

The Case for Needed Financial Literacy Curriculum During Resident Education



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OBJECTIVE: Personal physician finance is an overlooked source of stress that negatively impacts resident well-being with formal financial education often left out of medical training. This study attempts to (1) evaluate the perceptions of financial literacy, (2) determine the level of financial education incorporated across residency programs, and (3) evaluate the resources that residents utilize to obtain information about managing their personal finances.

DESIGN: A systematic literature search of articles published between January 2012 to January 2022, in the MEDLINE, EMBASE, and Cochrane databases was performed during February 2022]. The combination of search terms included: (financial literacy OR debt) AND (residency OR graduate medical education). The primary outcome measures included the perception of financial literacy during residency and the type of financial education incorporated during residency. Secondary outcomes included resources utilized to obtain financial education.

PARTICIPANTS: Twenty-three studies evaluating a total of 5146 residents were included in this systematic review.

RESULTS: The 42% to 79% of residents responded in surveys that they had “below average” understanding of finance, investing, and savings and that they felt unprepared to handle future financial decisions. 79% to 95% of respondents agreed that personal finance should be taught during residency training. The included studies also demonstrate that residents seek education through personal research, through a family member, or through attending outside financial planning seminars or courses.

CONCLUSION: This study demonstrates that the majority of residents feel underprepared when making financial decisions and that formal financial education should be incorporated during their residency training. Educating residents can help mitigate financial stress which can improve physician well-being, reduce attrition, and result in better patient care.

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KEY WORDS: Financial literacy, Resident education, Finance, Debt

COMPETENCIES: Medical Knowledge, Practice-Based Learning and Improvement, Systems Based Practice

INTRODUCTION

Residency programs have well established and defined goals in providing their trainees with the necessary knowledge and skillset to become competent and effective physicians in their respective fields. While priority remains on patient care, the importance of physician well-being has gained increased attention with previous literature demonstrating poorer patient outcomes as a result of physician burnout and stress.^{1,2} Personal physician finance is an often overlooked and under discussed source of stress that negatively impacts resident wellbeing and success. Previous studies have demonstrated that the student loan debt for recent medical school graduates' averages \$215,900 and that the majority of residents report having “very little” financial knowledge.^{1,2} This poses a significant financial burden during residency training which has been shown to contribute to higher rates of burnout and attrition.³ Despite this, formal financial education is often left

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out of medical training, therefore residents report feeling underprepared managing their debt with limited knowledge on how to adequately prepare for their financial future. Therefore, this study attempts to evaluate the perceptions of financial literacy and to determine the level of financial education incorporated across residency programs. In addition, this study will also evaluate the resources that residents utilize to obtain information about managing their personal finances.

METHODS

A systematic literature search of articles published between January 2012 and August 2022, in the MEDLINE, EMBASE, and Cochrane databases was performed during August 2022 according to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis).⁴ The combination of search terms included: (financial literacy OR debt) AND (residency OR graduate medical education). Studies were included if they met the following criteria: evaluated the financial literacy of the resident population or evaluated educational curriculums focusing on financial management during residency. The title and abstract were reviewed, and eligible studies received a full text review. The reference lists were also screened. Any inconsistencies throughout the study selection were resolved by a senior author.

The primary outcome measures included the perception of financial literacy during residency and the type of financial education incorporated during residency. Secondary outcomes included resources utilized to obtain financial education. Two reviewers assessed each study and worked independently. Meta-analysis was deemed inappropriate due to the heterogeneity of studies included in our review. Per SWiM guidelines, we identified a set of standardized metrics for use in synthesizing.⁵

RESULTS

Search and Literature Selection

The initial literature search resulted in 427 total studies. Once duplicates were removed and the articles were screened for inclusion and exclusion criteria, 34 studies were included and full texts were assessed for eligibility (Fig. 1). After initial screen, there were 24 additional articles excluded because they either did not evaluate the resident population or were systematic reviews or review articles.

Study Characteristics

Twenty-three studies with a total of 5146 residents were included in this systematic review. Study characteristics are demonstrated in Table 1.

Self-Reporting of Financial Literacy and Education

Fourteen studies evaluated resident perceptions of their financial literacy (Table 2). Huebinger et al. demonstrated that residents reported that financial knowledge was important for their well-being.⁶ The included studies reported that 42% to 79% of residents responded in surveys that they had 'below average' understanding of finance, investing, and savings and that they felt unprepared to handle future financial decisions.^{1,6-10} Ahmad et al. reported an average questionnaire score of 52% on a quiz that was administered evaluating personal finance and investment.¹² Deficiencies that were reported included: investing, retirement, negotiating salaries, applying for a mortgage, purchasing insurance, and tax planning.^{6,8} 1 studies reported that 79% to 95% of respondents agreed that personal finance should be taught during residency training with one study reporting that 49% of residents felt financial education was a priority during residency.^{1,13-15} Witek et al. reported that 80% of residency program directors believed that their residents were unprepared to handle personal and professional financial decisions that would arise after graduation.¹⁰ Garrett et al. reported that residents reported that financial planning during training would help restore well-being and aid in stress relief.¹¹

Resources Utilized to Obtain Financial Education

Seven studies reported on the methods residents utilized in obtaining financial education (Table 3). One study reported no financial education during medical school,⁸ while financial education during residency varied from 0% to 36.7% depending on the study.^{6,10,16} Adetayo reported that 54% of respondents received financial education during medical school and that 44% of current residents had received education during residency, but this survey was a study within 1 institution, and therefore general outcomes cannot be interpreted.¹⁴ The included studies also demonstrate that residents seek education through personal research, through a family member, or through attending outside financial planning seminars or courses.^{6,12,14,16}

Financial Education Interventions

Seven studies evaluated various types of financial education workshops and lectures (Table 4). The goals of the workshops aimed to increase financial literacy of residents during training. Ng et al. reported on a financial wellness program which included 90-minute financial planning sessions and biannual financial wellness check-ins and reported that 98% of individuals recommended continuing this type of program in the future for

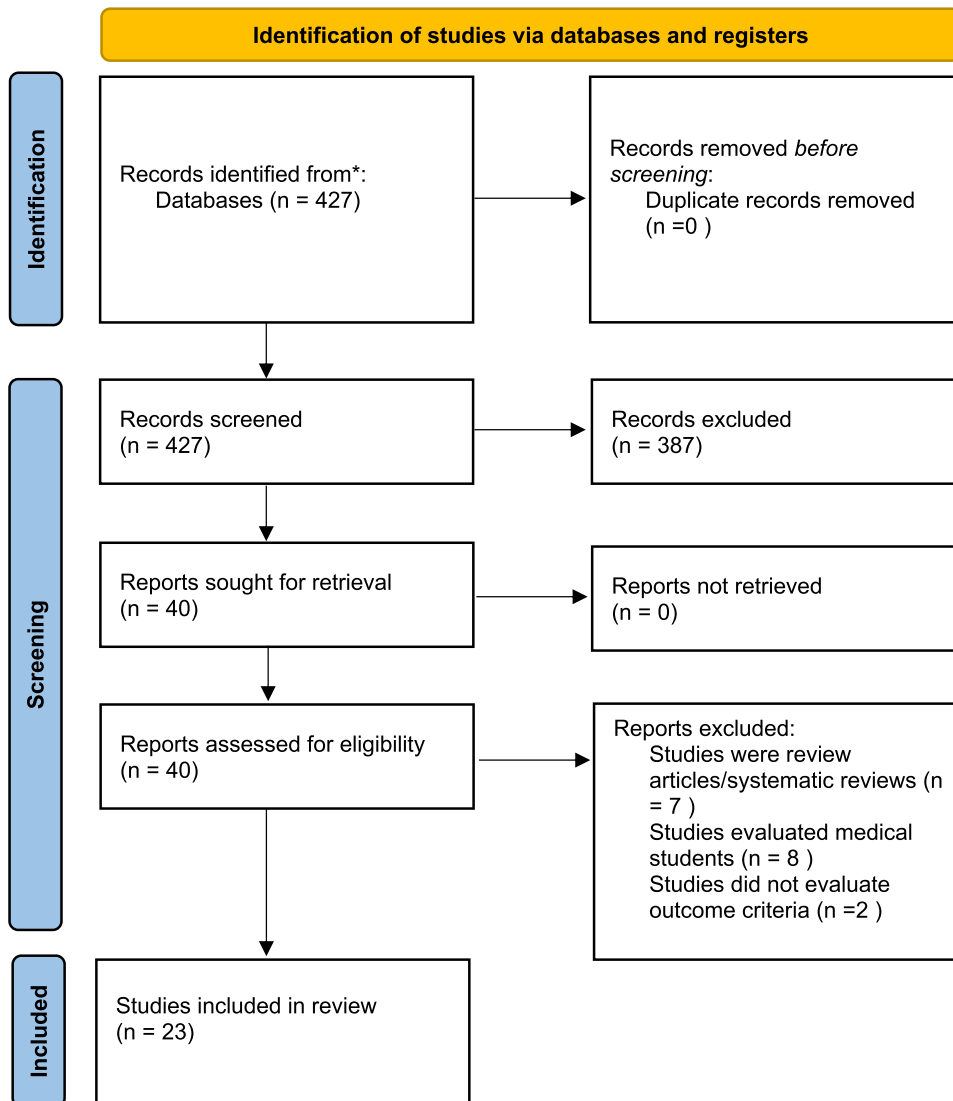


FIGURE 1. PRISMA Flow Diagram.

residents.¹⁷ Shaffer et al. developed workshops educating on the topics of: debt repayment, billing compliance, medical malpractice, contract negotiations, and lifestyle and financial management. Residents strongly agreed that this was helpful and useful in their education during residency and reported an increase their confidence from 18% to 89% in contract negotiations after attending a dedicated workshop.¹⁸ Boehnke et al. also reported an increase in financial literacy knowledge following domain specific lectures after residents completed a post-test and 6 month follow up test.¹⁹ Cawyer et al. presented a 5 part curriculum with topics including: financial education and its relationship to personal well-being, overview of financial terms and principles, budgeting, debt planning, and investing and giving. The authors reported significant improvement in the median

expanded well-being index score after exposure to the personal finance curriculum and that residents expressed a better understanding of financial planning topics and the financial industry.²⁰

Financial Planning, Budgeting, and Retirement (Miscellaneous Outcomes)

Eight studies evaluated various outcomes including budgeting, investments, approaches to financial planning, and retirement planning (Table 5). Adetayo et al. demonstrated that 68% of residents manage their own finances.¹⁴ Shappell et al. reported that residents often do not have time oriented financial goals which may contribute to the lack of financial planning during residency.²¹ One study reported that only 17.4% of

TABLE 1. Study Characteristics

Author et al.	Year	State/Country Where Study was Performed	Type of Study	Population (Speciality)	Total (n) %	Male (n) %	Female (n) %	Age	What Was Evaluated
Adetayo ¹⁴	2019	NY, CA, USA	Survey	Plastic surgery residents and graduate medical education alumni	84 plastic surgery residents and 521 alumni	residents: 57, 67.9% Alumni: 398, 77.3%	residents: 27, 32.1%; alumni: 117, 22.7%	18-49y for residents and alumni 30-50 +	financial education at various levels of training, fiscal goals, debt profile, spending and saving habits, investment management, financial and family obligations, estate planning, and retirement preparedness
Ahmad ¹²	2017	MO, AZ, USA	Survey	Internal medicine, pediatrics, emergency medicine, radiology, surgery, anesthesiology, psychiatry, pathology, other, or did not answer	422, 21%			28-33y	Personal finance status and investment knowledge
Bar-Or ¹⁵	2018	MD, USA	Survey	Cardiovascular disease, infectious disease, pulmonary and critical care fellows	21 36%	6, 29%	12, 57%	30-40y	Financial planning, financial literacy, workshops
Boehnke ¹⁹	2017	CO, USA	Survey	Radiology residents and fellows	7, 35%				Money basics, investing, borrowing, and protecting resources
Cawyer ²⁰	2022	AB, USA	Study	OB/GYN resident and fellows	35, 100%	8, 22.9%	27, 77.1%		Financial literacy curriculum, debt planning, investing and giving, budgeting, financial terms, workshops

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TABLE 1 (continued)

Author et al.	Year	State/Country Where Study was Performed	Type of Study	Population (Speciality)	Total (n) %	Male (n) %	Female (n) %	Age	What Was Evaluated
Cone ²³	2021	CT, MD, AZ, MA, TX, USA	Data analysis	Urology residents	705, 35%	508, 72%	196, 28%		Educational debt, factors influencing choice of practice, salary expectations male vs. female, preparedness to negotiate salary
Garrett ¹¹	2022	CA, USA	Study	Family medicine, internal medicine, General surgery, Orthopaedic surgery, and psychiatry residents	59, 100%	42, 71%	17, 29%	25-40y	Financing medical education, financial planning, financial literacy workshops
Gilbert ²⁴	2020	NJ, MA, NY, MN, TX, MI, IN, USA	Study	Medical students, residents, fellows, and physicians from different academic institutions	113, 100%	46, 41%	67, 64%		Workshop, financial literacy, budgets, resources, loan repayment
Huebinger ⁶	2021	TX, USA	Survey	Academic Emergency Medicine Residents and Attendings	44/60 residents (73.3%), 24/50 attendings (48%); 68 residents and attending total (61.8%)		9, 37.5% residents and 14, 31.8% attendings	27-29.5y	Value on personal finances, perceived financial literacy, testing of financial literacy skills, demographics
Jennings ⁷	2019	PA, USA	Survey	Orthopaedic Surgery Residents	85, 100%			25-35y	Resident debt, financial knowledge, willingness to participate in formal courses
Kovar ¹	2021	CO, WI, USA	Survey	General surgery residents at an academic medical institution	57, 60.6%	26, 45.6%	31, 54.5%	25-39y	Financial parameters, perceived stress, and the impact of finances on their career and family life

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TABLE 1 (continued)

Author et al.	Year	State/Country Where Study was Performed	Type of Study	Population (Speciality)	Total (n) %	Male (n) %	Female (n) %	Age	What Was Evaluated
McKillip ²²	2018	IL, USA	Survey	Internal medicine, pediatrics, emergency medicine, psychiatry, orthopaedics, obstetrics and gynecology, neurology, ENT	144,41.6%	65,45.1%	62,43.1%	Mean = 29.1y	Budgeting, loan repayment, disability insurance, life insurance, home buying, and retirement planning, assets, liabilities, insurance
Nagaraj ²⁵	2018	DC, USA	Survey	Family medicine residents	2052				Specific loan repayment strategies, residents participating in loan repayment
NG ¹⁷	2021	NY, MD, PA, USA	Survey	Internal medicine residents	pre-session 135, 49%; 130, 47% immediate post-session; 61, 22% year-end	77, 57%	58, 43%	25-40y	Financial planning actions such as saving emergency funds, creating a monthly budget, consolidating loans via the Public Service Loan Forgiveness Program, contributing to retirement savings, and participating in employer's retirement plans
Nowotny ²⁶	2022	ND, USA	Survey	medical students and residents	261, 57%				Financial behaviors, financial literacy, financial habits
Poon ²⁷	2022	Halifax, CAN	Survey	medical students and residents	179, 64.9%	70, 39.1%	107, 59.8%	23-39y	Financial literacy course, financial literacy, financial literacy curriculum

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TABLE 1 (continued)

Author et al.	Year	State/ Country Where Study was Performed	Type of Study	Population (Speciality)	Total (n) %	Male (n) %	Female (n) %	Age	What Was Evaluated
Shaffer ¹⁸	2017	CA, USA	Survey	Residents from internal medicine, anaesthesia, dermatology, emergency medicine, neurology, obstetrics and gynaecology, paediatrics, radiology, neurosurgery, ENT, plastic surgery	53, 88%				Workshop to educate residents on practice management skills and financial literacy, surveyed the attendees of their knowledge after the workshop
Shappell ²¹	2018	IL, USA	Qualitative approach using semi-structured interviews	Emergency medicine, internal medicine, and pediatrics	12, 100%	6, 50%	6, 50%		Daily finances, financial knowledge and experiences, approach to financial planning
Sharma ⁸	2020	MA, WA, NY, USA	Survey	dermatology residents	133, 31%	50, 37.6%	82, 61.7%	25-44y	Residents debt, levels of comfort with repaying student loans, negotiating salary, investing, tax planning, insurance
Tevis ⁹	2018	TX, WI, USA	Survey	All surgical residents at the University of Wisconsin (general surgery, ENT, neurosurgery, orthopaedic, plastic, urology, and vascular)	105, 80%	63, 60%	42, 40%		Resident debt, equity, cash flow, financial education, and fiscal parameters

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TABLE 1 (continued)

Author et al.	Year	State/ Country Where Study was Performed	Type of Study	Population (Speciality)	Total (n) %	Male (n) %	Female (n) %	Age	What Was Evaluated
Wang ¹⁶	2021	CA, USA	Survey	Psychiatry residents	196, 31.1%	93, 47.2%	103, 52.6%	88.3% <34y	Where financial knowledge was developed, formal education of financial literacy, financial skills acquired
Witek ¹⁰	2014	PA, USA	Survey	Radiation Oncology Residents	60, 23%				Current level of resident training, perceived readiness to handle future personal and professional decisions, and limitations to providing financial education
Wong ¹³	2018	PA, NY, KS, USA	Survey	IM and MP residents at the State University of New York, University of Pittsburgh, and the University of Kansas	184, 62%	102, 55%	82, 45%	25-40y	Levels of educational debt, positive financial planning behaviors, perception of finances and debt, and education about personal finance

TABLE 2. Education Curriculum/ Self Reporting

Author, Year	What Was Evaluated	Result
Adetayo ¹⁴ , 2019	Financial Education	49% first considered financial literacy a priority during residency 64% of current residents believe that the most appropriate time to receive this education is during residency.
Ahmad ¹² , 2017	48 item questionnaire that focused on personal finance and investment knowledge from already existing surveys from the Financial Industry Regulatory Authority	The mean quiz score of the financial literacy test was 52%. Some questions relating to basic investing principles had a relatively low proportion of correct responses, e.g., that no-load mutual funds carry no sales charges (13%) and that if interest rates rise, bond prices tend to fall (19.9%).
Bar-Or ¹⁵ , 2018	Fellows attended a live interactive course on financial education. At the end of the course, a post-course survey was distributed to determine if the course was beneficial	All who attended the course "strongly agreed" that it is important for graduate medical education programs to offer such financial literacy courses to their students.
Garrett ¹¹ , 2022	Survey measuring debt levels and financial wellness and literacy	A subset of residents believe that financial planning helped restore their wellbeing. The residents noted that given didactic time for financial education was crucial. Residents proposed that residency programs aid in stress mitigation and relief by providing the skills to manage debt and effectively plan their retirement. The survey responses are not percentages but common themes from residents.
Huebinger ⁶ , 2021	Five Point Likert Scale: Importance of financial knowledge / preparation and perceived level of comfort.	On a 5-point Likert scale (not at all important: very important): 1 Respondents felt that financial independence (4.7 ± 0.8) and their finances (4.7 ± 0.8) were important for their well-being. 2 Respondents valued being prepared for retirement (4.7 ± 0.9). 3 Regarding perceived financial literacy (very uncomfortable: very comfortable), respondents had the lowest comfort level with investing in the stock market (2.7 ± 1.5), applying for a mortgage (2.8 ± 1.6), and managing their retirement (3.0 ± 1.4). Respondents identified key deficiencies in financial education for residents and attendings, particularly retirement, insurance, and taxes.
Jennings ⁷ , 2019	Financial Literacy Skill Set Rating	71.8% rated their knowledge of finance, investing, and savings BELOW AVERAGE
Kovar ¹ , 2020	Self-reported financial literacy knowledge	The majority of surgery residents in our study self-reported having "very little" financial knowledge (42%, n = 24).
Nowotny ²⁶ , 2022	Interest in Financial Literacy Education	93% open to education on financial topics
Sharma ⁸ , 2020	Financial education interest	The financial areas residents were most interested in learning about included: (1) negotiating salary (88.7%) (2) investing (73.7%) (3) tax planning (66.9%) (4) purchasing insurance (63.9%) 95% of respondents would be interested in a financial education curriculum in residency.

(continued)

TABLE 2 (continued)

Author, Year	What Was Evaluated	Result
	Financial education knowledge	Almost all residents received little to no financial education in their medical school curricula, likely explaining why 66.9% of residents derive financial knowledge through personal research alone.
Tevis ⁹ , 2018	Need for Financial Education	79% felt strongly that financial literacy training is needed during residency
Wang ¹⁶ , 2021	Residents' confidence in financial literacy	Of the 14 core financial topics assessed: Residents felt most comfortable with the ability to budget on their future salary as an attending physician (84.2%) and their ability to budget on their current salary as a resident (78.1%). Residents felt least comfortable with estate planning (88.8%), asset protection (86.8%), and negotiating a salary with a future employer (78.6%).
Witek ¹⁰ , 2014	Resident financial preparedness and current literacy knowledge	75% of residents reported being unprepared to handle future financial decisions. 80% of residency director respondents believed that their residents were unprepared to handle personal and professional financial decisions that would arise after graduation.
Wong ¹³ , 2018	Financial Education During Residency	24% of respondents had not been ever been offered financial education 92% of respondents agreed personal finance should be taught during residency

TABLE 3. Resources to Obtain Knowledge

Author, Year	Resources
Adetayo ¹⁴ , 2019	54% reported they had received financial planning education during medical school. 44% of current residents report receiving financial planning education during residency 37% had financial management introduced to them through a family member 27% reported that financial education was through self-directed learning
Ahmad ¹² , 2017	46.7% had obtained professional financial advice in the previous 5 years. 57.8% receiving advice for free 42.2% paying for advice in various ways. 30.6% attended financial planning seminars at colleges.
Huebinger ⁶ , 2021	9.0% residents had formal financial education 70.5% residents self-learned.
Sharma ⁸ , 2020	Almost all residents received little to no financial education in their medical school curricula. 66.9% of residents derive financial knowledge through personal research alone. 5.3% had a prior curriculum 3.0% had education in medical school curriculum 0.8% had in residency curriculum
Wang ¹⁶ , 2021	24.1% have minimal knowledge on the topic The primary source of financial knowledge was from personal research (49.4%). Regarding formal education of finance during medical school, most residents received 0-5 h of education (92.3%). 93.4% of the residents were interested in having a financial curriculum incorporated into their residency training.
Witek ¹⁰ , 2014	36.7% of residents received financial literacy lectures, with the majority being senior residents (11.1% of PGY2, 45.4% of PGY3, 31.3% of PGY4, and 45.8% of PGY5).
Wong ¹³ , 2018	43% reported being the most financially knowledgeable in their household, 23% reported someone else being more knowledgeable, 15% no one is knowledgeable in their household. 61% sought financial advice through other colleagues or friends, 31% sought advice about savings/retirement, 28% about debt, 26% about insurance, 54% participated in financial education offered in college, medical school, or employment.

TABLE 4. Educational Interventions

Author, Year	Program	Program Description
Bar-Or ¹⁵ , 2018	Live interactive financial literacy course	<p>A pre-course survey was sent including questions addressing important financial literacy topics. A live interactive course was then held in 10 one-hour sessions over 2 weeks.</p> <p>The course topics included the value of money, basics of investing, managing debt, insurance, financial advisors and other various financial literacy topics.</p> <p>11 respondents reported that the course helped them make important financial decisions such as retirement planning, investing, insurance coverage, and debt management.</p>
Cawyer ²⁰ , 2022	Five-part personal financial literacy curriculum during an academic year	<p>Topics covered financial education and its relationship to personal well-being, overview of financial terms and principles, budgeting, debt planning, and investing and giving.</p> <p>There was a significant improvement in the median expanded well-being index score after exposure to the personal finance curriculum (2 vs. 1, $p \leq 0.05$).</p> <p>There was no significant difference in the median financial stress scale survey before and after the personal finance curriculum (22 vs. 20, $p = 0.06$; Table 3).</p> <p>Residents and fellows expressed a better understanding of financial planning topics (4 vs. 5, $p = 0.007$) and the financial industry (3 vs. 5, $p \leq 0.001$). (from the manuscript)</p>
Boehnke ¹⁹ , 2018	Targeted Financial Education Training	<p>Pre- and posttest pertaining to financial literacy with domain-specific content added including discussion of student loan forgiveness programs such as Public Service Loan Forgiveness.</p> <p>To test retention of knowledge, administered a 6-month follow-up test using the same list of questions.</p> <p>There were 8 knowledge-based questions assessed on both the pre- and posttests, which first received a score $60.0\% \pm 25.3\%$ on the pretest and $84.8\% \pm 15.8\%$ on the posttest. A 6-month follow-up test was made available through an online survey using the same 8 knowledge-based questions. A total of 7 of the original 20 respondents responded to the survey and answered $76.8\% \pm 20.1\%$ of the questions correctly.</p> <p>13 of 20 respondents answered that they “definitely will” and 5 of 20 respondents answered that they “probably will” apply strategies and knowledge acquired during the lecture to their own finances.</p>
Gilbert ²⁴ , 2020	Workshop focused on financial resources, loan repayment, student debt, and the importance of budgets.	<p>The workshop was divided into 2 components, a PowerPoint presentation and an interactive worksheet. Four presenters facilitated the workshop. The workshop suggested time was 75 minutes and included the following :</p> <p>Preworkshop evaluation - 5 minutes Didactic portion (slides 1-47) - 40 minutes Discussion of budget worksheet (slide 48) - 10 minutes Fill-in worksheet - 15 minutes Question and answer period and completion of postworkshop evaluation - 5 minutes</p> <p>A paired sample t test ($p < 0.05$) was used to compare pre- and postworkshop survey responses for the 3 repeated questions that were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Participants exhibited a statistically significant decrease in agreement with the statement “Student debt will hinder my ability to pursue an academic medicine career” (pre $M = 2.84$ vs. post $M = 1.88$, $p < 0.001$), and a statistically significant increase in agreement with the statements “Academic medicine is a financially viable career choice for me” (pre $M = 3.39$ vs. post $M = 4.11$, $p < 0.001$), and “Academic medicine would provide a comfortable salary” (pre $M = 3.44$ vs. post</p>

(continued)

TABLE 4 (continued)

Author, Year	Program	Program Description
NG ¹⁷ , 2021	Financial Wellness Program	<p>M = 4.07, p < 0.001).</p> <p>For all 5 objectives, over 95% of attendees either agreed or strongly agreed that the objectives were met.</p> <p>Institutions held at least one 90-minute financial planning session with biannual financial wellness checkins. Participants were invited to complete a pre-session, an immediate post-session, and a year-end survey to assess changes in financial planning behaviors</p> <p>93% rated the sessions as good or excellent and 96% (125/130) found them helpful.</p> <p>Nearly all residents (98%, 120/123) recommended continuing the program in the future.</p>
Poon ²⁷ , 2022	Financial Literacy Course	<p>Instructors taught with video and displayed content material. The 6 week course ran for 1 hour each week and covered 6 different weekly topics: personal finance, investing, physician payment models, real estate and mortgage, income and tax, and specialty salaries and career choice</p> <p>Participants who completed the course improved their financial literacy score by 10.10/46.00 ± 5.12 (n = 93, p < 0.001).</p> <p>Self-assessment of financial literacy was positively correlated with financial literacy exam scores (r = 0.366, p < 0.001)</p>
Shaffer ¹⁸ , 2017	Practice Management Curriculum	<p>Practice management curriculum targeting senior residents and fellows through voluntary workshops.</p> <p>Topics discussed in the workshops included debt repayment, billing compliance, medical malpractice, contract negotiations, and lifestyle and financial management.</p> <p>Outcomes measured: Resident self-confidence through voluntary survey responses before and after attendance at a workshop, scored using a Likert scale.</p> <p>An 88 percent completion rate: 53 attendees, 49 returned pre-workshop surveys and 47 returned post-workshop surveys.</p> <p>Confidence in contract negotiations increased from 18% before the workshop to 89% after the workshop with a statistically significant increase in mean self-confidence.</p> <p>Residents evaluated the curriculum positively: residents strongly agreed that presentations were helpful, useful and relevant.</p> <p>The curriculum to educate the residents and fellows in the voluntary workshops included financial related topics such as debt repayment, billing compliance, medical malpractice, contract negotiations, and lifestyle and financial management.</p>

residents had worked with a financial advisor and 45.7% of residents voiced that they did not work with an advisor due to the cost.²² Wong et al. reported that 40% of residents in their study were dissatisfied with their financial situation.¹³ Kovar et al. reported that the majority of survey respondents did not have enough savings to cover 3 months of living expenses in case of emergencies and that this contributed to higher levels of stress.¹ Lastly, 1 study evaluated these differences based on gender and reported that although both women and men reported uncertainty with business skills, 73% of women felt “unprepared” to handle the business of practice including salary negotiation, compared to 53% of men (p < 0.0001).²³

DISCUSSION

Medical student loan debt for recent medical school graduates poses a significant financial burden during residency training which has been associated with higher rates of physician burnout and attrition.^{1,3} Therefore, the role of financial expectations and support, as well as the various resources utilized in financial management during residency is important to understand in order to provide trainees with the necessary skillset for managing their finances after completion of their training. This systematic review demonstrates that the majority of residents feel underprepared when managing their finances and reports that residents would prefer financial

TABLE 5. Miscellaneous Outcomes

Author, Year	What Was Evaluated	Results
Adetayo ¹⁴ , 2019	Investments/Retirement Planning	51% of residents manage their own investments 68% of residents manage their own finances The majority of trainees contribute to a savings account (63% of residents) and a retirement account (54% of residents). 41% contributed to a retirement fund offered by their residency. 33% state their residency does not offer retirement funds. 60% of alumni have a financial advisor
Ahmad ¹² , 2017	Satisfaction and Investment Risk Perceptions	Mean willingness to take investment risk was 5.3 (SD = 2.3), with a bell-shaped distribution, mean satisfaction with their personal financial condition was 4.8 (SD = 2.5). Trainees with any debt (student loan, mortgage, or credit card) reported lower satisfaction than trainees without debt (4.4 vs. 6.2, F (1419) = 41.57, p < 0.001). Higher knowledge scores on the quiz were weakly correlated with greater satisfaction of personal financial condition (r = 0.226, F(20,401) = 2.11, p < 0.001).
Cone ²³ , 2021	Financial Preparation Based on Gender	Both women and men reported uncertainty with business skills. 73% of women felt "unprepared" to handle the business of practice including salary negotiation, compared to 53% of men (p < 0.0001).
Jennings ⁷ , 2019	Budget Retirement Planning	30.9% create monthly budget 47.6% do not create a budget 48.2% have not saved any money for retirement 34.9% stated this was due to lack of money for savings due to expenses 50.6% knew if institution offered a retirement account 29.4% stated institution had no retirement account 35.3% stated there was a program offered for advice on savings and retirement planning
Kovar ¹ , 2020	Perceived Stress, career, and relationship	The majority of trainees reported moderate (n 1/4 29) or high (n 1/4 4) stress, and only 42.1% (n 1/4 24) reported low stress. Perceived stress score was significantly associated with the trainee's response to how finances impacted their future career choice. However, the perceived stress score was not associated with objective measures of financial wellness, such as the overall level of medical school debt, savings, or having an emergency fund.
McKillip ²² , 2018	Financial advising	Few respondents (25, 17.4%) reported having a financial advisor. The most common reasons cited for not having a financial advisor were cost (48, 45.7%), not knowing how to find one (34, 32.4%), and denying the need for one (31, 29.5%) (answers in this segment were non-exclusive). Eighteen respondents (17.1%) indicated they would not trust a financial advisor.
Shappell ²¹ , 2018	Barriers to Financial Planning	Many residents expressed concerns about the uncertainty surrounding resources to assist in taking financial actions. Difficulty in "route monitoring" in financial planning is the lack of normalization. There were a limited number of comments regarding financial goals or "destinations." Some residents expressed vague intentions to buy a house, pay off loans, or contribute to college funds for children; however, no residents expressed specific, time-oriented financial goals that they aimed to achieve.
Wong ¹³ , 2018	Resident perceptions of Financial Situation	46% reported satisfaction and 34% reported dissatisfaction with their current financial situation A total of 40% agreed or strongly agreed they were concerned with their financial situation, 24% disagreed, and 19% strongly disagreed.

education incorporated into their residency training curriculum.

The literature demonstrates that the resident respondents did not feel confident when handling future financial

decisions after the completion of their residency training.⁶⁻¹⁰ Key deficiencies that were identified included knowledge about investing, retirement, negotiating salaries, applying for a mortgage, purchasing insurance, and

tax planning.^{6,8} Witek et al. reported that 80% of residency program directors believed that their residents were unprepared to handle personal and professional financial decisions that would arise after graduation.¹⁰ In addition, trainees often reported low levels of satisfaction with their financial status and expressed that their current financial wellness impacted both their career choices and relationships.^{1,12} The lack of financial preparedness has also been demonstrated to increase the levels of stress and anxiety in the resident population.³

Our study demonstrated that resident respondents highly valued financial knowledge and education and that up to 95% of residents agreed that personal finance should be taught during residency training.^{1,13,14} Incorporation of formal financial education during residency varied from 0% to 36.7%.^{6,10,16} Although 1 study demonstrated that financial education was offered during medical school, most residents sought education through personal research, through a family member, or through attending outside financial planning seminars or courses.^{6,12,14,16} This study underscores that residency education has largely neglected personal finance and that residents often rely on outside sources for education. While 1 study demonstrated that 68% of residents attempt to manage their own debt, the high costs of working with a financial advisor often limits resources for residents when seeking financial guidance.²² Therefore, a financial education curriculum incorporated during residency training can result in improved financial literacy affording physicians the opportunity to better manage their debt, understand details of investment options and empower them to be confident when making decisions regarding future finances.

The high level of interest in obtaining further financial knowledge with the low levels of financial preparedness reported in the included studies demonstrates that the current educational resources have not met this resident need. Standardized financial education programs during residency training have not yet been established. Coursework focusing on improving financial literacy can range from a basic lecture series to multiple session workshops on a semi-annual or annual basis. Witek et al. found that 90% of program directors reported that they could adjust residents' curricula to include lectures on financial topics.¹⁰ A survey study by Shappell et al. reported the following 3 high-yield topics for inclusion into a curriculum: (1) how to set financial goals and monitor progress; (2) how to seek advice; and (3) incorporating the 5 target areas of education debt, retirement planning, investing, disability insurance, and life insurance.²¹ Ahmad et al. underscored these recommendations instructing that every trainee receive education on the following: (1) how to make a monthly budget, (2) manage debt/loan and credit scores/reports, (3) savings and

retirement planning options, (4) life, health, and disability insurance, and (5) estate planning strategies.¹² Residency programs may also consider providing residents with one-on-one financial counseling that can be utilized as a resource throughout their residency training. Studies also have suggested benefits of beginning training early even prior to residency with lectures incorporated during medical school training.¹⁴

Improving the financial preparedness of residents during their training can result in long term improvements in personal and professional financial well-being. Recommendations include a 5 year curriculum for residency which begins in year one of training progressing to more topic specific education by year 5 of training (Table 6). Year 1 should aim to focus on general information regarding financial planning, how to set financial goals, and how to seek financial advice. Year 2 should incorporate education on creating a budget and managing finances. Year 3 should provide residents with information regarding debt management and loan repayment strategies. Year 4 should introduce topics of savings and retirement planning options and life, health, and disability insurance options. Lastly, in year 5, education should focus on the transition from the position of trainee to attending physician with guidance on contract negotiations, billing compliance, medical malpractice, and general lifestyle and financial management. The literature has demonstrated that workshops may be beneficial when incorporating a financial education curriculum. Gilbert et al. utilized a 2 component workshop comprised of power point presentations and interactive worksheets. The workshop

TABLE 6. Sample Financial Education Curriculum Model

Training Year	Education Topics
PGY-1	Financial Planning Setting Financial Goals How to See Financial Advice
PGY-2	Creating a Budget Managing Finances
PGY-3	Debt Management Loan Repayment Financial Pro's and Cons of Private Practice and Academic Careers
PGY-4	Savings and Retirement Planning Life, Health, Disability Insurance Options Setting up a Trust
PGY-5	Entering Practice Contract Negotiations Billing Compliance Medical Malpractice Lifestyle/Financial Management Real Estate Planning

suggested time was 75 minutes total and included a pre workshop evaluation, didactic portion, discussion portion, a fill-in worksheet, and a post workshop evaluation.²⁴

Obtaining the appropriate resources and educators can be challenging when attempting to introduce a financial literacy program into an educational curriculum. While many physicians have an understanding of finance through their own experiences, faculty should be comprised of a diverse group of individuals including those with either a Masters in Finance or a Master's in Business, as well as those with a financial advising and student loan background. There are many resources provided by medical organizations online including the Association of American Medical College (AAMC) as well as through loan services including the Federal Student Aid (FSA) which offer various educational videos and handouts on a wide variety of topics for managing finance. In addition, many institutions have a professional development and financial aid office that can offer either information or formal training if sought out. Unfortunately, these types of resources are not standardized across institutions and therefore, access may be limited. Of note, this information sharing and education should be provided without expectation of a purchase or sign up and should be accessible by residents during training.

This systematic review is limited due to the variability within the included survey studies with many studies surveying respondents from across various institutions, and few within a limited number of institutions. In addition, all medical and surgical specialties were included and therefore, outcomes based on specialty could not be evaluated. This study also was limited to resident respondents, and therefore inclusion of medical students and attending physicians may also provide a broader understanding of financial literacy at the various stages of a physician's career.

CONCLUSION

This study demonstrates that the majority of residents feel underprepared when navigating their personal finances and lack confidence when making future financial decisions. Residencies should incorporate financial education within their curriculums in order to provide residents with resources that can help alleviate their financial burden. This curriculum should be evaluated for effectiveness in increasing residents' understanding of financial management. Educating residents can help mitigate financial stress which can improve physician well-being, reduce attrition, and result in better patient care.

FUNDING DISCLOSURE

The Case for Needed Financial Literacy Curriculum During Resident Education.

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