Factors Associated with Job Satisfaction in Medical Oncology Practices: Results from a Multi-Site Survey

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Abstract

Objective: To examine factors influencing job satisfaction of nurses, physicians, and advanced practice providers in ambulatory oncology settings.

Background: Job satisfaction is essential to clinician well-being and quality of care.

Methods: In 2017, clinicians from 29 ambulatory medical oncology practices completed anonymous paper questionnaires that examined job satisfaction, clinician-to-clinician communication, and perceptions of patient safety. Linear regression – adjusted for clustered observations - examined the relationship between job satisfaction, clinician communication and patient safety perceptions.

Results: From 280 respondents (response rate of 68%), 85% reported they were satisfied or very satisfied with their current position. Patient safety and accuracy of clinician communication were positively and significantly associated with job satisfaction.

Conclusions: While most surveyed clinicians were satisfied, 15% were dissatisfied and reported communication and safety concerns. Leadership efforts to strengthen clinician communication actions and develop positive safety cultures are promising strategies to promote clinician well-being and high-quality cancer care.

Introduction

The clinical oncology workforce faces numerous threats to deliver safe, high-quality cancer care and most oncology care is delivered by nurses (1,2). As clinical volumes rise, treatment complexity grows, practice finances tighten, and workforce shortages loom, front-line clinicians are at risk for adverse outcomes, including burnout, job dissatisfaction, and

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voluntary workforce turnover(3). These issues are particularly challenging in medical oncology, where high-quality care requires close integration across multiple disciplines.

Recent national efforts have centered on understanding and addressing burnout as a key strategy to promoting clinician well-being(4). Job satisfaction is an essential component to understanding clinician well-being (5). Multiple studies among diverse oncology clinician groups have established significant relationships between job satisfaction and well-being (6). Hence, efforts to curb concerning incidence of clinician burnout as a threat to quality of care should include deeper understanding of the patterns and correlates of job satisfaction.

Several challenges have impeded progress in understanding job satisfaction across medical oncology teams. Reliance on convenience sampling frames, single-site studies, relatively low response rates, and failure to consider key personal and organizational characteristics contribute to our limited understanding of job satisfaction and related concerns for clinician well-being. Further, understanding job satisfaction in medical oncology settings, where large volumes of high-risk care are delivered, has not received enough attention. The last large-scale survey focused on oncology practices was conducted in 2013 and only physicians were sampled (7). Without recent, robust, and generalizable data across professional groups, progress in developing effective workplace interventions will be elusive.

To address the knowledge gaps and inform subsequent research studies, the purpose of the current inquiry was to investigate the frequency of clinician job dissatisfaction and potential personal and organizational correlates of job dissatisfaction.

Methods

Data Source

Data for the current inquiry derive from the **O**ncology **C**ommunication, **T**echnology, and Patient **E**vents (OCTET) study (R01HS024914). The OCTET study is a mixed methods investigation that examines how clinician communication and use of communication technologies were associated with adverse patient events in ambulatory oncology settings. Details on the study's conceptual model and design have been published previously(8). The current inquiry uses survey data obtained from clinicians employed across 29 diverse medical oncology practices in Michigan. The University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board reviewed and approved the study protocol.

Sample

Practices—The sampling frame was 29 ambulatory oncology practices that participate in the Michigan Oncology Quality Collaborative (MOQC), a statewide quality improvement consortium that includes approximately 90% of all Michigan's medical oncologists (9). OCTET study investigators presented a study overview and solicited participation from practice leaders. The MOQC Program Director sent email invitations to practice leaders with a study synopsis. Once practices expressed interest, study staff trained a designated on-site study champion on data collection procedures. On-site study champions identified eligible participants for the survey, provided each potential participant with a study packet, and sent

project reminders at regular intervals. The study team fielded surveys across participating sites on a rolling basis in 2017.

Clinicians—Eligible clinicians included registered nurses, physicians, nurse practitioners, or physician assistants who managed adult patients before, during, and after receipt of infusion treatments for cancer. Nurses and prescribers (physicians, nurse practitioners, and physician assistants) received two distinct survey formats, respectively. Survey packets contained a cover letter, paper questionnaire, a $10 cash incentive, and a return addressed stamped envelope. To protect confidentiality, no identifiers other than a code for participating practice were included on survey packets. Trained research assistants double entered all data, and the study's project manager resolved any discrepancies.

Measures and Outcome Assessments

Job Satisfaction—The primary outcome for this inquiry was clinician-reported job satisfaction, using a single-item, five-point Likert scale. Participants rated the extent to which they were satisfied in their current position, where 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, and 5 = very satisfied. In addition to treating job satisfaction as a continuous variable, we also report it as a dichotomous outcome where dissatisfaction was considered present if the respondent reported 1 through 3 on the scale and satisfaction was considered present if the respondent reported 4 or 5 on the scale. This single-item measure was validated previously in a multinational survey of health care professionals (10).

Safety Organizing Scale—We used the Safety Organizing Scale (SOS) to reflect clinicians' perceptions of performing actions in their workplace that are congruent with high-reliability organizations (9). The SOS is comprised of 9-items, and demonstrated high internal consistency in our sample ($\alpha = 0.88$). Clinicians assessed the extent to which they and their colleagues in their workplace performed behaviors that support patient safety (e.g., "We talk about mistakes and ways to learn from them") using a 7-point Likert scale (1 = not at all to 7 = to a very great extent). The items are summed and averaged for each respondent. Higher scores reflect increased performance of actions consistent with a safety culture.

Quality of clinician communication—We used the Nurse-Physician Communication Questionnaire ($\alpha = 0.92$ in our study), which we adapted for this study setting with the original developer's permission (10,11). The instrument has 21 items across four subscales: accuracy, openness, timeliness, and understanding of communication. Clinicians rated 21 items on a 5-point Likert scale (1-strongly disagree to 5-strongly agree). We examined respondents' scores on each of the four subscales with higher scores indicating higher quality clinician communication.

Electronic health record capability—We used a dichotomous measure to reflect whether each participating practice's current health record was either all electronic or a combination of paper and electronic.

Survey respondents provided their sex, race, ethnicity, age, and years employed in the current practice and their personal patient caseloads during their last full day in the clinical

setting. Participants reported separate caseload values for hands-on direct care and patients managed by email or electronic portals. Background data from the quality improvement collaborative summarized practices' average patient volumes and ownership.

Data Analyses

We used descriptive statistics to examine personal and practice characteristics and their relationship to clinician-reported job satisfaction. Independent sample t-tests examined differences in the Safety Organizing Scale and communication subscales between satisfied and dissatisfied clinicians. We used linear regression with robust standard errors to account for clustering within practices to examine the relationships among job satisfaction and personal and organizational factors. To achieve model parsimony during preparatory work, we estimated individual models with each communication subscale. We considered alpha values less than 0.05 as statistically significant.

Results

Of 437 eligible clinicians, 297 returned questionnaires, for a response rate of 68%. Of these, 280 (94% of returned questionnaires, 64% of eligible clinicians) answered the job satisfaction question and were included in this secondary analysis.

Practice and Clinician Characteristics

Table 1 shows personal and organizational characteristics of clinicians by their reported level of job satisfaction. For this analysis, we considered clinicians as dissatisfied if they reported they were neutral, dissatisfied, or very dissatisfied with their current position. We considered clinicians as satisfied if they reported they were satisfied or very satisfied with their current position. A higher proportion of nurses were dissatisfied when compared with prescribers. Satisfied and dissatisfied clinicians were similar regarding age, years of practice, and average daily patient volumes. A higher proportion of dissatisfied clinicians worked in academic-affiliated practices.

Communication, safety behaviors, and job satisfaction

Table 2 shows unadjusted means and standard deviations of key organizational attributes by job satisfaction category. When compared to satisfied clinicians, dissatisfied clinicians reported significantly lower scores on the Safety Organizing Scale and on all subscales of the communication instrument ($p < .05$ for all comparisons). In bivariate analyses, none of the personal factors examined were significantly associated with job satisfaction (results not shown).

Factors associated with higher job satisfaction

In Table 3, we report findings from a multivariable linear regression model – adjusted for clustered clinician observations within practices – that examined reports of higher job satisfaction. The model presented herein followed an iterative set of models that introduced individual communication subscales separately. Across all models estimated, we examined variance inflation factors and tolerance values and detected no multicollinearity.

A one-point increase in the safety organizing scale was associated with a significant increase in job satisfaction (β=0.22, SE=0.06, 95% CI = 0.10–0.34). Similarly, a one-point increase in the communication accuracy subscale was associated with a significant increase in job satisfaction (β=0.30, SE=0.07, 95% CI = 0.16–0.44). No other communication subscales were significantly associated with job satisfaction in multivariable models (results not shown). Job satisfaction was not associated with years in current setting, average daily patient volume, or clinical role.

Discussion

From this 2017 multi-site survey of clinicians in ambulatory medical oncology practices, we found that approximately 85% of respondents expressed they were satisfied with their jobs. Job satisfaction was higher among clinicians who perceived that their clinical colleagues performed behaviors congruent with safety more frequently. Job satisfaction was also higher among clinicians who perceived higher accuracy of clinician-to-clinician communication. The study findings provide clinical leaders with actionable data to inform efforts to improve work environments in this high-risk clinical setting.

Our study identified that most surveyed oncology clinicians reported high job satisfaction, confirming findings from prior studies (6,7,11). The current inquiry examines the relationship between job satisfaction and safety behavior performance and communication. Dissatisfied clinicians also reported concerns about clinician-to-clinician communication and patient safety, which threaten clinical performance outcomes. Strategies to enable health care systems to embrace principles of high reliability organizations – preoccupation with addressing process failures, recognition of complexity, open communication, commitment to resilience, and deference to expertise - may have tangible benefits beyond improving patient safety (12). Indeed, leaders can consider developing principles of high reliability to strengthen clinician job satisfaction.

We note that dissatisfied clinicians were more reported that clinician-to-clinician communication was less accurate. Accurate clinician communication is an imperative strategy to promote patient safety. Implementation of evidence-based tools to strengthen the accuracy of clinician-to-clinician communication can facilitate a shared sense of understanding essential for optimal patient outcomes, which may result in enhanced clinician satisfaction (13). Within a framework of building resilience, leadership attention to both adopting high reliability principles and facilitating accurate communication may enable oncology clinicians to adapt positively to a constantly changing health care system (14).

Efforts to strengthen the practice environment for oncology clinicians may result in improved satisfaction, less burnout, and improved quality of patient care. Multiple studies have reported that positive perceptions of the work environment correlate with burnout (15,16). In a 2017 meta-analysis, physician and nurse burnout was associated with perceived quality and perceptions of safety across both inpatient and outpatient settings (17).

Strengths of our study include a sampling frame of diverse practices and clinicians, a high survey response rate, and inclusion of measures with demonstrated reliability and validity.

Our study has several limitations, including inherent challenges to secondary data analysis. Despite the notable findings from this inquiry, the original study was not explicitly designed nor powered to detect differences in job satisfaction; job satisfaction was considered a contextual variable in primary analysis. The outcome measure of job satisfaction is unbalanced across the sample, so t-test results should be interpreted with caution. Given the cross-sectional study design, causal relationships cannot be established. Burnout was not explicitly measured, although several investigations have reported significant correlations between job satisfaction and burnout (5,6,18). To preserve confidentiality, specific prescriber roles were not identified (e.g., physician, advanced practice nurse, physician assistant). Finally, the sampling frame did not include practices owned by corporations or other private entities.

When considering our study's strengths and limitations, we propose future directions for efforts to improve oncology clinician well-being and promoting safe, high-quality cancer care. First, a shift from the current state of single-site, cross-sectional studies to efforts that examine clinician outcomes over time and also empirically test interventions is essential to building the evidence base necessary to strengthen health care systems. Professional organizations and similar consortia focused on improving clinician well-being should consider establishing collaborative registries where longitudinal clinician surveys include valid and reliable measures. Such registries could facilitate trials of individual and organizational interventions. The sampling frames should reflect the diversity of the clinical oncology community. Given that most surveyed clinicians were satisfied, positive organizational scholarship approaches could explicate factors that contribute to favorable work environments and perceptions. While conventional wisdom suggests that attention to these issues will translate to improved patient safety, empirical studies that confirm that hypotheses are lacking. Hence, future work should consider simultaneous study of clinician, system, and patient outcomes.

In conclusion, while job satisfaction was relatively high among our diverse sample of medical oncology clinicians, a notable number of clinicians endorsed job dissatisfaction, which was associated with actionable organizational targets. Promising strategies to address this problem include leadership aspiration to adopt principles of high-reliability organizations and implementation interventions to assure accurate clinician communication across the organization. Attention to oncology clinician job satisfaction may enable this high-volume, high-risk clinical environment to bolster and support the challenged oncology workforce (2).

Funding:

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Table 1.

Characteristics of Satisfied and Dissatisfied Oncology Clinicians

Factor	Total sample N=280	Dissatisfied Clinicians n=41	Satisfied Clinicians n=239
Clinical Role			
Prescriber	106 (37.9)	13 (31.7)	93 (38.9)
Registered Nurse	174 (62.1)	28 (68.3)	146 (61.1)
Gender (% female)	233 (84.4)	34 (82.9)	199 (84.7)
Race			
Black	3 (1.1)	2 (4.9)	1 (0.4)
Asian	22 (7.9)	4 (9.8)	18 (7.5)
White	234 (83.5)	33 (80.4)	201 (84.1)
Other	21 (7.5)	2 (4.9)	19 (8.0)
Hispanic or Latino Origin (% yes)	6 (2.2)	1 (2.5)	5 (2.1)
Age (mean, SD)	48 (11.8)	47 (11.4)	49 (11.9)
Years in current clinical setting (mean, SD)	6.9 (6.9)	6.5 (7.0)	7.0 (6.9)
Average daily patient volume providing direct care (mean, SD)	10.7 (7.2)	10.5 (7.0)	10.8 (7.2)
Average daily patient volume providing care electronically (mean, SD)	4.4 (6.9)	3.8 (6.0)	4.5 (7.0)
Practice Ownership			
Physician owned	22 (7.9)	0 (0)	22 (9.2)
Integrated Health System	95 (33.9)	14 (34.1)	81 (33.9)
Academic medical center owned	163 (58.2)	27 (65.9)	136 (56.9)
Health Records Status			
All paper, or paper + electronic	82 (29.3)	14 (34.1)	68 (28.5)
All electronic	198 (70.7)	27 (65.9)	171 (71.5)

Data given as no. (%) unless otherwise indicated. Prescribers included medical oncology physicians, nurse practitioners, and physician assistants. Dissatisfied Clinicians reported they were very dissatisfied, dissatisfied, or endorsed a neutral assessment of their current position. Satisfied Clinicians reported they were satisfied or very satisfied with their current position.

Abbreviation: SD, standard deviation.

Table 2.

Differences in communication and safety behaviors between clinicians' job satisfaction.

Factors	Total Sample (N= 280)	Dissatisfied Clinicians (n=41)	Satisfied Clinicians (n=239)	T-Test	p-value
		Mean (SD)			
Safety Organizing Scale	5.33 (1.1)	4.77 (1.5)	5.43 (1.0)	2.60	.01
Communication: Accuracy	3.58 (0.8)	3.22 (0.6)	3.64 (0.8)	3.69	<.001
Communication: Timeliness	3.81 (0.7)	3.48 (0.9)	3.86 (0.7)	2.55	.01
Communication: Understanding	3.80 (0.7)	3.57 (0.7)	3.84 (0.7)	2.21	.03
Communication: Openness	3.93 (0.8)	3.63 (0.9)	3.98 (0.8)	2.27	.03

Table 3.

Linear regression model with robust standard errors examining factors associated with job satisfaction (n=280).

Factor	Job Satisfaction		
	β(SE)	95% CI	p-value
Safety Organizing Scale	0.22 (0.06)	0.10–0.34	<.001
Communication Accuracy Subscale	0.30 (0.07)	0.16–0.44	<.001
Years in Current Setting	0.01 (0.01)	−0.02–0.02	.93
Average daily patient volume	0.05 (0.03)	−0.02 – 0.12	.13
Role (prescriber vs. nurse)	0.05 (0.15)	−0.24–0.35	.72

Abbreviation: CI, Confidence Interval; SE, Standard Error