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Capitalizing on the 'teachable' moment to promote healthy dietary changes among cancer survivors: the perspectives of healthcare providers

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Abstract

Purpose—Although cancer is often thought of as a teachable moment, many cancer survivors do not adhere to behavioral recommendations that might improve their health. This study explored healthcare providers' perspectives on the importance and feasibility of addressing behavior change, specifically healthy diet, with cancer survivors.

Methods—In-depth interviews were conducted with 33 healthcare providers who care for posttreatment survivors of breast cancer, prostate cancer, and non-Hodgkin's lymphoma. Interviews were analyzed thematically.

Results—Healthcare providers emphasized the strength of evidence linking diet/obesity to recurrence in their assessment of the importance of promoting dietary change among their survivor patients. Cancer specialists (e.g., oncologists, surgeons) generally brought up dietary change with patients if they considered the evidence to be strong. In contrast, primary care providers viewed health promotion as important for all patients, and reported treating cancer survivor patients the

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same as others when it came to making dietary recommendations. There was a lack of consensus among providers on the best timing to bring up behavior change. Providers described specific subgroups of patients who they saw as more motivated to make behavior changes, and patient barriers to making dietary changes.

Conclusions—Healthcare providers can play an important role in promoting healthy diet among cancer survivors. As the evidence base around diet and cancer recurrence/prognosis grows, it is important that this information is communicated to providers. Strategies such as incorporating behavior change messages into survivor care plans may help standardize recommendations to survivors.

Keywords

Cancer survivors; diet; healthcare providers; behavior change; teachable moment

Introduction

Background

There are currently more than 13.7 million cancer survivors in the United States; approximately two-thirds of whom survive 5 or more years post-diagnosis [1]. In addition to risk for recurrence and second cancers, cancer survivors have higher rates of cardiovascular disease, diabetes, osteoporosis, and functional decline compared to adults without a history of cancer [2–5]. The health risks of cancer survivors are thought to be attributable to multiple factors, including genetic predisposition, treatment-related side effects, and common behavioral risk factors (e.g., obesity, inactivity) [6,7,5,4].

A cancer diagnosis is often thought of as a *teachable moment* when individuals might be more motivated to make changes that may reduce their health risks [8,9,5,10]. Several studies have examined the prevalence of post-diagnosis behavior changes [11–16], including a review article estimating that 30% to 60% of cancer survivors report making healthy dietary changes, and inconsistent evidence regarding the impact of a cancer diagnosis on physical activity [5]. National studies have concluded that many cancer survivors do not adhere to behavioral guidelines that could reduce their health risks [17–20], and rates of adherence to guidelines for cancer survivors do not differ significantly from those of adults without cancer [21,19,22]. Thus, if cancer is a teachable moment, it is not always so, and when changes do occur these are often not sustained over time.

Although specific subgroups of cancer survivors, including women, younger patients, and those living in rural areas, have been found to be more likely to make behavioral changes following their diagnosis [12,11,5], there has been relatively little research on modifiable predictors of behavior change following a cancer diagnosis. However, a physician recommendation has consistently been found to be associated with higher rates of behavior change among cancer survivors [23,12] and in the general patient population [24,25].

While primary care providers are generally the physician group tasked with making lifestyle recommendations, for cancer survivors who are often cared for by primary care providers and cancer specialists (e.g., oncologists, surgeons) [26], there are potentially multiple

opportunities to intervene. However, most cancer survivors do not report discussing behavior change with any of their healthcare providers [27,28]. Only an estimated 24.6% cancer survivors report their healthcare provider discussing or counseling on diet and 21.5% on exercise [27]. Time is often cited as a barrier to providing behavioral counseling to patients; however even a brief recommendation with no follow up has been associated with significant behavior change [23].

This study explores healthcare providers' perspectives on the importance and feasibility of addressing behavior change (specifically healthy diet) with their cancer survivor patients. We also examine providers' beliefs about the readiness of such patients to make healthy dietary changes.

Methods

This work is part of a larger study exploring determinants of healthy dietary changes among people with a history of breast cancer, prostate cancer, or non-Hodgkin lymphoma. Study participants were healthcare providers who treat post-treatment cancer survivors. Breast cancer and prostate cancer patients make up 42% of cancer survivors and the 5-year survival rate for these cancers is high [1]. Non-Hodgkin lymphoma survivors were selected as a comparison group because survivors' experience of treatment and survivorship is quite different from those with solid tumor cancers.

Qualitative interviews were conducted with a purposive sample of 33 healthcare providers (10 oncologists, 5 surgeons, 6 primary care providers, 7 nurses, 2 social workers, a registered dietitian, a patient navigator, and a survivorship coordinator) from both academic and community clinical settings in and around Baltimore, Maryland. Oncologists included both those whose practice focused on a single cancer, and those treating multiple cancer types. The Johns Hopkins Bloomberg School of Public Health IRB determined the provider interviews to be exempt.

Interviews focused on providers' roles and responsibilities in caring for long term cancer survivors; perceived importance of behavior change and healthy diet for survivors; barriers and facilitators survivors encountered in making behavioral changes; and capacity for implementing behavior change interventions within clinical settings.

Interviews were audio recorded, transcribed verbatim and analyzed thematically. The coding scheme was constructed inductively. Two authors (Authors A and B) independently reviewed and open-coded a subset of the transcripts, and compared codes. A draft coding scheme was developed, tested, and revised. Once the coding scheme was finalized, the full set of transcripts was coded by one author (Author A) in ATLAS.ti 7. Codes relevant to this analysis were then analyzed using a constant comparison approach to identify important themes and associations.

Results

Promoting healthy diet among cancer survivors

Healthcare providers generally agreed that making healthy dietary changes was good for the overall health of their cancer survivor patients; however, we saw considerable variance in providers' beliefs about the benefits of lifestyle change in positively impacting cancer related outcomes. For example, one medical oncologist remarked:

> "I do only because it's mom and apple pie and only because it might help their heart… but you know I'm skeptical about all of the potential benefits for [*cancer*] prevention. I mean there's a lot of potential out there. The question is, you know, how much does it make a difference, and in what situations." (Medical oncologist, large NHL patient population)

Providers emphasized the importance of evidence in informing their decision to (or not to) promote healthy dietary changes among their cancer survivor patients. Some considered the evidence supporting the association between lifestyle and recurrence to be strong, as illustrated by one breast cancer medical oncologist.

> "The science clearly points to the fact that lifestyle and behavior change in the areas of diet, exercise, maintaining healthy weight, minimizing alcohol does have a strong scientific basis for reducing the risk of recurrence."

Other providers were hesitant to make recommendations because they did not believe the strength of the science warranted it.

> "I don't see the data out there that suggests that once you have the diagnosis of cancer the it's [*dietary change*] is going to decrease your risk." (Nurse practitioner, prostate cancer)

Others described the association between diet and recurrence as inconclusive, but stated feeling compelled to promote dietary change because of the possibility of a benefit.

> "We believe that some of those [*dietary recommendations*] have a way to diminish the likelihood at least of men to get prostate cancer and we make some extrapolation to say once one has it can help reduce the risk of recurrence, so that's a bit of an extrapolation." (Radiation oncologist, prostate cancer)

Perspectives differed by provider type. Cancer specialists (e.g., oncologists, surgeons) stressed that cancer survivors came to them for surveillance; therefore, they were less likely to discuss health promotion than primary care providers.

> "Most of my patients are happy that I'm talking about lifestyle stuff too I think but I think that what they really want to hear from me is there's no sign of cancer, so you know we'll spend 15 minutes of the 30 minutes on there's no sign of cancer and don't worry and we just don't have time to do the other stuff." (Medical oncologist, breast cancer)

In contrast, primary care providers presented health promotion as a priority for survivors as it is for all their patients. Cancer survivor patients were seen as no different to other patients

when it came to making health promotion recommendations. As one primary care provider remarked:

> "If they have a history of cancer I typically don't talk to them any differently. I address… okay, they have high blood pressure give me a low salt diet, okay. If you have diabetes, I'll go into the, you can do a lower carb…if they have high triglycerides, less alcohol, less red, pasta… I'll treat them as if the cancer was not you know influencing how I do it."

Another primary care provider described how cancer could be used to contextualize the importance of healthy living for survivors.

> "I use their history of cancer to try to motivate them a little bit right. Like, you made it through this, you did well, let's focus on the rest of you…I just had this conversation with a woman two days ago. She had just a hellacious cancer course and did well but had a mastectomy and had reconstruction and everything…but meanwhile she was pre-diabetic and hypertensive, and I said, 'We fixed this. We got you through this…We can't ignore the rest,' so again really changing the focus a little bit to other co-morbidities they have."

When is the teachable moment?

Healthcare providers had varying perspectives of when cancer survivors were most motivated to make dietary changes. Some felt that diet should be brought up soon after diagnosis or during treatment so that patients could establish or maintain good eating habits that would keep them healthy throughout treatment and prevent weight gain.

> "I think the mistake we make sometimes we tend to make things, almost like a bunch of Venn diagrams and everything is there and at different times you're putting emphasis on something else, which is the surgery or the chemotherapy, but the other things need to be there, need to be mentioned, so you're not surprising them. I think for instance to ignore diet, to ignore weight gain and simply approach that at the transition visit six months after the diagnosis, it may be to late" (Medical oncologist, breast cancer)

Others thought discussions about diet should wait until after treatment because treatment itself is a big adjustment for patients. They described an important 'window of opportunity' when patients were primed to make changes and cautioned against waiting too long after acute treatment to discuss diet because of a potential decline in patients' motivation.

> "That window of time just as they're ending their acute phase of treatment I think is a window of time that if we want them to do something that's when we need to instill it in them. Like if I said, I want you to walk on your hands everyday for half a mile because it will reduce your risk then they'd do it. They would figure out how to do it. Sooner than that they're too overwhelmed with treatment. Later they've lost the foxhole religion, so there's this window" (Nurse practitioner, breast cancer)

Providers presented treatment specifics as a consideration in determining the best timing to approach patients about diet. Some described that for patients undergoing chemotherapy it

was important to wait until after treatment to discuss behavior change. During chemotherapy, patients are encouraged to eat whatever they can to get sufficient calories.

> "If they're getting chemo I try not to focus that much on diet because the diet is what it is when they're on chemo…in fact what I tell people is to try to unburden them from the perception that they gotta change their lives…let's not try to get religion just because you started chemo…we talk about you know they just want to maintain caloric intake during chemo…As we finish chemo…we talk a little more about the things I was saying about trying to maintain a balanced, healthy diet…" (Medical oncologist, breast cancer)

Independent of when the discussion first arises, many healthcare providers stressed the importance of patients hearing behavior change messages repeatedly.

> "I'm sure the key time is upfront, at the end of their care, and them at that first follow up. I think those are probably if you asked what were the most important times but really, honestly I ask every single, I see them once a week while they're under care. Every single week they get asked the question so it's important enough to me that I ask the question." (Radiation oncologist, prostate cancer)

Providers discussed different patients being 'activated' to make changes at different times, thus making repeated messages important.

> "Nutrition wise I talk a lot about you know food choices and food preparation…I talk about that almost every visit with almost every patient too. It's pretty rare that it doesn't come up…I would say the reason I counsel every visit is because I think that they might not even be aware they're finally at a point where they're a little bit more ready for change." (Primary care provider)

Repeated messages were also seen as integral for helping patients maintain dietary changes over time.

> "I'd say it's gotta approach 100% are able to do that. I'd say a large majority, 75% are willing to do it, and then probably something like 50% actually do something that is either all of that or some modification of that, so I think it's actually generally well adopted. As you might guess, the further they are out from their active care, the less number of patients stay with that regimen." (Radiation oncologist, prostate cancer)

Patients' motivation to make health behavior changes

Providers described subgroups of patients as being motivated to make dietary changes, particularly those who had a desire to exert some control over an otherwise uncontrollable situation as being motivated to make changes that could reduce their risk of recurrence. One nurse practitioner noted:

> "Some people feel like they need to be active in their care so for those people who are really you know wanting to try and be real active in their care as opposed to what's going to happen is going to happen anyway we'll give them a handout with a lot of recommendations from this cancer society regarding antioxidants and what

> spices and herbs and different things like that, that might be helpful to prevent recurrence." (Nurse practitioner, prostate cancer)

Providers also talked about motivation in terms of prognosis. Patients at 'high risk' of recurrence were presented as being more motivated to make changes.

> "Those men who are on hormone therapy, who are being managed with hormonal therapy I actually think they're somewhat more motivated to, to undergo these kinds of lifestyle changes than the men who are not under hormonal therapy, and what's the difference? Well they have a higher risk, that's why they're having hormonal therapy plus radiation they're a higher risk group, so maybe they take, maybe they're more concerned, so maybe they'll adopt it that way." (Radiation oncologist, prostate cancer)

However, one provider described 'lower risk' patients who did not go through extensive treatment as potentially more motivated because they sought additional strategies to reduce their risk of recurrence.

> "I really felt like even some of our patients with very early stage disease, so like DCIS that may just have surgery or may have surgery and radiation, some of those patients I've found to be the most anxious because they didn't have extensive treatment. They weren't extensively followed and they're the one's that'll feel really motivated to making all kinds of lifestyle changes…or highly motivated, and they may have the most to gain in a sense. If you've got early stage disease and you can intervene with things like exercise and healthy behaviors, hopefully…they're less likely to have a recurrence." (Survivor coordinator, breast cancer)

Age was also seen as a relevant to patients' motivation to make behavior changes. Younger patients were viewed as more concerned about mortality and thus more motivated to make lifestyle changes.

> "If they are really scared, the younger ones and they have children, and they want to make sure they're doing everything then you can tell them whatever to do and they'll do it." (Nurse practitioner, prostate cancer)

Part of this motivation was attributed to the sense that cancer is often more aggressive in younger patients.

Barriers to making healthy dietary changes

Although providers viewed many of their cancer survivor patients as motivated to make behavior changes, they described difficulties these patients face. The primary cancer-specific barrier to behavior change mentioned was survivors' fatigue. Fatigue limited energy to purchase and prepare healthy foods. A dietitian noted "*Some of it is just the overwhelming fatigue that comes with cancer and treatment, so they're saying I know that I should be going to Whole Foods and getting organic apples or whatever, but I can't get off my couch*."

For individuals who continued on hormone therapy following active treatment, fatigue often persisted.

> "We give them hormonal therapy but that doesn't make them eat. It doesn't make them eat but it can make them fatigued. They don't want to exercise because they don't exercise they're more sedentary and…once you're sedentary, what do you like to do? You like to eat, so you eat, and therefore they become fat, so it's a vicious cycle." (Nurse practitioner, prostate cancer)

Other barriers were presented as similar to the issues any patient might face, including individual level, intrapersonal, and environmental barriers. Illustrative quotes describing these barriers are included in Table 1.

Discussion

While a cancer diagnosis may be a teachable moment, this opportunity is not realized for many patients. Our analysis revealed a lack of consensus among healthcare providers on how to best address behavior change generally, and dietary change specifically, among cancer survivors. Areas of contention include the strength of the evidence, proper timing to intervene and extent to which cancer survivors are ready to make behavioral changes.

Healthcare providers prioritized strength of evidence in assessing the importance of behavior change among their patients, and were less likely to bring up diet if they perceived the evidence base as weak. The number of studies linking diet/obesity to cancer prognosis and recurrence is growing [29–31]. Currently, the strongest evidence links obesity to poorer outcomes in cancer survivors, and this evidence is stronger for breast and prostate cancer [32–35,29,36] than for non-Hodgkin lymphoma [37,38]. It has not yet been established whether specific nutrients or food groups are associated cancer-related outcomes in survivors [32,39–41]. Studies suggest benefits of a diet high in fruits and vegetables, and low in saturated fats for breast and prostate cancer survivors [40,42,43]. Little research has explored the impact of diet on outcomes in non-Hodgkin lymphoma survivors [44]. While it is not conclusively known if adopting a low fat, high fiber diet following a diagnosis will impact cancer-specific outcomes, current guidelines promote this because of the potential benefit for cancer-specific outcomes and the established benefit for other diet-related co-morbidities [40]. As the evidence base continues to evolve, it is important that it is disseminated to healthcare providers to help improve clinical consensus on the relevance of diet for healthy survivorship.

Providers conveyed varying perspectives on the best time to address dietary change. While it is not feasible for all patients to make significant lifestyle changes while going through treatment, it may be useful to introduce the concept of dietary change early in the treatment course, with reinforcement throughout treatment and follow-up care. Patients who are ready to make changes early on would then have this information, and those who are not ready would at least be primed to the importance of healthy lifestyle. Survivorship Care Plans may be one tool that can be used to help standardize the recommendations providers give patients, including evidence-based guidance on how to address barriers to behavior change [45].

This study had both strengths and limitations. First, our sample included a wide range of healthcare providers representing academic and community based institutions. However, we

focused on healthcare providers who cared for survivors of breast and prostate cancers, and non-Hodgkin's lymphoma. The concept of a 'teachable moment' for dietary change is potentially different for survivors of other types of cancer (such as gastrointestinal cancers where issues around diet are more complex), or for those with metastatic disease. Also, these findings reflect the perspective of healthcare providers. Future research is needed with cancer survivors to explore their beliefs about the relationship between diet and cancer outcomes, and their interest and readiness to make healthy lifestyle changes.

Despite these limitations, this study highlights key factors influencing whether healthcare providers discuss behavior change with their patients. It also provides insight into areas that can be targeted to improve promotion of healthy lifestyle among cancer survivors. As the number of cancer survivors in the U.S. increases, the need to focus on healthy survivorship will grow. It is therefore critical that healthcare providers who are potentially influential and effective at initiating lifestyle change are able to do so.

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Table 1

Barriers to making healthy dietary changes

Individual level barriers	
Taste preferences	"If you talk to…patients where there's lots of things like fried foods and pork grinds and different things like that you can't tell patients not to eat them." (Survivor coordinator, breast cancer) "Finding a diet that they're able to adhere to and they like the taste of it. I mean that's always an issue." (Medical oncologist, multiple cancer types)
Lack of knowledge of healthy eating	"Some of them have never eaten healthy and have no idea what you're even talking about and saying, and it's overwhelming to them." (Dietician)
Lack of time	"The preparation, that I know I should be eating healthy but I don't have time." (Medical oncologist, breast cancer)
Food as a coping mechanism	Some health care providers talked about patients who used food as a coping mechanism either for life stressors or for dealing with depression. They felt that dietary changes and weight loss would be unsuccessful until the underlying issues were addressed. "There's you know psychological barriers, you know again the biggest one being stress you know 'cause of family issues they're eating more." (Radiation oncologist, breast cancer) "I think part of that is depression…and that's…even before the cancer that they just basically are sedentary people and eating is a way of like you know deal with things emotionally, and they get bored and they eat." (Medical oncologist, multiple cancer types)
Lack of motivation	Difficulty breaking habits "I would say in general changing habits is almost by definition a barrier, you know. It's just your motivation to overcome your, we, we are creatures of habit." (Nurse practitioner, general patient population) Some patients try to make changes but are discouraged by the lack of progress: "Changing your diet when you're like 80 and 90 years old it's, it is difficult, and some of 'em you know they just say you know even though they do change their diet they don't see anything in terms of weight loss." (Nurse practitioner, prostate cancer) "Well some people get frustrated when they are unsuccessful. I mean a woman today said she's the only purpose who started going to the gym and gained weight, and so then that sort of causes people to lose interest in continuing." (Medical oncologist, multiple cancer types)
Interpersonal	
Social norms	"Eating is such a social function that it makes everybody feel good…They want to maintain the relationships that they have. They might have you know Friday night girl's out go to the movies, popcorn, Cheesecake Factory." (Nurse practitioner, breast cancer)
Lack of social support	"Especially young women who have like young children or families like you know if they, if the husband's not eating healthy it's hard, sometimes it's very hard for the woman to eat healthy, especially if the kids are like eating unhealthy, so I think family support is one huge thing." (Medical oncologist, multiple cancer types)
Environmental	
Cost of healthy foods	"I mean money is an issue. People will say that. They'll say you know, 'I buy whatever's cheap. Whatever's on sale.'" (Nurse practitioner, general patient population) "I end up sometimes paying you know almost 200 dollars…and there are three bags of food, only because two of the bags are fresh produce, so how can we expect our poor people you know to have a good, balanced diet if to begin with you know food is so expensive." (Radiation oncologist, multiple cancer types)
Lack of accessibility of healthy foods	"Certainly where we are you know people are sort of in a food desert so certainly not, not good grocery stores, so you know that is definitely a factor where I am." (Primary care provider)
Convenience of unhealthy foods	"I do have a lot of my patients who are as a result of their work situation are on the move, on the road and you know they eat a lot of fast food and they know they eat a lot of fast food." (Primary care provider)