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Authors
Kaplan, Jennifer A
Brinson, Zabecca
Hofer, Rebecca
et al.

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Early learners as health coaches for older adults preparing for surgery

Jennifer A Kaplan[a], **Zabecca Brinson**[a], **Rebecca Hofer**[a], **Patricia O'Sullivan**[a,b,c], **Anna Chang**[c,d], **Helen Horvath**[e], **George J. Chang**[f], and **Emily Finlayson**[a,d]

[a]Department of Surgery, University of California, San Francisco 513 Parnassus Avenue Suite S-321, San Francisco, CA 94143

[b]School of Medicine, University of California, San Francisco 533 Parnassus Avenue, UC Hall, San Francisco, CA 94143

[c]Department of Medicine, University of California, San Francisco 3333 California Street, Laurel Heights, San Francisco, CA 94118

[d]Division of Geriatrics, Department of Medicine, University of California, San Francisco

[e]School of Nursing, University of California, San Francisco 2 Koret Way, Nursing, San Francisco, CA 94143

[g]Department of Surgical Oncology, U.T.M.D Anderson Cancer Center 1400 Pressler St, FC 17.5022, PO Box 301402, Houston, TX 77230

Abstract

Background—Few opportunities exist for early learners to engage in authentic roles on health care teams. In a geriatric optimization clinic for frail high-risk surgical patients, first year medical and nurse practitioner students were integrated into an interprofessional team as health coaches.

Materials and Methods—Frail surgical patients with planned operations were referred to a new pre-operative optimization clinic to see a geriatrician, occupational and physical therapists, and a nutritionist. A curriculum for health coaching by early learners was developed, implemented, and evaluated in this clinic. Students attended the clinic visit with their patient, reviewed the interdisciplinary care plan, called patients twice weekly preoperatively, and weekly in the first month after discharge. Students logged all calls, completed patient satisfaction surveys one week

Corresponding Author. Jennifer Kaplan, MD, 513 Parnassus Avenue, Suite S-321, San Francisco, CA, 94143-0470, Tel: (415) 476-1398, Fax: (415) 502 - 1259, Jenny.Kaplan@ucsf.edu.

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Authors' contributions:

J.A.K., Z.B., R.H., P.O'S., A.C., H.H., and E.F. were responsible for the conception and design. Z.B. and R.H. acquired the data, J.A.K., Z.B., P.O., and E.F did the analysis and interpretation, and J.A.K., P.O'S., A.C., G.C., and E.F. were involved in drafting and revising the article. J.A.K, P.O'S., and E.F. approved of the version for final submission.

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before surgery, and participated in feedback sessions with team members and medical school faculty. Call success rate was calculated and team communications were recorded and analyzed.

Results—Median call success rate was 69.2% and was lowest among medical students (p=0.004). Students and research assistants contacted or facilitated patient contact with their medical team 84 times. Overall, patients were extremely satisfied with the health-coach experience, felt better prepared for surgery, and would recommend the program to others.

Conclusions—Early medical and nurse practitioner students can serve the important function of health coaches for frail patients preparing for surgery. Motivated students benefited from a unique longitudinal experience and gained skills in communication and care coordination. Not all students demonstrated capacity to engage in health coaching this early in their education.

Keywords

Undergraduate medical education; interprofessional relations; workplace; frail older adult; preoperative care; patient satisfaction

1. Introduction

Older adults with multiple chronic conditions constitute a growing proportion of surgical patients.[1] For these surgical candidates, interprofessional optimization strategies offer rehabilitation services preoperatively to enhance functional recovery and prevent complications.[2] The Surgery Wellness Program (SWP), a novel optimization program at our institution, includes geriatric, nutritional, physical therapy, and occupational therapy assessments and recommendations, as well as health coaching before surgery. This process inherently provides an opportunity for interprofessional learning.

Health coaching empowers patients to take an active role in their care. The coach can review a clinician's care plan, set short and long term goals, and motivate behavioral change in order to meet these goals.[3] Medical and nurse practitioner students can fill this role in the care of patients with chronic illness, as has been shown with hypertension and diabetes, thus becoming important members of the clinical team.[4,5] Integral to the SWP are student health coaches who ensure that patients are meeting their pre-operative goals and communicate with other team members when questions or concerns arise.

Medical schools incorporate clinical experience into the pre-clerkship years, but these preceptorships tend to include shadowing without a clear identified role for the student.[6] In their discussion of workplace learning in a community of practice (such as a clinic), Lave and Wenger recommend allowing students to "legitimately" engage in the workplace activities, even if peripherally ("legitimate peripheral participation").[7] An important benefit of genuine contribution to patient care is that learners can develop their sense of professional identity and learn directly from their patient.[8,9] The next challenge for health professions schools is to identify communities of practice in which to place their learners in a way that allows for authentic workplace learning, and also that represent the interprofessional teams who provide care. An optimization clinic seems like an ideal place to give learners legitimate and interprofessional opportunities to develop clinical skills and professional identity.

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Our study is the first implementation of student health coaching in the setting of perioperative geriatric optimization. The purpose of this study was to describe the development and implementation of a health coaching curriculum for medical and nurse practitioner students in an optimization clinic and across the continuum of care, determine how well students could fulfill this role, and assess student impact on patient satisfaction.

2. Methods

2.1. Overview

This descriptive pilot study is part of a prospective cohort study of a geriatric intervention to prepare frail older adults for surgery. Here we focus on a key element of the larger study: incorporating early learners into the interdisciplinary care team as health coaches. This study was approved by the institutional review board at the University of California, San Francisco. All students consented to participate in the descriptive pilot study.

2.2. Patients

Surgeons referred patients to the SWP optimization clinic if they met inclusion criteria. Eligible patients had to be scheduled for elective surgery or be listed for transplant and either be ≥ 60 years old and have a geriatric syndrome (i.e., weakness, cognitive impairment, weight loss) or be ≥ 80 years old. Patient consent for program participation was obtained before the first SWP clinic visit and patients agreed to allow students to contact them pre- and post-operatively. Patients included in this study attended the SWP clinic visit and had at least one health coaching call. Patients were kept in the SWP outcomes registry, but deemed no longer eligible for health coaching if their surgery was cancelled or prolonged indefinitely.

2.3. Student enrollment

The SWP and student health coaching debuted in February of 2015. Students were enrolled during the pilot period of five months (February 2015 to June 2015) and a subsequent time period of four months (September 2015 to December 2015). The second period correlated with the first half of the school year. Our pilot period coincided with a pilot curriculum within the UCSF School of Medicine to incorporate first year learners in clinical teams. Volunteer students were recruited by the medical school and placed in the SWP clinical experience during our pilot. Our experience was considered to be a longitudinal clinical preceptorship; a required curricular element for all first year medical students. A faculty member in UCSF's graduate program for nurse practitioners approached a student who had an interest in geriatrics to participate as part of their clinical requirement, and she accepted. For the subsequent time period, four first-year medical students were selected at random from the entire class and there were no nurse practitioner students because of scheduling conflicts. All students received clinical credit for the rotation and none dropped out. The pilot period included two medical students and one nurse practitioner students.

Two research coordinators oversaw the clinic and assigned patients to students. Two research assistants also participated as health coaches during this time frame to ensure clinic coverage when students were not available.

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2.4. Procedure

2.4.1. Curriculum—All students attended a two-hour health coach training session from the School of Medicine that included motivational interviewing skills and scripts for scenarios involving chronic illness.[10] Before participating in the clinic, students received scripts for their pre-operative and post-discharge calls. They also received written instructions for how to communicate patient concerns to team members, and what to do if a patient's complaints were a cause of concern. On their first day, incoming students in the second time period shadowed outgoing students in the clinic and for their first health coaching call. The students participated in an orientation to REDCap (Research Electronic Data Capture) for data entry. The learner goals, objectives, and evaluation are summarized in Table 1. Supplemental literature regarding surgical nutrition, delirium, goals of care, preoperative assessment, and prehabilitation was available for students on a library sponsored website in the form of manuscripts, online risk calculators, and published guidelines.

2.4.2 Health Coaching Implementation—Clinic or preceptorship sessions took place once weekly for four hours. On average, students attended clinic every other week. They accompanied their patient for the entire clinic visit, reviewed the team's care plan with the patient afterward, and participated in the pre-clinic staff meeting and post-clinic debriefing. When reviewing a patient's care plan, the student and patient identified goals in each clinic area (nutrition, therapy, geriatrics) that would become the topic of future calls. For example, typical goals for the therapy area could be performing specific mobility exercises daily. Students attempted to contact patients twice weekly to review the care plan and progress made towards goals, as well as identify barriers to clinic recommendations. If a patient asked a clinical question or described red-flag symptoms (i.e., fevers, emesis, or a fall), the student encouraged the patient to contact the appropriate clinician (primary care doctor or surgeon's office) and contacted those clinics themselves. If the question or barrier related to a SWP Clinic recommendation, the student would contact the appropriate team member who would pass on suggestions. After a patient's hospital discharge, students called them once a week for one month. We required students to update the research coordinator weekly with patient updates. Students reported spending two hours per week outside of clinic making and documenting their phone calls.

2.5. Clinical Experience

To augment the student's learning experience, we included clinical opportunities to develop physical exam skills, note writing, and oral presentations. For two to three hours on Tuesdays when they were not in the SWP Clinic, students either attended an outpatient surgery clinic or received inpatient teaching from a surgical resident. In the outpatient surgery clinic, the students performed a full history and physical exam with a patient and presented to the attending surgeon. During the inpatient teaching sessions, students learned how to write a daily progress note, formulate a one-line summary of the patient, and perform clinical exam skills on postoperative patients. We encouraged students to be present during their patient's operation and visit them independently in the hospital (Figure 1).

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2.6 Formative Evaluation

2.6.1. Implementation Measures—To evaluate the curriculum and patient exposure to health coaching, we determined whether students successfully contacted the patients for health coaching calls, the outcomes of these calls, and patient satisfaction with their health coach. We considered a call to be successful if a student reached their patient by phone and completed at least one question from their call script. We defined the call success rate as the number of successful calls divided by the number of expected calls (two calls per week between clinic and surgery and one call per week for four weeks after discharge). To evaluate interdisciplinary communication, we recorded how often a student contacted another team member or recommended that a patient call their surgeon or primary care office. Patient satisfaction was assessed using a five-point rating scale, and reasons for missing surveys were recorded.

2.6.2 Feedback and Observation—The research coordinators kept track of student updates, and was available to troubleshoot if a student could not get in touch with their patient. They also monitored student REDCap data entry and contacted the students when there appeared to be missing call data. We utilized participant observation strategies to understand student attitudes and difficulties with the rotation.[11] At regular intervals, both the surgery resident and research coordinators would seek informal feedback from the students regarding issues or questions pertaining to health coaching and record comments.

Once during each time period, a faculty member from the medical school observed health coaching calls, provided oral feedback to the students, and obtained oral student feedback as a group and individually. Students also observed each other's calls during these sessions and were able to discuss their experience in a focus group setting. Clinic team members and medical school faculty documented student comments from both types of feedback sessions as well as patient comments from observed calls. The same faculty also shared their perceptions of the students' experience with the clinical team. Quotations from the feedback sessions are included here. Because formal student evaluations take place at the end of the academic year, their written feedback was not yet available to include in this analysis.

Before the patient was admitted to the hospital for surgery, a different student or a research assistant would contact them to complete a survey regarding the SWP experience, including comments about the health coaching experience.

2.7. Analysis

Each student logged their call data into REDCap, which was then analyzed in STATA (Statacorp version 13, College Station, TX). We used descriptive statistics to present patient demographics and survey results. Call success rate was compared between health coach types (medical students, nurse practitioner student, research assistants) using the Kruskal-Wallis test. Patients were included in the analysis if they received at least one health coaching call. Comments gathered through feedback and observation were reviewed and categorized by the primary author using conventional content analysis.[12]

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3. Results

3.1. Patient characteristics

During the 10-month study period, 131 patients were referred to the SWP Clinic and health coaching and 71 were included in the analysis. Thirty-nine patients declined participation in the clinic visit and health coaching, four were deemed not eligible to participate in the process, two had not received a health coaching call, and 15 had yet to be seen in clinic. The 71 patients included in the study had a median age of 73, and about half were female (Table 2). Although patients were referred from nine different practices, most were from colorectal (25.4%) and urology (18%). At the time of this analysis, 47 patients (66%) had undergone surgery, with a median of 27 days between their clinic visit and operation. Patients who did not undergo surgery had biweekly follow-up for a median of 55 days after their clinic visit. Six medical students served as health coaches for 54% of patients, one nurse practitioner student for 16%, and two research assistants for 31%.

3.2. Implementation Measures

The median success rate of health coaching calls was 69.2%. Among health coach types, the nurse practitioner student had the highest success rate (median 87.5%), followed by the two research assistants (median 71.4%) and the six medical students (median 60%, p=0.004) (Figure 2). Overall, health coaches contacted clinical team members or surgical staff, or recommended patients follow up with a physician 84 times (Figure 3). Half of these communications were related to non-urgent medical concerns, such as questions about medications or about the upcoming surgery that students then forwarded to specific surgery clinic staff. Students identified serious medical concerns seven times; these concerns included a recent fall or new fevers that were communicated to the surgical teams. The remainder of patient concerns related to recommendations from the SWP staff, which students relayed to the appropriate staff members.

3.3. Patient Satisfaction

At the time of this analysis, 34 of the 47 patients who underwent surgery completed their health coach satisfaction survey (Table 3). Of the remaining 13 eligible patients, health coaches forgot or were unable to reach nine after one phone call, two refused the survey, one was lost to follow up (repeated attempts by the research coordinator were unsuccessful), and one did not have enough time between their clinic visit and surgery. All but one of the 34 patients who completed the survey said that they would recommend their health coach to others. The patient who would not recommend a health coach noted that this was based on his own anxiety about the operation rather than characteristics of the coach. Seventy-one percent of patients surveyed were extremely satisfied with their health coaching, and 88% felt better prepared or informed for surgery. The following comment from one patient during their pre-operative survey is particularly noteworthy:

> I am not a disciplined person. Left on my own I would not follow these recommendations. But if you are in in this with me, I am in this with you. I can do this with your help.

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3.4. Feedback and Observations

Students expressed enthusiasm about the relationships they were developing and proud of times when they could advocate for someone. One medical student wrote:

> The ability to be involved in a longitudinal primary-care like experience is highly desirable as a 1st year medical student and is not something that I feel is commonly found as part of the medical curriculum.

Another medical student said this:

> The relationships I end up forming with patients and their families over the course of 3–4 months were very real. I have had patients cycle through good and bad times with me.

The major challenge during the implementation of the health coaching intervention for the medical students included their expectations for the first year of medical school, their ability to manage time and tasks, and their nascent perception of professional responsibilities in patient care. Some medical students were unable to complete all of their calls during the fall because of competing educational priorities or patient unavailability. Students who scheduled calls with the patients at the time of clinic visits were more successful in their calls. One medical student noted that the clinical activities may extend beyond the assigned class time in this clinical setting, while some of their other peers could “hang up their white coats” after shadowing-based preceptorships. Creating a forum where students could share time management strategies and methods for getting in touch with their patients helped alleviate some of the time concerns. The clinical team reinforced the importance of their role on the team and the magnitude of their responsibility. During the pilot period, students were allowed to coach up to five patients. In the subsequent period, the total number per student was decreased to two. A faculty member in the medical school who was interviewed about challenges faced by medical students offered the following observations:

> They [students] also seem overwhelmed with the time and effort they perceive is required, and said any more than two patients is (sic) too much.

> They [students] were pretty candid about how they haven't done everything that was expected and expressed some guilt/anxiety about that.

4. Discussion

Health professions schools are tasked with developing workplace learning experiences that actively engage early learners without compromising patient safety. Workplace learning must incorporate supported authentic roles and responsibility for students in order to begin the transition from student to clinician.[13] Medical schools and nurse practitioner programs continue to grapple with how to effectively balance the classroom and an interprofessional clinic environment for their early students. Here we report for the first time that medical and nurse practitioner students functioned as health coaches for high-risk surgical patients. From the perspective of the medical and nursing schools, this is a feasible role for motivated students with the appropriate education support and oversight.

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Half of the medical students and the nurse practitioner student were able to manage their time effectively in terms of calling patients and documenting call outcomes; while half of the medical students found this task daunting and required multiple reminders as well as time management instruction. This finding is aligned with student perspectives reported in the literature noting competing demands and prioritization schemes that favor memorization of facts and written examination performance.[14] Feedback sessions can shift and improve the understanding of the importance of clinical tasks, particularly for students at the beginning of their professional training.

The difficulties many medical students had with time management and completing coaching and survey calls indicated to us that there was a gap between the definition of success as a student and the professional identify of a health care provider. Perhaps this represented instances of identity dissonance as students struggled to understand professional responsibilities while navigating the requirements of medical school.[15] Although it is challenging to provide an appropriate training environment to foster professional identity formation in students who are early in their health professions training, the early timing of this curriculum (i.e. with first year medical students) is an emerging trend across the country.[16] As we prepare students for collaborative workplaces in evolving systems of healthcare delivery, we must answer the call to design a curriculum that includes the foundational knowledge and skills, professional attitudes, and learning opportunities such as this, starting in the first year of medical school and including students from other health professions programs.[17] Surgical curricula at all levels can gain from incorporating continuity of patient care and ambulatory experiences.[18]

During their feedback sessions, all of our students commented that they enjoyed learning physical exam skills and how to formulate notes and presentations; activities which fell under traditional early learner roles. Lacking from this traditional system, however, is direct patient interaction and responsibility, which is critical in the development of professional identity and the socialization process that moves students from their existing self to their professional one.[9,19] Part of the reluctance of medical students to complete health coaching calls may stem from the lack of role modeling by attending physicians. Because health coaching is not an activity performed by residents or attending physicians, medical students might not see this as a necessary role for themselves. We continue to identify new ways to relay the importance of early experience in communication and responsibility, namely by legitimizing this activity and allowing more time for reflection.[13]

As this was a pilot study, it had several limitations. The number of patients and students who participated was small. Other limitations include lack of long term data on patient care outcomes, on patients who agreed versus those who declined to participate in the program, as well as on medical student performance as they enter their third and fourth years. Finally, the survey data are potentially biased because survey responses were not collected for nearly one third of eligible patients.

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5. Conclusions

Despite its limitations, our pilot study provides evidence that health coaching is a feasible role for early learners that allows for the development of communication skills and a forum to develop professional identity. Implementation challenges include significant oversight, time for clinical teaching, and setting expectations about responsibility. Health coaching by early learners can improve the care of geriatric surgical patients because it increases contact with the healthcare team and is associated with patient perception of preparedness for surgery.

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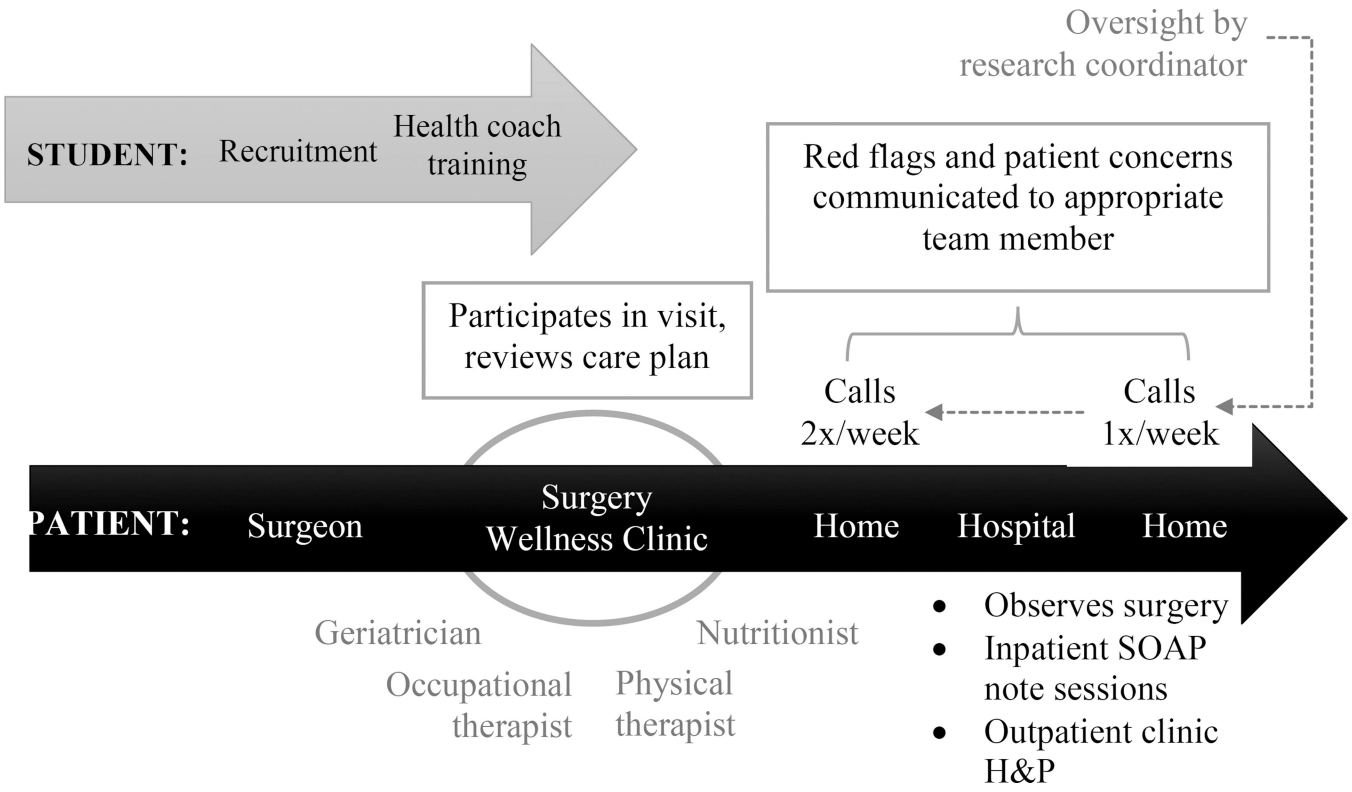

Figure 1. Student and patient flow through the Surgery Wellness Program clinic
H&P, history and physical; SOAP, subjective objective assessment and plan

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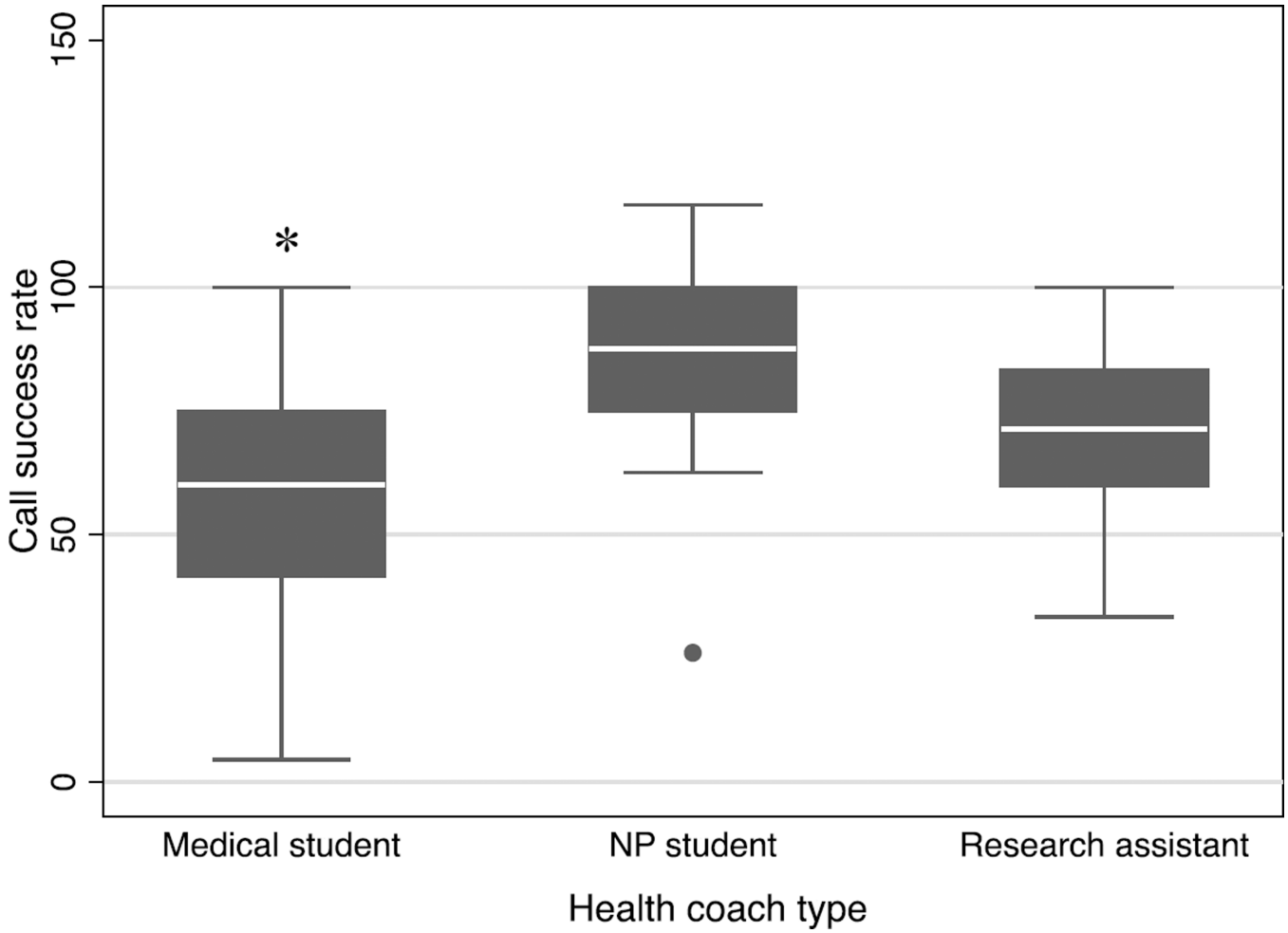

Figure 2. Call success rate by health coach type

Success rate = (number of actual calls/number of expected calls) ×100. NP, Nurse practitioner

*Kruskal-Wallis p-value 0.004

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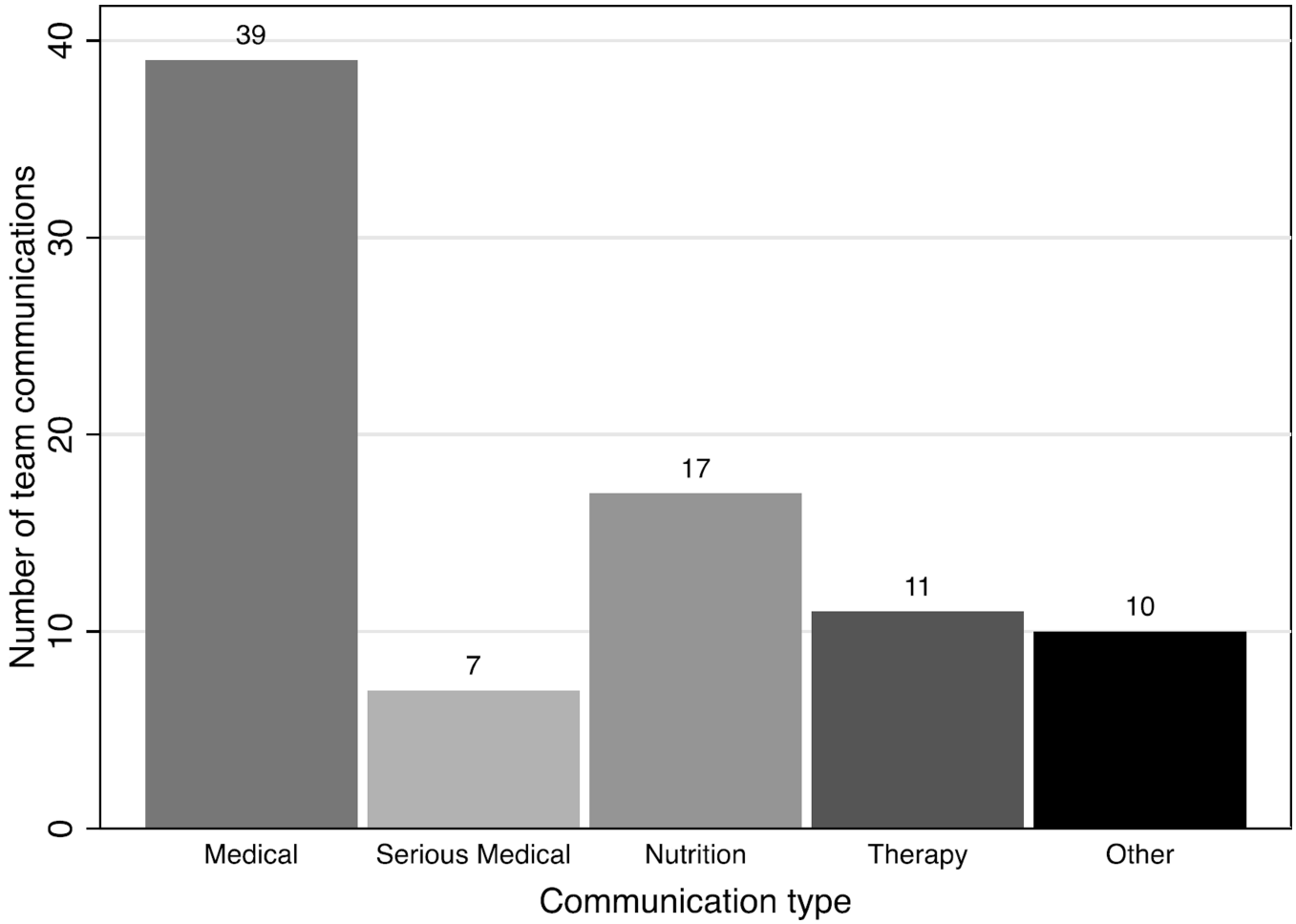

Figure 3. Instances when health coaches contact members of the healthcare team

"Medical" includes medication questions or questions about upcoming surgery. "Serious medical" includes falls, fever/chills, or nausea/vomiting. "Other" includes questions for a case manager or social worker regarding discharge planning or supplies.

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Table 1

Learner assessment and program evaluation strategies mapped to goals and objectives

	Goals and Objectives	Evaluation Strategy
Attitude	Appreciate value of team-based care of surgical patients	Group feedback session Self-reflection
Knowledge	Describe the roles and expertise of interprofessional team members	Direct observation Self-reflection
Skills	Complete health coaching phone calls Develop history and physical, clinical documentation, and oral presentation skills Develop team-based care plans	Direct observation by peers and faculty; clinical documentation review
Behavior	Demonstrate communication and negotiation skills with interprofessional team members and patients/families Demonstrate professionalism in all interactions with staff, colleagues, and patients	360 degree team and patient feedback and evaluation

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Table 2

Patient characteristics

	71 patients, N (%)
Patient age, years *	73 (67–82)
Female gender	37 (52.1%)
Service	
Colorectal	18 (25.4%)
Urology	13 (18.3%)
Gynecologic oncology	9 (12.7%)
Orthopedic oncology	2 (2.8%)
Liver transplant	9 (12.7%)
Vascular	1 (1.4%)
General surgery	10 (14.1%)
Gastrointestinal surgical oncology	7 (9.9%)
Crdiothoraci	2 (2.8%)
Surgery	
Underwent surgery	47 (66.2%)
Days between clinic and surgery *	27 (20–38)
Follow-up time if no surgery, days *	55 (30–79.5)
Health coach type	
Medical student	38 (53.5%)
Nurse practitioner student	11 (15.5%)
Research assistant	22 (31.0%)

* Median (Interquartile range)

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Table 3

Results from patient satisfaction survey

	34 patients, N (%)
How satisfied are you with the health coaching you or your loved one received?	
Extremely	24 (70.6%)
Fairly	9 (26.5%)
Somewhat	1 (2.9%)
Do you feel better prepared or informed about your surgery?	
Yes	30 (88.2%)
No	4 (11.8%)
Would you recommend his health coach to others?	
Yes	33 (97.1%)
No *	1 (2.9%)
Reason for missing surveys in eligible patients	13 patients, N(%)
No reason or did not administer	9 (69.2%)
Patient refused	2 (15.4%)
Not enough time between visit and operation	1 (7.7%)
Lost to follow up	1 (7.7%)

* Reason for saying no: “It is going to be a long surgery and I just have a lot to think about.”