

PAPER

A closer lens: Cancer survivors' supportive intervention preferences and interventions received

Joanna J. Arch^{1,2}  | Rachel Vanderkruik¹ | Alex Kirk¹ | Alaina L. Carr¹

¹Department of Psychology and Neuroscience, University of Colorado Boulder, Boulder, CO, USA

²Division of Cancer Prevention and Control, University of Colorado Cancer Center, Aurora, CO, USA

Correspondence

Joanna J. Arch, Department of Psychology and Neuroscience, University of Colorado Boulder, Boulder, CO, USA.

Email: joanna.arch@colorado.edu

Funding information

American Cancer Society, Grant/Award Number: 15-020-01 and 128951-PEP-16-055-01-PCSM; University of Colorado Boulder

Abstract

Objective: Cancer survivor preferences for formal interventions designed to provide psychological support remain relatively unknown. To address this gap, we evaluated cancer survivors' preferences for psychological intervention, whom they preferred to recommend such intervention, and how their preferences compared with what they currently received.

Methods: US cancer survivors ($n = 345$) who were at least 2 months post-treatment for diverse forms of cancer were recruited online to complete a survey study.

Results: Based on Wilcoxon signed-rank tests to distinguish among ranked preferences, cancer survivors rated individual professional counseling as their most-preferred form of psychological intervention (among 6 choices), $p < .001$, followed by professionally led cancer support groups and individual peer counseling. Anti-depressant or other psychiatric medication represented their least-preferred intervention, $ps < .001$, but was the one they were most likely to currently receive. Preference for individual professional counseling over psychiatric medication was evident even among the subgroups of cancer survivors screening positively for probable anxiety disorder ($n = 188$) or major depression ($n = 137$), $ps < .001$. Cancer survivors most preferred to learn about psychological interventions from their medical oncologist, $p < .001$, followed by primary care physician, cancer nurse, or another cancer survivor; they least preferred to learn from a social worker or on their own, $ps < .001$.

Conclusions: Cancer survivors reported significant unmet need for psychological intervention, preference for non-pharmacological forms of such support, and a gap between their preferred forms of support and what they currently receive.

KEYWORDS

cancer, cancer survivorship, oncology, psychosocial intervention, quality of life, supportive care

1 | INTRODUCTION

Numerous studies document a high level of unmet psychological needs among cancer survivors. A review of 57 studies demonstrated that unmet psychological needs represented the second most common domain of unmet need (out of 8) among cancer patients and survivors across all stages of the cancer journey,¹ most commonly reflecting fear of cancer recurrence or worsening. Among post-treatment cancer survivors, unmet psychological needs* often represent the most common domain of unmet need.^{2,3} Moreover, breast cancer survivors with unmet psychological needs (eg, significant anxiety or depression symptoms) reported significantly greater unmet cancer-related needs,⁴

demonstrating the centrality of psychological needs to survivors' overall experience of cancer.

Given the large number of studies documenting unmet psychological needs among cancer survivors, the question becomes: How do cancer survivors prefer to meet their psychological needs? Do they feel they require formal psychological intervention? Which form of such interventions do they prefer (eg, support group, professional or peer counseling, medication)? In contrast to the robust literature documenting their unmet psychological needs, cancer survivors' psychological intervention preferences remain little understood. The broader psychological literature attests to the importance of understanding psychological support preferences. Studies among depressed

adults demonstrate that preference for specific forms of intervention can impact patients' alliance with their treatment provider and attendance in the intervention; importantly, the latter influences depression outcomes.⁵ The extent to which patients' psychological intervention preferences are met also influences whether patients initiate the intervention.⁶ Identifying patient preferences for psychological intervention thus represents a fundamental consideration in ensuring patient-centered care and increasing the likelihood of mental health symptom improvement.

Although psychological treatment preferences remain unexplored among cancer survivors, numerous studies evaluate such preferences in community samples. A meta-analysis of 34 studies across both psychological treatment-seeking and non-treatment-seeking samples demonstrated a 3-fold preference for psychological treatment compared with psychiatric medication.⁷ Despite such clear preferences, adults seeking help for psychological problems in the United States primarily receive pharmacological interventions.⁸ It remains unknown whether cancer survivors express similar intervention preferences as broader community samples and show a similar mismatch between intervention preferences and intervention received. In that some studies show that receiving effective psychological intervention can improve long-term cancer survival outcomes in breast cancer (eg,⁹), this question remains as relevant as ever.

The current study addresses three areas with regard to cancer survivor preferences for psychological interventions and the interventions they receive. First, we assess cancer survivors' *preferences* for the various forms of formal psychological support often available at major cancer care centers. To account for the role that significant mental health issues might play in treatment preference, we also evaluate preference for psychological support among the subgroups of cancer survivors screening positively for probable anxiety disorder or probable major depression. Second, among those current engaged in a mental health intervention, we compare cancer survivors' psychological support *preferences* with the psychological support they *receive*. Based on the broader literature, we hypothesize that cancer survivors would prefer counseling or support groups over psychiatric medication but would be more likely to have received the latter. Third, we investigate cancer survivors' preferences regarding *who* should provide information about supportive resources and whose recommendations cancer survivors felt they were most likely to follow. Given the dearth of previous research in this area, we regarded the third aim as exploratory. In that the current study represents a first step towards elucidating the specific psychological intervention preferences of cancer survivors, we employed a sample that reflects a range of cancer types and stages and sociodemographic characteristics. In our previous work,¹⁰ we evaluated the feasibility of recruiting cancer survivors to an online survey study using Mechanical Turk (MTurk), an online platform increasingly used in behavioral research,¹¹⁻¹⁴ including in clinical research.^{15,16} We demonstrated that MTurk represents a feasible recruitment platform for cancer survivors and yields a geographically, socioeconomically, and medically diverse sample of cancer survivors weighted towards younger adults.¹⁰ Of this recruited sample, 80% provided reliable and valid data based on multiple indices. In the current study, we evaluate the psychological intervention needs and preferences of the MTurk-recruited cancer survivors who yielded valid and reliable data.

2 | METHODS

2.1 | Participants

Cancer survivors in the United States were recruited online via an online platform commonly used in behavioral research, Mechanical Turk (MTurk), with a study titled "Survey on the Well-Being of Cancer Survivors". Eligibility criteria included the following: (1) self-identified as a cancer survivor, defined herein as a person with cancer or a history of cancer of any type, and 2 or more months beyond primary treatment for cancer; (2) fluent in English; (3) 18 years of age or above; (4) US resident, including a US social security or tax identification number; and (5) a history of responding reliably to previous MTurk tasks (operationalized as a 90% previous task completion rate, a number that MTurk automatically computes and makes available for the purpose of screening participants). A large and growing body of research shows that MTurk (accessible via <https://www.mturk.com>) represents a reliable platform for conducting psychosocial research,¹⁶ to a similar extent as mailed surveys¹⁷ and face-to-face laboratory sessions.¹⁴ Further, multiple studies have demonstrated that responses to online surveys generally do not differ from paper-and-pencil formats, or compromise questionnaires' reliability or factor structures.¹⁸

The original study had 2 aims: first, to evaluate the feasibility, reliability, and validity of using MTurk to recruit cancer survivors, the results of which have been published¹⁰ and second, to evaluate the psychological intervention needs and preferences among this sample of cancer survivors, the results of which are presented here. The first paper presented the full range of strategies we employed in MTurk to help ensure reliable and valid data among respondents (see Chandler and Shapiro¹⁶ and Paolacci and Chandler¹⁹). Use of particular MTurk specifications prevented participants from taking the survey twice. For ease of survey programming and presentation, we programmed the survey into Qualtrics. After recruiting and screening participants on MTurk, we sent them a link (via MTurk) to complete the survey.

As noted, the purpose of the current study was to evaluate the mental health needs and preferences of the 80% of MTurk cancer survivors who yielded valid and reliable data. Of the total participants ($n = 464$), eliminating participants who did not meet multiple indicators of reliable and valid data¹⁰ yielded a final sample of $n = 367$, as illustrated in Supplemental Figure 1. Removing 22 participants who were <2 months from the end of treatment yielded a final sample of $n = 345$ cancer survivors who were 2 or more months beyond primary treatment. Continuation on anti-hormonal therapy was permitted. Supplemental Table 1a presents the sociodemographic and Supplemental Table 1b presents the medical characteristics of the final sample. With a mean age of 39 years, the current sample is young for cancer survivors, which helps to account for the relatively high levels of reported distress.^{20,21}

The University of Colorado Boulder Institutional Review Board approved this study (IRB #13-0611). After screening for eligibility and describing study details, informed consent was obtained online from each participant. Participants were paid \$0.50 for the online survey, which took approximately 22 minutes—approximately average for MTurk tasks at the time of this survey,²² though pay rates may be increasing.^{†,23} For additional details of the participant recruitment and data checking process, see Arch and Carr.¹⁰

2.2 | Study design

This study represented a cross-sectional survey study using convenience sampling online via MTurk.

2.3 | Descriptive measures

To characterize the sample, we included 3 measures of psychological symptoms related to anxiety and depression: the validated *Patient Health Questionnaire* (PHQ-9) measure of depressive symptoms,²⁴ current $\alpha = .90$; the widely used *State-Trait Anxiety Inventory-Trait Version* (STAI-T),²⁵ to assess the trait-like anxiety symptoms, current $\alpha = .94$; and the *Overall Anxiety Severity and Impairment Scale* (OASIS),²⁶ a validated measure of anxiety symptom severity and impairment in daily life, current $\alpha = .90$. Validated cutoffs of 10 or greater on the PHQ-9²⁴ and 8 or greater on the OASIS²⁷ were used to identify the subgroups of patients screening positive for probable major depression and anxiety disorder, respectively. A questionnaire on demographics and cancer characteristics inquired about the characteristics presented in Supplemental Table 1a to b.

2.4 | Outcome measure

In that the specific preferences for psychological intervention represented the main focus of the current study, we used study-specific questions to evaluate the preferences for psychological intervention among cancer survivors, as presented in the *Supplemental Materials and Results*. Studies on psychological intervention preferences among non-cancer populations have employed similar study-specific questions,²⁸⁻³² see McHugh et al.⁷

2.5 | Statistical approach

Analyses were performed in SPSS 23. Paired *t*-tests evaluated responses on Likert scale items, using Dunlap's formula³³ to compute a *d* effect size for within-group differences. For intervention preference rankings, Friedman's χ^2 of ranks test assessed the presence of significant differences among the ranks (omnibus test). If significant, a Wilcoxon signed-rank test with Bonferroni corrections evaluated pairwise comparisons among the rankings to determine the source of differences. Note that Friedman's χ^2 of ranks test was employed due to the rank-order nature of the (intervention and provider) preference data. The Wilcoxon signed-rank test was employed to evaluate the presence of statistically significant differences between adjacently ranked items; Bonferroni corrections were employed conservatively to reduce the risk of Type I error resulting from comparisons of each pair of adjacently ranked preferences.

3 | RESULTS

1. Formal psychological intervention needs and support received

To establish a context for understanding psychological intervention preferences, we first evaluated whether cancer survivors felt that they specifically "needed a counselor or support group" at some point during their experience of cancer or cancer survivorship: 40.00% (138

/ 345) responded *yes*, 30.43% (105 / 345) *maybe*, and 29.56% (102 / 345) *no*. In sum, more than two thirds of cancer survivors felt they needed or may have needed these forms of formal psychological support. In asking: "Did you ever receive such support?" (yes or no), only approximately one third (35.07% or 121 / 345) indicated "yes" they had received such support. Table 1 illustrates how the portion of patients who received counseling or a support group depended significantly upon whether they identified this as a need.

In addition, participants separately rated the extent to which their *cancer support group or counseling needs*, their *needs for information about your cancer*, and their *needs for information about how to prevent cancer recurrence* were met on a 4-point Likert scale. Paired *t*-tests demonstrated that cancer support group and counseling needs were less likely to be met than either cancer information or cancer recurrence-related information needs, $t_s(344) = 11.67$ and 7.33 , $p_s < .001$, $d_s = .64$ and $.44$, respectively.

2. Preference for type of psychological intervention

Given that the majority of participants felt they needed or may have needed psychological intervention at some point following their cancer diagnosis, we next examined participants' *preferences* from among the 6 forms of formal psychological intervention listed in Table 2. The Friedman test demonstrated significant differences in how cancer survivors ranked their preferences for these 6 forms of intervention, $\chi^2(5) = 228.62$, $p < .001$, with the resulting mean ranks presented in Table 2. Overall, cancer survivors showed clear preference for individual counseling with a professional and clear *lack* of preference for anti-depressant or related medications. Pairwise comparisons confirmed that individual counseling with a professional was ranked higher than the next-highest preference of professionally led expressive groups, $p < .001$, whereas professionally led expressive and skills-based groups, and individual counseling with a peer, were each ranked similarly, $p_s > .06$. Peer-led support groups were ranked lower than both types of professionally led support groups, $p_s < .009$. In the lowest tier, anti-depressants or other psychiatric medication(s) was ranked at the bottom, significantly lower than the next-lowest ranked option of peer-led support groups, $p < .001$.

As Table 2 presents, similar preference for individual professional counseling over psychiatric medication ($p_s < .001$) was evident within the subgroups of cancer survivors who screened positively for a probable anxiety disorder or major depression (on the OASIS and PHQ-9, respectively, see *Methods*). This finding was robust despite somewhat higher rankings for psychiatric medication among these subgroups. Cancer survivors with probable anxiety disorder also preferred professionally led (expressive) cancer support groups over psychiatric medication, $p = .007$, although this difference did not reach significance among those with probable major depression (due to Bonferroni corrections applied for multiple comparisons).

3. Current psychological support received vs preferred

Nearly one third of the sample (31.01% or 107 / 345) reported being currently engaged in treatment for anxiety, depression, or distress. The majority of this currently treated subgroup scored above

TABLE 1 Psychological support received, stratified by need level (total $n = 345$)

Needed support:	Yes	Maybe	No	Differences in support received by need level
Received support	58.70% (81 / 138)	29.52% (31 / 105)	8.82% (9 / 102)	$\chi^2 (2) = 66.10$,
Did not receive support	41.30% (57 / 138)	70.48% (74 / 105)	91.18% (93 / 102)	$p < .0001$

Note: "Psychological support" here refers to counseling or support n(s).

TABLE 2 Preference for different types of cancer-related psychological intervention

Psychological support type	Mean rank			
	Overall (n = 345)	Probable anxiety disorder (n = 188)	Probable major depression (n = 137)	No probable anxiety or depressive disorder (n = 139)
Individual counseling with a professional	2.38 ^a	2.35 ^a	2.33 ^a	2.50 ^a
Cancer support group led by professional, where people talk and share	3.38	3.49 ¹	3.65	3.09 ¹
Individual counseling with a peer	3.46	3.59	3.40	3.36
Cancer support group led by professional, where people learn skills for managing distress	3.53	3.65	3.80	3.30
Cancer support group led by a peer, where people talk and share	3.80	3.86	3.97	3.63 ²
Anti-depressant or other psychiatric medication(s)	4.46	4.05 ²	3.84	5.11

Note: Different letters indicate options that were ranked significantly differently (with Bonferroni corrections for multiple comparisons applied). Probable anxiety disorder indicated screening positively (score of 8 or above) on the OASIS.²⁷ Probable major depression indicated screening positively (score of 10 or above) on the PHQ-9.²⁴ These 2 groups are overlapping, that is, participants could screen positively for probable anxiety disorder, probable major depression, or both.

the cutoff (on the OASIS and PHQ-9, respectively) for probable current anxiety disorder: 73.83% (79 / 107) and/or major depression: 54.21% (58 / 107). Treatment engagement thus was higher among cancer survivors screening positively for anxiety disorders or major depression than among those screening negatively: $\chi^2 (1) = 23.39$ and 13.61, respectively, $ps < .001$. Across the entire sample, however, cancer survivors currently engaged in mental health treatment represented less than half of those screening positively for probable anxiety disorder (42.02% or 79 / 188) or major depression (42.33% or 58 / 137).

Among this currently treated subgroup ($n = 107$), the vast majority (73.83% or 79 / 107) was taking psychotropic medication, and a slight majority (58.88% or 63 / 107) was engaged in counseling, alone or concurrently with psychotropic medication. Most of those currently seeking help (80.37% or 86 / 107) believed that their emotional difficulties were related to having had cancer, with the average response falling midway between "somewhat" and "moderately" related to cancer.

From among the 6 forms of psychological intervention listed in Table 2, this subgroup of those currently engaged in a psychological intervention ($n = 107$) also ranked individual counseling with a professional as their most preferred intervention option (mean rank = 2.15, median rank = 1st choice), and ranked anti-depressants or other psychiatric medication(s) significantly lower (mean rank = 3.77, median rank = tied for 4th), $p < .001$. This finding is striking given that the vast majority of this group *currently received* psychiatric medication but ranked it as a less preferred intervention option.

In summary, no matter their level of current anxiety or depression symptoms or current use of mental health treatment, cancer survivors reported strong preference for individual professional counseling over all other evaluated forms of psychological intervention. Psychiatric medication remained the *least* preferred intervention (of 6 choices)

among all groups of cancer survivors, except among those who screened positively for depression, where it remained second-to-lowest in rank and significantly lower than professional counseling.

4. Preference for source of learning about psychological support resources

We next evaluated cancer survivors' preferred source of learning about psychological intervention resources. From among 8 options regarding from whom (or how) they preferred to learn about psychological intervention resources in Table 3, cancer survivors demonstrated large and significant differences among rankings overall, on the Friedman test, $\chi^2 (7) = 421.24$, $p < .001$. Pairwise comparisons using a Wilcoxon signed-rank test with Bonferroni corrections showed that cancer doctor (ie, medical oncologist) represented the *most* preferred source of learning about formal psychological support resources, $ps < .001$. Learning from other cancer patients/survivors, primary care doctors, and cancer nurses represented the second-highest preferred sources of learning, and did not differ from one another, $ps > .16$. Cancer surgeon rankings fell next; cancer surgeons were ranked lower than other cancer patients/survivors, $p = .003$, but not primary care doctors, $p = .03$ (n.s. with Bonferroni correction) or cancer nurses, $p = .15$. Finally, social workers, non-cancer survivor friends, and finding out on their own (eg, via a flyer) represented the *least* preferred sources of learning (less preferred than the next-highest ranked source of cancer surgeon, $ps < .001$) and did not differ significantly from one another, $ps \geq .008$ (n.s. with Bonferroni correction).

Similar findings emerged from cancer survivors' rankings of whose support or counseling resource recommendations they would be most likely to *follow*. The Friedman test showed robust differences among the 8 ranked choices, $\chi^2 (7) = 479.81$, $p < .001$, with mean ranks

TABLE 3 Preference for sources of learning about psychological support resources and likelihood to follow resource recommendations ($n = 345$)

Learning/referral source	Mean rank for preferred learning source	Mean rank for likelihood to follow support recommendation
Cancer doctor (medical oncologist)	2.86 ^a	2.75 ^a
Primary care doctor	3.89 ¹	4.12
Another cancer patient/ survivor	3.94	3.95
Cancer nurse or nurse practitioner	4.17	3.99
Cancer surgeon	4.38 ²	4.18
Other friend or acquaintance	5.29	5.41
Social worker	5.73	5.68
Find out on my own (such as seeing a flyer)	5.75	5.93

Note: Different letters and number superscripts indicate options that were ranked significantly differently (with Bonferroni corrections applied). Note that in the "b" ranked group for preferred learning source, only primary care doctor and cancer surgeon differ significantly (thus the different superscript numbers).

presented in Table 3. Pairwise comparisons using a Wilcoxon signed-rank test with Bonferroni corrections demonstrated that cancer doctor (medical oncologist) represented the top-ranked recommendation source, $ps < .001$. At the second tier of preference, receiving a recommendation from another cancer patient/survivor, cancer nurse, primary care doctor, and cancer surgeon were each similarly ranked, $ps > .13$. At the lowest tier of preference, receiving a recommendation from a non-cancer survivor friend, a social worker, or finding out on their own, was each ranked significantly lower than the second tier, $ps < .001$, and did not differ among one another, $ps > .06$.

Correlation analyses (using bivariate non-parametric correlations to account for ranked data) yielded medium relationships between preferred sources of learning about supportive resources and perceived likelihood to follow such recommendations, $rs = .49$ to $.61$, indicating that these variables were moderately but not entirely overlapping.

4 | CONCLUSIONS

This study sought to elucidate an understudied area: cancer survivors' specific preferences regarding psychological intervention. Although numerous studies document unmet psychological needs among cancer survivors,¹ we have known little about cancer survivors' preferences for meeting their psychological intervention needs. This study aimed to explore and evaluate this vital understudied area.

To establish a context for understanding patient preferences, we began by examining cancer survivors' perceived need for psychological intervention. We found that more than two thirds felt that they needed or may have needed a counselor or support group at some point during their cancer journey and about half of this group received such support. Cancer survivors who reported needing more counseling and group support were significantly more likely to receive it. Yet many cancer survivors who reported needing counseling or group support did not receive it, including more than 4 in 10 who definitely felt they needed it, and 7 in 10 who felt they may have needed it. In addition, consistent with previous findings,^{4,34} we found that cancer survivors' need for counseling and support groups was met significantly less than their cancer information or recurrence prevention needs, although their retrospective nature lends caution to these findings.

Regarding how to best meet their psychological needs, participants strongly preferred individual counseling with a professional (therapist or counselor) and a strong lack of preference for anti-depressant or other psychiatric medication. This robust significant preference for individual professional counseling over psychiatric medication was evident even among the subgroups of cancer survivors with probable anxiety disorder or major depression. This finding is consistent with a recent meta-analysis in broader (non-cancer-focused) samples, which demonstrated a 3 to 1 preference for psychotherapy over pharmacologic intervention for psychological issues.⁷ The large minority of the current sample that currently received help for anxiety, depression, or distress, most commonly *received* psychiatric medication, even though they explicitly *preferred* professional counseling over medication. We thus found a significant gap between cancer survivors' psychological intervention preferences and the type of intervention they received. This gap is consistent with a more general trend across the United States, in which people with diverse mental health conditions have seen a dramatic increase in treatment consisting of psychiatric medication—usually without any form of counseling or psychotherapy.⁸

What factors might account for the gap between the psychological interventions preferred versus received among cancer survivors? One possibility stems from our finding that cancer survivors expressed a strong preference for a medical oncologist and other medical professionals, and a strong lack of preference for a social worker (and non-cancer survivor friend or finding out on their own), to inform them about psychological intervention resources. They expressed similar preferences for whose psychological intervention recommendations they were likely to follow. In contrast to social workers, medical oncologists and other medical professionals are trained in prescribing medication, not in delivering the types of psychosocial interventions preferred by cancer survivors (eg, counseling and support groups) or in discussing such intervention options in detail. We speculate that patient preference for learning about and following the psychological support recommendations of medical oncologists and other medical professionals rather than social workers may paradoxically contribute to a failure to meet patients' psychological treatment preferences. On the other hand, involving oncologists in the provision of psychological intervention resources or referrals seems likely to increase the

possibility that a cancer survivor will follow through on the recommended intervention.

We further found that social workers—the professionals who are trained to discuss and provide psychosocial support resources to patients in cancer centers—were low-ranked as a source for learning about psychological support resources. We speculate that two reasons may account for this: First, social workers (similar to psychologists and psychiatrists) are associated with mental health problems, which remain stigmatized.³⁵ Meeting with a professional associated with mental health problems may be interpreted as a sign of stigma or weakness. Second, social workers are unlikely to be seen by patients as frequently as oncologists, nurses, and nurse practitioners (higher-ranked choices); patients thus may be less familiar with them. In that social workers are often the only member of the oncology care team whose role is to provide psychosocial support and related resources, future studies should evaluate whether this finding replicates and, if so, to directly assess its effects on supportive oncology care.

More generally, the unmet need for psychological intervention among cancer survivors and their clear preference for specific forms of psychological intervention and sources of recommendation suggest that psychological intervention needs and preferences should be assessed regularly among cancer patients and survivors, as is recommended for distress screening.³⁶ Yet assessing needs and preferences does not imply that oncology care centers alone must provide all psychological care to cancer survivors. Many centers lack the resources to provide ongoing individual counseling to all patients who would like to receive it. Moreover, many post-treatment cancer survivors do not frequent oncology care centers often. If the current preference for individual counseling replicates, then oncology care centers will need to establish appropriate referral pathways tailored to the distress levels and preferences of the cancer survivor.

4.1 | Study limitations

In that we were interested in evaluating psychological *intervention* preferences among cancer survivors, we employed study-specific questions that inquired about these specific areas of interest. This approach allowed us to examine novel questions about a range of psychological interventions. Future studies could combine this approach with employment of one of the standardized instruments designed to assess various domains of unmet psychological needs more generally.^{36,37} The items related to counseling/ support group need were limited by a reliance on categorical response profiles (yes/no or yes/maybe/no) and broad phrasing (“at any point in your experience of cancer or cancer survivorship...”) and thus should be interpreted with caution. Future studies also should broaden the categories of psychological support referral sources to include such professionals as psychologists and psychiatrists, palliative care physicians, radiation oncologists, and chaplains. That stated, given the low preference for social workers as a referral source currently, we do not anticipate mental health professionals of any type (eg, psychologists or psychiatrists) to enjoy high preference in this arena due to the stigma associated with seeing them.³⁸ If cancer survivors continue to show lack of preference for mental health professionals as referral sources for psychological interventions and yet preference for professional counseling

and support groups, additional research will be needed to understand and bridge this gap.

Employing a cancer survivor sample recruited online via Mechanical Turk represents a limitation. Similar to self-reported cancer registries (eg, the Cancer Support Community's Cancer Experience Registry), we cannot confirm cancer diagnoses by medical chart review. Further, distress levels among Mechanical Turk participants,³⁹ including this sample of cancer survivors,¹⁰ have been shown to be somewhat higher on average than population norms. This may have somewhat inflated the portion of cancer survivors reporting the need for psychological intervention. Pending replication in clinic samples, this finding should be interpreted with caution. Although distress levels are elevated within MTurk samples, previous MTurk studies have found similar psychological intervention *preferences*²⁸ as to those reported in the general literature.⁷ The current sample's psychological intervention *preferences* (for types of intervention and referral source) are thus likely to mirror clinic-recruited samples. Further, the data in the current sample passed extensive data reliability and validity checks,¹⁰ beyond what most studies attempt. Although we used a very small financial incentive to complete the survey, as is commonly done on Mechanical Turk, the amount appeared insufficient to coerce or strongly incentivize completing the survey. Replication in clinic or cancer registry samples nonetheless represents an important next step.

With a mean age of 39 years, the current sample was young for cancer survivors. Younger age has been associated with greater distress among cancer patients,^{20,21} in part due to the non-normative nature of cancer for younger adults, which also likely contributed to higher distress levels and need for supportive care in the current sample. That stated, evaluating psychological intervention preferences within a sample of cancer survivors who report greater distress may be especially appropriate, as such cancer survivors are more likely to need and be targeted for psychological interventions.

4.2 | Clinical implications

The current findings offer at least three clinical implications, pending replication in additional samples. First, patient-centered cancer care should include assessing the need for and preferred type of formal psychological support following a positive distress screening. Second, the general preference for counseling over psychiatric medication should be communicated to care centers in order that appropriate on- or off-site referral pathways can be established. Third, given the preference for medical oncologists to communicate about psychological support resources, future research should explore ways to support oncologists in recommending and referring cancer survivors to their preferred sources of psychological support (likely in partnership with mental health professional[s] on the care team).

4.3 | Future directions and conclusions

This represents the first study, to our knowledge, that evaluates specific psychological intervention preferences among cancer survivors. Building on international efforts to implement distress screening for cancer patients and survivors, this study takes the subsequent step of evaluating the particular forms of psychological intervention that

cancer survivors prefer and their communication preferences about such interventions. In beginning to elucidate the psychological intervention and intervention communication preferences of cancer survivors, this study offers a step towards the aim of better serving the millions of adults living with a history of cancer.

In that cancer survivors preferred individual counseling, future directions include examining cancer survivors' preferences for the content of psychological intervention, eg, cognitive-behavioral therapy, mindfulness-based stress reduction, health behavior counseling, and so forth. If the current findings are replicated in clinic samples, future studies should evaluate how to integrate intervention needs and preferences screening with distress screening and how cancer care systems should best follow up on psychological intervention preferences. Future studies also could examine the extent to which stated preferences predict help-seeking behaviors, including impacts on patient satisfaction, engagement with, and completion of such interventions.

The imperative to understand cancer survivors' psychological intervention needs and preferences extends beyond increasing patient satisfaction, a worthy goal in itself. If their psychological intervention preferences are not met, depressed community adults are more likely to forego⁶ or drop out⁵ of the intervention. Patients may experience significant distress but decline formal supportive intervention,⁴⁰ highlighting the importance of understanding how best to offer such interventions. Evaluating and honoring cancer survivors' psychological intervention preferences would strengthen patient-centered care and in all likelihood lead to enhanced quality of life for cancer survivors.

ACKNOWLEDGEMENTS

American Cancer Society Research Scholar Grant 15-020-01 and 128951-PEP-16-055-01-PCSM and University of Colorado Boulder research startup to JJA funded this study.

CONFLICTS OF INTEREST

The authors each declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

JJA conceived of and designed the study, and analyzed and interpreted the data, with input from all authors on data interpretation and ALC on study design and analysis. All authors were involved in drafting, reviewing, and editing the article, and provided final approval of the manuscript.

NOTES

* Except when otherwise specified, "psychological" needs or concerns refers here to the full range of needs that could be addressed by a formal psychological intervention such as counseling or a support group. Such needs could include the need for emotional support, working through existential issues, or addressing psychological symptoms such as anxiety and depression.

† Paying higher wages whenever possible is of course preferred. If not feasible, researchers could offer non-monetary compensation such as personalized feedback, which may be helpful to participants.

ORCID

Joanna J. Arch  <http://orcid.org/0000-0002-6702-095X>

REFERENCES

- Harrison JD, Young JM, Price MA, Butow PN, Solomon MJ. What are the unmet supportive care needs of people with cancer? A systematic review. *Support Care Cancer*. 2009;17(8):1117-1128.
- Singer S, Szalai C, Briest S, et al. Co-morbid mental health conditions in cancer patients at working age—prevalence, risk profiles, and care uptake. *Psychooncology*. 2013;22(11):2291-2297.
- Voigt V, Neufeld F, Kaste J, et al. Clinically assessed posttraumatic stress in patients with breast cancer during the first year after diagnosis in the prospective, longitudinal, controlled COGNICARES study. *Psychooncology*. 2016;1-7.
- Hodgkinson K, Butow P, Hunt GE, Pendlebury S, Hobbs KM, Wain G. Breast cancer survivors' supportive care needs 2-10 years after diagnosis. *Support Care Cancer*. 2007;15:515-523.
- Kwan BM, Dimidjian S, Rizvi SL. Treatment preference, engagement, and clinical improvement in pharmacotherapy versus psychotherapy for depression. *Behav Res Therapy*. 2010;48(8):799-804.
- Dwight-Johnson M, Unutzer J, Sherbourne C, Tang L, Wells KB. Can quality improvement programs for depression in primary care address patient preferences for treatment? *Med Care*. 2001;39(9):934-944.
- McHugh RK, Whitton SW, Peckham AD, Welge JA, Otto MW. Patient preference for psychological vs. pharmacological treatment of psychiatric disorders: a meta-analytic review. *J Clin Psychiatry*. 2013;74(6):595-602.
- Olfson M, Marcus SC. National trends in outpatient psychotherapy. *Am J Psychiatry*. 2010;167:1456-1463.
- Stagl JM, Lechner SC, Carver CS, et al. A randomized controlled trial of cognitive-behavioral stress management in breast cancer: survival and recurrence at 11-year follow-up. *Breast Cancer Res Treat*. 2015;154(2):319-328.
- Arch JJ, Carr A. Using Mechanical Turk for research on cancer survivors. *Psychooncology*. in press
- Buhrmester M, Kwang T, Gosling SD. Amazon's Mechanical Turk a new source of inexpensive, yet high-quality, data? *Perspect Psychol Sci*. 2011;6(1):3-5.
- Crump MJ, McDonnell JV, Gureckis TM. Evaluating Amazon's Mechanical Turk as a tool for experimental behavioral research. *PLoS One*. 2013;8(3):e57410
- Mason W, Suri S. Conducting behavioral research on Amazon's Mechanical Turk. *Behav Res Methods*. 2012;44(1):1-23.
- Paolacci G, Chandler J, Ipeirotis PG. Running experiments on Amazon mechanical turk. *Judgm Decis Mak*. 2010;5(5):411-419.
- Shapiro DN, Chandler J, Mueller PA. Using Mechanical Turk to study clinical populations. *Clin Psychol Sci*. 2013;1(2):213-220.
- Chandler J, Shapiro D. Conducting clinical research using crowdsourced convenience samples. *Annu Rev Clin Psychol*. 2016;12(1):53-81.
- Behrend TS, Sharek DJ, Meade AW, Wiebe EN. The viability of crowdsourcing for survey research. *Behav Res Methods*. 2011;43(3):800-813.
- De Beuckelaer A, Lievens F. Measurement equivalence of paper-and-pencil and internet organisational surveys: a large scale examination in 16 countries. *Appl Psychol Int Rev*. 2009;58(2):336-361.
- Paolacci G, Chandler J. Inside the Turk: understanding Mechanical Turk as a participant pool. *Curr Dir Psychol Sci*. 2014;23(3):184-188.
- Zebrack B, Isaacson S. Psychosocial care of adolescent and young adult patients with cancer and survivors. *J Clin Oncol*. 2012;30(11):1221-1226.
- Mor V, Allen S, Malin M. The psychosocial impact of cancer on older versus younger patients and their families. *Cancer*. 1994;74:2118-2127.

22. Horton JJ, Chilton LB. The labor economics of paid crowdsourcing. *Proceedings of the 11th ACM conference on Electronic commerce* 2010;209-218.
23. <http://www.wearedynamo.org>. Fair payment. 2014, April 4; http://wiki.wearedynamo.org/index.php?title=Fair_payment.
24. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med*. 2001;16(9):606-613.
25. Spielberger CD, Gorsuch RL, Lushene R, Vagg PR, Jacobs GA. *Manual for the State-Trait Anxiety Inventory, STAI (Form Y)*. Mind Garden: Palo Alto, CA; 1983.
26. Norman SB, Hami Cissell S, Means-Christensen AJ, Stein MB. Development and validation of an overall anxiety severity and impairment scale (OASIS). *Depress Anxiety*. 2006;23(4):245-249.
27. Campbell-Sills L, Norman SB, Craske MG, et al. Validation of a brief measure of anxiety-related severity and impairment: the Overall Anxiety Severity and Impairment Scale (OASIS). *J Affect Disord*. 2009;112(1):92-10.
28. Arch JJ. Cognitive behavioral therapy and pharmacotherapy for anxiety: predictors of treatment preference among pregnant and non-pregnant women. *Behav Res Ther*. 2014;52:53-60.
29. Patel SR, Simpson HB. Patient preferences for OCD treatment. *J Clin Psychiatry*. 2010;71(11):1434
30. Hazlett-Stevens H, Craske MG, Roy-Byrne PP, Sherbourne CD, Stein MB, Bystritsky A. Predictors of willingness to consider medication and psychosocial treatment for panic disorder in primary care patients. *Gen Hosp Psychiatry*. 2002;24(5):316-321.
31. Dwight-Johnson M, Lagomasino IT, Aisenberg E, Hay J. Using conjoint analysis to assess depression treatment preferences among low-income Latinos. *Psychiatr Serv*. 2004;55(8):934-936.
32. Dwight-Johnson M, Sherbourne CD, Liao D, Wells KB. Treatment preferences among depressed primary care patients. *J Gen Intern Med*. 2000;15(8):527-534.
33. Dunlap WP, Cortina JM, Vaslow JB, Burke MJ. Meta-analysis of experiments with matched groups or repeated measures designs. *Psychol Methods*. 1996;1(2):170-177.
34. Hodgkinson K, Butow P, Hunt GE, et al. The development and evaluation of a measure to assess cancer survivors' unmet supportive care needs: the CaSUN (Cancer Survivors' Unmet Needs measure). *Psychooncology*. 2007;16(9):796-804.
35. Clement S, Schauman O, Graham T, et al. What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychol Med*. 2015;45(01):11-27.
36. Carlson LE, Waller A, Mitchell AJ. Screening for distress and unmet needs in patients with cancer: review and recommendations. *J Clin Oncol*. 2012;30(11):1160-1177.
37. Vodermaier A, Linden W, Siu C. Screening for emotional distress in cancer patients: a systematic review of assessment instruments. *J Natl Cancer Inst*. 2009;101(21):1464-1488.
38. Corrigan P. How stigma interferes with mental health care. *Am Psychol*. 2004;59(7):614
39. Arditte KA, Cek D, Shaw AM, Timpano KR. The importance of assessing clinical phenomena in Mechanical Turk research. *Psychol Assess*. 2015;28(6):684-691.
40. Baker-Glenn EA, Park B, Granger L, Symonds P, Mitchell AJ. Desire for psychological support in cancer patients with depression or distress: validation of a single help question. *Psychooncology*. 2011;20:525-531.

SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

How to cite this article: Arch JJ, Vanderkruik R, Kirk A, Carr AL. A closer lens: Cancer survivors' supportive intervention preferences and interventions received. *Psycho-Oncology*. 2018;27:1434-1441. <https://doi.org/10.1002/pon.4526>