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## Use of Formal and Informal Mental Health Resources by Cancer Survivors: Differences Between Rural and Nonrural Survivors and a Preliminary Test of the Theory of Planned Behavior

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### Abstract

**Objective**—Previous research has identified rural residence as a risk factor for poorer mental health (MH) outcomes in cancer survivors. This may be due to less use of various MH resources due to poorer access and less favorable attitudes and social norms related to MH resource utilization. The present study sought to examine use of MH resources in rural and nonrural survivors and identify factors associated with MH resource use.

**Methods**—Cancer survivors (n=113, 1 to 5 years post-diagnosis) completed a questionnaire packet and telephone interview. Accessibility and post-diagnosis use of various formal and informal MH resources was assessed along with constructs potentially linked to use of MH resources by the Theory of Planned Behavior (TPB; personal attitude, social norm, perceived behavioral control).

**Results**—Results indicated no widespread differences between rural and nonrural cancer survivors in MH resource use although some evidence suggested poorer accessibility and less use of mental health professionals and cancer support groups among rural survivors. In general, rural survivors reported less favorable personal attitudes and social norms regarding MH resource use. TPB constructs accounted for a significant portion of variance in use of most MH resources with personal attitudes generally being the strongest predictor of MH resource use.

**Conclusions**—Additional research is needed to expand the search for factors, particularly modifiable factors, which might account for disparities in MH outcomes between rural and nonrural survivors.

### Keywords

cancer; survivorship; health disparities; mental health; rural health; health behavior

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Cancer diagnosis, treatment, and recovery entails a challenging and diverse set of stressors for most individuals. Individuals differ in their response to these challenges with consequent diversity in mental health (MH) outcomes evidenced across cancer survivors. Understanding of the many factors contributing to the heterogeneity in MH outcomes among cancer survivors is a critical, yet difficult, task. In general, MH outcomes in cancer survivors might be viewed as resulting from the balance of two broad classes of factors: (a) the *stress and burden* posed by the cancer experience, and (b) the various *resources* the individual can bring to bear to cope with their cancer stress and burden [1-2].

Similar to any individual confronted by a significant adaptational challenge, cancer survivors might access various formal and informal MH resources as a means of coping with the stress and burden posed by their cancer experience. Formal MH resources that might be available to survivors include MH professionals (e.g., psychologists, psychiatrists, social workers), professionally-led cancer support groups, or prescription medications to manage distress. Survivors might also access informal MH resources such as religious leaders (e.g., ministers, priests, rabbi), other cancer survivors, or a sympathetic and caring friend or family member.

In general, better MH is fostered not simply by the availability of MH resources but by the appropriate access to and utilization of available MH resources. Consequently, understanding and identification of factors that influence access to and utilization of MH resources in cancer survivors is an important goal. In general, MH resource use in all its various forms can be viewed as a type of health behavior. A variety of models for understanding the performance of various health behaviors have been proposed [3-7]. Among them, the Theory of Planned Behavior (TPB) [8-9] has found empirical support in its ability to account for performance of a variety of physical and psychosocial health behaviors [10-14]. The TPB posits performance of a particular health behavior is a function of three broad classes of variables: (a) personal attitude toward performance of that behavior, (b) perceived behavioral control over performance of that behavior (akin to self-efficacy for performing a health behavior), and (c) social norms regarding performance of that behavior [8-9].

Recently, we reported evidence suggesting significant disparities might exist between cancer survivors residing in rural and nonrural areas with regard to their reported MH outcomes [15]. Specifically, survivors residing in rural areas reported more anxiety and depressive symptoms, greater global distress, more emotional problems, and poorer mental functioning than survivors residing in nonrural areas. These differences existed even after controlling for differences between rural and nonrural respondents in education and physical functioning. In part, such disparities in MH outcomes might result from differences in access to and utilization of various formal and informal MH resources. Indeed, research has shown lower use of various MH resources among individuals in rural areas [16-17]. Reasons for this are several. Rural areas are likely to be medically underserved [18] with consequently poorer availability of various MH resources. Practical barriers, such as long travel distances to professionals, low rates of insurance coverage, unreliable transportation, and limited financial resources, may further contribute to rural residents' perception that some MH resources are not accessible [19]. In addition, personal attitudes and social norms regarding MH problems [18,20-21] and MH help-seeking [19,21-23] might differ between rural and nonrural areas. Indeed, research has shown individuals residing in rural areas are more likely to stigmatize individuals with MH difficulties, profess some wariness of MH professionals, and endorse a policy of "keeping one's problems to oneself" relative to individuals residing in nonrural areas [21-23].

The aims of this study were to: (1) identify differences in use of formal and informal MH resources between cancer survivors residing in rural and nonrural areas; (2) identify differences between rural and nonrural survivors in personal attitudes, social norms, and perceived behavioral control regarding MH resource use for cancer-related emotional difficulties; and (3) test the utility of the TPB for understanding differences between rural and nonrural survivors in utilization of various MH resources. We hypothesized rural cancer survivors, relative to their nonrural counterparts, would report less utilization of a variety of MH resources for addressing emotional difficulties following their cancer diagnosis, and would report less favorable personal attitudes, social norms, and perceived behavioral control regarding such MH help-seeking. In addition, based on the TPB, we hypothesized

reported utilization of MH resources would be positively associated with more positive personal attitudes and social norms regarding use of various MH resources for addressing emotional difficulties, as well as greater perceived behavioral control to access those MH resources if desired.

## Methods

### Procedure

**Eligibility criteria**—To be study eligible a cancer survivor must have been: (a) 25 to 75 years old; (b) 1 to 5 years post diagnosis; (c) diagnosed with female breast, colorectal, or hematologic cancer (i.e., leukemia, lymphoma, Hodgkin’s disease); and (d) able to read, write, and understand English. We chose to study survivors of female breast, colorectal, and hematologic cancers because they are common cancers, have generally favorable prognoses, and would enable recruitment of a study sample including both males and females.

**Recruitment and data collection**—All procedures were approved by the University of Kentucky IRB. Cancer survivors were recruited from the statewide, population-based Kentucky SEER Cancer Registry (KCR). For each eligible survivor identified, KCR mailed a letter to the physician of record notifying them their patient was eligible for participation. The physician could then withdraw the individual from further consideration. If no physician objection, KCR mailed a letter notifying the survivor of the study. A stamped, pre-addressed postcard was included so survivors could notify KCR of their interest in study participation. If necessary, KCR made up to seven phone calls to a survivor to assess interest in participation. Contact information for all survivors who expressed interest in participation was forwarded to study staff. Study staff mailed an invitation packet to the survivor including an invitation letter, a contact information form, and two copies of the study consent form. A stamped, pre-addressed envelope was included for return of completed contact information and consent forms. Survivors uninterested in participation indicated this by marking a box on the contact information form and returning said form to study staff. Within a week of receiving a signed consent form, participants were contacted and a telephone interview scheduled. A questionnaire packet was then mailed to participants along with a stamped, pre-addressed envelope for return of the completed packet. If participants failed to return any study materials within a month, up to four follow-up phone calls were made. Participants were paid \$20 for completion of the interview and questionnaire packet. Data collection occurred over a 10 month period between August, 2007 and June, 2008.

**Determination of “rural” status**—The rural-nonrural distinction was defined by objective, geographic and population-based criteria: 2003 United States Department of Agriculture (USDA) Rural-Urban Continuum (RUC) Codes [24]. RUC codes range from 1–9 and distinguish metropolitan counties (RUC codes 1–3) by the population size of their metropolitan area, and nonmetropolitan counties (RUC codes 4–9) by population size and proximity to a metropolitan area. As in prior research, survivors living in counties with RUC codes 7 to 9 were considered “rural” while those living in counties with RUC codes 1 to 6 were considered “nonrural.” [16-17,25] Using this approach, a set of rural counties can be identified which are characterized not only by a small population size but also a lack of geographic proximity to a county with a relatively large population size.

### Study Measures

**Demographic and Clinical Information**—Participants provided demographic information including date of birth, race/ethnicity, annual income, education, and partner status. Clinical information (type, date, and stage of cancer diagnosis) was obtained from the KCR database.

**Mental Health Resource Questionnaire (MHRQ)**—The MHRQ assessed information regarding formal and informal MH resources potentially used by cancer survivors. Six MH resources for addressing emotional difficulties were assessed: talking to a psychologist or other mental health professional (Psychologist), talking to a minister, priest, rabbi, or other religious leader (Religious Leader), talking to close friend or family member (Friends/Family), talking to another cancer survivor (Cancer Survivor), participating in a cancer support group (Support Group), and using prescription medication (Prescription Medication). For each of these MH resources, five parallel questions assessed: (1) use of that resource for addressing emotional difficulties since cancer diagnosis (i.e., use); (2) availability of that resource within 30 miles of the respondent's home (i.e., access); (3) perceived ability to use that resource to cope with emotional difficulties, if desired (i.e., perceived behavioral control); (4) personal attitude regarding use of that resource for coping with emotional difficulties (i.e., personal attitude); and (5) perceived social norm regarding use of that resource for coping with emotional difficulties (i.e., social norm).

Use of each MH resource was assessed by asking whether that resource was used to address emotional difficulties since cancer diagnosis. (For example, "Have you talked to a *psychologist or other mental health professional* about emotional difficulties you've experienced since your diagnosis with cancer?") Access to each MH resource was assessed by asking whether that resource was available within 30 miles of the respondent's home. (For example, "Is there a *minister, priest, rabbi or other religious leader* from your faith group within 30 miles of where you live?") Perceived behavioral control for each MH resource was assessed by asking whether they could access that resource for addressing emotional difficulties if they wanted to. (For example, "If you wanted to, would you be able to talk to a *close friend or family member* about emotional difficulties you might experience?") Questions related to use, access, and perceived behavioral control all had response options including "yes," "no," and "don't know." Both personal attitude and social norm were assessed by single items based on recommendations for assessing these TPB constructs [26]. Personal attitude toward use of each MH resource was assessed by asking a survivor's personal opinion regarding use of that resource for addressing emotional difficulties. (For example, "In your opinion, talking to *another cancer survivor* about emotional difficulties is...?") Social norm toward use of each MH resource was assessed by asking a respondent about the opinion of their friends and family regarding use of that resource for addressing emotional difficulties. (For example, "In the opinion of your friends and family, participating in a support group with other cancer survivors to talk about emotional difficulties is...?") For both personal attitude and social norm, responses were obtained on a five-point Likert scale from 1 ("a really bad idea") to 5 ("a really good idea") with the midpoint (i.e., 3) labeled "neither a good nor bad idea"; thus higher scores indicated more favorable personal attitudes and social norm regarding MH resource use.

### Data Preparation and Analysis

Prior to analysis, "don't know" responses for items assessing use, access, and perceived behavioral control for each of the six MH resources were recoded as "no" responses, transforming each of these items into dichotomous yes/no variables. For each respondent, personal attitude and social norm ratings for each of the six MH resources were summed and mean Personal Attitude Composite and Social Norm Composite indices were calculated. Coefficient alphas for the Personal Attitude Composite and Social Norm Composite indices were .71 and .79, respectively.

To identify differences in use of our six MH resources between rural and nonrural cancer survivors, a series of chi-square analyses were conducted. Similarly, to identify differences in personal attitudes, social norm, and perceived behavioral control regarding our six MH

resources, a set of independent samples t-tests were conducted between the rural and nonrural groups. To examine the utility of the TPB to account for MH resource use, a parallel set of six multiple regression analyses were performed. Whether or not a survivor reported use of a MH resource since diagnosis served as a dichotomous dependent variable in each regression analysis. Ratings of personal attitude and social norm for each MH resource and whether or not a survivor believed they could access that resource if desired (i.e., perceived behavioral control) served as predictor variables in each analysis. The criterion for statistical significance was set at  $p \leq .05$ .

## Results

### Participant Accrual

365 potential study participants were identified from KCR records. Of these, 16 (4%) were subsequently determined to be deceased and 5 (1%) were withheld from recruitment by their physician. Of the remaining 344 survivors, 28 (8%) were not located or did not respond to KCR's attempts to contact them and 143 (42%) refused participation. The remaining 173 survivors (50%) consented to contact by study staff. Of these, 117 (68%) provided written consent for participation, 39 (23%) declined participation, and 17 (10%) did not respond to any contact attempts. 116 survivors ultimately furnished some data: 109 survivors completed the telephone interview and questionnaire, 5 completed the telephone interview only, and 2 completed the questionnaire only. (One survivor who provided informed consent did not furnish any data.) This yielded an accrual rate of 34% (116/344) based on those whom KCR initiated recruitment efforts. Comparison of the 116 participants and 228 nonparticipants revealed no significant differences for age, type or stage of diagnosis, race, or gender. Rural survivors were more likely to participate than nonrural survivors (42% vs. 29%;  $p < .05$ ).

### Study Sample

The sample consisted of 113 survivors who completed the telephone interview, which included the MHRQ, in its entirety. (Three of the initial 116 participants were not included in the final study sample because they did not complete the MHRQ.) The sample was 68% female ( $n = 77$ ), mean age at participation was 56.8 years ( $SD = 9.2$ ), and mean years of education was 14.1 ( $SD = 3.5$ ). Racial and ethnic background was: White, non-Hispanic ( $n = 101$ ; 89%), Black/African American ( $n=6$ ; 5%), Asian ( $n = 2$ ; 2%), multi-racial ( $n = 2$ ; 2%); White, Hispanic ( $n = 1$ ; 1%), and American Indian/Alaskan Native ( $n = 1$ ; 1%). Most participants were in a "partnered" relationship ( $n = 90$ ; 80%). Annual household income was:  $\leq \$20,000$  ( $n = 29$ ; 26%),  $\$20,001 - \$40,000$  ( $n = 21$ ; 19%),  $\$40,001 - \$80,000$  ( $n = 34$ ; 30%), and  $> \$80,000$  ( $n = 27$ ; 24%). Finally, 45% of participants ( $n = 51$ ) were classified as living in a rural area.

Cancer diagnoses in the sample were: breast cancer ( $n = 42$ ; 37%), hematologic cancers ( $n = 38$ ; 34%), and colorectal cancer 29% ( $n = 33$ ; 29%). SEER stage at diagnosis was: in situ ( $n = 11$ ; 10%), local disease ( $n = 46$ ; 42%), regional disease ( $n = 33$ ; 30%), and metastatic disease ( $n = 20$ ; 18%). Mean time between diagnosis and study participation was 2.7 years ( $SD = 1.1$ , range 1–5 years).

### Accessibility and Use of MH Resources

For each of the six MH resources, the proportions of rural and nonrural survivors reporting availability within 30 miles of their home (i.e., access), perceived ability to access that resource if wanted (i.e., perceived behavioral control), and use of the resource since diagnosis (i.e., use) are shown in Table 1. Few significant group differences were noted. Rural survivors were less likely to report a psychologist ( $X^2 = 8.40$ ;  $p < .01$ ) or a support

group ( $X^2 = 9.20$ ;  $p < .01$ ) within 30 miles of home. In addition, rural survivors were less likely to report they could access a support group if they wanted to ( $X^2 = 4.56$ ;  $p < .05$ ). No significant differences were found in use of MH resources although the raw data suggested nonrural survivors were over twice as likely to use a psychologist (17.7% vs. 7.8%) or support group (14.5% vs. 5.9%) since diagnosis.

### Personal Attitudes and Social Norms regarding MH Resources

Mean personal attitude and social norm ratings regarding use of the six MH resources are shown in Table 2. Rural cancer survivors reported less favorable personal attitudes regarding talking to friends/family about emotional difficulties ( $t(111) = 2.31$ ;  $p < .05$ ). Rural survivors also reported less favorable social norms regarding addressing emotional difficulties by talking to friends/family ( $t(111) = 2.04$ ;  $p < .05$ ) or participating in a support group ( $t(111) = 2.17$ ;  $p < .05$ ). Results for social norm regarding talking to a psychologist ( $t(111) = 1.95$ ;  $p < .06$ ) about emotional difficulties narrowly missed meeting our  $p \leq .05$  criterion for statistical significance with rural survivors reporting less favorable attitudes. Finally, rural and nonrural survivors differed on our composite indices of Personal Attitude ( $t(111) = 2.05$ ;  $p < .05$ ) and Social Norm ( $t(111) = 2.20$ ;  $p < .05$ ) regarding MH resource use; data indicated that rural survivors reported less favorable attitudes and social norms.

### Utility of TPB for Understanding MH Resource Use

As seen Table 3, the set of TPB variables accounted for a significant proportion of variance in use of 4 of 6 MH resources: religious leader ( $F(3, 109) = 7.38$ ;  $p < .001$ ), friends/family ( $F(3, 110) = 15.58$ ;  $p < .001$ ), cancer survivor ( $F(3, 110) = 18.92$ ;  $p < .001$ ), and support group ( $F(3, 110) = 6.07$ ;  $p < .001$ ). For these four MH resources, the proportion of variance accounted for by the TPB variables ranged from 14.3% (support group) to 34.2% (cancer survivor) with a mean of 23.9%.

As for individual predictor variables, personal attitude was a significant predictor of 3 of these 4 MH resources: religious leader, cancer survivor, and support group (all  $p$ 's  $< .05$ ) while perceived behavioral control was a significant predictor of use of two MH resources: friends/family and cancer survivor (both  $p$ 's  $< .01$ ). Social norm regarding use of a MH resource was not significantly associated with use of any of the MH resources.

### Discussion

Contrary to hypothesis, no significant differences were found between rural and nonrural survivors in use of religious leaders, friends/family, cancer survivors, and prescription medications for addressing emotional difficulties after cancer diagnosis. These results parallel the lack of differences we found between rural and nonrural survivors with regard to accessibility of these MH resources (i.e., available within 30 miles of home) as well as perceived ability to access these resources, if desired (i.e., perceived behavioral control). The picture is pretty clear for these four MH resources: actual and perceived accessibility is fairly comparable between rural and nonrural survivors and this parallels the lack of significant differences between these groups in their MH resource use after cancer diagnosis.

The picture is a bit less clear for two other MH resources: talking to a psychologist (or other mental health professional) and participating in a cancer support group. Consistent with the view that rural areas are geographically isolated and likely to be medically underserved, rural survivors reported these two MH resources were less accessible. Rural survivors were less likely to report availability of a psychologist (69% vs. 90%;  $p < .01$ ) or cancer support group (39% vs. 68%;  $p < .01$ ) within 30 miles of their home. Rural cancer survivors also reported less perceived ability to access a support group if desired (i.e., less perceived

behavioral control) relative to nonrural survivors (57% vs. 76%;  $p < .05$ ). However, in contrast to these hypothesized group differences in actual and perceived accessibility, no statistically significant differences were found between rural and nonrural survivors in actual use of psychologists and support groups after cancer diagnosis. Inspection of the raw data (Table 1), however, revealed nonrural survivors were more than twice as likely to use psychologists and support groups relative to rural survivors (18% vs. 8% and 15% vs. 6%, respectively). However, our small sample size and low base rates of use of these two MH resources limited our statistical power, hampering detection of significant differences between rural and nonrural survivors in use of these two MH resources. Consequently, we refrain from concluding there are no differences between rural and nonrural survivors in use of MH resources after diagnosis. Rather, some evidence suggests rural survivors use formal MH resources, such as psychologists and support groups, less frequently than nonrural survivors. However, this hypothesis awaits a more definitive test than we could provide here.

In general, rural survivors reported less positive personal attitudes and social norms regarding MH help-seeking. For personal attitudes, a significant difference between rural and nonrural survivors was found for only 1 of 6 MH resources examined - rural survivors had less favorable attitudes regarding seeking help for emotional difficulties from friends/family ( $p < .05$ ). However, the general pattern of findings was clearly in the direction of less favorable personal attitudes regarding MH help-seeking among rural survivors. Rural survivors' mean personal attitude rating was lower than nonrural survivors' for 5 of 6 MH resources ( $p < .05$ , two-tailed binomial test) and rural survivors scored lower than nonrural survivors on the Personal Attitude Composite index ( $p < .05$ ). A similar pattern of results was observed for social norms regarding MH help-seeking. While rural survivors reported less favorable social norms only for talking to friends/family and participating in support groups (both  $p$ 's  $< .05$ ), rural survivors' mean social norm rating was lower than nonrural survivors' for all six MH resources ( $p < .05$ , two-tailed binomial test) and rural survivors scored lower than nonrural survivors on the Social Norm Composite index ( $p < .05$ ). In short, consistent with prior research in the general population [18,20-23], rural survivors were less likely to believe using various MH resources was a "good thing" and they also perceived friends and family held similarly less favorable views. The effect sizes (ES's) for both the Personal Attitude Composite and Social Norm Composite indices were .39 SD, suggesting a clinically significant difference between rural and nonrural survivors for these TPB constructs [27]. This effect may, in part, be due to little familiarity with MH help-seeking among rural survivors, although firm conclusions regarding this possibility cannot be made based on results of this study alone.

Overall, we found some support for the TPB as a means of understanding MH resource use among cancer survivors. The three TPB constructs (perceived behavioral control, personal attitude, social norm) accounted for a significant portion of variance in use of 4 of 6 MH resources (friends/family, religious leader, cancer survivor, support group; all  $p$ 's  $< .001$ ). The proportion of variance accounted for in use of these MH resources by the TPB constructs ranged from 14.3% (support group) to 34.2% (cancer survivor) with a mean of 23.9%. A prior meta-analysis found the three TPB variables accounted for an average of 39% of variance in behavioral intentions across a wide variety of health behaviors [12]. So our mean of 23.9% of variance appears disappointing in comparison. However, we examined the ability of TPB constructs to account for *actual use* of MH resources, rather than simply *intentions to use* these resources. While behavioral intention and performance are fairly strongly related [13], performance of a behavior can be influenced by many practical factors. In this regard, it is notable the two resources where use was not accounted for by TPB constructs - psychologist and prescription medication - are the two MH resources where use is likely strongly influenced by out-of-pocket costs or adequacy of a

survivor's medical insurance. Thus practical barriers may have minimized the relationship of the more psychologically-oriented TPB constructs (e.g., attitude, social norm) to use of these two MH resources.

Of the three TPB constructs, personal attitude was most strongly linked to MH resource use while perceived social norm was largely unrelated to MH resource use (Table 3). The latter is consistent with a meta-analysis [12] which concluded of the three TPB constructs, social norm was least associated with behavioral intentions across a variety of health behaviors. So while rural cancer survivors reported less favorable personal attitudes and social norms regarding MH resource use, only personal attitudes were associated with actual MH resource use. Thus clinical or public health strategies to enhance use of MH resources by rural survivors should focus on altering personal attitudes rather than social norms associated with MH resource use, in addition, of course, to enhancing accessibility to MH resources.

Several limitations of our study should be noted. First, as noted earlier, the relatively small sample size limited statistical power making interpretation of null findings difficult. Second, our measure of MH resource use may have been a bit too crude to detect effectively differences between rural and nonrural survivors. Our measure enabled us to identify survivors who reported any use of six MH resources after cancer diagnosis. We did not quantify extent of use for each MH resource nor did we quantify the quality or appropriateness of a survivor's use of that resource. More fine-grained measurement of MH resource use might reveal important differences between rural and nonrural survivors that could help account for observed differences in MH outcomes between rural and nonrural survivors [15]. Third, our measure did not assess the full range of MH resources available to survivors. Specifically, the MHRQ did not address generalist health professionals (e.g., primary care practitioners) who may be responsible for the delivery of MH services in rural areas nor did it address internet-based cancer support groups. For reasons such as perceived and actual costs associated with MH specialists, as well as stigma associated with MH help-seeking, it is possible rural survivors rely more heavily on generalist health professionals and internet support groups than nonrural survivors, and future research should test this hypothesis. Finally, our response rate of 34% raises concerns about sample representativeness. While participants did not differ from nonparticipants on most clinical and demographic variables, we do not know whether differences existed on other characteristics that might have introduced bias into our analyses. In fairness, our 34% accrual rate is similar to reported accrual rates of 41–46% in recent psychosocial studies of cancer survivors recruited from population-based registries [28-30] and is identical to the 34% accrual rate in the American Cancer Society national study of cancer survivors [31]. So any biases present in our study due to a less than optimal accrual rate are likely present in these other, similar published studies.

In conclusion, the elimination of health disparities is one of two overarching goals in *Healthy People 2010*, a national agenda for health promotion and disease prevention [32]. According to *Healthy People 2010*, significant disparities can be associated with population groups defined by race, ethnicity, sex, sexual orientation, socioeconomic status, disability or geographic location. Whether an individual resides in a rural or nonrural area represents one way of defining population groups based on geographic location. Our prior research suggested clinically important disparities may exist between rural and nonrural cancer survivors in MH outcomes [15]. The present research is an initial attempt to identify factors that might account for such disparities. The present research focused on potential differences between rural and nonrural survivors in use of formal and informal MH resources as well as factors such as actual and perceived resource accessibility and personal attitudes and social norms that might influence MH resource use by cancer survivors. Additional research is needed to replicate our findings and expand the search for other factors, particularly



modifiable factors that might account for any disparities in MH outcomes between rural and nonrural cancer survivors.

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**Table 1**  
**Access, Perceived Behavioral Control, and Use of MH Resources Since Cancer Diagnosis for Rural and Nonrural Cancer Survivors**

<i>Mental Health Resource</i>	Rural (n=51)		Nonrural (n=62)		p-value <sup>a</sup>
	#	%	#	%	
<i>Psychologist</i>					
Access	35	68.6%	56	90.3%	.004
Perceived Behavioral Control	42	82.4%	54	87.1%	.483
Use	4	7.8%	11	17.7%	.123
<i>Religious Leader</i>					
Access	48	94.1%	61	98.4%	.222
Perceived Behavioral Control	49	96.1%	58	93.5%	.551
Use	19	37.3%	18	29.5%	.385
<i>Friends/Family</i>					
Access	51	100%	60	96.8%	.196
Perceived Behavioral Control	48	94.1%	61	98.4%	.222
Use	41	80.4%	51	82.3%	.800
<i>Cancer Survivor</i>					
Access	40	78.4%	53	85.6%	.328
Perceived Behavioral Control	42	82.4%	55	88.7%	.335
Use	37	72.5%	47	75.8%	.693
<i>Support Group</i>					
Access	20	39.2%	42	67.7%	.002
Perceived Behavioral Control	29	56.9%	47	75.8%	.033
Use	3	5.9%	9	14.5%	.138
<i>Prescription Medication</i>					
Access	48	94.1%	59	95.2%	.806
Perceived Behavioral Control	49	96.1%	61	98.4%	.447
Use	19	37.3%	17	27.4%	.264

Note. Data corresponds to the number (#) and proportion (%) of participants in each group who answered "Yes" to questions regarding access, perceived behavioral control, and use of each mental health resource.

<sup>a</sup> p-value for chi-square test

**Table 2**  
**Personal Attitude and Social Norm Regarding MH Resource Use for Rural and Nonrural Cancer Survivors**

<i>Mental Health Resource</i>	Rural (n=51)		Nonrural (n=62)		p-value <sup>a</sup>	ES <sup>b</sup>
	M	SD	M	SD		
<i>Psychologist</i>						
Personal Attitude	3.49	1.07	3.77	1.08	.164	.26
Social Norm	3.41	0.98	3.77	0.98	.054	.36
<i>Religious Leader</i>						
Personal Attitude	4.06	0.95	4.00	0.95	.737	.07
Social Norm	3.92	0.91	4.03	0.87	.511	.12
<i>Friends/Family</i>						
Personal Attitude	4.10	1.10	4.50	0.74	.023	.43
Social Norm	4.18	0.84	4.48	0.76	.044	.37
<i>Cancer Survivor</i>						
Personal Attitude	4.18	0.71	4.42	0.78	.090	.32
Social Norm	4.06	0.65	4.23	0.82	.238	.23
<i>Support Group</i>						
Personal Attitude	3.69	0.91	3.97	0.98	.118	.29
Social Norm	3.69	0.88	4.03	0.81	.032	.40
<i>Prescription Medication</i>						
Personal Attitude	3.35	1.04	3.55	1.08	.332	.19
Social Norm	3.35	1.00	3.56	1.04	.243	.22
Personal Attitude Composite	3.81	0.57	4.04	0.58	.043	.39
Social Norm Composite	3.77	0.60	4.01	0.61	.030	.39

Note. Data corresponds to means (M) and standard deviations (SD) for each group. For both Personal Attitude and Social Norm, responses were obtained on a five-point Likert scale from 1 (“a really bad idea”) to 5 (“a really good idea”) with the midpoint (i.e., 3) labeled “neither a good nor bad idea”; thus higher scores indicate more favorable attitudes and social norm regarding MH resource use.

<sup>a</sup> independent samples t-test

<sup>b</sup> calculated as difference in group means divided by sample SD

**Table 3**  
**Multiple Regression Analysis of MH Resource Use after Cancer Diagnosis**

<i>Predictor Variable</i>	<i>Psychologist</i>		<i>Religious Leader</i>		<i>Friends/Family</i>		<i>Cancer Survivor</i>		<i>Support Group</i>		<i>Prescription Medication</i>	
	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
Personal Attitude	.06	.38***	.23*	.28**	.24**	.09						
Social Norm	.08	.01	.19	.05	.11	.12						
Perceived Behavioral Control	.06	.10	.25**	.37***	.14	.07						
<i>Full Model Statistics</i>												
Multiple R	.150	.413	.548	.585	.378	.210						
Multiple R2	.022	.170	.300	.342	.143	.044						
F-statistic	.830	7.38***	15.58***	18.92***	6.07***	1.68						

Note.

\* p < .05

\*\* p < .01

\*\*\* p < .001