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Genetic Counseling Graduate Student Debt: Impact on Program, Career and Life Choices

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Abstract

The cost of education is rising, increasing student financial aid and debt for students pursuing higher education. A few studies have assessed the impact of student debt in medicine, physical therapy and social work, but little is known about the impact of student debt on genetic counseling students and graduates. To address this gap in knowledge, a web-based study of 408 recent alumni of genetic counseling programs in North America was conducted to assess the impact of student debt on program, career and life choices. Over half (63%; $n=256/408$) of the participants reported that loans were extremely important in their ability to attend their training program, with most using subsidized loans no longer available to current graduate students. While participants were generally satisfied with their genetic counseling education, 83% ($n=282/342$) of participants with student debt reported feeling burdened by their debt, which had a median of \$40,000-\$50,000. This debt is relatively close to the median starting salary reported by survey participants (\$45,000-\$50,000), breaching the “20-10 rule” that states student debt should not exceed 20% of annual net income. In response to this critical issue, we propose recommendations for the genetic counseling field that may help alleviate student debt impact and burden.

Keywords

debt; financial aid; loans; career choice; genetic counseling student; graduate education

Students pursuing graduate level education are entering their fields in a financially unsustainable environment. Over the past 35 years, the cost of a college degree in the United States has risen by 1,120%, exceeding the consumer price index by fourfold (Jamrisko and Kolet, 2012). At the same time, the average household income dropped by at least 1% every year from 2007 to 2011 (Trends in College Pricing, 2012). These contradictory changes may provide insight as to why 66.2% of 260 Master’s level social work students reported that student loans were “extremely important” in determining their ability to attend graduate school (Yoon, 2012), and why 80% of 92 surveyed physical therapy students had loans

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totaling \$40,000 or more (Thompson, Coon and Handford, 2011). Even when students are able to get financial assistance through educational loans, many do not understand the greater cost of consumer loans like credit cards and misjudge the trade-off between education and market value (Avery & Turner, 2012).

Adding to this challenge is the recent loss of the low-interest, subsidized Stafford loan for graduate level tuition, leaving expensive unsubsidized federal or private loans to cover the balance (Budget Control Act of 2011, Section 502). According to the 2002 National Student Loan Survey of 1,280 student loan borrowers, 42% stated that expensive student loans were a major reason why they did not attend graduate school (Baum and O'Malley, 2003), limiting access to further higher education. Some students may receive scholarships to offset the amount of debt accrued from loans. Higher student debt, however, has been shown to reduce alumni donations to their training program institutions (Rothstein and Rouse, 2011), further reducing financial aid through scholarships for current students and creating a financial dilemma for students pursuing graduate level education.

With certain loans becoming less available, students are looking for alternate ways to pay for their education (Yoon, 2012). The Yoon study found that credit cards were an increasingly common way to pay for school. While 39.7% of study participants felt that credit cards were not an important funding source for their graduate education, 25% had a monthly credit card payment of \$500 or more (Yoon, 2012). After loans, family assistance and employment contributions were the next most common ways for physical therapy students to fund their education (Thompson et al. 2011). However, these funding sources are not available to all students, leaving many with large student debts. Without sustainable funding sources, it is no surprise that the two-year federal student loan cohort default rate rose to 10.0% in 2011, the highest it has been since 1995 (US Department of Education, 2010).

In addition to straining financial resources, student debt has been shown to influence other life choices after graduation. Students with higher debt burdens are less likely to choose lower paying or "public service" careers (Rothstein and Rouse, 2011). Medical students were also less likely to work in rural communities than in areas with higher paying salaries, even with loan repayment incentives (Renner et al., 2010). Physical therapy students' debt did not impact their ability to buy a house or obtain a loan but did impact their ability to save for the future and affected their lifestyle choices (Thompson et al., 2011). Similarly, using a large database of 10,411 people to account for differences in lifestyle choices, Gicheva (2011) found an additional student debt of \$10,000 decreased the likelihood of marriage by 7%.

Purpose of the Study

While studies from other disciplines show the variable impacts of student debt on career and other life choices, little is known about how genetic counseling students finance their education and how their debt impacts the pursuit of graduate studies in genetic counseling training program choice and later career and life decisions. One study of genetic counseling student stress and anxiety found that financial strain was the most intense stressor and the

second most common stressor reported by a sample of 225 students (Jungbluth, MacFarlane, McCarthy Veach and LeRoy, 2011). Further understanding these issues is especially important in the context of average starting salaries of genetic counselors. Using a web-based survey, this study examined how genetic counseling training program graduates of the past five years financed their education and how their student debt, or the possibility of student debt, impacted training program choice and later career and life decisions.

Methods

Participants and Procedures

Study participants were recruited through the National Society of Genetic Counselors (NSGC) membership and the Association of Genetic Counseling Program Directors (AGCPD). A letter was sent to each organization requesting that they send the survey link generated by Qualtrics to their membership. Genetic counseling training program directors were then asked to forward the survey to graduates of the past 5 years, students graduating from their training program between the years of 2008-2012 (~N=1025). This timeframe was specifically selected as this group of students graduated in a similar economic climate and to better ensure accurate recall.

To assess their views on graduate student debt, the participants were asked to complete the web-based survey. Informed consent for the survey was waived by the study IRB. A reminder e-mail was sent to each organization two weeks later. Survey participants were given the opportunity to sign up for a raffle for paid-in-full NSGC annual dues (a value of \$280) as a survey incentive. All data were collected anonymously and stored electronically via Qualtrics, a web-based survey software (www.qualtrics.com).

Instrumentation

Survey questions were developed by identifying important survey content and appropriate wording and answer choices from published surveys assessing debt in other Masters-level or clinical doctorate programs with the permission of the authors. Specifically this survey was adapted from the surveys developed by Yoon (2012), which was an adaptation of a survey used by Thompson et al. (2011).

The survey contained three main sections assessing: 1) the amount of debt accumulated during undergraduate education and its impact on genetic training program choice; 2) the amount of debt accumulated during graduate education, specifically during the genetic counseling training program, and its impact on career and later life choices; and 3) demographic information. The 93 questions comprised a combination of Likert rating scales (18 items), dichotomous (23 items), categorical (42 items) and open-ended (10 items) response options. Skip logic was used to prevent participants from answering unnecessary questions.

The survey was reviewed by the University of Wisconsin Survey Center and was piloted on six genetic counselors and genetic counseling students as well as a member of the American College of Medical Genetics and Genomics. This process was used to assess and modify questions for clarity and ease of response as well as the amount of time needed to complete

the survey. The survey was then reviewed and approved by the Education Research and Social & Behavioral Science Institutional Review Board at the University of Wisconsin – Madison. The questions were uploaded into Qualtrics, and the survey was piloted on-line with five genetic counselors to identify and rectify any potential technical difficulties prior to distribution. Responses to open-ended items were thematically coded into categories which comprised response options for corresponding survey questions

Data analysis

As skip logic was utilized for this survey, each question was not answered by every participant. Responses to open-ended questions were thematically coded into categories that were similar conceptually. This coding was performed independently and reviewed by each author, with discussion of any differences in order to achieve unanimous agreement. Authors selected the most illustrative responses in each category for inclusion herein. Close-ended responses to individual questions were summarized in terms of means, medians and standard deviations based on the number of responses available. Nonparametric Spearman's rank correlation analysis was performed to evaluate the bivariate associations between total debt, perceived debt burden, hardship, reliance on loans, training program satisfaction and parental help. Univariate and multivariate logistic regression analyses were conducted to evaluate the predictors for debt burden, perceived hardship, reliance on loans and training program satisfaction. Backward selection was used to identify parsimonious models for identifying independent predictors. Analysis of variance was conducted to evaluate the association between perceived reliance, hardship, debt burden and training program satisfaction between years since graduation categories. A linear trend test and pairwise comparisons were also performed. The association between employment type during genetic counseling education and perceived performance was analyzed using a linear mixed effects model with subject specific random effects. All *p*-values were two-sided, and *p*<0.05 indicated statistical significance. Statistical analyses were conducted using SAS software version 9.2 (SAS Institute Inc., Cary NC). A power analysis was also conducted using a Raosoft sample size calculator to determine the confidence level of our data.

Results

Response rate and sample demographics

A total of 418 online surveys were completed and available for analysis, resulting in a conservative estimated survey response rate of 40.8% ($n=418/\sim 1025$). The demographic characteristics of the participants are shown in Table I. The vast majority of respondents were white women (96%) between the ages of 25 and 29 (70%) who were working in the genetic counseling field at the time of survey completion (98%). Most of the respondents did not have children or other dependents (80%), were renting their place of residence (60%), and about half (47%) were married. Approximately half of the participants graduated in 2011 or 2012.

Pre-genetic counseling training program experience

After completing their undergraduate experience, participants with educational debt reported a median of \$10,000-\$15,000 in loans with 54% graduating with some level of student debt

and 5% graduating with more than \$55,000 of debt (Table II). Most (84%; $n=344/409$) did not take time off between graduation and pursuing a genetic counseling graduate training program for financial reasons, but 21% stated their undergraduate debt was “somewhat important” or “extremely important” in influencing when they attended their genetic counseling training program. Only 17% reported that their debt influenced their decision to pursue the genetic counseling graduate training, but over 40% stated that their undergraduate student debt influenced which training program they attended (Figure 1).

Respondents were asked to identify the single most influential factor in determining which genetic counseling program they attended. Location was rated most influential by the largest percentage of participants (38%), followed by training program cost (15%) and training program structure/curriculum (15%) (Table II). However, 77% of all respondents rated program cost as “very important” or “extremely important” in deciding which program to attend even if it was not the most influential factor (Figure 2).

Participants were invited to describe factors that influenced their training program choice. Sixty-six individuals provided comments that were classified into three categories: 1) Previous debt, 2) Program qualities, and 3) Program financial aid. Selected responses are shown in Table VI.

Financing a genetic counseling training program

Two thirds of respondents attended a public university and the remaining third attended a private institution. The reported median tuition for the entire program was \$40,000-\$49,999 (Figure 1). Participants reported using a variety of financial means to pay for tuition and associated living costs of their genetic counseling training program. Federal loans were the most common source of funding (78%) and were mostly comprised of subsidized (78%), unsubsidized (69%) and graduate PLUS (39%) loans. Others included Federal Perkins loans and Canadian Federal loans (Table III). Fewer respondents (21%; $n=83/404$) used private loans to pay for their training program with most taking out a loan personally (87%). However, graduates also reported private loans were taken out by spouses, parents or other family members to help pay for their genetic counseling education (Table III). Overall, 81% of respondents stated that loan availability was “extremely important” or “somewhat important” in their ability to attend a genetic counseling training program and 12% ($n=48/398$) of participants did not use any loans (Table III).

These loans were paid back using a variety of repayment plans, with the most common being a standard repayment plan with a fixed payment each month for ten years (58%). This was followed by an income-based repayment plan with payments annually calculated on income for 25 years (11%) and loan consolidation, which combines all federal loans into one loan with a 25 year repayment plan (8%). Other plans included extended (fixed payments over 25 years), graduated (gradually increasing payments), extended graduated (increasing payments over 25 years) and income-contingent or income-sensitive (income based payments over 25 years) repayment plans as shown in Table III.

Graduates also reported the use of personal savings (71%; $n=285/401$) and financial gifts from parents or other family members (43%; $n=173/400$) to pay for the costs of their genetic

counseling training program. One respondent stated that “My mother took a second job (one full-time and one part-time nursing job)” to help pay for her genetic counseling graduate education.

Over half (63%) of participants also reported working either on or off campus an average of eight to nine hours per week to pay for their genetic counseling training program. Of those who did work during their training program, 70% stated the ability to work was somewhat or very important to cover educational expenses during their program. Holding teaching, research or project assistantships (48%) and working off campus (39%) were the two most common forms of work reported (Table III). However, 4% ($n=13/289$) of participants reported earning money in a non-traditional manner in order to pay for their training program. Most participants who held a job during their training program felt that working neither hurt nor helped their academic performance, but some participants (22%) felt it somewhat hurt their performance while others (18%) actually felt it somewhat helped their performance (Table III). There were no significant correlations between the type of work performed [e.g. Teaching assistant (TA) position vs. off campus position] and the perception of impact on academic performance (data not shown).

Credit cards were another prevalent source of financial assistance used by participants (59%; $n=234/399$). Most used their credit cards for gas or transportation, books and food; 7% reported using their credit card to pay for tuition (Table III). Findings revealed that the median participant total credit card debt after graduation was less than \$2,000 (Range: Less than \$2,000 to over \$10,000). As shown in Table III, while a small percentage (8%) reported having a credit card was extremely important, most participants indicated credit card availability was not important to cover their educational costs (55%).

In addition to credit cards, participants also used grants or scholarships to finance their training program attendance (41%; $n=162/396$). The majority of these were training program stipends or scholarships (70%), which were used mostly for tuition, books and living expenses. Scholarships through the education institution (15%) and outside foundations or agencies (14%) were the next most common (Table III). It should be noted that many participants also reported receiving financial assistance through their training program in the forms of partial (40%) or full scholarships (1%), funding to attend meetings and conferences (52%), facilitated work study programs (49%), and/or teaching, research or project assistantships (24%) as shown in Table III.

With all sources of debt taken into account, the respondents reported graduating with a median total debt of \$40,000-\$50,000 (Figure 2).

Financial advising

Before accumulating this debt, 20% ($n=79/399$) of study participants reported receiving financial advising, over half of which was provided by their genetic counseling training program institution (58%; $n=46/79$). Most participants rated this advising as “a little helpful” or “not at all helpful” (58%), but when asked how important they felt financial counseling was for future students, the vast majority felt that it would be “somewhat important” or “extremely important” for genetic counseling students (94%) (Table IV).

Impact of graduate student debt

Eighty-three percent of study participants reported feeling extremely, very, or somewhat burdened by their educational debt. Almost half (49%) also reported experiencing more or much more debt hardship than they had expected (Table V). Of note, every \$10,000 of reported student debt was associated with a 31% ($p<0.001$) increase in hardship experienced, and a 224% ($p<0.0001$) increase in reliance on loans to cover the cost of one's genetic counseling training. In contrast, those receiving parental help experienced 38% ($p=0.0316$) less hardship than those not receiving parental help, and those who were married reported significantly less total debt ($p=0.0001$) and less hardship ($p=0.0005$) than those who were not married (Table VII). A participant's number of dependents was not significantly correlated with increased hardship (data not shown). Regardless, if the study participants could start this process over again, over half (54%) reported that they would borrow the same amount of money to pay for their education (Table V).

In spite of their burden, 88% ($n=345/392$) of graduates stated that their debt level did not change their post-degree career path. The most influential factors regarding job choice included location (59%), salary (11%) and specialty (11%). Salary and benefits were also considered "very important" or "extremely important" in determining job selection by 82% and 78% of participants, respectively (Figure 3). Study participants' responses to the open-ended question provide more insight as to how some of these factors influenced their job choice (Table VI).

Ninety-two percent of respondents reported holding a full-time position, with far fewer holding a part-time position (5%). Those holding a part-time position stated their part-time status was due to lack of full-time positions (52%) or personal and family reasons (43%) (Table V). The median starting and current salaries for participants employed full-time were approximately \$45,000-\$55,000 (Range: Less than \$35,000 to over \$95,000) and \$55,000-\$65,000 (Range: Less than \$35,000 to over \$95,000), respectively.

Taking debt and salary into account, some graduates stated that their student debt was "somewhat influential" or "extremely influential" in their ability to buy a car (53%), buy a home (62%) take vacation (65%), travel (67%) or pursue hobbies or interests (47%). However, many graduates did not feel that their debt significantly impacted other later life choices including having children (62%), getting married (78%), or moving out of their parent(s)' home (78) (Figure 4). Again, participants' responses to open-ended questions provide more insight into these choices (Table VI).

Although genetic counseling training program graduates seem to be impacted by their graduate level students debt, 90% ($n=354/394$) of respondents stated that, given unlimited funding, they would attend the same genetic counseling training program. The majority of respondents reported being satisfied or very satisfied with their investment in their training program in regards to personal growth (75%), and career opportunities (59%) (Table V). Similarly, when asked how beneficial their genetic counseling education was compared to the loans taken out to pay for it, 76% reported their genetic counseling education was "very beneficial" or "extremely beneficial" as shown in Table V. Of note, a higher level of expected hardship was associated with a 68% ($p=0.0125$) decrease in training program

satisfaction in regards to personal growth and a 64% ($p=0.0004$) decrease in regards to career opportunities (Table VII).

Discussion

This study revealed that the average debt accumulated by participants was not sustainable when considering only their average starting or current salary. Student debt financial advisors on websites such as Credit.org, a website run by the non-profit Springboard organization, use a “20-10 rule” to advise students on the amount of debt they should limit themselves to after graduation. The “20-10 rule” states that a graduate’s total student debt should not be more than 20% of their net annual income and their monthly payment should not exceed 10% of their monthly net income. Some financial advisors suggest being even more conservative, using an “8% rule,” which states that individuals should devote no more than 8% of their gross income to repaying student loans (Baum and Schwartz, 2005). Still others, like the Wells Fargo lending institution, recommend that the annual loan *payment* (as opposed to total debt) should not exceed 10-15% of one’s annual starting salary, making the allowable debt load to be just over one’s annual starting salary if using the lowest interest rate available to graduate students, 6.8%.

Credit.org has a loan repayment calculator that can be used to assess the feasibility of tackling student debt using total debt, salary, loan interest rate and payment plan. Since this calculator cannot use the median ranges, an average for the present sample was calculated by taking the weighted average of the numbers reported. This is an approximate average, as the value used for the last category (e.g. \$120,000 or more) was an interval (e.g. \$10,000) higher than the listed value (e.g. \$130,000). When applying the reported approximate average student debt of \$55,750, a starting salary of \$53,900, the 6.8% interest rate for an unsubsidized Stafford loan (the only Stafford loan now available to graduate students), and the most frequently reported payment plan (a fixed rate 10 year plan), the calculator indicated a monthly payment of \$641.57, which is 15% of the average monthly income after graduation. Using the graduate PLUS loan with an interest rate of 7.9%, the payment becomes \$673.46, 16% of the average monthly income. Both calculations meet the maximum or exceed even the more liberal student debt recommendations.

The findings of this study support the hypotheses that genetic counseling students’ training program, life and career choices are impacted by their student debt or threat of student debt. While most of the respondents reported being happy with the training program they attended, their responses reflect a possible need for increased access to quality financial advising and assistance and indicate that this funding trajectory is likely unsustainable.

Practice implications

Over 80% of survey participants reported feeling burdened by their debt. While it is possible that the burden may be expected to be higher for graduates who have been employed five years or less and have had less time to earn income and pay off loans, it is possible that the burden may be perceived as greater after five years by some when they have other obligations. While this survey did not formally assess the impact of debt on individuals who graduated more than five years ago, the presence of this survey on the NSGC listserv

compelled many graduates to share their experiences with debt in separate e-mails written to the study investigator as indicated in these statements: “I graduated in 1999.... I just finished paying off my loans in 2010. I definitely took a [undesirable] job when I graduated out of desperation.”; “I have several friends who are GCs who... have two or three jobs to stay afloat. This is depressing. We are professionals with a niche expertise.”; “Despite having attended one of the least expensive programs, I still incurred \$65,000 in debt for my program and loan-covered living expenses. Thankfully, I had largely eliminated my [undergraduate] college loan debt before graduate school. Nonetheless, grad school debt has undoubtedly weighed heavily into my financial planning. 5 ½ years later, I still feel the effects.”; “I am still paying off my student loan after 15 years out. There were no out-of-state tuition breaks at my school; I paid a higher price than my in-state colleagues. Having said all this I am happy to have this career, but feel to be in a different socio-economic category than my peers.”

In addition to having student loans, respondents who graduated more than five years ago may be more likely to have additional costs associated with home ownership and children. It is somewhat startling that over 80% of study respondents feel burdened by their debt when considering many of the participants were married and thus had a potential second income, and/or did not have the additional payments of a mortgage or children.

Study Limitations

There are several limitations to this study. The survey was sent to individuals who were members of the NSGC or whose training program directors had updated contact information up to five years after graduation. While we feel this was the most effective methodology for mass distribution, this approach may limit the generalizability of the findings, potentially missing input from those who are no longer in the field. However, given the response rate, the results are within a 95% CI for the population examined. Nonetheless, it cannot be determined whether respondents differed in salient ways from non-respondents. Similarly, a 5-year timeframe was used to limit economic variables, especially since these students graduated during a recession, and to maximize recall ability, which may limit generalizability to genetic counselors as a whole and may affect responses about later life questions. In addition, generalizability may have been limited as the incentive may have attracted those working in the genetic counseling field or those without an employer who contributes to NSGC membership.

Practice Recommendations

The survey participants represented a rather homogenous population (96% female; 92% white; 86% 25-34 years old), which appears to be fairly representative of the NSGC Membership assessed by the 2012 NSGC Professional Status Survey (96% female; 92% white; 56% 25-34 years old). The majority (76%) also reported receiving parental help to finance their education. The lack of diversity seen in the sample and indeed in the genetic counselor population may speak to greater barriers faced by individuals from minority groups and/or individuals with less family financial assistance to attend a genetic counseling training program. Additional research is needed to investigate this hypothesis

The present sample of genetic counselors reported that they are currently struggling with their debt up to five years after graduation, with most making payments on a subsidized Stafford loan that is no longer available to graduate students. While the current picture points to financial challenges for future genetic counseling students, there may be some things that the profession and its stakeholders can do to lessen the impact of student debt.

The National Society of Genetic Counselors 2013 – 2015 Strategic Plan states that one of the strategies for 2013 will be to address the increasing demand for genetic counseling and genomic services by exploring strategic goals to grow and develop the profession in collaboration with the American Board of Genetic Counseling, Association of Genetic Counseling Program Directors and, as of January 1013, the Accreditation Council for Genetic Counseling (NSGC, 2012). In order to grow and develop the profession, the governing and accreditation boards may consider working with genetic counseling training programs to develop a philanthropic initiative to increase financial access to the profession. In the present study, graduates reported that they were satisfied with their training program, but satisfaction decreased with increased hardship from debts. One way to effectively increase access to the profession is to address genetic counseling student debt and its associated impact on genetic counseling students.

Survey results indicate that many students are entering a genetic counseling training program with debt and that location is a major influencing factor on training program choice. While location may be a factor for multiple reasons, it stands to reason that travel costs both during the training program and for an initial training program interview may impact the importance of this factor. It may be beneficial to formally assess the necessity and feasibility of various technologies to conduct distance interviews or distance education to reduce travel costs and time away from home.

In addition to evaluating other technologies, it may also be helpful to assess the possibility and/or effectiveness of alternative program structures that allow students to work and gain income during their program. With over 70% of participants saying work was important to help pay for their education, this flexibility could take many different forms, from allowing students to hold an RA/TA position during the training program, which some programs currently offer, to letting students choose between a full-time two year training program and a part-time, extended training program. While the effectiveness of these strategies would need to be formally evaluated, looking at creative options helps to start this conversation and may also allow for the inclusion of non-traditional students, such as those with families and other responsibilities.

In regards to actual amount of debt accumulated, genetic counseling training program directors may consider working with their institution to lessen the time it takes for an out-of-state student to be able to pay in-state tuition or work on a higher systemic or policy level to encourage or widen reciprocity admissions between states. While these administratively complex solutions are not necessarily feasible in the short-term, they may improve the current unsustainable debt for genetic counseling students.

A more immediate solution may be reaching out to alumni to invite contributions to scholarship funds for current students. While the debt picture of alumni may look similar to that of survey respondents, those who are able to contribute could provide funding for books, NSGC membership, tuition assistance, etc. alleviating debt burden for future students. Since financial hardship was correlated with training program satisfaction, reducing hardship in the form of training program scholarships may contribute to overall satisfaction and encourage future alumni donations. Nevertheless, the giving culture needs to start somewhere.

Alumni may also consider hosting students traveling for conferences, internships etc., and/or formally or informally sharing their knowledge and tips regarding student debt with current students. One survey participant shared a document about Perkins loan forgiveness programs. Genetic counselors are considered "Medical Technicians" and are eligible to receive 100% loan forgiveness if they work directly with patients for five years and have their employer fill out the associated paperwork. The following websites provide more information about eligibility criteria https://www.uaservice.com/Borrower-Student/NDSL-Perkins_Cancellation_Eligibility.html and the loan deferment process https://www.uaservice.com/media/Borrower-Student/asset_upload_file425_3125.pdf.

In addition, Credit.org encourages students to personally seek out additional scholarships and apply for federal grants and work-study programs using the FAFSA (Free Application for Federal Student Aid). Other financial advisers recommend taking out loans with the smallest rates first and progressing to higher interest rate loans only if they are needed (Perkins loans, unsubsidized Stafford loans, and then private loans). They also recommend limiting credit card debt to well under half of its credit limit, to start saving for retirement with one's first paycheck, and considering taking a few years off to earn and save income for graduate education (DeVito, 2010).

Research Recommendations

While this survey provides insight into the impact of debt on recent graduates' genetic counseling program choice, job choice and later life choices, the sample comprises only one cohort of genetic counseling graduates. In order to expand the generalizability of these results, further studies should assess the level or lack of impact of graduate student debt on other cohorts. In addition, it may be helpful to look at the impact of student debt on minority and non-traditional applicants and genetic counseling alumni to better understand how to make this career path more accessible to all individuals with a passion for genetic counseling.

Conclusions

The cost of education is rising, and recent genetic counseling alumni report feeling burdened by their debt. Low-interest loans were the number one funding source reported by the present sample, and yet they are becoming harder to obtain. In spite of their debt, participants were generally satisfied with their genetic counseling education, but were, on average, accumulating debt that reaches the level of their starting salary, approaching a financially unsustainable environment and potentially limiting the accessibility of this career

path for others with less financial help. In response to these critical issues, we propose ideas and recommendations for the genetic counseling field that may help alleviate student debt impact and burden, and we encourage others to engage in this conversation in order to creatively and collaboratively generate solutions to address these issues.

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References

- Avery C, Turner S. Student Loans: Do College Students Borrow Too Much – Or Not Enough? The Journal of Economic Perspectives. 2012; 26(1):165–192.
- Baum S, O'Malley M. College on Credit: How Borrowers Perceive their Education Debt. NASFAA Journal of Student Financial Aid. 2003; 33(3):7–19.
- Baum S, Schwartz S. How Much Debt is Too Much? Defining Benchmarks for Manageable Student Debt. 2006 The College Board.
- Student Loan Repayment Calculator | Financial Calculator | Credit.org. (n.d.).Springboard Debt Counseling, Credit Counseling, CCCS | Credit.org. Retrieved March 7, 2013, from <http://credit.org/calculators/repaying-student-loans/>
- Devito, A. Professional Development Workshop Series. Lecture conducted from Fordham University; New York, New York: Feb 9. 2010 Discussion on Grad Student Loans, Savings, and Building a Financial Future. Director
- Sep 28. 2012 First Official Three-Year Student Loan Default Rates Published | U.S. Department of Education. U.S. Department of Education. Retrieved March 9, 2013, from <http://www.ed.gov/news/press-releases/first-official-three-year-student-loan-default-rates-published>
- Gicheva, D. University of North Carolina at Greensboro; 2011. Does the Student-Loan Burden Weigh into the Decision to Start a Family?. Department of Economics Working Papers 11-14
- National Student Loan Two-Year Default Rates. U.S. Department of Education. Web. 13 March 2013. <http://www2.ed.gov/offices/OSFAP/defaultmanagement/defaultrates.html>
- Jamrisko, M.; Kolet, I. Cost of College Degree in U.S. Soars 12 Fold: Chart of the Day - Bloomberg. Bloomberg - Business, Financial & Economic News, Stock Quotes. Aug 15. 2012 Retrieved May 21, 2013, from <http://www.bloomberg.com/news/2012-08-15/cost-of-college-degree-in-u-s-soars-12-fold-chart-of-the-day.html>
- Jungbluth C, MacFarlane IM, McCarthy Veach P, LeRoy BS. Why is everyone so anxious?: An exploration of stress and anxiety in genetic counseling graduate students. Journal of Genetic Counseling. 2011; 20:270–286. [PubMed: 21264500]
- National Society of Genetic Counselors 2013 – 2015 Strategic Plan. National Society of Genetic Counselors; Oct 23. 2012
- Renner D, Westfall J, Wilroy L, Ginde A. The Influence of Loan Repayment on Rural Healthcare Provider Recruitment and Retention in Colorado. Journal of Rural and Remote Health Research. Nov.2010
- Rothstein J, Rouse C. Constrained after College: Student Loans and Early Career Occupational Choices. Journal of Public Economics. 2011; 85(5):1299–1317.
- Thompson K, Coon J, Handford L. 2011; 40(4):169–173. Winter.
- The Budget Control Act of 2011. The Budget Control Act of 2011. Aug 1. 2011 Retrieved February 12, 2013, from <http://www.gpo.gov/fdsys/pkg/BILLS-112s365eah/pdf/BILLS-112s365eah.pdf>

- Trends in College Pricing. The College Board Advocacy and Policy Center. 2012. Retrieved February 23, 2013. http://advocacy.collegeboard.org/sites/default/files/college-pricing-2012-full-report_0.pdf
- Yoon I. Debt Burdens among MSW Graduates: A National Cross-Sectional Study. *Journal Of Social Work Education*. 2012; 48(1):105–125. Winter.

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Figure 1.
How important was your previous student debt in influencing the following: (n=381)

Figure 2.
 How influential were each of the following in determining which training program you attended? (n=411**)

*Other included program culture/fit, acceptance into the program, and cost of living.

** Participants were able to choose more than one response.

Figure 3.

Reported tuition for entire genetic counseling training program (n=401)

*Median

Median tuition for respondents was reported to be between \$40,000 and \$49,000.

Figure 4.
Total amount of debt after graduating from genetic counseling program (n=398)
*Median
Median reported total debt after graduation was between \$40,000 and \$50,000.

Figure 5.

How influential were each of the following in determining your job choice? (n=394)

*Others included job availability, ability to participate in loan forgiveness programs, being hired, and employer culture.

Figure 6.

How influential was your student debt towards when/if you: (n=378)

*Other included going back to school for Ph.D., ability to live without a roommate and transfer jobs.

Table I

Participant Characteristics

Characteristic	<i>n</i>	%
Gender	395	
<i>Female</i>	380	96
<i>Male</i>	14	4
<i>Prefer not to answer</i>	1	0
Race/Ethnic Group	395	
<i>White (Not Hispanic or Latino)</i>	365	92
<i>Biracial/Multi-racial</i>	8	2
<i>Asian or Pacific Islander</i>	7	2
<i>Hispanic/Latino/Spanish</i>	6	2
<i>American Indian or Alaska Native</i>	3	1
<i>Other^b</i>	3	1
<i>African American/Black</i>	2	1
<i>Prefer not to answer</i>	1	0
Age	380 ^e	
<i>Under 25</i>	23	6
<i>25-29</i>	266	70
<i>30-34</i>	62	16
<i>35-39</i>	15	4
<i>Over 40</i>	14	4
Year of Graduation	418	
<i>2008</i>	51	12
<i>2009</i>	81	19
<i>2010</i>	78	19
<i>2011</i>	106	25
<i>2012</i>	102	24
Genetic Counseling Field	374 ^a	
<i>Clinical</i>	309	83
<i>Research</i>	61	16
<i>Diagnostic Laboratory</i>	44	12
<i>Commercial</i>	12	3
<i>Public Health</i>	12	3
<i>Education and Policy</i>	7	2
<i>Other^c</i>	4	2
Relationship Status	395	
<i>Married</i>	186	47

Characteristic	<i>n</i>	%
<i>Never been married</i>	121	31
<i>Live with someone as couple/partner</i>	77	19
<i>Divorced</i>	7	2
<i>Separated</i>	2	1
<i>Prefer not to answer</i>	2	1
<i>Widowed</i>	0	0
Residence	395	
<i>Renting or leasing</i>	236	60
<i>Own home or paying a mortgage</i>	137	35
<i>Live with parent(s)/guardian(s)</i>	10	3
<i>Other^d</i>	10	3
<i>Live other family members</i>	2	1
<i>Prefer not to answer</i>	0	0
Children/Dependents	395	
<i>0</i>	316	80
<i>1</i>	60	15
<i>2</i>	14	4
<i>3</i>	3	1
<i>4</i>	0	0
<i>5 or more</i>	2	1

^a Participants were able to choose more than one response.

^b Other included Indian, East Indian and South Asian

^c Other included advocacy and disease organizations and biobanking

^d Respondents did not specify other living situations

^e Mean $\pm$ SD: 28.6 $\pm$ 4.7; Range: 24-55

Table II

Pre-genetic counseling training program experience

Question/Response	<i>n</i>	%
Approximate debt accrued during undergraduate education	410	
<i>No debt</i>	189	46
<i>Less than \$5,000</i>	32	8
<i>\$5,000 to \$9,999</i>	22	5
<i>\$10,000 to \$14,999</i>	32	8
<i>\$15,000 to \$19,999</i>	28	7
<i>\$20,000 to \$24,999</i>	23	6
<i>\$25,000 to \$29,999</i>	16	4
<i>\$30,000 to \$34,999</i>	14	3
<i>\$35,000 to \$39,999</i>	11	3
<i>\$40,000 to \$44,999</i>	9	2
<i>\$45,000 to \$49,999</i>	2	0
<i>\$50,000 to \$54,999</i>	5	1
<i>\$55,000 or more</i>	22	5
<i>Do not remember</i>	5	1
Most influential factor for determining program attended	410	
<i>Location</i>	157	38
<i>Program structure/curriculum</i>	62	15
<i>Cost of program</i>	61	15
<i>Reputation of Institution/ Program</i>	35	9
<i>Other^a</i>	33	8
<i>Program Director</i>	24	6
<i>Financial Assistance available</i>	19	5
<i>Exposure to certain clinical specialties</i>	14	3
<i>Length of program</i>	3	1
<i>Exposure to certain patient population</i>	1	0
<i>Faculty reputation</i>	1	0
<i>Global/International opportunities available</i>	0	0
<i>Research opportunities available</i>	0	0

^a“Other” responses included “being accepted” and “program fit”/“program culture”

Table III

Financing a Genetic Counseling Training Program

Question/Response	<i>n</i>	%
Institutional affiliation of genetic counseling program	411	
<i>Public</i>	270	66
<i>Private</i>	137	33
<i>Other^a</i>	4	1
Federal loans used to finance genetic counseling education	316	
<i>Federal Subsidized Stafford loans</i>	245	78
<i>Federal Unsubsidized Stafford loans</i>	219	69
<i>Federal Graduate PLUS loans</i>	122	39
<i>Federal Perkins loans</i>	52	16
<i>Do not remember</i>	24	8
<i>Other federal student loans^b</i>	23	7
Private loans used to finance genetic counseling education	82	
<i>I took out private loans</i>	71	87
<i>Parent(s)/Family/Spouse/Significant other took out private loans</i>	14	17
<i>No private loans were used</i>	4	5
<i>Do not remember</i>	1	1
Importance of loan availability to attend genetic counseling program	410	
<i>Not at all Important</i>	44	11
<i>Somewhat Unimportant</i>	13	3
<i>Neither Important nor Unimportant</i>	19	5
<i>Somewhat Important</i>	78	19
<i>Extremely Important</i>	256	62
Primary repayment option for federal loans	316	
<i>Standard Repayment Plan</i>	182	58
<i>Income-Based Repayment Plan</i>	35	11
<i>Loan consolidation</i>	25	8
<i>Do not remember</i>	21	7
<i>Extended Repayment Plan</i>	20	6
<i>Graduated Repayment Plan</i>	20	6
<i>Income-Contingent Repayment Plan</i>	5	2
<i>Extended Graduated Repayment Plan</i>	6	2
<i>Income-Sensitive Repayment Plan</i>	2	1
Work/Employment used to finance	402	

Question/Response	<i>n</i>	%
genetic counseling program		
<i>TA/RA or other Assistantships</i>	140	35
<i>Paid work off-campus</i>	113	28
<i>I did not work during my program</i>	110	27
<i>Paid work on-campus</i>	76	19
<i>Federal Work-Study (FWS) program</i>	35	9
<i>Paid Internship</i>	16	4
Importance of work to cover educational expenses	285	
<i>Not at all Important</i>	22	8
<i>Somewhat Unimportant</i>	29	10
<i>Neither Important nor Unimportant</i>	33	12
<i>Somewhat Important</i>	112	39
<i>Extremely Important</i>	89	31
Effect of work on academic performance	285	
<i>Greatly hurt</i>	3	1
<i>Somewhat hurt</i>	63	22
<i>Neither helped nor hurt</i>	161	56
<i>Somewhat improved</i>	52	18
<i>Greatly improved</i>	6	2
Items for which credit card was used during genetic counseling program	234	
<i>Other necessary living expenses^c</i>	210	90
<i>Books/Other education fees</i>	201	86
<i>Food</i>	197	84
<i>Rent</i>	26	11
<i>Car payments</i>	20	9
<i>Tuition</i>	16	7
<i>Other^d</i>	9	4
Grants/Scholarships used to finance genetic counseling program	162	
<i>Program scholarship/stipend</i>	114	70
<i>Merit-based through school</i>	24	15
<i>Private/public agency or foundation</i>	22	14
<i>Other^e</i>	14	9
<i>Needs-based through school</i>	12	7
<i>Needs-based through state</i>	7	4
<i>Merit-based through state</i>	4	2
Financial assistance available through program	401	

Question/Response	<i>n</i>	%
<i>Full scholarship</i>	3	1
<i>Partial scholarship</i>	120	40
<i>Work-study opportunities</i>	146	49
<i>TA/RA opportunities</i>	72	24
<i>Assistance with grant applications</i>	11	4
<i>National meeting/Conference fees</i>	156	52
<i>Travel reimbursement or assistance</i>	106	35
<i>Research funds</i>	61	20
<i>Subsidized housing</i>	3	1
<i>Books</i>	18	6
<i>Other, please specify</i>	51	17

^f Other included Maternal and Child Health Leadership Education in Neurodevelopmental Disabilities fellowship and opportunities for in-state tuition/participation in the Academic Common Market

^a Other included Canadian schools

^b Other federal loans include Canadian federal loans

^c Necessary expenses include transportation costs and appropriate clothing for clinic, prescriptions, etc.

^d Other included travel and daycare expenses

^e Other included work study, research grants and military scholarships

Table IV

Financial advising

Question/Response	<i>n</i>	%
Helpfulness of financial advising received	68	
<i>Not at all helpful</i>	20	29
<i>A little helpful</i>	20	29
<i>Somewhat helpful</i>	15	22
<i>Very helpful</i>	11	16
<i>Extremely helpful</i>	2	3
Importance of financial advising for future genetic counseling students	396	
<i>Not at all Important</i>	0	0
<i>Somewhat Unimportant</i>	7	2
<i>Neither Important nor Unimportant</i>	17	4
<i>Somewhat Important</i>	213	54
<i>Extremely Important</i>	159	40

Table V

Impact of graduate student debt

Question/Response	<i>n</i>	%
Burden of student debt payments felt by genetic counseling graduates	342	
<i>Not at all burdened</i>	16	5
<i>A little burdened</i>	44	13
<i>Somewhat burdened</i>	108	32
<i>Very burdened</i>	102	30
<i>Extremely Burdened</i>	72	21
Hardship caused by student debt vs. hardship anticipated	343	
<i>Much less hardship than anticipated</i>	17	5
<i>Somewhat less hardship than anticipated</i>	23	7
<i>Hardship was what I expected</i>	137	40
<i>Somewhat more hardship than anticipated</i>	123	36
<i>Much more hardship than anticipated</i>	43	13
If they could start over, participants would borrow	390	
<i>Much More</i>	1	0
<i>A little more</i>	5	1
<i>About the same</i>	212	54
<i>A little less</i>	121	31
<i>Much Less</i>	51	13
Most influential factor determining job choice	393	
<i>Location</i>	228	58
<i>Salary</i>	45	11
<i>Specialty</i>	44	11
<i>Personal/Professional growth opportunities</i>	31	8
<i>Other^a</i>	16	4
<i>Co-workers</i>	11	3
<i>Institution/Company</i>	9	2
<i>Benefits</i>	6	2
<i>Location</i>	2	1
<i>Paid continuing education opportunities</i>	1	0
<i>Paid certification or licensing fees</i>	0	0
Participant current work activity	384	

Question/Response	<i>n</i>	%
<i>Working full-time</i>	352	92
<i>Working part-time</i>	21	5
<i>Working Full-time and part-time</i>	9	2
<i>Unemployed</i>	1	0
<i>Working, not for pay</i>	0	0
<i>In School</i>	0	0
<i>Prefer not to answer</i>	1	0
Participant current work activity	384	
<i>Working full-time</i>	352	92
<i>Working part-time</i>	21	5
<i>Working Full-time and part-time</i>	9	2
<i>Unemployed</i>	1	0
<i>Working, not for pay</i>	0	0
<i>In School</i>	0	0
<i>Prefer not to answer</i>	1	0
If part-time, reason for working part-time	21	
<i>No full-time positions were available</i>	11	52
<i>Family/Personal reasons</i>	9	43
<i>Other^b</i>	1	5
<i>Pursuing another degree/career</i>	0	0
<i>Prefer not to answer</i>	0	0
Satisfaction of genetic counseling education in regards to investment for personal growth provided	398	
<i>Very Dissatisfied</i>	3	1
<i>Dissatisfied</i>	4	1
<i>Somewhat Dissatisfied</i>	7	2
<i>Neutral</i>	19	5
<i>Somewhat Satisfied</i>	66	17
<i>Satisfied</i>	146	37
<i>Very Satisfied</i>	153	38
Satisfaction of genetic counseling education in regards to investment for career opportunities provided	398	
<i>Very Dissatisfied</i>	8	2
<i>Dissatisfied</i>	14	4
<i>Somewhat Dissatisfied</i>	29	7
<i>Neutral</i>	22	6
<i>Somewhat Satisfied</i>	88	22
<i>Satisfied</i>	137	34

Question/Response	<i>n</i>	%
<i>Very Satisfied</i>	100	25
Benefit of genetic counseling education vs. educational loans	341	
<i>Not at all beneficial</i>	1	0
<i>A little beneficial</i>	20	6
<i>Somewhat beneficial</i>	62	18
<i>Very beneficial</i>	159	47
<i>Extremely beneficial</i>	99	29

^aOther included job availability and responsibilities

^bOther included starting private genetic counseling practice

Table VI

Categories Reflecting Survey Participant Comments

Factors Influencing Training Program Choice (n=64)	
Previous Debt (n=34)	<ul style="list-style-type: none"> • “went to one of the cheapest schools I could... Despite the lower tuition, housing, book [and] transportation, still left me with nearly \$90k in debt (not including undergrad).” • “huge factor in deciding which program I chose to attend, debt caused me a great deal of anxiety before and during my genetic counseling program.”
Program Financial Aid (n=17)	<ul style="list-style-type: none"> • “As a male, one or two programs offered scholarships for minority students (which in the GC field, includes males). If more programs offered that, it might have had more sway with my decision to attend certain programs.” • “I moved to a state with reciprocity before attending graduate school, which greatly reduced my first semester's potential debt (when I was not working). It was also VERY important to me to attend a program that had TA opportunities.”
Program Qualities (n=13)	<ul style="list-style-type: none"> • “feel very blessed that my parents were willing to pay for my education for the very reason that they didn't want debt to impact my choice of graduate program...was nice to have free reign to select a program based on merit and not on cost or funding” • “Even though my program is one of the most expensive in the states, I fell in love with it... I've always believed that education is worth investing in. So, even though I knew I could not fully afford the education, I was very willing to do whatever I can and borrow from anyone I know in order to fund my education... this education was expensive!”
Factors Influencing Job Choice (n=132)	
Location (n=55)	<ul style="list-style-type: none"> • “I had to work in a certain city, because that is where my husband's job was.” • “I graduated in a very unstable economic time and was unable to find a gc position in the region where I and my family lived. This required us to relocate”
Salary/Debt (n=28)	<ul style="list-style-type: none"> • “Working for a corporation gave me \$15,000 more per year.” • “I had to move states in order to obtain a job right away...I would have had difficulty paying my loans when the deferment ended...moving to a place where the cost of living is lower has helped make the cost of repaying the loans a bit more bearable.” • “While a satisfying job is very important for me, I knew that I needed to start thinking about paying for rent, debts, etc. as soon as I graduated...Although I'm really happy with my job, I did not feel like I had the luxury to “wait and see”. I did feel the pressure to take the first job I was offered...I ended up with a part-time job at first - it did not pay enough to cover my expenses, so after 4 months, I needed to get/find a second part time job. That was extremely stressful for me...”
Availability (n=25)	<ul style="list-style-type: none"> • “unable to find a GC job...I am now extremely willing to take a non-GC job.” • “wanted to avoid getting an every day job after graduating as I felt I would be doing myself a disservice by taking a job out of my field after all my time and effort put into grad school. However, I am a realist and understand I very well could have worked whatever job was out there had I not been offered my current job.”
Specialty/Professional Growth (n=24)	<ul style="list-style-type: none"> • “Lack of debt has allowed me to leave my initial GC job and pursue a part-time position where I am able to build a GC practice from scratch in a rural area. If I was burdened by debt, I may not have been able to afford such a transition...”
Factors Influencing Other Life Choices (n=123)	
Buying Home/Car (n=60)	<ul style="list-style-type: none"> • “Buying a home is an extremely daunting task when you have several hundred dollars of student loan debt to worry about each month.” • “Buying a car has been my biggest expense since graduation....adding an additional bill was a big decision. I have wanted to put as much money as possible towards my student loans and pay them off as soon as possible...car was purchased out of need...which was the main justification for the purchase.”
Multiple Factors (n=35)	<ul style="list-style-type: none"> • “I haven't been able to buy a car, home, travel, marry, have children because I have so much student loan debt. I feel like the rest of my life will be focused on paying off loans.” • “Both my partner and I are very conservative with money and other than my 60K in student loans we don't have any debt. I don't think this is really influencing our life choices...”
Getting Married/ Having Children (n=15)	<ul style="list-style-type: none"> • “I do not plan on having children until my student debt is paid off - there is no way I could afford to be on mat(ernity) leave and manage to pay my minimum loan payments.”
Taking Vacation/ Travel (n=13)	<ul style="list-style-type: none"> • “I now have enough money to go on nice vacations, but I am too busy with work to go. When I was not as busy/working part time I had the time for vacations but not the funds.” • “I have chosen not to travel to the East Coast for friends' baby showers, etc., because I cannot afford it. I also cannot afford to go to national meetings in my field... since my institution will not reimburse those travel costs.”

Table VIIPredictors of Hardship, Reliance on Loans and Training Program Satisfaction ($n=398$)

Outcome	Predictor	OR	<i>p</i> -value
Hardship (More vs. Not More)	Total Debt Burden (per \$10,000)	1.31	<0.001
Reliance on Loans (Important vs. Not)	Total Debt Burden (per \$10,000)	2.24	<0.0001
Hardship (More vs. Not More)	Parental Help (Yes vs. No)	0.62	0.0316
Program Satisfaction: Career Opportunities (Satisfied vs. not)	Hardship (More vs. Not More)	0.36	0.0004
Program Satisfaction: Personal Growth (Satisfied vs. not)	Hardship (More vs. Not More)	0.32	0.0125
Total Debt Burden	Married (Yes vs. No)		0.0001
Hardship (More vs. Not More)	Married (Yes vs. No)		0.0005