

The impact of the Robert Wood Johnson Foundation Future of Nursing Scholars Program on scholars, schools and nursing science

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ABSTRACT

Background: The Future of Nursing Scholars program prepared a cadre of PhD prepared nurses for long-term careers advancing science and discovery, strengthening nursing education, and leading transformational change in health care.

Purpose: The purpose of this manuscript was to describe the program's impact on Scholars' outcomes, nursing schools, and perceived impact on nursing science.

Methods: An independent program evaluation was conducted, including interviewing representatives from schools and reviewing Scholars' Curriculum Vitae.

Findings: Two hundred one scholars were supported across 45 institutions. To date, 181 scholars graduated within 3.1 years, on average. Most graduates reported holding appointments in academic institutions. School representatives believed the program supported rapid entry into the field, longer research trajectories, and will improve the nursing faculty pipeline.

Discussion: The program achieved its goal of developing cohorts of PhD prepared nurses poised for long-term careers. It provided "proof of concept" on high-quality accelerated PhD education for students well matched with mentors, and elevated the national conversation on PhD education.

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Introduction

Building the capacity of the nursing workforce to meet the health needs of the United States' population has long been a priority of federal agencies, health systems, philanthropy, and academic and clinical

stakeholders, especially over the past four decades. Increasing workforce capacity remains an omnipresent concern given the loss of over 100,000 nurses from the clinical labor market in the last year alone and the continued loss of nursing faculty (Buerhaus, Staiger, Auerbach, Yates, & Donelan, 2022; National Academies of Sciences, 2021). Up to a third of current faculty in

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American nursing schools are estimated to retire by 2025, of which 44% hold research-focused doctorates (Fang & Kesten, 2017). These compounding concerns, the loss of nurses in clinical practice setting and impeding retirement of many nurse educators, illustrate the need for innovative approaches to recruiting and retaining future nurse scholars.

The number of individuals enrolling in nursing PhD programs has remained stagnant and not kept pace with faculty retirements, thus creating concerns by schools of nursing on how to address the nursing workforce shortage (Fairman et al., 2021). The current and projected nursing faculty shortage, in combination with the slowing of new trainees entering the PhD nursing pipeline, will have serious consequences. Not only will the faculty shortage affect the nation's educational capacity to prepare new nurses at all educational levels, but it will also challenge our capacity to grow the field of nursing science at a critical time of increasingly complex demands facing society.

The Robert Wood Johnson Foundation's *Future of Nursing Scholars* program was a \$20 million dollar initiative, with an additional \$3 million from other funders (Ladden et al., 2022), launched in response to the Institute of Medicine, now the National Academies of Sciences, Engineering, and Medicine, recommendation of doubling the number of nurses with a doctorate by 2020 (Institute of Medicine, 2011). The Robert Wood Johnson Foundation's *Future of Nursing Scholars* program also addressed the challenge presented by the 2010 American Association of Colleges of Nursing's (AACN) position statement to explore innovations in PhD nursing education to meet that goal (American Association of Colleges of Nursing, 2010). The AACN position statement called for innovations in PhD nursing education to address the need for new PhD prepared nurses to be skilled in leadership and interdisciplinary science and communication. Jointly, these national reports spurred changes across the nursing educational landscape, including the commencement of the *Future of Nursing Scholars* program to support the development of a cadre of PhD prepared nurses.

While the Institute of Medicine's recommendation of doubling the number of nurses with doctoral degrees by 2020 was achieved, only 14% of doctoral level nurses are PhD prepared, while 86% are Doctor of Nursing Practice-prepared (DNP) (Campaign for Action, 2021). Between 2010 and 2019, the number of DNP graduates increased by 500% while the number of PhD graduates had only grown by approximately 50% (American Association of Colleges of Nursing, 2020). This is of concern given that PhD prepared nurses are highly sought as faculty and are essential to the development of research needed to support evidence-based practice and add to the body of nursing knowledge (National Academies of Sciences, 2021). Collectively, these reports underscore the urgent need for more PhD prepared nurse scholars who have been

rigorously prepared to conduct research, educate future nurses, and lead interdisciplinary teams.

The principal goal of the *Future of Nursing Scholars* program was to prepare a large cadre of PhD prepared nurses from diverse backgrounds who would pursue long-term leadership careers focused on advancing science and discovery while simultaneously strengthening nursing education, and leading transformational change in both the nursing profession and health care (Kelley et al., 2023). The *Future of Nursing Scholars* program also sought to shift the paradigm in PhD nursing education through an accelerated, 3-year PhD education model and providing leadership and transdisciplinary skills deemed essential to develop this next generation of nurse leaders. Starting in the 2014 academic year, the *Future of Nursing Scholars* program provided scholarships, intensive mentoring, leadership development, and postdoctoral research support to five cohorts of nurse scholars. Each nurse scholar received financial support over 3 years for tuition, living expenses, and research activities, and had access to a national network of colleagues and peers (Kelley et al., 2023). Scholars who planned to pursue a faculty position after graduation were also eligible to apply for a competitive 1-year, \$50,000 postdoctoral award.

A key program goal was to graduate approximately 200 new PhD prepared nurse scientists. In addition to graduating PhD prepared nurse scientists and educators, the program sought to demonstrate that an accelerated PhD trajectory could be accomplished successfully when students and mentors were deliberately selected and supported by the school. The program aimed to support graduates in pursuing productive scholarly careers, specifically in academic settings, and to pursue leadership opportunities. To understand the impact of the program on scholars and participating schools, the *Future of Nursing Scholars* program conducted an independent program evaluation. The objective of the evaluation was to describe the impact the *Future of Nursing Scholars* program had on Scholars' career and leadership outcomes, participating schools of nursing, and the perceived impact of the program on the field of nursing science, more generally.

Methods

Design

This cross sectional analysis examines both data from Scholars' Curriculum Vitae (CV) and from interviews with representatives at schools receiving funding from the *Future of Nursing Scholars* program. External independent evaluators from White Mountain Research Associates, LLC interviewed representatives from participating schools and conducted a systematic review of Scholars' CV for reported postgraduate professional achievements, supplemented by online searches for

updated information. Independent reviews of published and internal documents provided by *Future of Nursing Scholars* National Program Office (e.g., grantee applications, calls for proposals, annual narrative reports) also contributed to the overall findings. System-wide impacts of the *Future of Nursing Scholars* program on participating Scholars and schools (e.g., program sustainability, leadership development, innovations to curricula as a result of the *Future of Nursing Scholars* program, curricular changes and innovations offered to both *Future of Nursing Scholars* and their PhD cohort colleagues, challenges to both *Future of Nursing Scholars* and other PhD students, and issues around funding and funding partnerships) were assessed qualitatively through interviews with at least one representative from each of the participating schools who was familiar with the *Future of Nursing Scholars* program.

Sample and Setting

Between 2014 and 2018, across five cohorts, a total of 218 scholars enrolled in a nursing PhD program supported by a *Future of Nursing Scholars* program award at one of 45 selected schools of nursing within the United States. School applicant processes have been outlined in an accompanying manuscript in this issue of *Nursing Outlook* by Kelley et al. (2023). One scholar died prior to completing their degree and 16 scholars withdrew prior to graduation due to illness or other life circumstances. This left 201 scholars eligible for inclusion in estimating graduation and career related outcomes component of this analysis. The *Future of Nursing Scholars* National Program Office requested an updated CV from all Scholars between September 2020 and March 2021 for analysis by the external evaluators. A total of 179 CVs were received from the 201 scholars who either graduated or were still actively enrolled in the program for an 89% response rate.

School-based data were obtained through interviews with faculty engaged with the *Future of Nursing Scholars* program at their institution to understand the program's impact on participating schools and the field of nursing science. In some cases, more than one faculty member participated in an interview giving the added benefit of multiple perspectives of and experiences with the program. In total, 60 faculty members from all 45 schools (100% response rate) participated in the interviews. Prior to the interview, a brief, pre-interview questionnaire addressing student enrollment, PhD program curriculum offerings (e.g., full-time vs. part-time), and average time to graduation was sent to one representative per school. Forty representatives returned the questionnaire for an 89% pre-interview response rate.

Procedures

Postgraduate scholarship activities, including publications, presentations, journal reviews, and awarded

grants were collected through CV review and any updated information available online. Activities were considered "postgraduate" starting 1 year after the reported graduation date; activities completed in that time frame were considered to be more indicative of independent professional activities following graduation. Therefore, only scholars who graduated between 2017 and 2020 (i.e., 1–4 years post-graduation) were included in analyses of career related outcomes and scholarly activities. Scholars who graduated in 2021 or were still enrolled in their PhD program were not included in these analyses, but rather only in the graduation related outcomes. Scholarly activities are based on the CV's provided by 129 scholars who graduated between 2017 and 2020. Between October and December 2020, 60-min telephone interviews were conducted with representatives from each school participating in the *Future of Nursing Scholars* program. School representatives were interviewed individually by an independent evaluator.

Analyses

Descriptive statistics were utilized to examine the sample's overall characteristics, graduation outcomes, and career related data. Comparative statistics, specifically z tests and χ^2 tests, were utilized to examine trends over time and across cohorts. All analyses were conducted in Excel (Microsoft, Redmond, WA). Interview audio was recorded and then transcribed. Thematic synthesis was accomplished in several stages. Initially, the interviewer grouped verbatim responses across all interviews into related, descriptive themes. A second coder reviewed the response assignment and descriptive themes. In the final stage, the coders met and developed higher-level, overarching constructs from the descriptive theme clusters. Agreement on verbatim response assignment, descriptive themes and higher-level constructs was achieved through consensus. Individual, blinded comments reflecting the resulting descriptive themes were included.

Findings

The following sections describe the impact of the *Future of Nursing Scholars* program on the scholar, the school, and nursing science. Scholar outcomes included time to graduation, comparison of employment settings and leadership activities before and after the program, and scholarly productivity after graduation. School outcomes included strategies used to support an accelerated PhD timeline, and adjustments to the curriculum made as a result of their experience with the *Future of Nursing Scholars* program.

Impact of the Future of Nursing Scholars program on the Scholars

Time to Graduation

As of May 1, 2022, 181 (90%), of the 201 scholars who enrolled in the PhD program had defended their dissertations, according to records maintained by the national program office. Among those who defended, 75%, graduated within the allotted timeline, which was extended from 3 to 4 years for those graduating during the ongoing COVID-19 pandemic. On average, scholars graduated 3.1 years after enrolling, with graduation timelines ranging from 2.5 to 5.0 years.

Of the initial 218 scholars, 46 (21%) enrolled in the program with a Bachelor's degree as their highest degree, while 172 scholars (79%) enrolled with a Masters, DNP, or PhD in another discipline as their highest degree, as determined by the review of scholar CVs. Of the 218 scholars initially enrolled, 16 scholars withdrew from their PhD program resulting in an attrition of 7%. There was no significant difference in the proportion of scholars entering a PhD program with a Bachelor's degree and successfully graduating compared to scholars entering with at least a Master's degree ($z = 0.46, p = .65$). However, a higher proportion of scholars enrolling in a PhD program with at least a Master's degree graduated within 3 years, 95%, compared to those with a bachelor's degree, 75% ($z = 3.51, p < .001$).

Employment Settings

Among the 165 scholars who had graduated a year or more ago at the time of this analysis, 136 provided complete employment history and therefore it was possible to elucidate trends in employment settings following graduation (Figure 1). Prior to enrollment in their PhD programs, most Scholars were employed in health care settings, half of which were employed in a major hospital or health system settings, and over a third reported holding a position providing direct patient care. As of September 2021, after completing their PhD, the majority of the *Future of Nursing Scholars* graduates with complete employment data are now employed in a university or college, either as a post-doctoral fellow or in an academic role (Table 1). The movement into academic settings from pre-enrollment to post-graduation among scholars was significant ($\chi^2 = 34.24, p < .001$). At the time of analysis, a third of graduates held an academic appointment (e.g., faculty or instructor roles) and a third were postdoctoral fellows (Table 1). The percent of graduates working in government-affiliated settings increased with many pursuing a careers across a variety of government settings (e.g., Veteran's Administration, National Cancer Institute, National Institutes of Health, Centers for Disease Control and Prevention, US Legislature, and health departments). As of September 2021, 20% of *Future of Nursing Scholars* graduates were employed in health care settings (as revealed by the submitted scholar CVs).

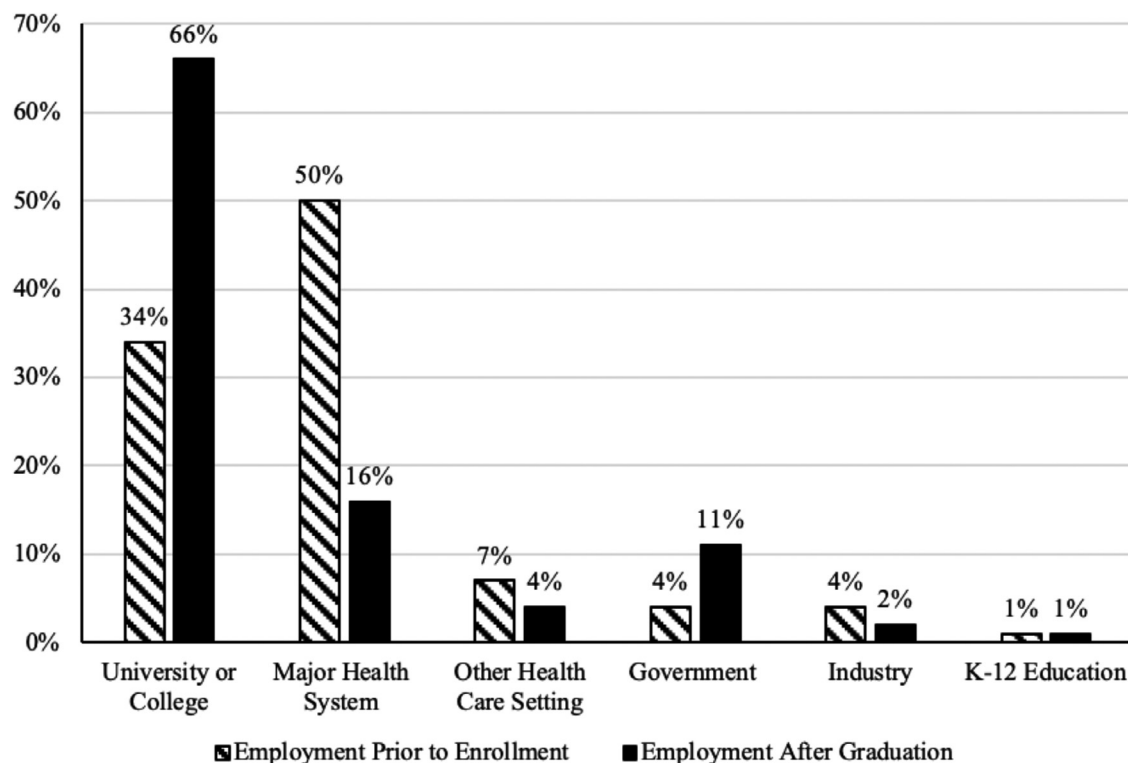


Figure 1 – Proportion of Future of Nursing Scholars by employment setting prior to and after graduating (N = 136).

Table 1 – Change in Employment and Leadership Activities Prior to and After Graduating From the Future of Nursing Scholars Program (N = 136 Scholars With Employment Outcomes >1 Year Since Graduating)

	Prior To Graduation, %	After Graduation, %	p
Employment Setting and Role			<.001
Providing Clinical Services or Direct Care	36%	6%	
Academic Appointment	20%	32%	
Postdoctoral Fellow	0%	32%	
Manager of Programs or Research	20%	8%	
Administrator in Health care Setting	5%	5%	
Business Owner or Executive	1%	3%	
Other	1%	1%	
Unknown or did not disclose	11%	10%	
Policy or Government	0%	3%	
Student	6%	0%	
Engaged in post-secondary instruction activities	24%	39%	.007
Engagement in research activities	10%	68%	<.001
Engagement in leadership activities	26%	56%	.002

Increases in employment in academic settings may be accounted for, in part, by the numbers of scholars taking postdoctoral positions that are located in these settings. Of the 183 graduates, over a third completed or are currently enrolled in a postdoctoral position. Given the increased numbers of *Future of Nursing Scholars* graduates in academic positions, it is not surprising that there was also a significant increase in scholars engaged in post-secondary instruction activities as part of their job, regardless of setting ($\chi^2 = 7.22$, $p = .007$). Engagement in research activities also significantly increased from pre-enrollment employment to post-graduation ($\chi^2 = 70.58$, $p < .001$).

Leadership Activities

The *Future of Nursing Scholars* program focused on increasing the number of PhD prepared nurses who are primed for long term leadership roles. The program provided a robust array of leadership development activities for scholars during their 3 years in the program (Kelley et al., 2023). Scholars' leadership activities prior to and after they completed the program were assessed using scholars' reports of their engagement in one or more of the following activities: (1) being an owner or CEO of a business enterprise; (2) informing health policy; (3) oversight of program development; (4) collaboration with groups and establishing partnerships; (5) serving in a management or administrative role; or (6) serving in an advisory capacity (e.g., legislative advisor, advisory committees or boards, editorial boards, service committees). After completing the program, the number of Scholars serving in an advisory or leadership capacity increased 30 percentage points to 56% post-graduation ($\chi^2 = 9.49$, $p = .002$). Over one-quarter of the graduates reported mentoring students, either graduate or undergraduate, as part of their current employment responsibilities and 15% specifically reported working with PhD students. Other forms of leadership reported from graduates included serving in managerial and administration roles, including CEO of an organization.

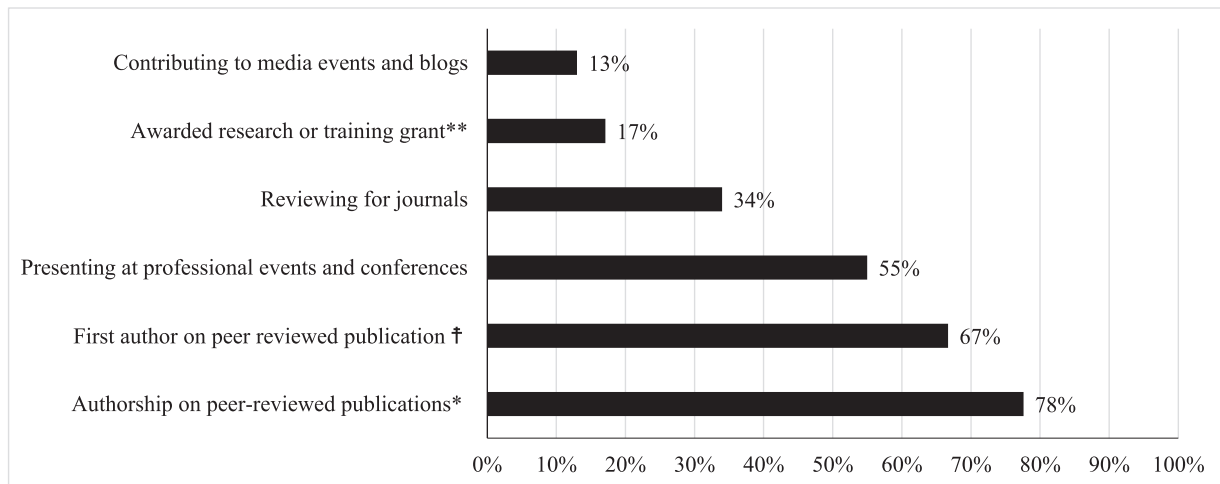
Scholarly Productivity

Analyses of all 165 Scholars' CV data were used to describe scholarly productivity after graduation (Figure 2). Three of four scholars reported authorship on peer-reviewed publications with an average of 3.5 publications per scholar. Further, two thirds of scholars had first-authorship publications, with an average of 1.8 publications as first author per scholar. A total of 36 research and training grants were awarded to scholars. Overall, half of scholars reported presenting at professional events and a substantial proportion reported contributing to media events and blogs. Over one third of graduates, reported reviewing for journals.

Impact of the Future of Nursing Scholars Program on the School

The PhD Program Curriculum

The *Future of Nursing Scholars* program selected the 45 schools based on their agreement to facilitate the Scholars' completion of the PhD in 3 years. Prior to the *Future of Nursing Scholars* program, these schools reported an average of 4.4 years from entry to graduation (range 3–7 years). Faculty from 31 of the 45 schools (69%) reported that, prior to the program, it was possible to complete their PhD curriculum full time within 3 years. Curricula data from individual school applications were analyzed as part of this special issue in *Nursing Outlook* and reflect these faculty reports (Giordano et al., 2023). Many of these schools had already revised their curriculum as a result of the 2011 *Future of Nursing* report, while others were in the process of curriculum revision just prior to the *Future of Nursing Scholars* program announcement. Over half of the schools participating in the *Future of Nursing Scholars* program reported that while they may have had a 3 year program, enrollment was higher in the traditional 4 year program. However, faculty reported that those enrolled in the 3 year program were more



** A total of 36 research and training grants were awarded to Scholars

* On average each scholar was an author on 3.5 publications

† On average each scholar was first author on 1.8 publications

Figure 2 – Proportion of Scholars engaging in scholarly activities among graduates of the Future of Nursing Scholars Program (N = 165 Scholars with scholarly outcomes > 1 year since graduating)

likely to finish on-time as compared to those students enrolled in a traditional program.

The schools participating in the *Future of Nursing Scholars* program utilized a variety of strategies to accommodate the accelerated (3 year) graduation timetable. The most common strategies included making programmatic changes to the curriculum, carefully selecting the prospective scholar based on specific criteria, strategic selection of the dissertation topic, and deliberately assigning mentors. Most schools implemented several of these strategies, as changes in one area often necessitated changes in another.

Sixty percent of the schools (27/45 schools) made programmatic changes, either accelerating changes they were already making or completely changing their curriculum to accommodate the 3 year requirement. This involved re-sequencing coursework, reducing requirements, and individualizing the scholar's program of study. Faculty from 12 of 45 schools (27%) reported that the school moved to 12 month curriculum, either adding summer courses or requiring the Scholar to enroll in summer coursework already offered. The faculty felt that this was the only way to successfully accommodate a 3 year PhD trajectory. In addition to adding summer coursework, fourteen schools (31%) shifted the timing of requirements, such as requiring preliminary exams earlier in the program and scheduling the dissertation writing course in the first year.

Faculty from 31 schools (86%) reported that many of the programmatic changes made during their participation in the *Future of Nursing Scholars* program will continue after the *Future of Nursing Scholars* program is over. The majority of these schools have incorporated *Future of Nursing Scholars* program elements, primarily the passport webinars and summer institutes into their programs, which are discussed further in this special issue of *Nursing Outlook* by Kelley et al. (2023).

For example, making programs more interactive and conducive for idea exchange, adding content on writing, presentation skills, health policy, secondary data analysis and using big data, and leadership development and career planning. The schools have also incorporated lessons learned about Scholar selection and mentorship.

Type of Dissertation and Mentor Selection

Another commonly mentioned strategy to accommodate the 3 year graduation requirement was establishing clear benchmarks early in the process and sticking to them. Fifty-eight percent of the interviewees, from 26 schools, reported that decisions around timing of courses and dissertation topics and committees were made when the scholar entered the program. Scholars knew the expectations, and these were monitored closely through regular meetings with mentors and dissertation committees. Faculty were generally in agreement that it is not the coursework that slows the timeline, rather the dissertation work. Issues that arise during Institutional Review Board (IRB) review or students becoming interested in another topic area entirely as they progress in their coursework can slow the dissertation process considerably.

Almost half of the schools encouraged Scholars to choose a dissertation topic that could be accomplished within the third year of study. Many Scholars became embedded in their mentor's research, choosing to learn about and utilize secondary data analysis of an existing data set. Some schools had already been offering this skill and option for PhD students and had developed an elective course on secondary data analysis. Several faculty expressed the view that the type of dissertation research was not a determining factor in the graduate's future success because the dissertation is the just the beginning of a research career.

Another strategy related to the type of dissertation required – the three manuscript option vs. the traditional five chapter dissertation. Faculty reaction on each of these was mixed. They believed that while students are often in a better career position having already published manuscripts by graduation, it may actually take longer to develop three publishable manuscripts than five chapters for the traditional dissertation.

Faculty acknowledged the importance of good mentoring. The *Future of Nursing Scholars* program required each Scholar to have an interdisciplinary mentor team that included a senior nurse researcher and a mentor outside of nursing who would support the Scholar's research and also provide a broader perspective. Schools were split on the timing of mentor selection, with about half of the schools stressing that identifying the appropriate mentor and committee early, such as during the application process, was key to an accelerated trajectory. While other schools advocated waiting until the Scholar's first semester of study.

Faculty Perspectives on the Impact of the Future of Nursing Scholars Leadership Development Activities

A core component of the *Future of Nursing Scholars* program was the leadership development activities offered throughout the 3 years of the program. As described by Kelley and colleagues in this issue, these included an introductory Boot Camp, two Summer Institutes in which Scholars and their mentors participated in presenting their dissertation research with feedback from other Scholars and mentors, webinars, and regular calls with the program office and *Future of Nursing Scholars'* National Advisory Committee leaders. More than half (58%) of the primary mentors that attended the Summer Institutes with their Scholars reported that the networking opportunities with Scholars and faculty from other universities helped them bring new ideas onto their own schools and programs.

Faculty also noted that the Scholars found the Summer Institutes inspiring, offering new perspectives and different ways of thinking -especially noting the role of the doctorally prepared nurse as a leader. The exposure to other Scholars and faculty and the feedback received when they presented their research gave added credibility to the feedback they received from their own mentors and faculty. The Scholars realized they had a built-in comparison group by which they could gauge their own progress as well as a support group to share helpful strategies for thriving during an accelerated doctoral program.

Eighty percent of the faculty reported that the *Future of Nursing Scholars* program positively impacted their schools. It provided a stimulus to examine their own program, looking for ways to increase efficiency, rigor and new ways of delivering a PhD curriculum. The prestige of receiving funding and being included in the *Future of Nursing Scholars* program lent credibility and validation to curriculum changes they were already

considering, helped them attract well qualified students, and even helped them attract additional scholarship funding. Some programs used the *Future of Nursing Scholars* program as a marketing tool for their PhD programs.

The Impact of the Future of Nursing Scholars Program on Nursing Science

Over half of the faculty (53%) from *Future of Nursing Scholars* schools stated that the program had a positive impact on nursing PhD education and more generally on the field of nursing science. The *Future of Nursing Scholars* program positively influenced perceptions and awareness of the contributions of PhD prepared nurses by demonstrating an accelerated program counterpart to the DNP. It elevated the national conversation regarding expectations of PhD programs and their graduates along with possible solutions to the nursing shortage.

The influx of over 200 new PhD prepared nurses into faculty and other leadership roles earlier in their career provides a longer research and leadership trajectory for innovations in nursing science and nurse leader contributions to improvements in health, health care and health equity. Perhaps more importantly at this critical juncture of nurse faculty and thus nursing workforce shortages, *Future of Nursing Scholars* added substantially to the pipeline of well prepared nurse PhD faculty ready to prepare the next generation of nurses. As one faculty stated, "RWJF's investment is going to pay off for many years to come. These Scholars are dynamite. They want to do it all and that's a good thing for the future."

Faculty stated that *Future of Nursing Scholars* has encouraged nursing education to consider the essential elements for PhD education and refine the curriculum to make it more achievable for a greater number and type of students. The *Future of Nursing Scholars* accelerated PhD trajectory stimulated sometimes heated debates about both the opportunities and the challenges, for students, schools, and ultimately nursing education and nursing science. Some faculty related that they viewed accelerated PhD education more positively as a result of participating in the *Future of Nursing Scholars* program. Others continued to voice concerns about timeline determining the methods and science. However almost all agreed that elevating the national discussion about innovations in PhD education, such as an accelerated timeline, is a lasting legacy of the *Future of Nursing Scholars* program.

Given the closure of the program, faculty also had suggestions for future funding support. For example, continuing to offer the Summer Institutes and leadership development workshops, offering smaller grants for a larger number of PhD students, supporting post-doctoral opportunities, maintaining an alumni network, facilitating more communication and thus innovation between schools, and long-term evaluation of *Future of Nursing Scholars* program graduates and school outcomes.

Discussion

The *Future of Nursing Scholars* program achieved its goal of increasing the number of PhD prepared nurse scientists and educators well prepared for long term leadership careers. The 181 scholars who have graduated to date, a number that will only continue to grow as the final cohort advances in their respective school programs, far exceeds the number of scholars produced by many other nursing PhD funding mechanisms seeking to promote entry into doctorate programs and accelerate time to graduation (Fontaine & Dracup, 2007; Greene et al., 2017; Starck, 2015). The *Future of Nursing Scholars Program*, developed in response to national calls to increase the number of doctorally prepared nurses, successfully leveraged funding from the Robert Wood Johnson Foundation and other funders to partner with 45 schools of nursing from across the country to re-envision nursing PhD education.

Graduation success, career-related outcomes, and both scholarly and leadership related activities among *Future of Nursing Scholars* demonstrate the quality of nurse scientists developed through the program. The attrition rate of 7% among *Future of Nursing Scholars* is substantially lower than previously reported national averages of 23% among nursing PhD programs (Fang & Zhan, 2021). Further, the average time to degree among program scholars, at 3.1 years, is much lower than national trends showing that nursing PhD students often require 5.7 years to graduate, on average (Fang & Zhan, 2021). While other philanthropic funding mechanisms of longer duration have successfully aided in expanding the number of PhD, EdD, DNS, and DNP prepared nurse scholars by partially financing the tuition costs of their training, less is known regarding the impact that this funding has had in expediting the time to complete the degree and enter the nursing education workforce sooner (Carter et al., 2020). The success of the *Future of Nursing Scholars* program is most evident in the expansive career paths pursued by scholars and their exceptional productivity in the first few years after graduation.

Even with an accelerated PhD timeline, the *Future of Nursing Scholars* were able to successfully conduct research, disseminate findings, and cultivate vital leadership skills that enabled them to pursue a variety of impactful careers as nurse scientists, educators, and leaders. For example, over three fourths of scholars published in peer-reviewed outlets, a figure that exceeds those reported previously in surveys conducted with nursing PhD students (Ellenbecker et al., 2017). Dissertation content and format (e.g., five chapter, secondary data analyses, primary data collection, etc.) differed by scholars and institution, based on interviews with school representatives. The successful dissemination of the scholars' research indicates that the quality of the doctoral educational experience and its product, the dissertation, does not have a relationship to length of program (Goodman et al., 2020). Additionally, the number

of scholars pursuing postdoctoral fellowships following their involvement in the *Future of Nursing Scholars* is double that of historically reported trends among nursing PhD program graduates, at 15.7% (Ellenbecker et al., 2017). Postdoctoral fellowships are often critical opportunities for emerging scholars to advance their programs of research and they are often required to successfully obtain faculty positions (Giordano et al., 2021; Oermann et al., 2016). Nearly a third of all *Future of Nursing Scholars* who had graduated a year or more before the time of this analysis reported holding an academic appointment, excluding post-doctoral positions, which is similar to career outcomes among nursing PhD graduates supported by other philanthropic programming efforts over the past decade (Carter et al., 2020). These figures highlight the success of the *Future of Nursing Scholars* program in not only increasing the number of PhD prepared nurse scholars entering the workforce, but also the number of graduates pursuing academic affiliated roles, conducting research, leading teams, and advancing nursing science.

Overwhelmingly, faculty reported that the *Future of Nursing Scholars* program positively impacted their schools and the future of nursing science. As seen in this evaluation based on interviews with faculty, and confirmed by the analyses of school applications conducted by Giordano and colleagues (2023), schools implemented accelerated plans of study and even entirely revamped year round curricula to facilitate students in graduating within 3-years. It is important to note that schools were able to select from their applicant pools the scholars that they identified as being optimally positioned to pursue year round course work and complete their degree requirements in 3-years. Subsequently, school representatives highlighted the importance of faculty mentorship and the alignment of student and mentor goals as well as research interests. Other investigations of doctoral nursing education have emphasized the necessary matching of students with mentors to ensure successful program, and even career outcomes, which was seen in interviews with faculty in this evaluation (Granner & Ayoola, 2021; Porat-Dahlerbruch et al., 2021; Williams et al., 2021). However, mentorship is only one component to successful completion of an accelerated doctoral training program. Even with optimal mentorship at the institution and funding provided by the *Future of Nursing Scholars*, costs and competing priorities, both professionally and in personal matters, may limit the number of highly qualified individuals who are in a position to pursue 3-year plans of study (Squires et al., 2014; Williams et al., 2021). The unique challenges posed by pursuing a 3-year plan of study for future nurse scientists underscore that a universal, or generalizable set of scholar choice criteria upon admission, may be limiting, and even marginalizing. As such, institutional level support, including sustained funding, and optimized mentorship between faculty, peers, and mentees, are urgently needed to ensure sustainable and equitable

access to 3-year plans of PhD study within nursing science.

Limitations

The use of CVs for program evaluation limited the scope of metrics available for this analysis, including the lack of scholars' demographics. Further, this analysis was conducted while the last cohort of scholars were still enrolled in their respective programs, due to COVID delays. As such, outcomes may be subject to change. Therefore, additional evaluations will be important to assess the long-term impacts of this program, including clarification of the elements and supports crucial for graduation within the accelerated time frame, how best to implement them within individual schools of nursing academic frameworks, and, ultimately, postgraduate success of students beyond the limited time horizon of this analysis. Future research could consider addressing a comparison of schools with *Future of Nursing Scholars* supported students with non-supported schools to analyze time to program completion. Reducing the time to graduation in those schools who modified their curriculum might also be a lingering long-term impact of the program that would be ideal to measure. Following the cohorts long-term would also give depth to the impact of the program. Despite these limitations this comprehensive analysis provides novel insights into the success of scholars pursuing accelerated doctoral education when provided with leadership development, mentoring support, and financial resources to facilitate timely execution of PhD degree related requirements across a large swath of American nursing schools.

Conclusions

The *Future of Nursing Scholars* program provided a large scale demonstration, across academic environments, for the success of implementing 3-year PhD programs to prepare the next generation of nurse leaders. By May 2022, a total of 181 Scholars graduated from their PhD programs supported by the *Future of Nursing Scholars* program, with most Scholars graduating within the program outlined timeline. Graduates pursued productive scholarly careers, evident by the number of peer-reviewed publications and presentations. Over a third of graduates attained postdoctoral fellowships with up to a third of graduates currently in academic affiliated appointments. Further, many *Future of Nursing Scholars* program graduates are pursuing leadership activities and roles. The Scholars' success highlights that when properly resourced and supported, an accelerated year round program of study is not only feasible but also results in high quality scholarly activities. The *Future of Nursing Scholars* approach to developing PhD prepared nurse scientists poised for long term leadership careers demonstrated an exciting academic pathway

for promoting earlier entry of nurse scientists and educators into the pipeline and supported the rapid growth of PhD prepared nurse leaders in the field.

Authors' Contributions

Nicholas Giordano: Visualization, Writing- Original draft preparation. *Maryjoan Ladden*: Conceptualization, Writing- Reviewing and Editing. *Heather Kelley*: Conceptualization, Writing- Reviewing and Editing. *Julie Fairman*: Conceptualization, Supervision, Funding Acquisition, Writing- Reviewing and Editing.

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