

Virtual Mentorship Network to Address the Rural Shortage of Mental Health Providers



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Introduction: The process of identifying effective responses to the challenges of placing and retaining a rural behavioral health workforce remains elusive. The Virtual Mentorship Network was developed to test the feasibility of using distance technology to connect rural students interested in mental health careers with mentors.

Methods: In Year 1, college and high school students were virtually mentored using a near-peer approach both live and asynchronously as a cohort over 7 months. In Year 2, college students only were virtually intensely mentored live over 1 month. High school students were asynchronously provided with informational videos produced by mentors. Program benefits were measured using the Mentoring Functions Questionnaire, and an activity satisfaction survey captured student response to the content and delivery methods. Retrospective analysis of Years 1 and 2 mentoring and satisfaction variables mean differences was performed and overall feasibility assessed.

Results: Mentoring Functions Questionnaire scores, overall interaction, and reported satisfaction significantly improved in Year 2 over Year 1.

Conclusions: These data suggest that distance mentoring is a feasible option, but that the near-peer benefits of virtually mentoring high school and college students together are overshadowed by different mentoring needs expressed for each group. High school students expressed needs for basic information about career possibilities, whereas college student needs are specific to achieving career goals. Shorter mentoring sessions may be more sustainable long-term and focus limited mentoring resources. This project may serve as a professional pipeline model for others who face a critical shortage of mental health providers.

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INTRODUCTION

The rural healthcare workforce shortage has grown to near crisis levels across all disciplines.^{1–3} More than 85% of all U.S. federally designated mental health professional shortage areas are in rural locations; for the past 50 years at least 60% of rural areas were underserved in these fields of practice.⁴ In 2014, a total of 81 of Nebraska's 93 counties were mental health professional shortage areas.⁵ The most acute treatment gaps are in rural communities; this shortage is only projected

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to worsen in the next decade. Currently, more than 60% of Nebraska's practicing psychiatrists, psychologists, and psychiatric nurse practitioners are older than 50 years.⁵ Of children aged 12–17 years in Nebraska, 11% experienced a major depressive episode, and only 43% sought treatment for the episode. For adults aged 18 years and older in Nebraska, 47% have received treatment for mental health concerns, creating a rising burden on the system.⁶ Without the development of new providers, access to services will continue to decrease.

In 2009, Nebraska legislators created the Behavioral Health Education Center of Nebraska (BHECN) to address the critical workforce shortage in mental health. BHECN's workforce development approach is based on previous research evidence indicating that practitioners who remained in practice in these areas are more likely to have grown up in a rural area and have a cultural identity with being rural.^{3,7} This is important in that it provides insight into why some professionals remain in rural areas compared with those who do not. It also suggests that to better address rural behavioral health workforce challenges, education is a critical connect point to prepare students for rural practice through curriculum and practicums. When students are made aware of rural practice opportunities, educated in the nuances of rural practice, and versed in the culture and lifeways of rural communities, they may then consider rural practice as a viable career choice.

One of BHECN's major workforce initiatives is to offer mentoring events to high school, college, and graduate students. Live events are hosted to expose students to the varied options available in the mental/behavioral health professions. One major challenge is maintaining contact with students who have expressed desire to become providers following these live events, particularly within a predominantly rural state that stretches 430 miles long and 210 miles wide. The use of technology and challenges associated with its use in delivering behavioral and mental health services has been successful in crossing this divide. Just as there are real advantages to incorporating tele-technology into service delivery, professional development, and general connectedness with other related systems, technology can be used to connect students to mentors.

Years of research in the area of mentoring demonstrates its effectiveness in youth career development, but less is known about delivering these services using distance platforms. Travel distance from the mentor serves as a significant barrier for rural students seeking mentorship. There is a compelling need to develop a targeted mentorship program that can connect students with a mentor in the mental/behavioral health field,

particularly those who are living in and have a desire to provide services to shortage areas.

Much of the current information on mentoring focuses on general mentoring of youth or specific career mentoring for professionals already in their respective fields. Literature has been published on mentoring faculty and the development of researchers,⁸ and the mentoring of students as well.⁹ Other programs recruit students via mentoring, generally into biomedical careers.^{10,11} The concept of an academic and professional pipeline is one that has been described for some time, with a goal of promoting excellence and diversity within the medical profession.¹² Such programming has been implemented by numerous schools, but the impact beyond recruitment has not been the focus of research. Despite the need for mentoring programs that harness innovative uses of technology, there remains a paucity in the literature addressing online forms of mentoring, particularly those that address the needs of rural students interested in the mental/behavioral health fields.

There is a dearth of specific practice models in the literature that may be replicated and applied at agency and program levels, thus making the opportunity to share effective distance mentoring models highly relevant. Therefore, there is a need to pragmatically develop a model to address the issues faced by rural communities surrounding recruiting and retaining interprofessional mental and behavioral health providers. This model must utilize the current knowledge on this issue and harness the technology that can help to alleviate the shortage facing rural communities. The purpose of this project is to evaluate the feasibility of using distance technology to attract and address the mentoring needs of students interested in the mental/behavioral health field, principally those intending to provide services to rural communities designated as shortage areas.

METHODS

Study Population

The project, entitled the Virtual Mentor Network (VMN), was launched August 1, 2014, and concluded July 30, 2016. Using a convenience sample using connections established via live mentoring events, college students from across the state and high school students from three rural high schools were recruited to participate. Consent or parental consent and assent was obtained for all mentees. Students were included if they were English speaking and expressed interest in the behavioral/mental health professions and were excluded only if parental consent was not obtained for students who were minors. IRB approval was obtained. Using a near-peer mentoring model in which mentors are one to two steps ahead of mentees in career progression, two resident psychiatrists

and two resident psychologists served as mentors for both high school and college students after receiving training on best mentoring practices. The near-peer structure was present between college and high school participants; using their experience, college students could help mentor high school students in their college decision-making process. Methods and results for Year 1 of the program are included in the [Appendix](#) (available online); the findings from Year 1 informed program changes for Year 2, which is the focus of this paper.

Measures

At the end of each year, an online survey was completed by students. Data were collected and managed using Research Electronic Data Capture tools hosted at the University of Nebraska Medical Center.¹³ The Mentoring Functions Questionnaire (MFQ-9)¹⁴ was used to measure mentor effectiveness. MFQ-9 is a 9-item self-report measure composed of three subscales: Career Support, Psychosocial Support, and Role Modeling. Items are measured on a 5-point scale ranging from 1=*strongly disagree* to 5=*strongly agree*, with higher scores suggesting more positive mentoring functions. The internal consistency ranged from $\alpha=0.94$ (Year 1) to $\alpha=0.92$ (Year 2).

Additional satisfaction questions to evaluate benefits of distance mentoring for Years 1 and 2 were adapted from the existing mentor work^{15,16} using a 4-point Likert-type scale (1=*strongly disagree* to 4=*strongly agree*). The mentees were asked two additional questions: (1) *Overall, how much did you enjoy VMN?* response options included a 5-point Likert-type scale (1=*not at all*, 5=*very much*), and (2) *Would you recommend VMN to your friends/colleagues?* with a dichotomous *Yes/No* response option. Qualitative data were collected via open-ended survey questions, blog posts, and online video comments.

Qualitative data from Year 1 indicated that college students desired more focused mentor activity related to specific career planning, whereas high school students desired more general

information on career options. Live distance mentoring in Year 2 was conducted with college students only, focusing on targeted preparation for graduate training based on career path choices. Students were divided by self-selected interest (psychiatry, psychology, psychiatric nursing, and pharmacy). The mentor–mentee ratio was intentionally kept low to facilitate relationship-building: psychiatry (three mentors with four mentees); psychology (three mentors with six mentees); psychiatric nursing (two mentors with four mentees); and pharmacy (one mentor with two mentees). One psychologist mentor served in both Year 1 and Year 2.

Each group met three times over the course of 1 month via GoToMeeting™. Sessions were facilitated by the mentors, but the content of sessions was loosely structured around mentee topics of interest, such as the behavioral/mental health provider experience, graduate school selection process, how to build experiences to increase admission success, and mock interviews to simulate the competitive graduate school admissions process. Students were asked to prepare prior to each session with assignments, such as topic generation and the completion of a personal narrative (e.g., *Why do you want to enter this field?*).

In lieu of direct mentoring, high school students were offered three generalized career option videos created by the mentors (psychology, psychiatry, psychiatric nurse practitioner) designed to convey the specifics of each professional role. This level of information mirrored the types of questions asked of mentors by mentees in the first six direct mentoring sessions of Year 1. Because of the indirect mentoring methodology, formal feedback was not obtained from high school students in Year 2. Video access data and comments were collected. Students could directly communicate with mentors using provided contact information.

Statistical Analysis

Retrospective analysis of program data was conducted using IBM SPSS, version 24.0.¹⁷ The data were examined for outliers and missing values, and summary statistics for demographics were

Table 1. MFQ-9 Scores^a of Virtual Mentorship Network Year 1^b and Year 2

Items	Year 1 (n=108) ^c	Year 2 (n=34) ^d	p-value
Vocational support	$\alpha=0.94$	$\alpha=0.83$	
1. My mentor takes a personal interest in my career	3.69 (0.86)	4.15 (0.61)	0.001
2. My mentor helps me coordinate professional goals	3.68 (0.91)	3.94 (0.89)	0.136
3. My mentor has devoted special time and consideration to my career	3.69 (0.90)	4.21 (0.64)	< 0.001
Psychosocial support	$\alpha=0.85$	$\alpha=0.80$	
4. I share my personal problems with my mentor	2.74 (1.05)	2.79 (0.98)	0.794
5. I can discuss issues in confidence with my mentor	3.23 (0.92)	3.03 (1.09)	0.288
6. I consider my mentor to be a friend	3.26 (0.95)	3.35 (0.49)	0.450
Role modeling	$\alpha=0.86$	$\alpha=0.91$	
7. I try to model my behavior after my mentor	3.41 (0.98)	3.59 (0.74)	0.323
8. I admire my mentor's ability to motivate others	3.80 (0.91)	4.32 (0.53)	< 0.001
9. I respect my mentor's ability to teach others	4.01 (0.94)	4.38 (0.49)	0.029
Total scores	31.49 (6.84)	33.76 (5.20)	0.077

Note: Data are presented as M (SD) unless otherwise noted. Boldface indicates statistical significance ($p < 0.05$).

^aMFQ-9: 5-point Likert-type scale (1=*strongly disagree*; 5=*strongly agree*).

^bInformation on Year 1 programming and results can be found in the [Appendix](#).

^cYear 1: A total of 108 records (27 mentees evaluated their 4 mentors), total scale $\alpha=0.94$.

^dYear 2: A total of 34 records (12 mentees evaluated their 9 mentors), total scale $\alpha=0.92$.

MFQ-9, Mentoring Functions Questionnaire.

Table 2. Activity Survey: Virtual Mentorship Network Year 1^a and Year 2

Respondents	Year 1 (n=28)	Year 2 (n=12)	p-value
Live mentoring session, M (SD)			
Discussions were stimulating ^b	3.18 (0.72)	3.67 (0.49)	0.040
Time was well spent ^b	3.29 (0.71)	3.67 (0.49)	0.101
Blog, M (SD)			
Discussions were stimulating ^b	3.29 (0.60)	N/A	N/A
Key question was adequately answered	3.25 (0.59)	N/A	N/A
Overall, M (SD)			
Overall, how much did you enjoy VMN? ^c	3.96 (1.07)	4.92 (0.29)	<0.001
Would you recommend VMN to your friends/colleagues?			0.161
Yes, n (%)	26 (92.9)	12 (100)	
No, n (%)	2 (7.1)	0 (0)	

Note: Boldface indicates statistical significance ($p < 0.05$).

^aInformation on Year 1 programming and results can be found in the [Appendix](#).

^bItems were adapted from Cook et al.⁹ on a 4-point Likert-type scale (1=strongly disagree, 4=strongly agree).

^c5-point Likert-type scale (1=not at all, 5=very much).

N/A, not applicable; VMN, Virtual Mentorship Network.

computed. To examine the differences in mean for variables between Year 1 and Year 2, *t*-tests were applied. The effect size (Cohen *d*) was calculated using online effect size calculators.¹⁸

RESULTS

A total of 15 college students (93.3% female, 86.3% Caucasian, mean age, 22.1 years [SD=4.9], mean GPA, 3.5 [SD=0.5]) from Nebraska participated in VMN Year 2. One college student participated in VMN as a mentee in both Year 1 and Year 2 (i.e., overlap). Of the 15 participants, 12 completed the MFQ-9 and VMN survey. Blog activity was removed from the VMN Year 2 project.

A total of 12 mentees completed MFQ-9 for their mentors, and ratings were completed by mentees on each mentor in their interest group individually, leading to 34 total records across all interest groups. Similar to VMN Year 1, the item “I respect my mentor’s ability to teach others” scored the highest (mean, 4.38 [SD=0.49]), whereas “I share my personal problems with my mentor” scored the lowest (mean, 2.79 [SD=0.98]; [Table 1](#)).

Comparing across years, the mean scores on the following four items were significantly higher in Year 2 than in Year 1 ([Table 1](#)): “My mentor takes a personal interest in my career” (from 3.69 to 4.15, $p=0.001$); “My mentor has devoted special time and consideration to my

Table 3. Key Qualitative Findings, Year 2

Students
I would recommend the VMN to my colleagues because it expanded my network of people in the professional field that I can turn to for advice. Also, I learned a great deal about the interview process for professional schools, which was an area I was unsure about before.
It was very beneficial to me personally in resolving some anxiety that I had in regards to preparing for graduate school.
It provided a lot of helpful info without having to work much around people’s busy schedules. Sessions were fairly short and to the point, which is nice when you don’t have much time available.
I gained a lot of knowledge I don’t think I would have gotten elsewhere. Things were brought up (example: interview process) that I wouldn’t have even thought of asking someone about.
Mentors
I enjoyed providing mentorship to students who are considering pursuing careers in behavioral health. I wish I had an opportunity to be a part of a mentorship program and learn more about the field and the process of obtaining a career in behavioral health when I was an undergraduate student. I felt that this was a wonderful way to “pay it forward.” I also felt that the virtual aspect of the mentoring program made it extremely easy and feasible to gather people when everyone has such busy schedules. The time commitment was appropriate.
It was wonderful to be able to provide students interested in pursuing a career in behavioral health with information that may help them achieve that goal. I benefitted significantly from those who mentored me along my career path, and it was wonderful to be able to provide that to others.
Very altruistic experience—I even learned a lot myself.
It is nice to talk with young people interested in your career. Their interests and questions can trigger ideas in the mentor.... Process was very easy. Time commitment involved was easy to work into my schedule.

VMN, Virtual Mentorship Network.

career” (from 3.69 to 4.21, $p < 0.001$); “I admire my mentor’s ability to motivate others” (from 3.80 to 4.32, $p < 0.001$); and “I respect my mentor’s ability to teach others” (from 4.01 to 4.38, $p = 0.029$).

Mentees in Year 2 indicated “Discussions were stimulating” and “Time was well spent” (mean, 3.67 [SD=0.49] for both on a 4-point Likert-type scale), and they highly “enjoyed” the VMN Year 2 project (mean, 4.92 [SD=0.29] on a 5-point Likert-type scale) (Table 2). Additionally, all (100%) mentees indicated they would recommend the VMN Year 2 project to their friends and colleagues. Comparing across years, the mean scores of the following two items significantly improved from Year 1 to Year 2: “Discussions were stimulating” (from 3.18 to 3.67, $p = 0.040$); and “Overall, how much did you enjoy VMN?” (from 3.96 to 4.92, $p < 0.001$).

DISCUSSION

Across the country, states are seeking solutions to critical shortages in the behavioral health workforce in rural and urban underserved areas where there is a limited supply of practicing mental health and substance abuse providers to serve as role models for youth as they explore career paths. The purpose of this project is to evaluate the feasibility of using distance technology to attract and address the mentoring needs of students interested in the mental/behavioral health field, principally those intending to provide services to rural communities designated as shortage areas. Overall, Year 1 and 2 participants indicated that the VMN experience was enjoyable, discussions were stimulating, and that their time was well spent. Using survey feedback, Year 2 program structure was changed, narrowing the target audience for live sessions exclusively to college-aged students and focusing content on advanced career training and progression. High school students’ needs for generalized career information was addressed using three asynchronous career videos. Over 7 months, the videos received 537 views, exceeding the reach of the Year 1 live session participation.

Results suggest that a smaller mentor-to-mentee ratio, career pathway-specific content, and a shorter span of time

for Year 2 participants resulted in significantly higher ratings for vocational items. Year 2 MFQ-9 results suggest that mentees perceived a stronger connection with mentors in smaller groups than in Year 1. Year 1 qualitative data suggested that high school students’ general career questions diluted the level of content desired by college students. Near-peer support appeared beneficial for high school students in Year 1, but not for college students. Year 2 included live near-peer support for college students, with marked improvement in student satisfaction scores (Table 3). Based on these general findings, the Year 2 program model can be considered a suitable basic design for future career pipeline VMN programs.

Limitations

Study limitations rest mainly with its short duration and less robust design with limited baseline comparison data each year. The need to alter Year 1 content and delivery structure to provide tailored content and streamlined distance mentoring in Year 2 disallowed for exact comparisons between Years 1 and 2. The study sample consists of a convenience sample of self-selected students with no control group, so it cannot be determined if improved response to the program was directly caused by program changes or if responses originated from their own intrinsically high level of interest and contact with the program recruiters.

CONCLUSIONS

The development of a virtual mentoring network can bridge geographic gaps and connect interested students with behavioral health practitioners to increase applicant numbers to graduate programs from underserved areas. This project shaped the state pipeline program for behavioral health professionals by demonstrating that online virtual sessions are feasible and could elicit interest and provide career guidance to college and high school students. Given the physical distance between mentors and prospective rural students in Nebraska, this was a critical finding. Despite limitations, program data suggest that high school and college mentoring needs are unique, and that allowing

Table 4. Summary of Project Implications

VMN implications
1. Current and impending mental health workforce shortages can be addressed using a pipeline approach extended to rural areas using distance technology
2. High school and college students benefit from mentoring, but mentoring needs differ significantly and these must be addressed when designing distance pipeline programs
3. Near-peer mentoring must be mutually beneficial for success, and must specifically target unique needs of the mentee: general career information for high school students, and specific advanced training information for college students
4. Short, targeted live sessions over a period of weeks are better received than sessions that are extended over several months, from both the participant and mentor perspectives

VMN, Virtual Mentorship Network.

students to self-select behavioral health mentors of interest can increase online mentoring program satisfaction. The key learnings from this project (Table 4) help lay the foundation for a model that can inform other states with significant workforce shortages in rural and urban underserved areas. Based on VMN and a review of overall workforce data, BHECN is designing pipeline programs that include virtual mentorship as a tool to connect with the future workforce across geographic gaps.

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