Cancer is for rural people, a very lonely experience and as prevalent as the disease is, not many people can understand the emotional toll it takes.

Rural cancer patient [1, p. 41]

Thousands of studies have examined the psychosocial and physical adjustment of breast cancer survivors. The overwhelming majority of these focus on urban women. That is, researchers have largely ignored rural women’s psychological and physical adjustment to breast cancer. Nevertheless, we were able to identify 27 study reports, most of which were conducted in the US, that focus on the adjustment of rural breast cancer survivors. Additionally, we identified 14 study reports of data derived from breast cancer registries that compare the treatments administered to rural and urban breast cancer patients. The purpose of the present work was to review the available empirical literature on rural breast cancer treatment and survivorship. The aims of the review were to:

- Describe the surgical treatment for breast cancer in rural women.
- Describe the psychosocial adjustment and support needs of rural women.

1 This review does not include studies about cancer screening, diagnosis, or mortality.

Method

To identify studies, we conducted literature searches on CINAHL (1982–2006), Medline (1950–2006), and PsychInfo (1806–2006), using the following keywords: breast cancer, breast neoplasms, and rural. Also, we searched the reference sections of each identified study report for additional citations. Studies were included if they had an identifiable rural sample, reported either qualitative or quantitative findings regarding breast cancer treatment or survivorship, and were published in the English language.

Tables 1 and 2 include lists of these studies. Table 1 identifies the cancer registry database studies that document the rates of types of treatment that rural breast cancer patients receive. Eight of these registries were located in the United States, five in Australia, and one in Canada. Most have relatively clear definitions of rurality, but a few are somewhat unclear. The majority include data from a relatively large number of rural breast cancer patients and an urban comparison sample. Table 2 lists the articles reporting studies of psychosocial and physical adjustment; 20 used quantitative methods, five used qualitative methods, and two used both. About two-thirds of the studies had relatively small samples [100 or less, range = 6–100], and 78% of these studies did not include an urban comparison group. Table 2 also
<table>
<thead>
<tr>
<th>Study</th>
<th>Rural definition</th>
<th>Database</th>
<th>Rural N</th>
<th>Urban N</th>
<th>Sample</th>
<th>Country</th>
<th>Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answini et al. [16]</td>
<td>Rural counties</td>
<td>National Cancer Database and North Carolina Cancer Registry</td>
<td>1057</td>
<td>3349</td>
<td>Breast cancer (BC) patients from 1991 to 1998 in Charlotte-Mecklenburg County, North Carolina and BC patients from 1995 to 1997 in six surrounding rural counties</td>
<td>United States</td>
<td>Rates of breast-conserving surgery were higher in the urban county than in the surrounding rural counties for stage I and II breast cancer</td>
</tr>
<tr>
<td>Beaulieu et al. [6]</td>
<td>County information; Beale code of rural-urban continuum</td>
<td>Kentucky Cancer Registry</td>
<td>2952</td>
<td>5142</td>
<td>BC patients diagnosed from 1995 to 1999</td>
<td>United States</td>
<td>Rates of breast-conserving surgery were highest in the most urban counties and decreased in a linear fashion with increasing rurality</td>
</tr>
<tr>
<td>Craft et al. [15]</td>
<td>Rural regions (comprised of large rural towns, rural and remote areas)</td>
<td>Australian national Medicare records</td>
<td>1170</td>
<td>3483</td>
<td>All BC patients who underwent surgery in 1993</td>
<td>Australia</td>
<td>Rates of breast-conserving surgery were higher in urban regions than rural areas</td>
</tr>
<tr>
<td>Godf et al. [20]</td>
<td>Unclear</td>
<td>Provincial cancer registries of Ontario and British Columbia</td>
<td>283</td>
<td>1597</td>
<td>BC patients who were diagnosed with node-negative BC in 1991</td>
<td>Canada</td>
<td>Rural residence was associated with a lower likelihood of breast-conserving surgery and radiation therapy in British Columbia, but not Ontario</td>
</tr>
<tr>
<td>Haggstrom et al. [21]</td>
<td>County either distant or adjacent to a metropolitan area with a population of less than 20,000</td>
<td>SEER program of the National Cancer Institute (NCI)</td>
<td>3830</td>
<td>18,871</td>
<td>BC patients diagnosed with early-stage BC between 1992 and 1999, aged 66–79</td>
<td>United States</td>
<td>Rural women were less likely to receive breast-conserving surgery, radiation therapy, adequate documentation of estrogen receptor status and adequate care</td>
</tr>
<tr>
<td>Hall and Holman [24]</td>
<td>Remoteness of area</td>
<td>Western Australia Record Linkage Project</td>
<td>Unclear</td>
<td>Unclear</td>
<td>BC patients who underwent breast reconstructive surgery after a mastectomy or breast-conserving surgery from 1982 to 2000</td>
<td>Australia</td>
<td>Rates of breast reconstructive surgery were higher for women from metropolitan areas than women in rural areas</td>
</tr>
</tbody>
</table>
Hersman et al. [23] Residence not in a metropolitan area SEER program of the National Cancer Institute (NCI) 541 4466 BC patients diagnosed from 1991 to 1999 aged 65 or older who received chemotherapy United States Residence outside a metropolitan area was associated with an increased number of days between surgery and beginning chemotherapy

Howe et al. [27] Ten contiguous rural counties in Illinois Illinois State Cancer Registry 547 BC patients diagnosed from 1986 to 1989 United States Among this rural sample, women younger than 55 were most likely to receive separate diagnostic biopsy, limited surgery and chemotherapy, whereas women 55–74 were most likely to receive hormone therapy

Kok et al. [17] Rural, remote and metropolitan areas (RRMA) Breast Screen Victoria 945 2610 BC patients diagnosed from 1993 to 2000 Australia Rural women were less likely to undergo breast-conserving surgery and radiation therapy, and were more likely to have a mastectomy

Meden et al. [25] Rural region of Michigan Medical records from three hospitals in northern Michigan 66 BC patients treated between 1999 and 2000 United States Among this rural sample, utilization of breast-conserving therapy was half the national average and was negatively correlated with travel distance to a radiation oncology center

Mitchell et al. [19] Postcode of woman's usual residence Western Australia Cancer Registry 206 693 BC patients diagnosed in 1999 Australia Rural women were less likely to receive breast-conserving surgery, radiation therapy, and hormonal therapy

Samnakay et al. [18] Australia post definitions of metropolitan and rural areas Royal Perth Hospital Multidisciplinary Breast Service Database 587 136 BC patients treated at Royal Perth Hospital between 2000 and 2002 Australia Women from rural areas were more likely to undergo mastectomy, but this difference was not significant

Schootman and Aft [22] Not living in a Metropolitan Statistical Area (MSA) at the time of diagnosis SEER program of the National Cancer Institute (NCI) 503 6485 BC patients diagnosed from 1991 to 1996 in nine geographic regions United States Rural women were less likely to receive radiation therapy following breast-conserving surgery

Tropman et al. [11] Rural North Carolina Reaching Communities for Cancer Care 251 BC patients receiving treatment from 1991 to 1996 in five North Carolina counties United States Rural patients did not receive adjuvant therapy as often as NCI standards recommend. Mastectomy was performed significantly more often than breast-conserving surgery

---

* Data reported for the entire sample, total N = 7303.
<table>
<thead>
<tr>
<th>Study</th>
<th>Rural definition</th>
<th>Method</th>
<th>Rural N</th>
<th>Urban N</th>
<th>Sample</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert et al. [42]</td>
<td>Defined rural area with 252,000 inhabitants (small-area analysis)</td>
<td>Quantitative survey</td>
<td>269</td>
<td>—</td>
<td>Breast cancer (BC) patients began study at hospital discharge, subsequent surveys at 6, 12, 24, and 36 months</td>
<td>Germany</td>
</tr>
<tr>
<td>Collie et al. [34]</td>
<td>Seven rural counties in Sierra Nevada, California</td>
<td>Quantitative survey</td>
<td>100</td>
<td>—</td>
<td>BC patients within 3 months of diagnosis or BC survivors within 3 months of completing treatment</td>
<td>United States</td>
</tr>
<tr>
<td>Cuellar et al. [46]</td>
<td>Rural communities in Southern Mississippi</td>
<td>Quantitative survey and interview</td>
<td>30⁵</td>
<td>—</td>
<td>Time since treatment unclear; 'patients with breast cancer'</td>
<td>United States</td>
</tr>
<tr>
<td>Davis et al. [5]</td>
<td>An area of residence outside the metropolitan area in which the treatment center is located</td>
<td>Quantitative phone survey</td>
<td>80</td>
<td>—</td>
<td>Time since treatment unclear; BC survivors</td>
<td>Australia</td>
</tr>
<tr>
<td>Davis et al. [4]</td>
<td>Residing outside a capital or metropolitan city</td>
<td>Quantitative survey</td>
<td>204</td>
<td>—</td>
<td>BC survivors, time since diagnosis ranged from 6 to 12 months</td>
<td>United States</td>
</tr>
<tr>
<td>Demaree [31]</td>
<td>Rural communities not metropolitan</td>
<td>Quantitative survey</td>
<td>6⁴</td>
<td>—</td>
<td>BC patients receiving radiation therapy</td>
<td>United States</td>
</tr>
<tr>
<td>Doorenbos et al. [29]</td>
<td>Women from rural hospitals</td>
<td>Quantitative survey</td>
<td>108</td>
<td>242</td>
<td>Women newly diagnosed with breast cancer and undergoing chemotherapy</td>
<td>United States</td>
</tr>
<tr>
<td>Dunaway et al. [30]</td>
<td>Five county area of rural Northeastern Kentucky</td>
<td>Quantitative interviews</td>
<td>10</td>
<td>—</td>
<td>BC survivors, time since diagnosis ranged from 12 to 36 months</td>
<td>United States</td>
</tr>
<tr>
<td>Girgis et al. [7]</td>
<td>Postal codes in New South Wales were classified as rural</td>
<td>Quantitative survey</td>
<td>129</td>
<td>100</td>
<td>BC patients and survivors, time since diagnosis ranged from 3 months to 6 years</td>
<td>Australia</td>
</tr>
<tr>
<td>Gray et al. [3]</td>
<td>Self-report of living on a farm/country home/village, or living in a town, or small city</td>
<td>Quantitative survey and qualitative focus groups</td>
<td>276 focus group only; 157 focus group and survey</td>
<td>—</td>
<td>Time since diagnosis ranged from less than 2 years to more than 6 years</td>
<td>Canada</td>
</tr>
<tr>
<td>Heishman [12]</td>
<td>Counties with less than 50,000</td>
<td>Quantitative interview</td>
<td>36</td>
<td>—</td>
<td>BC patients in treatment (N = 30) and BC survivors who had completed treatment (N = 6)</td>
<td>United States</td>
</tr>
<tr>
<td>Hokanson et al. [13]</td>
<td>Towns with populations less than 1,000, 1,000–15,000, 15,000–30,000, and more than 30,000. Sample categorized as predominantly rural</td>
<td>Quantitative survey</td>
<td>161</td>
<td>—</td>
<td>BC survivors who were initially referred to the clinic between 1995 and 1996</td>
<td>United States</td>
</tr>
<tr>
<td>Howe et al. [26]</td>
<td>Ten counties with a population density of less than 100 persons per square mile</td>
<td>Review of hospital medical records</td>
<td>147</td>
<td>451</td>
<td>BC patients diagnosed from 1986 to 1987</td>
<td>United States</td>
</tr>
<tr>
<td>Study Authors</td>
<td>Study Area</td>
<td>Study Design/Methods</td>
<td>Sample Size</td>
<td>Notes</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------------------------------</td>
<td>---------------------------------------------</td>
<td>-------------</td>
<td>----------------------------------------------------------------------</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>Koopman <em>et al.</em></td>
<td>Seven rural counties in Sierra Nevada, CA</td>
<td>Quantitative survey and interview</td>
<td>100</td>
<td>BC patients within 3 months of diagnosis or BC survivors within 6 months of completing treatment for BC</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Lengacher <em>et al.</em></td>
<td>Not living in an urban or suburban area</td>
<td>Quantitative survey</td>
<td>63</td>
<td>Time since treatment unclear; women with a diagnosis of BC</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Lopez <em>et al.</em></td>
<td>Three rural counties, each having a population of less than 30,000</td>
<td>Qualitative group discussion sessions</td>
<td>18</td>
<td>BC survivors who had completed their initial treatment; time since diagnosis ranged from 1 to 53 years</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Lyons and Shelton</td>
<td>Rural areas of the Alabama and Mississippi</td>
<td>Quantitative</td>
<td>Approx 24</td>
<td>Women diagnosed with breast cancer during the previous 6 months</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Mastaglia and Kristjanson</td>
<td>Not living in an urban center</td>
<td>Quantitative survey</td>
<td>87</td>
<td>BC patients and survivors; time since surgery ranged from 0 to 8 months</td>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>Mathews <em>et al.</em></td>
<td>Rural North Carolina</td>
<td>Qualitative interviews</td>
<td>26</td>
<td>BC patients and survivors who were eventually diagnosed or had been previously diagnosed with advanced BC; time since biopsy varied</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>McGrath <em>et al.</em></td>
<td>Rural Queensland (based on Australia’s standard classification)</td>
<td>Qualitative and quantitative structured interviews</td>
<td>24</td>
<td>BC patients and survivors; time since diagnosis varied</td>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>Palesh <em>et al.</em></td>
<td>Seven rural counties with populations less than 12,000 in Northern California</td>
<td>Quantitative</td>
<td>82</td>
<td>BC patients recruited either within 3 months of diagnosis or within 6 months of completing medical treatment</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Rogers-Clark</td>
<td>Participants lived in rural southwest Queensland</td>
<td>Qualitative interviews</td>
<td>9</td>
<td>BC survivors who were diagnosed at least 5 years prior</td>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>Saegrove</td>
<td>One rural county-municipality; total population 100,000</td>
<td>Quantitative</td>
<td>28</td>
<td>Time since diagnosis unclear; women who had ‘cancer of the breast’</td>
<td>Norway</td>
<td></td>
</tr>
<tr>
<td>Tulloh and Goldsworthy</td>
<td>Rural town with population of 15,000 and surrounding farm population of 2000</td>
<td>Quantitative analysis of medical records</td>
<td>28</td>
<td>BC patients diagnosed from September 1992 to August 1995</td>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>van der Weg and Streuli</td>
<td>Rural area of Switzerland</td>
<td>Quantitative interview</td>
<td>53</td>
<td>BC patients and survivors; time since diagnosis varied</td>
<td>Switzerland</td>
<td></td>
</tr>
<tr>
<td>White <em>et al.</em></td>
<td>Patients referred to the Rural Cancer Care Clinic</td>
<td>Quantitative survey of knowledge rates</td>
<td>48</td>
<td>BC patients recruited at various phases of disease and treatment</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Wilson <em>et al.</em></td>
<td>Twenty predominantly rural communities in Washington</td>
<td>Qualitative focus groups</td>
<td>128</td>
<td>BC survivors; time since diagnosis was one year or more</td>
<td>United States</td>
<td></td>
</tr>
</tbody>
</table>

--- sample size was zero.

*The term survivor was used to denote individuals who had completed primary and adjuvant treatment.

Study included patients with other kinds of cancer. N reported for breast cancer patients only.
shows the period of time after diagnosis varied across the studies, and the definitions of rurality varied considerably across studies; most definitions were not highly specific. Only two studies reported relying on urban–rural county codes and eight studies referred to the population of a town or county. The remaining 17 studies merely stated that the study was conducted in rural counties, regions or communities. As identified in Table 2, about two-thirds of the studies have been conducted in the US (19.2% of total population is rural; [2]); the remaining studies were conducted in Australia (8.4% of total population in Australia/New Zealand is rural), Canada (18.9% rural), Germany (11.5% rural), Japan (34.3% rural), Norway (22.6%), and Switzerland (32.5% rural). With a few exceptions, the results across studies tend to indicate continuity across these rural areas. Nevertheless, we recognize that rural experiences are likely to have within-country as well as within-county/state uniqueness.

To organize our review, first we summarized all of the findings available in each study report. Next, we identified common themes evident in these findings. Finally, we structured the current review according to these common themes. The themes include: (1) access to treatment and treatment type; (2) medical providers and health information; (3) psychosocial adjustment and coping; and (4) social support and psychological support services.

**Results**

**Access to treatment and treatment type**

**Travel issues**

Studies confirm that rural breast cancer patients must travel long distances to receive oncology-related care and that many must stay in urban areas for the duration of their primary cancer treatment. For example, based on a focus group study, Gray et al. ([3]; \(N = 433\)) revealed that 50% of the rural breast cancer patients in their sample traveled over 1 h for surgery and 25% traveled more than 3 h. Likewise, for this same sample, 21% traveled more than 3 h for chemotherapy, and 61% traveled more than 3 h for radiation therapy. Similarly, Davis et al.’s ([4]; \(N = 80\)) study of rural women with early-stage breast cancer in Australia revealed that 32% traveled more than 60 miles for surgery, 68% for radiotherapy, and 36% for chemotherapy. In an earlier study, Davis and colleagues ([5]; \(N = 80\)) conducted a telephone survey of rural breast cancer survivors in Australia and found that the majority (83%) reported staying away from their homes to receive treatment, and the primary reason for this was lack of available treatment facilities in rural areas.

As might be expected, traveling long distances to receive treatment can be stressful. Davis et al. ([4]; \(N = 204\)) showed that the great majority of their participants reported problems obtaining information about travel and accommodations. Some reported difficulties due to disruption of family life and employment. In addition, rural breast cancer patients may experience a sense of isolation and displacement in urban treatment settings. Moreover, those who develop relationships with other cancer patients in urban settings may feel a loss of social support upon returning to their rural communities [3].

**Surgical and adjuvant treatments**

Not only do rural women experience more difficulties with accessing treatment facilities but also, compared to their urban counterparts, they often receive different primary and adjuvant treatments. Studies ([3,4,6–11]; see also Heishman [12]; Hokanson et al. [13]; Mastaglia and Kristjanson [14]) suggest that, compared to urban breast cancer patients, rural breast cancer patients are more likely to undergo mastectomy and receive chemotherapy and are less likely to undergo lumpectomy and receive radiation therapy. For example, in a study ([15]; \(N = 4653\)) of Australian women receiving medical benefits, frequency of breast-conserving surgery was significantly lower among rural women (also see Answini et al. [16] for similar results in North Carolina; \(N = 4406\)). Kok et al. ([17]; \(N = 6418\)) report that rural patients in Australia were less likely to undergo breast-conserving surgery, despite that there were no differences between rural and urban women in tumor size (see also Samnakay et al. [18]; \(N = 723\)). Similarly, another study in Australia (Mitchell et al. [19]; \(N = 899\)) suggests rural women are not only less likely to undergo breast-conserving surgery but are also less likely to receive radiation therapy and hormone therapy (also see Goel et al. [20] for similar results in British Columbia; \(N = 1880\)).

Several authors have utilized the national Surveillance, Epidemiology, and End Results (SEER)—Medicare database, which includes tumor registries of nine geographic areas in the US and covers 14% of the nation’s population. Utilizing SEER, Haggstrom et al. ([21]; \(N = 22701\)) reported that rural breast cancer patients, between the ages of 66 and 79, were less likely to receive breast-conserving surgery, radiation therapy, adequate documentation of estrogen receptor status, and adequate care in general (also see Schootman and Aft [22]; \(N = 6988\)). Additionally using SEER, Hershman et al. ([23];
Factors affecting treatment

The relative distance between an urban treatment facility and rural breast cancer patients’ homes may play a role in determining the type of treatment they receive. For example, compared with those living in highly remote areas, breast cancer patients who lived in less remote, ‘highly accessible’ rural areas in Western Australia were more likely to have been treated in metropolitan areas and to have received reconstructive surgery ([24]; N = 7303). Also, Beaulieu et al.’s ([6]; N = 8094) analysis of a cancer registry from the state of Kentucky found that those breast cancer survivors who lived in rural counties that were adjacent to a metropolitan area were more likely to receive breast-conserving surgery than their counterparts living in rural counties not adjacent to a metropolitan area. Finally, Meden et al. ([25]; N = 66) found that in a rural region of Michigan, use of breast-conserving therapy was nearly half of the US average and that, within the same sample, greater travel distance was negatively correlated with the use of breast-conserving therapy.

Several researchers have pointed to possible reasons that distance influences the type of treatment a breast cancer patient receives. Davis et al. [4] concluded that rural women may make treatment decisions that are influenced by difficulties with transportation, lack of easily accessible health-care services, and events occurring at home. Other researchers [3,8–10,12] point to the need for prolonged periods away from home and the social and economic costs associated with travel.

Somewhat consistent with the findings related to treatment facility distance, Howe et al. ([26]; see also Howe et al.’s [27]) database study revealed that rural breast cancer patients treated in rural hospitals in the state of Illinois were less likely to have access to state-of-the-art treatment than those treated in urban hospitals. Importantly, however, one study of treatments provided within a rural hospital in Australia ([28]; N = 28) suggests that a rural setting need not be an obstacle for rural women receiving breast-conserving treatment (also see Doorenbos et al. [29]; N = 350). This study focused on a rural hospital that adopted a ‘multidisciplinary approach’ to breast cancer treatment that included an oncologist, a specialist breast surgeon, and telephone conferences with other specialists. Medical records revealed that 68% of the 25 patients treated at this hospital over a three-year period received breast-conserving surgery.

In addition to the influences of distance from treatment facilities and rural location of treatment facilities, it appears that physicians may play a particularly influential role in rural breast cancer patients’ treatment decisions. For example, in Gray et al.’s [3] study, six of the eight participants who had a mastectomy reported that they deferred this decision to their physician. Related to this finding, Stafford et al.’s ([10]; N = 191) survey showed that 70% of their mostly rural early-stage patient sample reported that their surgeon discussed both mastectomy and lumpectomy surgery options with them. Fifty-five percent of these patients recalled that their surgeon said mastectomy was the better option for them, 34% recalled that they were told that the treatments were equal options, and only 10% recalled that they were told that breast-conserving surgery was a better option. Likewise, more than half of the patients in Stafford et al.’s study reported that the most influential person in their decision process was their surgeon. These findings should be considered in light of Dunaway et al.’s ([30]; N = 10) results that showed that rural breast cancer survivors who felt they had retained control and were allowed to participate in their treatment decisions reported better experiences than did those who felt they did not.

Medical providers and health information

Relationships with medical providers

Clearly, rural women need the support and information that medical care professionals can provide. Demaree’s ([31]; N = 6) survey findings suggest that rural breast cancer survivors were highly satisfied with the support they received from their medical care staff during their primary treatment. Rural breast cancer patients in Wilson et al.’s ([32]; N = 128) qualitative study reported that relationships with medical care providers were best when the women (1) could see the provider immediately with their concerns; (2) believed that they could trust their provider; (3) felt that their provider listened to them; and (4) perceived mutual respect. Moreover, rural women in Dunaway et al.’s [30] qualitative study who received care locally felt more positive about their providers than did those who had received care further away.

Wilson et al. [32] revealed that only 20% of the rural breast cancer survivors in their focus group study reported that they had been treated poorly by the health-care system and that they had
unsatisfactory interactions with medical care providers. Such dysfunctional interactions can include (1) poor communication with physicians; (2) feeling ignored; (3) waiting long periods for test results; and (4) feeling rushed in decision-making [3,30,32,33]. One survey of rural breast cancer patients and survivors predicted difficulties communicating with health-care professionals ([34]; N = 89).³ The study showed that those participants who were unmarried, had lower levels of self-efficacy for seeking and understanding medical information, and had more difficulty regulating negative affect, reported greater difficulty communicating with health-care professionals. Somewhat related to this, rural breast cancer patients in Dunaway et al.’s [37] study reported wanting more compassion, honesty, and an appreciation of their individuality from their physicians. Despite that there is some evidence that rural women are largely satisfied with the medical support they receive during primary breast cancer treatment, their satisfaction may decrease following the completion of primary treatment. One reason that rural breast cancer patients may lack medical support after the completion of primary treatment is that local physicians may not be readily available [3]. Another is that, when local physicians are available, they may lack adequate knowledge of oncology-related care. Howe et al. (26; N = 547) suggest that having the expertise required for cancer care is challenging for rural physicians because they have minimal access to continuing education about cancer and its treatment (also see Gray et al. [3]). Consistent with this, Hatzell et al.’s [38] survey of physicians located in rural areas suggested that they were unaware of some of the recommended treatments in the guidelines of the National Cancer Institute (USA). Further exacerbating the problem, poor communication between local rural physicians and cancer specialists who remotely treat rural breast cancer patients may lead patients to feel that they lack adequate medical care [3].

Other sources of health information
Beyond the problem that general practitioners may lack oncology-related health information, rural breast cancer patients themselves report lacking adequate access to relevant health-related information [3,4]. For example, Davis et al. [4] revealed that 30% of the breast cancer survivors in their study stated that living outside a major city had limited their access to health information and that less than 50% received adequate information about radiotherapy and breast reconstruction. Wilson et al.’s [32] study suggested that rural breast cancer survivors desired greater patient education, wanted more information about what to expect during and after surgery and treatment, and felt ill prepared to deal with the consequences of surgery and chemotherapy. Finally, there is little evidence that rural breast cancer patients are provided with information that is targeted toward rural women in particular [4,5,8,9,32].

The implications of lack of health information
The apparent lack of oncology-related and general-health information provided to rural breast cancer patients is especially troubling, because at least some rural breast cancer patients are likely to have misinformation and misconceptions about cancer. Deficits in knowledge about breast cancer and its treatment have been revealed in a survey conducted by White et al. ([39]; N = 48). Their results showed that 73% of the late-stage rural breast cancer patients and 49% of the early-stage rural breast cancer patients lacked important cancer-related knowledge. For late-stage breast cancer patients, the greatest deficit was in their knowledge about chemotherapy, and for early-stage breast cancer patients, the greatest deficit was in their general knowledge about the disease of cancer. In another study, McGrath et al. ([8,9]; N = 24) found that rural breast cancer patients were often unaware of the stage of their cancer (also see Howe et al. [26]).

With respect to misconceptions, a few of the rural women interviewed by Heishman [12] attributed breast cancer symptoms to hard work, bumping of the breast, weather, or menopause. Also, some of these same rural cancer survivors stated that they had thought they were too young to get breast cancer, suggested that if the cancer is exposed to air during surgery it will spread, and conveyed that lymph nodes aid in moving cancer through the body. The majority of women in Heishman’s study who had undergone mastectomy believed that the mastectomy would ‘get rid of all the cancer.’ Mathews et al. ([33]; N = 26) points to similar misconceptions, showing that rural women in their sample believed that cancer screening is ‘looking for trouble,’ that the disease is virtually unstoppable, that attempts to look for cancer tempted fate, and that refusing to name or acknowledge the disease would protect them from suffering its full effects. Making cancer-related health information more available to rural women is important not only for redressing these misconceptions, but also for providing helpful information about coping strategies [40].

Psychosocial adjustment and coping

Distress, body image, and stigma
Studies [7–10,12,32] suggest that rural breast cancer survivors experience psychological distress

³The participants of Collie et al. [34] and Palesh et al. [35] are the same as those originally reported in Koopman et al. [36].
during and after treatment. For example, rural breast cancer survivors report having anxiety and emotional difficulties as well as being worried about the recurrence of cancer [8–10,12,32]. Consistent with this outcome, Koopman et al. ([41]; N = 100) found that a large majority of rural breast cancer survivors in their sample considered their diagnosis to be one of their most stressful life events, reported relatively high levels of helplessness/hopelessness, and some met the criteria for Post Traumatic Stress Disorder. Similarly, Albert et al.’s ([42]; N = 269) quantitative-survey findings showed that rural breast cancer survivors had a relatively low level of quality of life when they were discharged from the hospital. Although the levels of quality of life for rural breast cancer survivors tended to improve over a 12-month period, these levels remained below the population average. Finally, Palesh et al. ([35]; N = 82) showed that lower levels of emotional self-efficacy and greater levels of stressful life events, but not satisfaction with social support, predicted greater mood disturbance among their sample of rural breast cancer patients.

There is some indication that living in a rural area may be particularly problematic, in terms of adjusting to breast cancer. Girgis et al. ([7]; N = 129) revealed that a higher proportion of rural women than urban women indicated that they needed help with their cancer-related fears (also see Heishman [12]; Wilson et al. [32]). Lyons and Shelton ([43]; N = 53) found that women in rural areas of Mississippi and Alabama reported lower quality of life, compared with those living in urban areas. Nevertheless, at least one study ([44]; N = 103; also see van der Weg and Streuli [45]) revealed no evidence that rural women are more likely to use complementary and alternative therapies for breast cancer and its side effects than were urban women.

A few studies [45–47] have compared rural breast cancer patients to rural patients with other diseases. For example, a study of rural Norwegian breast cancer patients ([47]; N = 28), prostate cancer patients (N = 21), and patients with other cancer diagnoses (N = 35) showed that, whereas the mental health and general health of different types of patients were similar, breast cancer patients reported lower energy levels and lower levels of vitality than other patients. These breast cancer patients (as well as prostate cancer patients) reported that poor physical health influenced their daily activities more than did other patients. Also, Cuellar et al.’s ([46]; N = 30; also see Demaree [31]) survey of rural breast cancer patients and other rural patient groups showed that levels of depression were similar for patients with breast cancer, myocardial infarction, and stroke. Nevertheless, 12% of the breast cancer patients had scores (using the Center for Epidemiological Studies Depression Index) that indicated substantial levels of depression.

Other issues related to psychological adjustment include concerns about body image and being stigmatized [8,9,32,48]. In Heishman’s [12] study of 36 rural breast cancer patients, 13 women mentioned appearance and self-esteem issues, nine of whom felt self-conscious in public, five of whom said they felt ugly or disgusting after mastectomy. By comparison, of those breast cancer patients in Heishman’s study who had received a lumpectomy, many reported that the lumpectomy enabled them to maintain a positive self-image. Additionally, there is some evidence that rural women may feel stigmatized because of their breast cancer diagnosis. McGrath et al. [8,9] report that in the rural setting, breast cancer is seen as a difficult topic to talk about, which was described by one participant as ‘a backwoods taboo.’ Lopez et al. ([48]; N = 18) suggested that stigmatization of cancer in a rural African American community might have been shaped by beliefs that cancer always leads to death, that it is contagious, and that cancer may lead to rejection by male partners.

Social roles

Treatment for breast cancer can disrupt rural women’s social-role performances, especially in gender-specific roles. Rural women may be especially concerned about role disruption because their social roles as caregivers are central to their lives [8,9] and position them as valued members of their communities [48]. Rural breast cancer patients who must reside away from home during treatment report being concerned about the disruption of their family-related social roles [4]. Consistent with this, rural women in Gray et al.’s [3] study felt that running a home and taking care of children while coping with breast cancer diagnosis and treatment was more difficult in a rural area, where services were less accessible. Girgis et al. [7] revealed that, compared to their urban counterparts, rural breast cancer survivors were 2.5 times more likely to report needing help with physical and daily living needs after treatment. Consistent with this finding, Heishman [12] reports that many of the rural breast cancer survivors in her sample felt significant relief when others helped with traditional gender role demands.

Coping strategies

Rural women seem to use a variety of strategies to cope with their breast cancer diagnosis, treatment, and recovery. Studies [12,31] suggest that rural women may be particularly inclined to use avoidant coping strategies, such as denial. Based on her qualitative study, Heishman [12] summarized that avoidance was the most commonly reported coping
strategy used by rural breast cancer survivors. Heishman used the phrase ‘Don’t dwell on it’ to represent the responses of these rural breast cancer survivors. Heishman identified acceptance as another coping strategy common among her sample of rural breast cancer survivors. Somewhat consistent with this finding, Wilson et al. [32] reported that ‘trying to maintain a positive attitude’ was a commonly used coping method among their sample of rural breast cancer survivors.

Some rural breast cancer survivors report turning to their religious faith as a means of coping, but perhaps not to the extent that might be expected. Wilson et al. [32] reported that only 10% of their sample indicated that relying on religious beliefs was helpful to them, and Heishman [12] reported that 8 of the 36 women in her sample reported that their religious beliefs and activities helped them cope with breast cancer. Nevertheless, religion may be especially important to some rural subgroups, such as African American women [33,48]. Both Matthews et al. and Lopez et al. report that rural African American breast cancer patients frequently state that they ‘turn things over to God’ as a way of coping.

Social support and psychological support services

Davis et al. [4] revealed that the great majority of rural breast cancer patients in their study perceived receiving enough social support during their diagnosis and treatment. These rural patients indicated that their primary sources of support during this period were medical personnel and volunteers with a history of breast cancer. In a similar vein, Demaree [31] found that, during primary treatment for cancer, rural breast cancer patients appeared to be more satisfied with social support from medical staff than from their families. Nevertheless, Demaree’s findings revealed that, compared with other rural cancer patients, rural breast cancer patients’ levels of satisfaction with emotional support from all sources decreased over time.

Support from family members seems to be of particular concern among rural breast cancer survivors. Although many rural breast cancer patients report fearing that they may put a strain on their families, they concurrently report needing additional support from family members [8,9,31]. Similarly, Heishman [12] revealed that the majority of the rural breast cancer survivors in her sample cited their friends as more supportive than family members.

Rural communities can be supportive for some rural breast cancer patients [3,12,49]. All but one participant in Rogers-Clark’s [49] study said that they would not have traded the benefits of their supportive rural communities for the convenience of living in an urban environment. In tightly knit rural communities, friends and neighbors often show support by calling, visiting, and providing food (also see, Heishman [12]; Gray et al. [3]). Nevertheless, the results of these same studies reveal that rural breast cancer survivors report that living in a rural community can be isolating because of concerns about privacy and gossip [3,8,9,49].

Research documents a lack of mental-health services for breast cancer survivors who live in rural areas [4]. For example, Davis et al. [4] revealed that very few rural breast cancer patients or their families received support from social workers or other mental health professionals. Similarly, Rogers-Clark ([49]; also see Curran and Church [50]) reported that none of their participants were referred to counseling, support groups, or other mental-health services. In rural areas, barriers to mental health care include lack of access to and availability of mental health specialists, an inability to pay for mental health care, geographic isolation, and stigma associated with mental illness [51]. Gray et al. [3] report that rural breast cancer survivors have problems establishing breast cancer support groups because they are difficult to organize and maintain as well as because it can be difficult to find a suitable facility. Nevertheless, Wilson et al. [32] reported that some of the rural breast cancer patients in their study stated that they would have liked to attend a support group.

In a related vein, studies [3,32] reveal that rural breast cancer patients often lack opportunities to meet other breast cancer survivors. Yet, Gray et al. [3] revealed that the most frequent request from their rural breast cancer patients was to facilitate interaction with other breast cancer survivors. Rural breast cancer patients cite having an opportunity to talk to other breast cancer survivors as helpful for minimizing fears, normalizing experiences, and offering a ‘survivorship’ perspective [3,30,32].

Discussion

As we noted at the outset, relatively few studies of breast cancer survivors have focused on rural women. Nevertheless, our review of the available literature suggests that rural breast cancer survivors have distinct experiences and challenges. For example, our review of studies using large databases (e.g. breast cancer registry databases) showed, almost uniformly, that rural women were less likely to receive breast-conserving treatments. Almost by definition, rural women are more likely to travel greater distances to receive primary breast cancer treatment as well as to stay away from home during this treatment. As such, rural breast cancer patients face unique social and economic costs, compared to their urban counterparts. Also, the
literature review suggests that the anticipation of these costs may play a role in determining the types of primary treatments that rural breast cancer patients receive. For example, rural women may be less likely to receive breast-conserving surgery because of the travel and time demands associated with adjuvant therapies (e.g. radiation therapy). Moreover, at least one study suggested that women who are treated in rural hospitals appear to be less likely to receive breast-conserving treatments. Importantly, the literature suggests that physicians might play a particularly influential role in determining the breast cancer treatments rural women receive. It is important to recognize that physicians who lack knowledge about state-of-the-art breast cancer treatment limit the treatment choices of rural women.

Nevertheless, the review suggested that medical personnel may be rural breast cancer patients’ principle source of support during primary treatment. Once treatment has been completed, however, rural breast cancer patients may need additional support from both medical personnel and family members. One of the ways in which medical personnel can support rural breast cancer patients is to provide them health-related information. Overall, rural women desire greater access to health-related information during treatment and after treatment. Some of this information may need to specifically focus on the unique needs of rural women.

Rural women may have special needs because they indicate feelings of isolation and report a lack of psychosocial support after the completion of primary treatment. Rural women may encounter greater stress with respect to the demands of traditional gender roles. Finally, there is some evidence that rural breast cancer patients may experience greater stigmatization and feel a greater loss of privacy as a function of living in smaller rural communities.

There seems to be little doubt that living in a rural community restricts rural breast cancer survivors’ access to psychological support services. Not unlike the findings for primary treatments for breast cancer, the literature review suggests that some of the obstacles for receiving psychological services stem from a lack of access. Moreover, rural women may be less likely to seek mental health care because of negative attitudes about seeking psychological services or the stigma associated with mental health treatment.

Our review of the studies that have focused on rural breast cancer survivors suggests that they may experience unique issues and obstacles compared to their urban counterparts. As such, those seeking to provide services to rural breast cancer patients should attempt to redress these issues and obstacles. For example, although rural women may have close family ties or supportive communities in general, rural breast cancer survivors may require additional supportive and educational services. These supportive services, however, must be highly accessible, such as through remotely accessible mechanisms such as the telephone (telephone counseling), internet (educational websites), or email (informational or supportive emails sent to survivors). Also, it may be beneficial to facilitate greater information sharing and cooperation among oncologists and general practitioners in rural areas, with the aim of keeping rural general practitioners knowledgeable about current recommended treatments.

Despite that our literature review pointed to possible distinct experiences for rural women, much more research is warranted. The available studies are limited in a number of ways. First, with the exception of the database studies, most of the studies are characterized by relatively small sample sizes and by non-specific definitions of rurality. As such, these limitations cast some doubt about the generalizability of the study findings. Clearly, researchers need to be more precise about their definitions of rural samples. Next, most studies did not include urban comparison groups. Although urban comparison groups may not always be necessary, comparing the experiences of urban to rural breast cancer survivors may help to further elucidate the unique issues that rural breast cancer survivors encounter. Future studies of rural breast cancer patients and survivors should seek to address these limitations, as a means to better understand the experiences of rural women with breast cancer.

Acknowledgements

Completion of the manuscript was funded, in part, by a grant from the National Cancer Institute (1 R03 CA97916-01).

References


