview questions may be found in Appendix 2. All interviews were voice recorded for accuracy.

I chose to use semi-structured interviews to allow participants greater freedom in their responses, as well as to permit me more opportunity to probe respondents about their answers. While I had a standard set of questions that I asked in every interview, I was flexible about the order in which I asked them so that conversation flowed more casually. All of my planned questions were phrased as "tell me about..." rather than "do you..." or "have you..." so participants could truly shape their own stories and not be confined to the parameters of structured questions.

Gender was an independent variable in my analysis, and my survey garnered 80 male respondents, 283 female respondents, and 2 transgender respondents. Since the number of responses from transgender individuals was so low, their responses were not included in the overall analysis. As a student of Women and Gender Studies at Grand Valley State University, I realize the problematic notions of analyzing my research based on the gender binary system. I recognize that my research and the gender system overall reinforces gender norms and creates a social boundary for what is appropriate forms of gender expression. However, this is the current

and most prevalent gender system in the United States. Figures on those currently working in the medical profession are divided in this same way, so for comparison purposes it is logical to use the same system. Further, I aimed to study how the social construction of gender may impact the decisions that males and females are making, so working within this gender system was the best approach for my research.

Discussion of Findings

Survey Responses

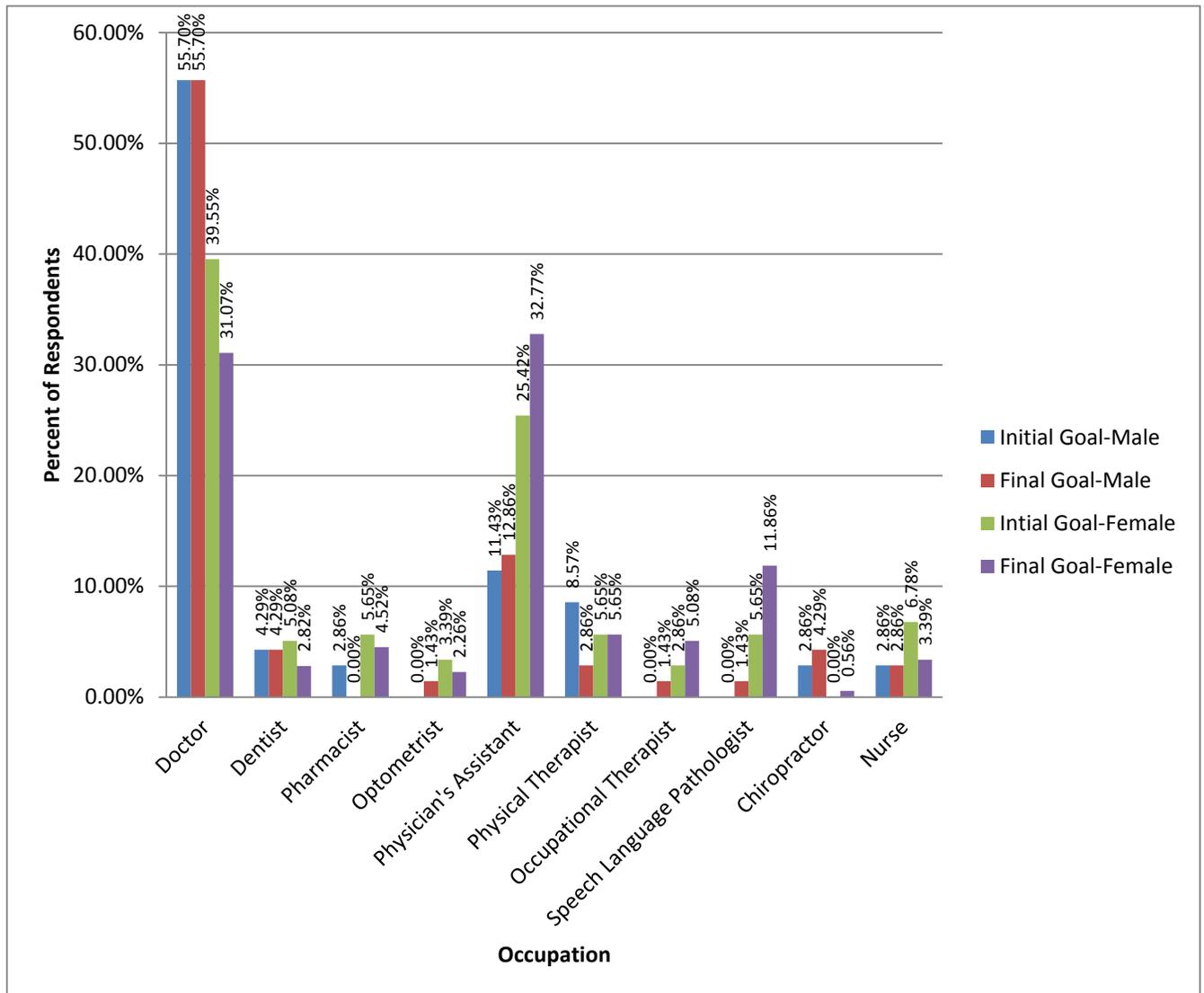
Overall, female respondents experienced higher rates of career goal change throughout their undergraduate studies than did male respondents. Of the 80 male participants, 32 had changed their career goals or 40%, whereas nearly 55% of female participants indicated a change. Similar averages for the number of changes were indicated by both genders for those who had altered their career goals. Males who changed their career goals did so an average of 1.78 times, while females who had changed did so an average of 1.81 times. The difference between male and female respondents overall percent career goal change is thought provoking, but I found it important to also consider the type of career goal changes made by both groups.

Based on the median pay rates of careers indicated, I rated respondents career goal change from their initial goal to their final goal as either positive (increasing in median pay) or negative (decreasing in median pay). Ten medical careers indicated most consistently were: doctor, dentist, pharmacist, optometrist, physician's assistant, physical therapist, occupational therapist, speech language pathologist, chiropractor, and nurse (listed from high to low median pay rate, see Appendix 3). Any other listed career goals were classified as medical-other, other, or unsure. These additional three categories were not considered in my analysis of positive or

negative change because of my inability to determine a median pay rate for each. Initial and final career goals for both males and females can be viewed in Appendix 4a and Appendix 4b, respectively. Of females who indicated a change, 73% switched to a less prestigious and lower paying career, whereas for males who indicated a change only 60% opted for a less prestigious and lower paying career. This demonstrates a 13% difference between genders for those altering career aspirations to lower median pay rates.

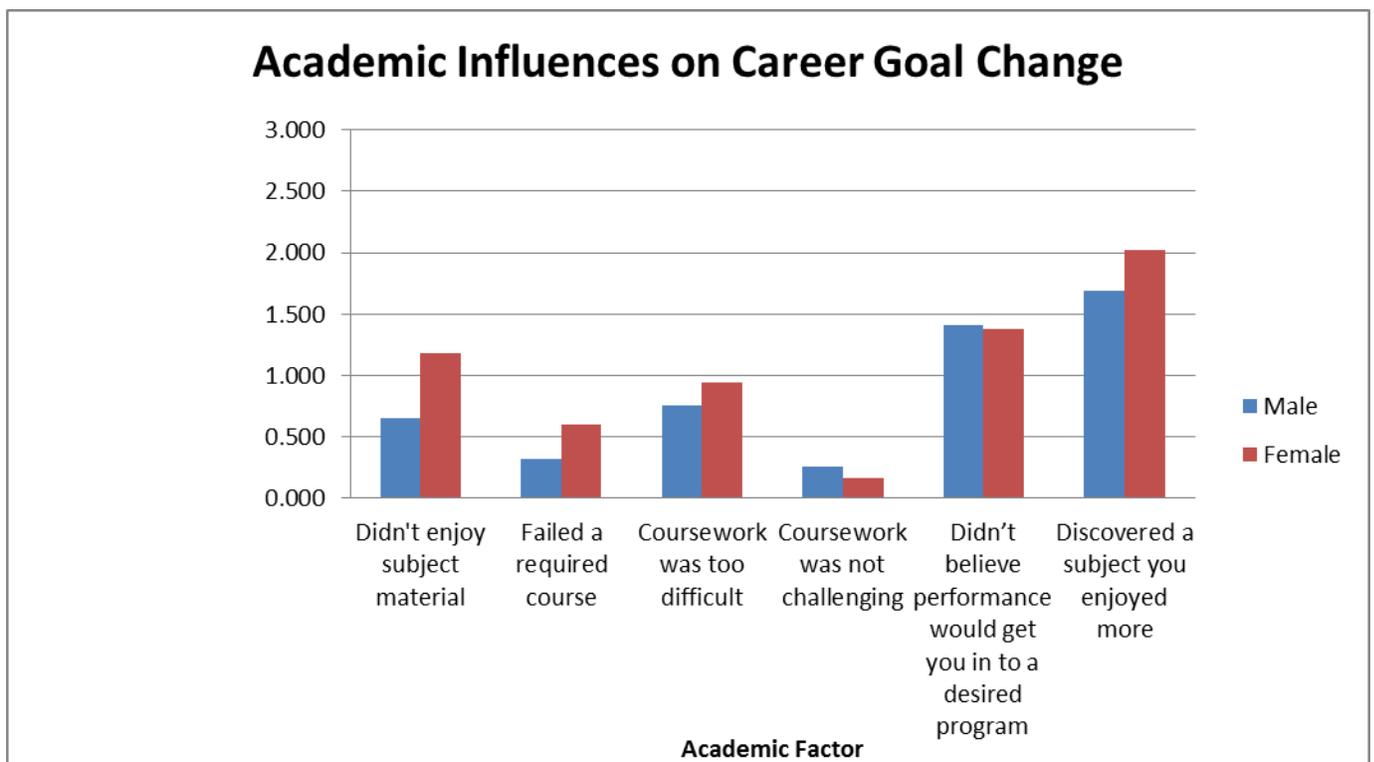
Investigating this change one step further, females tended to change out of the highest paying careers at much greater percentages than males. As can be seen in Figure 2, 55.70% of male respondents had the initial goal of becoming a physician and, at the time of my survey, an equal percentage still had that goal. In contrast, 39.55% of female respondents originally intended on becoming a physician, but only 31.07% still did at the time of my survey. A similar trend for women can be seen in all of the top four highest paying medical occupations indicated. A nearly opposite trend for women is seen for the lower paying occupations, specifically physician's assistants, occupational therapists, and speech language pathologists. More women have these occupations as their career goal at the time of the survey than they did initially. Increasing percentages of males also indicated those occupations as their career goal, while they primarily decreased in their desire to become pharmacists and physical therapists.

Figure 2. Percent Career Goal Change for Medical Occupations based on Gender



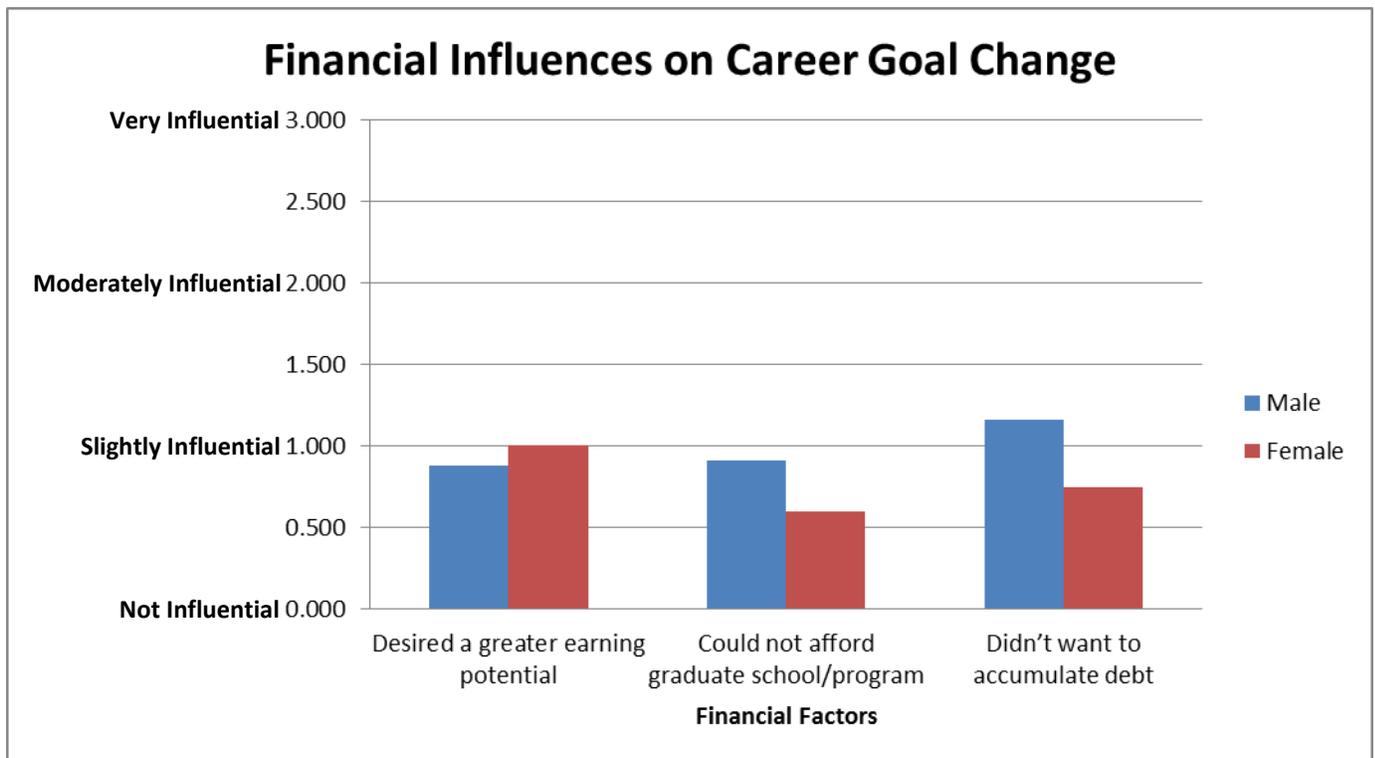
My study also aimed to determine some of the influences that impacted male and female respondent's career goals. As indicated in Figure 3, females were more likely to be influenced by academic factors. Women rated the following factors as more influential than men did: "didn't enjoy subject material," "failed a required course," "coursework was too difficult," and "discovered a subject you enjoyed more." Men rated "coursework was not challenging" and "didn't believe performance would get you into a desired program" as more influential than women, but there were only slight differences between males and females for these responses.

Figure 3. Academic Influences on Career Goal Change



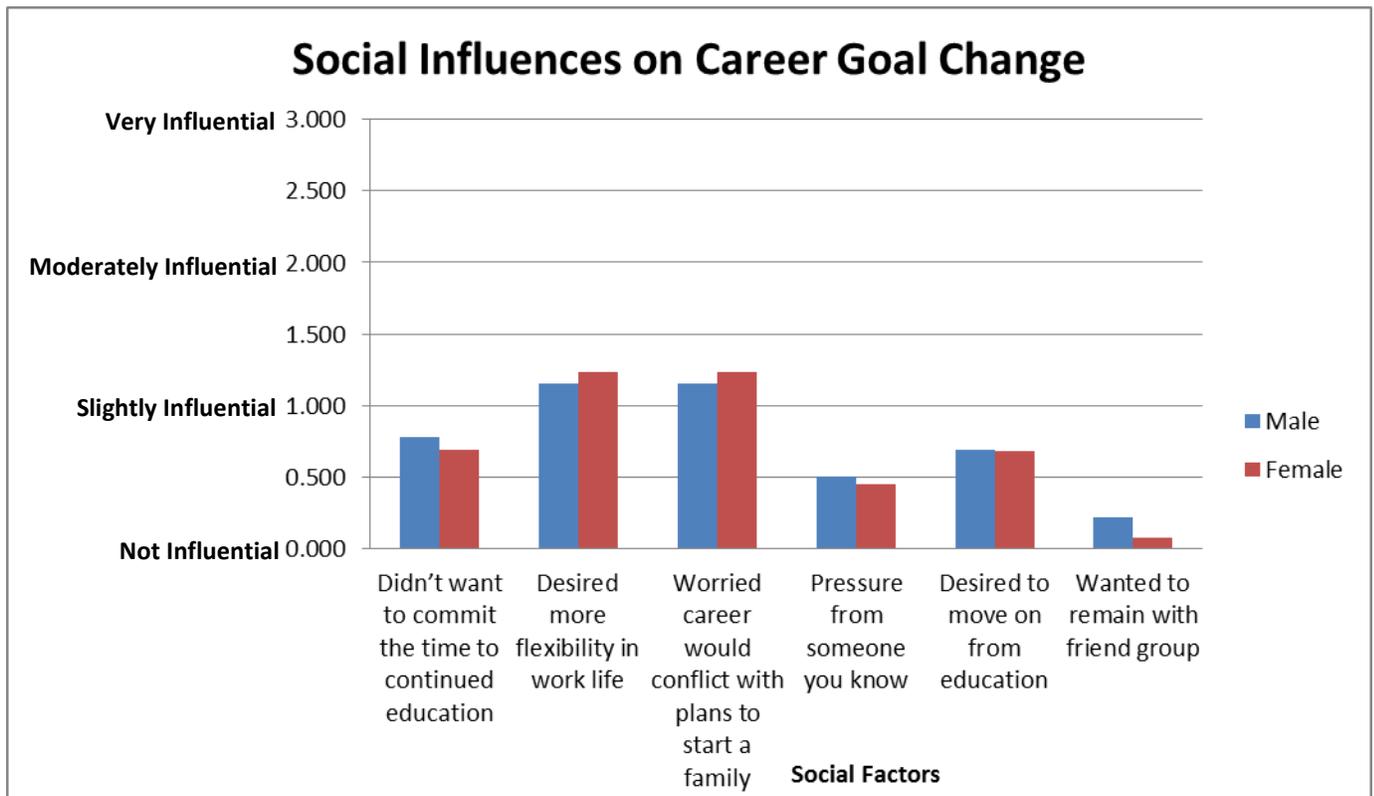
Overall, male respondents found financial factors to be more influential than female respondents. Specifically, they indicated “could not afford graduate school/program” and “didn’t want to accumulate debt” as having a greater influence. This can be seen in Figure 4. Half of the male respondents rated not wanting to accumulate debt as at least slightly influential, whereas only 38.8% of female respondents rated it as such. An opposite pattern was demonstrated for “desire for a greater earning potential.” Approximately 51% of female respondents rated this factor as at least slightly influential, as opposed to 43.8% of male respondents.

Figure 4. Financial Influences on Career Goal Change



Contrary to my hypothesis, male respondents indicated a higher mean rate of influence for overall social factors than female respondents. However, the differences per factor between genders are minute, as can be seen in Figure 5. Of the six social factors, female respondents indicated “desired more flexibility in work life” and “worried career would conflict with plans to start a family” to be more influential than males did. In fact, only 39% of males found the “worried career would conflict with plans to start a family” variable at all influential compared to 50% of females. These two factors are the most directly geared at family life and obligations outside of a career which I had anticipated would more significantly influence female students’ career decisions.

Figure 5. Social Influences on Career Goal Change



Interview Responses

Of the eight interviews I completed, two participants were male and six were female. One male participant hadn't altered his career goal, but the other seven had. Figure 6 shows each interview participants gender, initial and final career goals, and the type of change each made. While the interview questions were significantly different than the survey questions, some of the themes identified in the survey also emerged as influential in decision making among interviewees: confidence in academic ability, parental support, and flexibility of work life.

Figure 6. Career Goal Change and Gender of Interview Participants

Gender	Initial Career Goal	Final Career Goal	Type of Change*
Female	Teacher	Speech Language Pathologist	-
Female	Doctor	Occupational Therapist	Negative
Female	Dentist	Physician's Assistant	Negative
Female	Pharmacist	Speech Language Pathologist	Negative
Female	Optometrist	Physician's Assistant	Negative
Female	Doctor	Sexual Violence Counselor	-
Male	Physical Therapist	Occupational Therapist	Negative
Male	Doctor	Doctor	Neutral

*Type of change is based on the median pay rate shown in Appendix 3 and the same system used for my survey responses.

When discussing academic abilities, the female participants frequently discounted their own intelligence and ability to succeed in their programs. Four out of six females made some

reference to their lack of ability, whereas one male participant never mentioned his academic ability and the other specifically stated, "I'm a math and science person." Some of the female participants commented about their own abilities, such as "I'm just not a very math-oriented person and, obviously, Pharmacy is very math oriented," or "I'm a good academic student but I've never been super, super excellent you know." Other female participants commented about the difficulty of the program they were initially or currently working in. One stated, "When I came here I was very nervous about my major because I didn't realize speech language pathology was so science based. I'm not a science student, so I guess I figured it would be a lot like education and it's not." This coincides with my survey results where female respondents rated academic factors as more influential than males, specifically in the "didn't enjoy subject material" and "coursework was too difficult" categories.

When discussing parental support with the interview participants, almost all, both male and female, had been encouraged by their parents into careers with high prestige and high pay. One male respondent stated, "My dad's super, super excited...The label is what he wants." Similarly, one female respondent who switched her career goal from pharmacy to speech language pathology declared, "My mom's still in the 'you're not going to make much money.' It's frustrating that she doesn't think [speech language pathology] is very prestigious." When asked about how her family responded to her career goal change out of the health sciences completely, another female respondent told me "They kind of freaked out. They were like 'you're giving up lots of money and lots of job security to do what?'" One female participant's father deferred from this pattern. When discussing her choice to switch from becoming an optometrist to becoming a physician's assistant, she said her dad told her, "you're

making the best decision of your life...I know you want a family, so why put all of that money into schooling when you're not going to work that much."

Desire for flexibility in work life, when mentioned, was closely associated with the desire to start a family. One female interviewee explicitly stated, "It's pretty serious with my boyfriend right now and he's going to be a dentist, so I was just like I really want to have a family. I want to have four kids, that's a lot of work, so I was like I want to kind of have a more flexible schedule and better hours that fit me. Something that wasn't as time consuming - that I could easily have a family as well. That's really the only reason I switched to Physician's Assistant." This offered a stark contrast to the male interviewee who excitedly proclaimed he would like to work as an emergency room physician because of the exhilaration and demand on his abilities.

Conclusions

Limitations

This research had several limits. Survey and interview questions had not been standardized and would be reformatted for future research to ease the data analysis process. This study was also very limited in the population it reached. Due to the quick time frame and resources available to me, this study was focused solely on Grand Valley students majoring in two academic programs that are geared towards medical careers. In addition, students who may have originally intended on becoming a physician and left their academic program for a non-health science major were missed in the survey results. Similarly, students who aim to pursue medicine, but are not pursuing a health science major were missed. The major limitation of this study was that it only investigated a single university's students. Grand Valley State University's

population is most-likely representative of other large, public, undergraduate institutions in the mid-west, but may vary from more prestigious universities, universities that have their own medical schools, and universities from different regions of the country.

Significance

This project confirms that women are “leaking out” of the pipeline to prestigious careers in the medical field. Not only do women change their career goals more often, but they are also more likely to lower their career goals. High rates of change out of careers with the greatest median pay rate and into those with lower median pay rates is a major point of concern, especially when considering the pay gap that is still present in the United States.

My research shows similar trends in causes for the leaky pipeline as scholars have previously discussed. Women’s fear of failure and lack of confidence was certainly demonstrated in the greater influence that academics played in their career goal change. This is made even more apparent in the interview responses where the majority of female participants spoke negatively of their academic abilities or commented about the difficulty of academic programs that lead to careers in the medical profession. These difficulties may be combatted by increasing support in advising and making targeted efforts to increase interaction between female students and their professors. These targeted efforts could include academic support to combat learning difficulties and tracking the students they call on to ensure all are participating.

While overall social factors did impact male respondents at a greater rate, it is important to address the two that impacted women more: “desired more flexibility in work life” and “worried career would conflict with plans to start a family.” Both of these factors indicate conflicts between educational/career goals and expectations outside of the work place that were

more prevalent for women than for men. This conflict was further made evident by an interview participant who switched her career goal solely because she wanted to have a family. Alterations in the structure and timing of medical profession academic programs could offer additional options for women who want to have both families and careers in prestigious medical professions. Greater flexibility, maternity leave, and childcare options in academic programs should be considered.

Further Research

Due to the constraints of this study, larger studies should be conducted at universities across the United States to see if the results are generalizable to the larger population. This project specifically focused on career goal change in the medical field. Similar research should be done in other fields that are traditionally male dominated such as business and engineering to see if comparable trends exist. The information gained in this study shows that, even upon starting their undergraduate education, women were less likely to have high wage career goals than men. Further research should, therefore, consider earlier critical periods of the leaky pipeline such as early childhood and adolescence to see when this difference begins to arise, what the causes are, and how to combat the differences that develop.

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Appendix 1. Survey Questions

Consent Form (first page of survey):

Title: Influences on Men and Women's Career Choices in the Medical Field

Researcher: Danielle Meirow

GVSU Affiliation: Honors Senior Project and Women and Gender Studies Capstone Project

Purpose: You are being asked to participate in a research study regarding influences on career choices in the medical field. Information gained from this study will aid in understanding the leaky pipeline for women in educational pursuits. This research project will also fulfill the researcher's Honors Senior Project requirement and Women and Gender Studies capstone requirement.

Procedures: This online-self-report questionnaire is being administered to GVSU undergraduate students majoring in Biomedical Science or Allied Health Sciences in Winter 2014 via student email. The data will be collected utilizing SurveyMonkey®1999-2013 to maintain participant anonymity. This brief anonymous survey should take 10-15 minutes to complete.

Risks/Benefits: The risks of participating in this research are minimal. The probability and magnitude of harm or discomfort anticipated by the researcher are not greater than those ordinarily encountered in daily life. This research has no direct anticipated benefits for the participants, but it will contribute to a greater understanding of the leaky pipeline effect for women aiming to enter the medical field.

Participation/Confidentiality: You are asked to voluntarily provide specific information to this web site. You may skip any question, or stop participating at any time. The information collected will be used for the stated purposes of this research project only and will not be provided to any other party for any other reason at any time except and only if required by law. You should be aware that although the information you provide is anonymous, it is transmitted in a non-secure manner. There is a remote chance that skilled, knowledgeable persons unaffiliated with this research project could track the information you provide to the IP address of the computer from which you send it. However, your personal identity cannot be determined.

Contact Information: If you have any questions about this study, you may contact the researcher at 586-871-8638 or by e-mail at meirowd@mail.gvsu.edu. If you have questions about your rights as a study participant, you may contact the Human Research Review Committee at 616-331-3197 or by e-mail at hrrc@gvsu.edu.

Agreement: By clicking next you are indicating that you have read and understood the nature and purpose of the research. Clicking next indicates your willingness to participate in the survey. You must be at least 18 years of age in order to participate in this research.

What was your career goal when you entered college? (_____)

Has your career goal changed? (y/n)

How many times? (1-5+)

The first time you changed your career goal, what did you change it to? (_____)
When did you change it? (_____)

The second time you changed your career goal, what did you change it to? (_____)
When did you change it? (_____)

The third time you changed your career goal, what did you change it to? (_____)
When did you change it? (_____)

The fourth time you changed your career goal, what did you change it to? (_____)
When did you change it? (_____)

The fifth time you changed your career goal, what did you change it to? (_____)
When did you change it? (_____)

(1)Not Influential (2)Slightly Influential
(3)Moderately Influential (4)Very Influential

Please indicate how influential the following ACADEMIC reasons were in your decision to change your career goal: (1-4)

- Didn't enjoy the subject material
- Failed a required course
- Coursework was too difficult
- Coursework was not challenging
- Didn't believe performance would get you in to a desired program
- Discovered a subject you enjoyed more
- Other (_____)

Please indicate how influential the following ECONOMIC reasons were in your decision to change your career goal: (1-4)

- Desired a greater earning potential
- Could not afford graduate school/program
- Didn't want to accumulate debt
- Other (_____)

Please indicate how influential the following SOCIAL reasons were in your decision to change your career goal: (1-4)

- Didn't want to commit the time to continued education
- Desired more flexibility in work life
- Worried career would conflict with plans to start a family
- Pressure from someone you know
- Desired to move on from education
- Wanted to remain with friend group
- Other (_____)

What is your age? (18-21, 22-25, 26+)

What is your gender? (M/F/T)

What is your current class standing (by credit hour)? (Fresh/Soph/Jun/Sen/Grad)

How many years have you been at Grand Valley? (1-8+)

Are you a transfer student? (Y/N)

Are you a non-traditional student? (Y/N)

Have you graduated? (Y/N) Year (____)

If you have graduated, are you currently:

- in a graduate program (____)
- working in desired career (____)
- working in another career (____)
- other (____)

Thank you for your participation in this online survey!

The researcher is seeking participants in one on one interviews regarding this research topic. If you would be interested in being interviewed about your experiences with career goal change in the medical field, please contact the researcher at 586-871-8638 or by e-mail at meirowd@mail.gvsu.edu.

Appendix 2. Interview Questions

Tell me a bit about yourself.

As a child growing up what did you want to do as a career?

Were your parents influential in that dream?

In high school, what did you want to do as a career?

What steps did you make towards pursuing that career?

Did your parents or peers support your decision?

Did they help you in making plans to pursue your dream?

Tell me about your educational and career goals upon entering Grand Valley.

What steps did you make towards pursuing that goal?

Did these goals change over time?

Why did your goals change?

How did your friends react to the change? Were they supportive?

How did your family react to the change? Were they supportive?

How did your professors/advisors react to the change? Were they supportive?

How did your significant other (if applicable) react to the change? Were they supportive?

What is your current educational and career goal?

What steps are you taking to make that dream a reality?

Why do you want to pursue that educational and career goal?

What are your hesitations with pursuing that educational and career goal?

Are your friends supportive? parents? advisor/professor? significant other?

Appendix 3. 2012 Median Annual Income for Careers of Interest

<i>Occupation</i>	<i>Median Pay*</i>
Physician	\$187,200
Dentist	\$149,310
Pharmacist	\$116,670
Optometrist	\$97,820
Physician's Assistant	\$90,930
Physical Therapist	\$79,860
Occupational Therapist	\$75,400
Speech Language Pathologist	\$69,870
Chiropractor	\$66,160
Nurse	\$65,470

*("Occupational Outlook Handbook")

