



Patient and Healthcare Provider Satisfaction with a Nutrition Care Program Implemented in Community Clinics

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ABSTRACT

Background: Poor nutrition affects over 25% of older adults living in the community and poses a significant burden on the population and on the healthcare system overall. Nutrition programs have been effective in improving the quality of care in hospitals or post-acute care settings, in turn resulting in improved health outcomes for patients and economic outcomes for healthcare systems. Little is known about the effectiveness of similar nutrition programs in outpatient clinic settings. The aim of the present study was to evaluate the impact of an outpatient nutrition care program on patient and healthcare provider experiences.

Methods: A pre-post, real world quality improvement program (QIP) study was implemented at three US health-care system clinics. A total of 600 patients older than 45 years were enrolled in the study. The QIP was implemented by 9 healthcare providers including five family or internal medicine physicians, two physician assistants, and two registered dietitians. As recently reported by Hong et al (2021), the QIP resulted in reduced healthcare resource use (hospitalizations, emergency department visits, and outpatient clinic visits) and costs over 90 days. Patient satisfaction with the QIP was assessed at the end of patient's QIP participation (90 days post enrollment). Healthcare providers were asked to rate their confidence and their experience and satisfaction at the beginning of the QIP and at the late stages of QIP completion.

Results: The large majority of QIP patients were very satisfied with the overall nutrition care and education provided over the course of the QIP. QIP patients reporting higher levels of satisfaction also reported higher adherence with the recommended ONS regimen. Healthcare providers reported high levels of confidence and satisfaction with the QIP as it helped them identify and support the needs of patients with poor nutritional status.

Conclusion: Nutrition QIPs in outpatient clinics are feasible and can result in high patient and healthcare provider satisfaction, as well as reduced use of healthcare resources and lower costs. These findings highlight the benefits of outpatient nutrition interventions for community dwelling adults with poor nutritional status.

Keywords: Healthcare providers; Outpatient clinics; Nutrition care; Patient experience; Satisfaction

INTRODUCTION

Nutritional status is a key determinant of wellness in middle aged and older adults, a population seen frequently in primary care and in acute care settings. In community settings, the presence of malnutrition or its risk is estimated to be between 10% and 30% but can be over 50% in some older adult popula-

tions with certain chronic diseases or conditions [1-5]. Family physicians and other primary care practitioners are thus well positioned to identify and treat poor nutrition in their patients [6]. When surveyed, family physicians recognized the importance of diet in management of chronic diseases and were willing to provide nutrition counselling, yet the barriers of inadequate time, training, or compensation stood in the way [7,8].

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Nutrition care matters because poor nutritional status has an unfavourable impact on both health outcomes and healthcare resource utilization. When under nutrition leads to loss of muscle mass and strength in older adults, health changes are reflected as lower functional status and poorer quality of life; poor nutritional status is likewise associated with increased risk of falls and frailty [9]. For people with malnutrition or its risk, hospital care is more frequently needed, and lengths of stay are longer. Such patients are at an increased risk for adverse complications during and after discharge from the hospital, including higher 30 day readmission rates [10]. Costs of hospital care have been reported to be 31% to 38% higher for patients with moderate to severe malnutrition, and may be as much as twice as high in comparison with hospital stays for patients without malnutrition [11,12]. The annual cost of disease associated malnutrition in the United States has been estimated as almost \$ 150 billion [13].

We recently studied the outcomes of a nutrition focused quality improvement program (QIP) on healthcare resource use and costs for patients cared for in outpatient clinics (internal or family medicine) of an academic healthcare system in California, USA [14]. We found that nutrition focused patient care led to lower use of healthcare services (hospitalizations, emergency department visits, and outpatient clinic visits) and to savings of nearly \$ 500 per patient over the 90 day study interval [14]. The objective of our current analysis was to determine whether this nutrition focused care affected both healthcare professional and patient satisfaction, a proxy measure of healthcare quality, as measured by a survey of the Consumer Assessment of Healthcare Providers and Systems (CAHPS) [15].

METHODS

Study Design

This study which is registered in ClinicalTrials.gov as number NCT03628196 was implemented at three outpatient clinics (internal or family medicine) of an academic healthcare system in the Los Angeles, California metropolitan area. The study was approved by the center's Institutional Review Board and all patients provided informed consent prior to participating in the study. The design was a pre-post, real world, nutrition focused QIP intervention and patients were enrolled between September 26, 2018 December 19, 2019. Patients who were at nutritional risk at the initial clinic visits (n=600) were advised by the participating healthcare providers to incorporate condition specific oral nutritional supplements (ONS) as part of their daily dietary intake. Patients were also educated on the importance of adherence with the recommended ONS regimen and were followed for 90 days. Of the 600 QIP patients, 187 (31.1%) completed the QIP satisfaction survey at the end of the QIP.

A total of nine healthcare providers including five either family or internal medicine physicians, two physician assistants, and two registered dietitians participated in the study and implemented the QIP with the eligible QIP patients. Healthcare providers received periodic education on the importance of identifying and treating poor nutritional status and were trained on implementation of nutrition screening and care into their practice prior to QIP launch. The healthcare providers were asked

to rate their confidence and experience or satisfaction with the nutrition care program at the beginning of the QIP and at the late stages of QIP completion via the same survey.

In this study, the surveys used with both patients and healthcare providers were developed by the research team and were pilot tested prior to distribution. The survey structure was mainly informed by the Client Satisfaction Questionnaire (CSQ-8) and was augmented to account for the unique aspects of the QIP [16]. The survey utilized with the healthcare providers followed a similar format to the one previously published by Colangelo et al [17]. Both surveys used a 5-point Likert scale, with higher scores reporting higher levels of satisfaction, confidence, and agreement. For more information about the study, please refer to Hong et al [14].

Data Analyses

Descriptive statistics (number and percent or mean \pm standard deviation) were calculated for all respondent responses. Analyses were performed by comparing pre and post-QIP provider responses using the paired t test for continuous variables. All analyses were performed with SPSS 22.0, and a two tailed $p < 0.05$ was considered statistically significant.

RESULTS

A large majority of QIP patients were very satisfied with the nutrition care (81.8%) and nutrition education (81.3%) provided over the course of the QIP, as well as the knowledge and ability of their healthcare provider to answer nutrition related questions (82.4%) (Table 1).

Table 1: Patient Satisfaction Survey (N=187 Responses)

Survey Question	Response	N (%)
How satisfied were you with the nutrition care received during nutrition visits?	Very Satisfied	153 (81.8)
	Somewhat Satisfied	15 (8.0)
	Neutral	15 (8.0)
	Somewhat Unsatisfied	2 (1.1)
	Very Unsatisfied	2 (1.1)
How satisfied were you with the nutrition education and instructions provided?	Very Satisfied	152 (81.3)
	Somewhat Satisfied	18 (9.6)
	Neutral	14 (7.5)
	Somewhat Unsatisfied	0 (0.0)
	Very Unsatisfied	3 (1.6)
How satisfied were you with the responses received from your physician / healthcare provider on nutrition-related questions?	Very Satisfied	154 (82.4)
	Somewhat Satisfied	16 (8.6)
	Neutral	14 (7.5)
	Somewhat Unsatisfied	0 (0.0)
	Very Unsatisfied	3 (1.6)

QIP patients reporting being highly satisfied with the nutrition care provided to them during the QIP were more likely to report higher levels of ONS adherence (n=100, 53.5%). A 30% absolute increase (53.5% vs. 23.5%) in the number of patients reporting high ONS adherence when being highly satisfied with

Table 2: Patient Satisfaction and ONS Adherence (n=187)

ONS Adherence*	QIP Satisfaction Category**	
	Highly Satisfied N (%)	Less than Highly Satisfied N (%)
High	100 (53.5%)	24 (12.8%)
Low	44 (23.5%)	19 (10.2%)

*High ONS Adherence: Patient consumed ONS upon enrolling in QIP and continued ONS use through day 90. Low ONS Adherence: Patient consumed ONS upon enrolling in QIP but did not continue ONS use through day 90 or did not consume ONS throughout study period.

**Highly Satisfied: Responses to all three satisfaction questions were highly satisfied. Less than highly satisfied: Any response less than highly satisfied to any of the three satisfactions questions.

the QIP was observed (Table 2).

Healthcare providers reported a significantly higher level of confidence with the QIP and its ability to help them identify whether patients were at nutritional risk and in providing the appropriate nutrition information, education and ONS to pa-

tients with poor nutrition status at the late stages of QIP completion (overall average score: 4.6/5 points or 24.3% relative increase; $p < 0.05$) (Table 3). Healthcare providers reported also increased satisfaction with the QIP over time (average score: 4.6/5 points) (Table 4).

Table 3: Healthcare Provider Confidence with QIP Before and After QIP Implementation (No Confidence-1; Very Confident-5)

Question	Pre-QIP (N=9) Mean (SD)	Post-QIP (N=9) Mean (SD)	% Relative Change (P-Value)
I can identify whether my patients are at poor nutrition status during a routine clinic visit.	3.9 (1.3)	4.8 (0.4)	23.1% (0.021)
I can provide nutrition information and educate my patients with poor nutrition status during a routine clinic visit.	4.2 (0.7)	4.9 (0.3)	16.7% (0.022)
I can recommend the appropriate type of oral nutritional supplements (ONS) to my patients with poor nutrition status depending on their nutritional needs.	3.2 (1.1)	4.9 (0.3)	53.1% (0.002)
My patients will experience improved health outcomes (e.g., functionality, recovery) as a result of receiving nutrition care during routine and follow-up clinic visits.	3.9 (0.8)	4.6 (0.5)	17.9% (0.004)
My patients will experience reduced healthcare resource utilization (e.g., reduced hospitalizations) as a result of receiving nutrition care during routine and follow-up clinic visits.	3.4 (0.7)	3.9 (0.8)	14.7% (0.035)
It is possible to improve clinic-level quality metrics by optimizing the nutrition care for patients with poor nutrition status.	3.7 (0.9)	4.7 (0.5)	27.0% (0.003)
Total	3.7 (0.9)	4.6 (0.6)	24.3% (<0.001)

QIP, Quality Improvement Program; SD, Standard Deviation

Table 4: Healthcare Provider Satisfaction with QIP (Strongly Disagree-1; Strongly Agree-5)

Question	Score, Mean (SD)
The nutrition care program is meeting the needs of my patients with poor nutrition status	4.4 (0.5)
I would choose to utilize the nutrition care program for future patients.	4.6 (0.5)
I would recommend the nutrition care program to other outpatient clinics.	4.7 (0.5)
Overall, I am very satisfied with the nutrition care program.	4.7 (0.5)
Total	4.6 (0.5)

DISCUSSION

Patient satisfaction is an important and commonly used indicator for measuring quality in healthcare. Patient satisfaction affects clinical outcomes, patient retention, and medical malpractice claims. It affects the timely, efficient, and patient centered delivery of quality health care. Patient satisfaction is thus a proxy but an effective success measure for care by doctors and hospitals [18]. The results of our study suggest that by optimizing nutrition care for poorly nourished outpatients, patients are more likely to report high levels of satisfaction and/or care experiences, which are further associated with improved adherence to recommended treatment regimen and better

outcomes. These findings are supported by the significant reduction in overall healthcare resource use over 90 days and by reduced healthcare costs observed for the QIP patients [14]. The QIP study findings build on previously published studies with hospitalized and transition of care patients (receiving care in post-acute settings such as home health) and demonstrate once again the importance of nutrition care in delivering value, which is evidenced by better patient outcomes at cost savings to healthcare systems [19].

The Centers for Medicare and Medicaid Services (CMS) in the US has implemented different surveys (Consumer Assessment of Healthcare Providers and Systems CAHPS) to assess patient experience with the care received across different settings of

care including outpatient clinics [15]. CAHPS surveys are an integral part of CMS' efforts to improve healthcare in the US. While these surveys focus on matters that patients themselves say are important to them, CMS publicly reports the results of such surveys, and informs payments to different CMS providers. For example, with the quality of services being measured clinically, administratively and by using patient experience of care surveys, some CAHPS surveys are used in CMS's Value Based Purchasing ('Pay for Performance') initiatives. Our QIP findings highlight the importance of optimized nutrition care in outpatient clinics to address patient needs and expectations and inform better patient experience with the overall quality of care.

Healthcare providers in this study reported high levels of confidence and satisfaction with the QIP. These findings are consistent with those reported by Colangelo et al [20]. The authors surveyed a total of 63 healthcare providers from 18 US outpatient clinics who reported high levels of satisfaction with the quality improvement initiatives initiated at their clinics focusing on improving nutrition care for their patients (eg, better identification of poor nutrition, improved ability to answer nutrition questions posed by their patients or caregivers). Additionally, healthcare provider responses indicated that patient experience and satisfaction with care improved, while most healthcare providers reported that patients had improved health and functionality after the nutrition focused quality improvement initiatives were implemented at their institutions improvements demonstrated in our study as well [14]. The nutrition QIP initiatives implemented at the three clinics were effective in helping healthcare providers feel better prepared and more confident in identifying and addressing the needs of their patients with poor nutrition status. This is particularly important since US medical schools provide minimal nutrition education and training, and only a small group of physicians believe they have the appropriate training to talk to patients about diet or physical activity and/or include any nutrition counseling in their practices [21-28]. In addition to ongoing nutrition education and creation of nutrition learning experiences that can be applied to clinical practice, participating in nutrition focused QIPs can be essential in assisting healthcare providers in outpatient clinics use nutrition QIPs as a model to optimize the quality of care for their patients.

Since skilled communication by healthcare providers is a key component of the patient experience, we recognize the importance of training of healthcare providers on skills for nutrition communication. Real world QIPs are designed to incorporate systematic, continuous, and sustainable actions that lead to measurable improvements in healthcare services and the health status of targeted patient groups [14]. Communication and building trust with patients can lead to increased adherence with the recommended treatment plan [29]. QIP patients reporting higher levels of satisfaction also reported higher adherence with the recommended ONS regimen. Studies have found better adherence when the provider patient relationship is built upon trust and the patient feels knowledgeable about their disease and treatment [29]. Therefore, QIPs are well positioned to assist healthcare providers in developing effective communication skills, build trust with patients and prioritize nutrition related communication goals (eg, providing information about diet and ONS, encouraging nutrition regimen adher-

ence) during often brief interactions with their patients [30,31]. This study has inherent limitations of any other study that uses a real world, observational design and self-reported surveys as the main strategy of inquiry [14]. The surveys used in this study are not validated or standardized so future studies may focus on establishing the psychometric properties of these tools before using them. The study results cannot be generalized to other groups of community dwelling adults receiving care in other outpatient clinics or to other groups of healthcare providers who may be inherently different. To our knowledge, this is a first of its kind study, which provides supporting evidence about the feasibility of implementing nutrition focused QIPs in outpatient clinics and its effectiveness in providing high quality of care for patients with poor nutritional status.

CONCLUSION

Nutrition QIPs in outpatient clinics are feasible and can result in high level of satisfaction with care, as perceived by patients and their healthcare providers alike. Healthcare resource use and costs are also reduced and higher levels of patient satisfaction are associated with higher ONS adherence. These findings highlight the benefits of outpatient nutritional interventions for community dwelling adults with poor nutritional status. Such focus on nutrition care thus enhances overall healthcare quality. These findings support a need for development of policies and practices to enhance nutrition care in outpatient settings, including protocols for patient care and continuous education and training for healthcare providers.

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CONFLICT DISCLOSURES

Dr Hong and Dr Kaloostian received research grant support from Abbott. Dr. Sulo and Mr. Brunton are employees and stockholders of Abbott. Other authors have no conflicts of interest to report.

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