Psychosocial protective interventions associated with a better quality of life and psychological wellbeing for African American/Black female breast cancer survivors: an integrative review

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Abstract

Purpose This integrative review provides an overview of current psychosocial interventions and qualitative studies exploring African American Breast Cancer Survivors (AABCS)' psychosocial wellbeing.

Methods We conducted a search of five databases: PubMed, Academic Search Ultimate, CINAHL, PsycINFO, and Web of Science. Peer-reviewed articles written in English and published from 2011 to May 26, 2021 were included. We critically appraised intervention studies and qualitative studies using established frameworks.

Results Of the 633 unique studies identified, seven interventions and twenty-one qualitative studies were included. Analysis of the interventions revealed the importance of alleviating structural barriers and facilitating peer support for AABCS. Analysis of the qualitative studies revealed seven themes: 1) spirituality/religion, 2) social support, 3) cultural perceptions of BC 4) lack of representation 5) negative impacts of treatment, 6) healthcare system experience, and 7) barriers to psychosocial care.

Conclusions This review highlights the dearth of psychosocial interventions created specifically for AABCS. The qualitative literature in this review elucidates the unique psychosocial challenges that AABCS experience, providing rich data to inform the creation of future culturally competent interventions in this population.

Implications for Cancer Survivors This review found spirituality and social support to be protective factors for AABCS' psychosocial wellbeing. Further research using rigorous methodologies is needed to further evaluate how to most effectively alleviate structural barriers that AABCS face in obtaining long-term support.

Keywords Cancer survivors · Quality of life · Breast neoplasm · Psychosocial intervention · African Americans

Introduction

The impact of breast cancer (BC) is far-reaching: it is the most commonly diagnosed cancer among women in the United States (U.S.) and the second highest cause of cancer deaths among U.S. women [1]. In 2019, there were 268,600 new cases of BC, representing over 15% of all new cancer cases in the U.S. [1, 2]. Fortunately, due to advances in early detection and BC treatments, in 2019, 91% of women diagnosed with BC had at least a five-year survival rate following diagnosis [3].

While overall BC mortality rates are declining across the U.S., significant health disparities exist in rates of diagnosis and mortality. African American (AA)/ Black women's BC mortality rate is 40% higher than that of white women, and as of 2012-2016, AA women had the highest BC mortality rate of all demographic groups, with 28 per 100,000 deaths [4, 5]. AA women are also more likely to get triple-negative BC, a more aggressive type of BC with a poorer prognosis [6, 7].

Breast cancer health disparities

Several possible factors have been enumerated as potential causes of the disparities present in AA women with BC. These include a later stage of BC diagnosis, a lower likelihood of having private insurance, higher prevalence of comorbidities, and unfavorable tumor characteristics [6, 8]. AA women may also be less likely to adhere to mammography guidelines potentially due to structural barriers, lack of health insurance, and historical exploitation of the AA community in research [9, 10]. However, mobile mammography unit and DVD interventions have since effectively targeted and increased AA women's adherence to recommended mammograms and breast self-examinations [11, 12].

Structural barriers such as cost, transportation, and provider availability within the community may also contribute to the BC health disparity: higher rates of poverty among AA women may be associated with inadequate access to care and suboptimal treatment [13, 14]. Further, the historical exploitation of AA for medical research coupled with higher reported rates of discrimination in the medical system may also exacerbate the health disparities [15].

Mental health of breast cancer survivors

Psychological distress in breast cancer survivors can manifest as adverse mental health outcomes, with many studies demonstrating higher levels of depression and anxiety in this population [16, 17]. Further, a study by Carreira et al. [16] has shown that breast cancer survivors experience increased symptoms and frequency of neurocognitive dysfunction, stress-related disorders/PTSD, and sleep disturbances. Andrykowski et al. [18] explored the multitude of stressors that BC survivors may face, ranging from physical pain, disrupted interpersonal relationships, financial strain, or existential stressors such as fear of death. The authors found that fear of cancer recurrence, which is likely to fluctuate throughout a BC survivors' journey, has also been linked to negative mental health outcomes such as elevated distress levels [18]. Researchers have created and tested interventions-- such as yoga, Pilates, and mindfulness—in order to address breast cancer patients and survivors' psychological wellbeing [19–21].

While depression is higher in all cancer patients compared to the general population, AA cancer patients have an even higher risk of depressive symptoms due to cultural norms that encourage silence around psychological distress [18, 22–24]. AABCS experiencing high levels of depression frequently cite initial shock resulting from their diagnosis as a primary source of their depression [25].

A cancer survivor's psychological journey does not end after remission, as the survivor is tasked with confronting how cancer has changed their life. When a sample of 169 racially diverse BC survivors answered an assessment about their fears, 55% of the sample responded with a high or moderate level of fear of recurrence, elucidating the critical need to create psychosocial interventions for cancer survivors [26].

With the emergence of the field of psycho-oncology, psychosocial interventions for BC survivors have been created [27]. However, there is a lack of interventions specifically catered to AABCS. This represents a significant gap in the literature. Since mental illness is more stigmatized in the AA community, AABCS may be less likely to vocalize their stressors [23]. AABCS are also more likely believe that cancer always leads to death or that their partners will leave them if they find out they have BC, creating additional BC-related stressors [28, 29].

Research has identified several general commonalities in AABCS experiences, including a higher inclination towards spirituality, a sense of racial pride, and a sense of communal obligation to each other as "strong Black women" [30–32]. These key dimensions of AABCS' experiences could serve as protective factors if incorporated into psychosocial interventions.

Purpose

The purpose of this integrative review is to provide a comprehensive summary of the interventions and qualitative studies examining psychosocial interventions for AABCS, identify gaps in the literature, and make recommendations for future research. We utilized an integrative review methodology [33], which is characterized by its inclusion of both experimental and non-experimental studies, because we intended to both summarize the current interventions for AABCS and synthesize qualitative studies in AABCS to make recommendations for the creation of future interventions. Since AABCS are an understudied population, we included qualitative studies to elucidate AABCS' unique perspectives and challenges post-breast cancer. The insights gleaned from the qualitative literature could enable researchers to create future interventions with a more accurate understanding of AABCS' psychosocial needs. The insights gleaned from the qualitative literature will enable researchers to create future interventions with a more accurate understanding of AABCS' psychosocial needs [34]. For the purpose of this review, psychosocial interventions are defined as nonpharmacologic interventions that include psychological/educational components such as relaxation training, cognitive and behavioral coping strategies, cancer education, and group social support [35].

While a review by Whitehead & Hearn [36] included women, who were just diagnosed with or were in the early stages of BC, the aim for this paper is to identify post-treatment psychosocial interventions for female AABCS and provide a summary of qualitative findings in this population. This review builds off of previous reviews conducted by Russell et al. [37], Samuel et al. [38], and Husain et al. [39], all of which detail the unique challenges that AABCS face.

The interventions in this integrative review followed the Population Exposure Outcome (PEO) research question framework, which includes the population of interest, exposure, and outcomes. The research question for this study is: In African American/Black female breast cancer survivors (P), what psychological protective interventions (E) are associated with a better quality of life and psychological wellbeing (O)? This framework is applicable for systematically evaluating both qualitative and quantitative healthcare research [40].

Methods

Eligibility criteria

Peer-reviewed articles written in English published from 2011 to May 26, 2021, were included in this paper. This date range is based on the recent advances in cancer treatment and the shift in BC incidence rates among AA women since 2006-2015 [4, 41].

Intervention studies

Studies are included if the intervention participants were AABCS who were at least 18 years old and within one year of acute treatment. The outcomes of interest assessed in each of these studies included quality of life and/or psychological wellbeing. Studies that only assessed psychological adjustments as a secondary outcome were excluded, since psychological wellbeing and quality of life are the primary outcomes of interest in this review. Studies that included mixed-racial populations were included if the results were analyzed specifically for AABCS.

Qualitative studies

Qualitative studies were included in this review if they explored how AABCS psychologically cope. Methods for data collection included in-person qualitative interviews, small focus groups, or semi-structured phone interviews. All study data were coded based on thematic analysis. Studies with AABCS that also included caregivers or health care providers were included only if the results were analyzed specifically for AABCS. When two papers by the same authors analyzed the same qualitative data to extract different themes, the paper with a research question most relevant to our study's purpose was included.

Data sources and search strategy

Five databases were searched on July 5, 2020 to complement the 12 studies found through the primary author's (TG) prior thesis research: PubMed (National Library of Medicine), Academic Search Ultimate (EBSCO), CINAHL (EBSCO), PsycInfo (EBSCO) and Web of Science (Clarivate). An updated search was executed on May 26, 2021 to identify newly published studies that meet the eligibility criteria. The primary author and public health librarian (NT) compiled terms pertinent to the population of interest (African American, Black, Cancer Survivor) and the main outcomes (quality of life, psychological wellbeing, and post-cancer life) (Appendix A). Including the exposure terms "psychosocial

interventions" in the search strategy resulted in high precision but several relevant studies were omitted. Therefore, the "psychosocial interventions" concept was not included in the search strategy to increase recall. The librarian (NT) searched electronic databases of peer-reviewed studies and grey literature. A combination of free keywords and controlled vocabulary terms along with truncation technique, when appropriate, were utilized and search strategies were translated according to each database's syntax (Appendix B). Through preliminary searches, one author (TG) identified two literature reviews similar to this paper's topic and checked their reference lists for relevant studies [36, 42]. The results from all searches were exported into Zotero, a citation management tool and duplicates were removed. For title/abstract screening, the results were then imported into Rayyan, an open source screening tool. The systematic search and the review method followed the PRISMA statement guidance for conducting systematic reviews [43]. Figure 1 shows the searching and selection process.

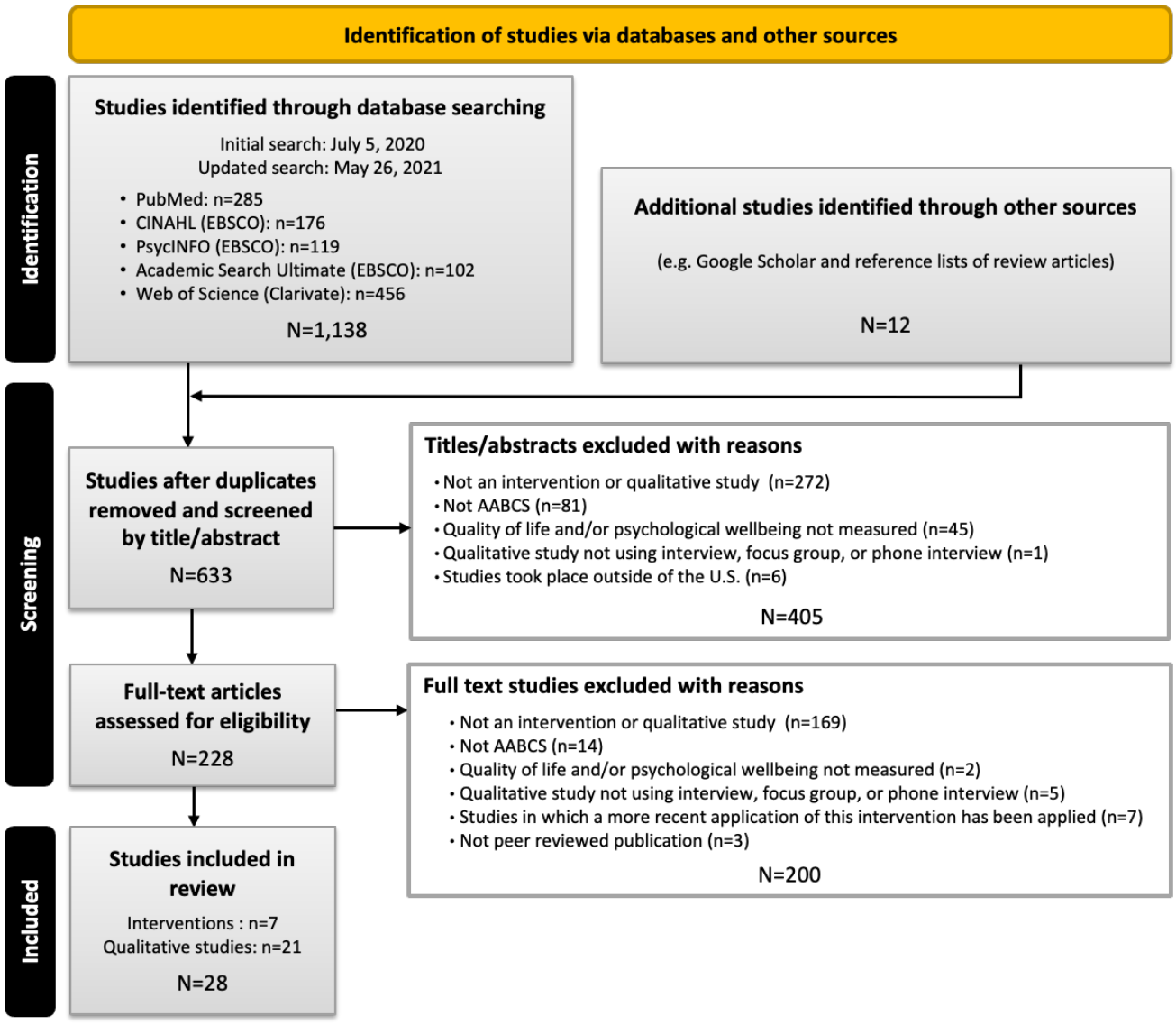

Figure 1. Illustration of the process of searching and selecting relevant articles included in the integrative reviews

Data extraction and synthesis

One reviewer (TG) independently extracted the following data from each source into an Excel spreadsheet for synthesis and analysis and two authors (LL and AB) reviewed for accuracy: (1) for intervention studies – study design, number of participants, recruitment strategy, intervention, outcome variables, and main study findings, and (2) for qualitative studies – number of participants, recruitment strategy, and major themes. For qualitative studies, thematic analysis was conducted until consensus of themes was reached amongst the authors. Any discrepancies were resolved through discussion among all authors. Substantial heterogeneity in methodology existed amongst the studies and populations excluding the possibility of a meta-analysis.

Results

Figure 1 illustrates the process of searching and selecting studies that met the eligibility criteria in the PRISMA flow diagram. The initial database search yielded a total of 1,138 records. After removing duplicates, 633 title/abstracts were screened by the first author (TG). Based on a full text review of 228 studies, a total of 28 were identified that met the eligibility criteria. The review included seven interventions (Table 1) and twenty-one qualitative studies (Table 2).

Table 1. Interventions to improve African American/Black breast cancer survivors' quality of life

First author, year	Study design	Intervention method of delivery	Sample	Recruitment strategy	Intervention	Main outcome variables	Study findings
Ashing, 2019	Pilot intervention trial. AABCS who reported elevated distress were randomly assigned to intervention or control group. Follow-up occurred 4-6 months after randomization.	Telephonically delivered	N=40 •Relationship status: 33% partnered, 67% unpartnered •Education: 5% < high school, 95% ≥ high school •Income: 39% <25K, 22% 25-45K, 39% >45K	Recruited from hospital cancer registries and BC survivor support groups	Eight biweekly 40-50 minute telephonically delivered psychoeducational culturally relevant intervention based on the Embracing Hope domains – culturally relevant information about both clinical and the psychosocial impact of BC	HRQOL and emotional wellbeing	Telephone intervention had a significant positive effect on HRQOL in the following domains: feelings of sadness, satisfaction with illness coping, feelings of nervousness, emotional wellbeing
Davis, 2014	Pilot study using randomized repeated measures experimental design. Follow-up occurred 4-6 months after the intervention.	Psycho-educational group setting with 6-12 participants	N=71; mean age= 54 •Marital status: 71% married, 28% never married •Employment: 24% employed, 24% unemployed, 30% on disability, 21% retired •Monthly Income: 20% < $500, 27% $500-$999, 31% $1,000-$1,999, 21% >$2,000	Recruited by the staff of a grassroots organization providing support to underserved AA women with BC in an urban environment	The Cancer Survival Toolbox delivered via 6-week 2-hour psychoeducational group sessions with 6-12 participants	Self-advocacy skills, psychosocial functioning, QOL	Group membership was not significantly related to the scores of QOL, psychological functioning, or self-advocacy skills. However, qualitative data suggested the intervention was helpful.

First author, year	Study design	Intervention method of delivery	Sample	Recruitment strategy	Intervention	Main outcome variables	Study findings
Germino, 2013	A randomized clinical trial with a repeated measures design with data collected at baseline and two points 8-10 months post-intervention	Intervention materials were delivered to participants at their homes and supplemented with four 20-minute weekly training calls	N=313, 117 AA participants aged 50 years or younger, mean age = 44	Designed for younger BC survivors and was based off of three guiding principles: increasing familiarity of the study in communities of interest, increasing availability of study information, and using culturally relevant information	1) A scripted CD with cognitive and behavioral strategies to manage uncertainty and promote self-efficacy 2) An investigator-developed guide with topics relating to BC treatment and life issues	Uncertainty management, BC-specific concerns, positive psychological outcomes	The intervention was effective at managing uncertainties in BC survivors and resulted in a more significant decrease in AA participants' negative affect when compared to white participants.
Knobf, 2018	Feasibility community-based study. Follow-up data was collected 3- and 6-months post-intervention.	6-week face-to-face interactive intervention	N= 40; 30 survivors and 10 partners, mean age = 55.7 •88% Black •Marital Status: 18% never married, 38% married, 45% divorced/ separated/ widow •Education: 20% High school, 5% technical school, 58% college, 18% graduate school •Employment: 50% employed, 23% retired, 23% temporarily not employed, 5% homemaker •Income: 25% <$20K; 27.5% 20-40K; 17.5% 40-60K; 30% 60K	Recruitment from two inner cities via newspapers, cancer survivor support groups, and BC programs at community hospitals	Individual goal setting, pedometer, spiritual motivational messages, demonstration on physical activity, and jewelry making activity	Empowerment, functional ability, QOL, healthy lifestyle behaviors	Survivors demonstrated increase in confidence to engage in exercise, total healthy lifestyle behaviors (e.g. physical activity, nutrition, interpersonal relations, etc.), improvements in physical activity, and stress management
Lechner, 2014	Randomized trial known as Project CARE/ Follow-up data was collected 6-months post intervention.	Group-based structured intervention	N=114; mean age (CBSM) = 50, mean age (CW) = 52 •Relationship status: CBSM- 35% partnered; CW- 26% partnered •Years of education: CBSM and CW- average of 13 •Employment status: CBSM- 46% employed, 21% disability leave, 7% retired, 26% unemployed; CW- 51% employed, 12% disability leave, 12% retired, 24% unemployed •Income: CBSM average of 37K; CW average of 30K	Recruitment via community-based BC programs	A 10-week group CBSM intervention and a corresponding workbook compared with a CW educational control condition	QOL, psychological distress, cancer-related intrusive thoughts, depressive symptoms, perceived stress	Participants in both conditions showed an increase in psychological wellbeing, overall quality of life, intrusive thoughts, depressive symptoms, and stress levels. However, the intervention group did not have a significantly larger impact on the outcome variables than the control group.

First author, year	Study design	Intervention method of delivery	Sample	Recruitment strategy	Intervention	Main outcome variables	Study findings
Mollica, 2014	Mixed methods proof-of-concept study using a convergent parallel approach to test a Peer Navigation program for 2 months. Assessments were conducted at baseline and post-intervention.	Month 1: PN visited BCS' homes; Month 2: PN conducted weekly phone calls	N=4; age range = 20-59 •Education: 2 had no high school degrees and 2 had high school degrees •Income: 50% >10K, 50% 10-19K	Purposeful sampling targeting AA women who were completing active treatment at the time of enrollment. Flyers were distributed in local settings.	2-month intervention with PN - Month 1: weekly PN visits teaching one of the four domains of the QOL Model Applied to Cancer Survivors and setting goals; Month 2: weekly phone calls by the PN	QOL in Cancer Survivors Model (includes physical, psychological, social, financial, and spiritual health)	Improvements in symptom distress, perceived support from God, and preparedness for recovery outcomes; Qualitative themes: 1) learning to ask the right questions 2) starting life again 3) shifting perspective 4) desire to give back 5) home visits are powerful 6) shared journey
Nicks, 2018	Quasi-experimental community-based study in collaboration with the Breakfast Club Inc. (BCI)	Structured community-based peer support with individual meetings with *Breast Health Buddy*	N=24; mean age (PS) = 64, mean age (NPS) = 66 •Living with significant other: PS- 25%; NPS- 33.3% •Education: PS- 0% less than high school, 8% high school diploma, 33% some college, 17% bachelor's degree, 42% post-graduate degree; NPS- 25% less than high school, 8% high school diploma, 33% some college, 8% bachelor's degree, 25% post-graduate degree •Employment: PS- 58% employed, 42% retired NPS- 25% employed, 17% unemployed, 58% retired •Income: PS- 33% > $29,999, 17% 30K-$49,999, 42% 50K-$69,999, 8% 70K-$99,999	Convenience sample: Experimental group: 12 BCI members in *Breast Health Buddy Program* Control group: 12 survivors not affiliated with BCI	One-on-one peer support provided through the Breakfast Club Inc.'s "Breast Health Buddies" program	AABCS perceived social support needs, coping skills, adjustment to life as a BCS, empowerment, health behaviors, and survivorship outcomes.	Qualitative interviews showed that peer relationships provided consistent, quality social support to AABCS.

Note: AA = African American; AABCS = African American breast cancer survivor; CBSM = Cognitive Behavioral Stress Management; CW = Cancer Wellness; HRQOL= Health-related Quality of Life; K = one thousand (dollars); PN = peer navigator; QOL= Quality of Life

Table 2. Qualitative studies of African American/Black breast cancer survivors' quality of life

First author, year	Sample	Study type	Recruitment strategy	Major themes
Adams, 2017	N=15, mean age = 56; an average of 5 years of survivorship •Marital status: 27% single, 40% married, 7% separated, 27% divorced •Education: 27% < High school, 13% High school graduate, 40% some college, 20% college graduate •Employment: 47% employed, 27% retired, 27% unemployed •Income: 27% <10K, 40% 10K-30K, 13% 30K-50K	Two focus groups and one in-depth interview	Through CHARP (Community Health Advisors Research Partners) network in rural counties	Secrecy surrounding cancer diagnosis; lack of knowledge; prayer; limited survivorship support and education
Ceballos, 2020	N=27 providers and N=45 AABCS; average of 5 years since diagnosis •Marital status: 13% never married, 33% married, 40% divorced, 13% widowed •Employment: 49% employed, 51% unemployed •Income: 16% ≤15K, 40% 15K-35K, 9% 35K-50K, 13% 50K-65K, 22% ≥65K	Interviews and focus groups	Study team posted flyers, pamphlets, and presented info at community organizations. PI sent email letter to list-servs and message boards	Both physicians and survivors identified feelings post-treatment: feelings of celebration followed by abandonment and isolation; specific influences on AABC patients' emotional wellbeing: incorrect prosthetic color, lack of training for AABCS; most survivors accessed survivorship information; survivors felt supported by providers, despite providers feeling they mainly delivered information related to physical health; pamphlets personalized to white BC survivors and not AABCS; other survivors as a resource
Chatman, 2011	N=32 •Education: 13% <High school, 16% High school, 34% some college, 13% college degree, 22% graduate degree •Income: 35% 10K-14,999, 25% 15K-34,999, 38% 35K-64,999, 13% ≥65K	Six focus groups and follow-up telephone interviews	Distribution of fliers at community service agencies, local clinics, cancer support groups at hospitals, etc.	Spirituality and religion were major coping mechanisms as active and tangible tools, the importance of keeping a positive attitude and selectively sharing their diagnosis with those who also had a positive attitude, barriers to care: medical mistrust and insensitivity, the impact on intimate relationships, the stigma of BC, and internal barriers such as fear, depression, and devaluation
Davis, 2018	N=155; at least one-year post-treatment •Marital status: 43% married, 14.8% single, 8% separated, 22% divorced, 5% living together, 7% widowed •Religion: 83% Christian, 9% Muslim, 2% Buddhist, 6% no religion •Income: 38% <39,999, 43% 40K-79,999, 13% 80K	Self-administered questionnaires	1) AABCS groups within Southern and Northern California 2) Word of mouth 3) Flyers in key community locations	4 supportive factors were identified as being important for comprehensive BC care: 1) faith, 2) supportive structures 3) optimism and 4) access to information
Felder, 2017	N=16; mean age = 60; 5-years post BC diagnosis •Marital status: 56% married, 31% single, 6% divorced, 6% widowed •Education: 19% some high school, 25% high school graduate, 31% two-year degree, 13% four-year degree, 13% master's degree •Income: 6% <10K, 38% 10K-19,999, 13% 20K-29,999, 6% 30K-39,999, 13% ≥ 40K	Semi-structured interviews	Participants were recruited from a previously conducted NIH funded study 'Sisters Tell Others and Revive Yourself' at a regional cancer center in South Carolina	Themes included: 1) perceptions of roles of who should be providing specific types of emotional support 2) Families should unquestionably support the healthcare provider's plan 3) spiritual support

First author, year	Sample	Study type	Recruitment strategy	Major themes
Flannery, 2019	N=47; mean age = 60; a diagnosis of BC within the past 4 years and finished primary treatment	Quantitative surveys and qualitative interviews	Subsample of AA participants from larger study of QOL and social support among racially diverse BC survivors in SF	Social support keeps them whole; it distributes the weight of the diagnosis through extended networks; social support on their own terms
Ford, 2017	N not provided; age 55 or older; 5 or more years since initial BC diagnosis	Two focus groups	Recruited from BC support and education orgs in 2 urban areas	A belief in God positively influenced health seeking behaviors (less fear from cancer and more surveillance), social support from friends and colleagues (not family)
Gregg, 2011	N=23 (no demographics data available)	Interviews	Distribution of flyers and contacting gatekeepers who held positions of authority in the community	The participants' coping story which consisted of: 1) spirituality, 2) acceptance, and 3) the strong Black women 'blues'
Haynes-Maslow, 2016	N=41 (22 AABCS and 19 caregivers); mean age = 62; mean of 7.3 years since BC diagnosis •Marital status: 46% married, 17% divorced, 15% widowed •Education: 10% high school/GED, 34% some college, 20% college graduate, 37% ≥college •Employment: 41% employed, 46% retired, 10% unemployed	5 focus groups	flyers, emails to local hospitals, community health centers, and organizations that served cancer survivors in NC	1) a culture that discourages cancer discussion 2) lack of support services for AA cancer caregivers 3) lack of support services for AA cancer survivors 4) need for culturally-appropriate cancer resources (specifically for AA women) 5) importance of social support networks and connecting to other survivors and caregivers
Kennedi, 2016	N=16; mean age = 57.3; currently all post-treatment •Marital status: 13% married, 44% single, 6% widowed, 6% separated •Education: 25% some high school, 38% high school graduate, 13% vocational school, 6% some college, 19% college graduate •Employment: 44% employed, 50% unemployed •Income: 50% <10K, 13% 10K-14,999, 6% 15K-19,999, 13% 25K-29,999, 13% 30K-34,999	Semi-structured interviews	Recruitment through the hospital's BC facility identified by personnel through medical records	Weathering the initial shock of BC diagnosis, making life changes, enduring treatment, adjusting to life after
Knobf, 2018	N=29 •Marital status: 45% married, 31% divorced/separated, 10% single, 14% widowed •Education: 31% < high school, 21% technical, 27% some college, 21% graduate •Employment: 80% employed, 17% retired, 3% illness related disability •Religion: 49% Baptist, 31% Christian, 3% Seven Day Adventist, 7% Non-denomination, 10% missing •Income: 17% <20K, 21% 20K-40K, 41% > 40K	5 focus groups with 2-13 participants per group	Recruitment flyers were designed with AA art and provided to BC clinics, local AABCS support groups, and community agencies	Being connected (with the church, AA community, BC survivors, family, and physicians). 5 subthemes that helped with coping and adjustment: 1) faith, 2) support, 3) talking, 4) information, 5) and living with changes

First author, year	Sample	Study type	Recruitment strategy	Major themes
Lewis, 2012	N=33, Survivors aged 45 or younger at the time of cancer diagnosis •Occupational category: 6% professional, 64% white collar, 6% blue collar, 15% pink color/low wage, 6% not working	Semi-structured phone interviews	Recruitment strategies included Sister Network Inc. chapters, community events, health fairs, and church support groups	One third of participants wanted emotional support at and after diagnosis. Half felt that cancer negatively influenced their romantic relationships. One third reported sexual problems but 73% never discussed sexuality with providers
Lynn, 2014	N=47; mean age = 60; all had a diagnosis of BC within the past 4 years	In-depth interviews	Subsample of a larger study of spirituality, QOL, mood, and social support among BC survivors	Attendance of religious services, comfort through prayers by others, encouragement through reading of biblical scripture (most religious and spiritual practices were in relation to other people)
Mollica, 2015	N=15; mean age = 51; participants completed treatment for primary BC between 6-18 months prior •Marital status: 47% married/living with a partner, 53% single/widowed/separated/divorced •Education: 33% associate's degree, 33% bachelor's degree •Income: 13% <10K, 7% 10K-19K, 20% 30K-39K, 20% 40K-49K, 7% 50K-59K, 13% 60K-69K, 7% >100K	Semi-structured interviews	recruited through community and support groups such as the National Witness Project and Embracing U group and inclusion of the participants of the START study (pilot study examining healthy survivorship in AABCS)	perseverance through struggles supported by faith, persistent physical issues, anticipatory guidance needed after treatment, emotional issues as important as physical.
Nolan, 2019	N=30; mean age = 35 at start of study •Marital status: 60% single/divorced, 40% married/partnered •Education: 16% some college, 60% bachelor's degree, 27% graduate degree •Employment: 67% employed, 33% disabled/unemployed •Income: 33% <30K, 33% 30K-50K, 27% 50,001-70K, 7% >70K	Two semi-structured interviews with each participant	Criterion sampling; flyers were distributed by BC survivor organizations and participants of the study	1) actively managing spiritual self, 2) actively managing physical self, 3) actively managing social self, 4) actively managing psychological self, 5) seeking survivorship knowledge
Rust, 2013	N=24; mean of 6.1 years since BC diagnosis	Two focus groups	Participants of a BC support group	1) the concept of chemobrain 2) the variability of the experience with chemobrain 3) the stigma of chemobrain 4) coping with chemobrain with humor, social support, community resources (e.g. church) 5) the importance of spirituality
Sterba, 2014	N=47; 23 AABCS, 22 identified caregivers, 2 independent survivors, and 1 independent caregiver; participants completed treatment 6-24 months before enrollment •Marital status: 22% married/partnered, 9% separated, 17% divorced, 17% widowed, 30% single •Education (years): average of 13.1 •Employment: 57% employed, 13% retired, 30% unemployed/disabled	Semi-structured phone interviews	Convenience sample was recruited based on an administrative clinical database at a regional cancer center in the USA	Religiosity and spirituality played a major role in survivors' and caregivers' experiences by 1) providing global guidance 2) guiding illness management, and 3) facilitating recovery

First author, year	Sample	Study type	Recruitment strategy	Major themes
Torres, 2015	N=32; mean age = 56; completed treatment within the last 10 years •Marital status: 32% married, 29% divorced/separated, 16% widowed, 23% single •Education: 48% < high school/GED, 29% some college, 19% college/graduate school •Income: 42% < 20K, 29% 20K-39,999, 7% > 60K	7 focus groups and surveys	Informational flyers; collaborations with community partners such as Leo W. Jenkins Cancer Center, Vidant Oncology, local churches, and community centers	Common areas of life impacted by BC were faith and support networks, psychosocial wellbeing, and quality of care issues. Faith in God was an important coping mechanism for all women in the study, a key facilitator in survivorship. Fear was reported by many participants, including fear of death, side effects of treatment, and social stigma.
Wells, 2014	N=20; mean age = 56.8	Biographic narrative interviews	Recruitment through project partnerships with five St. Louis BC support groups for AABCS.	During survivorship, usage of spirituality/ a fatalistic perspective; thoughts about what God wants from them; post traumatic growth due to prayer and giving back; the value of support groups
White-Means, 2016	N=10 (no demographics data available)	focus groups	Recruitment from local BC support groups in Tennessee	1) BC in family 2) breast/body awareness and preparedness to manage a BC event 3) being diagnosed and reacting to the diagnosis 4) family reaction to BC diagnosis 5) impact of BC treatment on life
Yan, 2017	N=40; mean age = 57 •Marital status: 23% married, 30% divorced, 5% widowed, 5% separated, 38% never married •Education: 23% some high school, 25% grade 12 or GED, 35% college 1-3 years, 18% college graduate •Income: 28% <10K, 17.5% 10K-15K, 10% 15K-20K, 10% 20K-25K, 5% 35K-50K, 13% >50K	8 focus groups	Sampling from a large metropolitan area in the Midwest; recruited from healthcare providers, community-based AA BC support groups, community agency referrals, and flyers placed in community locations	God enables survival from BC and works in everyday lives; God maintains a constant protective presence; God engages in personal interaction and practical intervention; God makes the ultimate decision; the healthiest thing about us is that we are AA women; Family is at the core of AA women's strength

Note. AA = African American; AABCS = African American breast cancer survivor; BC= breast cancer; K = one thousand (dollars); QOL= Quality of Life

Intervention studies

Seven interventions [22, 44–49] were identified in this review, ranging from a psychoeducational telephonically-delivered platform to an uncertainty management program delivered at individuals' homes. The interventions' designs were unique, including pilot studies, quasi-experimental studies, and randomized controlled clinical trials. The interventions were categorized into peer-support interventions, community/group interventions, and psychoeducational interventions. Though there were psychoeducational components in each of the interventions, this grouping highlights the main component of the study designs. All of the interventions' participants included AABCS, with two studies including White and Hispanic breast cancer survivors as well [45, 46]. The category of AA/Black breast cancer survivors was ethnically diverse, with one intervention [47] specifying the inclusion of African American Caribbean black as well as black Hispanic participants.

Peer support interventions (n=2)

Mollica et al. [48] and Nicks et al. [49] were both peer-support interventions in which participants were paired with another AABCS who provided them with support, validation, and education throughout their journey as a cancer survivor.

Mollica et al. [48]'s proof-of-concept study demonstrated the feasibility of a "Peer Navigation" (PN) intervention, consisting of one month of weekly home visits and one month of unstructured weekly phone calls from a PN who was a trained AABCS. In line with the dynamic social impact theory (DSIT), which posits that communication can better influence behavior change when the communication is similar to their own communication style, the participants reported that they felt less alone, readier to live life again, and a desire to give back, and were more able to ask the right medical questions after the intervention. While the sample size was small (n=4), quantitative analyses did show an increase in the number of social contacts they interacted with, perspectives of support from God and a decrease in symptom distress, showing an increase in social, spiritual, and physical quality of life. The participants in Mollica et al. [48]'s study reported that home visits were a critical aspect of the intervention, because it made the PN feel like "family" - highlighting the trust that developed between peer navigators and the study participants. The trust that formed between the peer navigators and participants was a critical aspect that facilitated the intervention's success. For future interventions, the researchers suggested renaming peer navigators to "survivor coaches" since their role was to provide post-cancer support, not to facilitate the completion of treatment [48].

In Nicks et al. [49]'s study, the researchers collaborated with The Breakfast Club Inc. (BCI), a survivor-led community-based support organization for AABCS. The study utilized a quasi-experimental design: an experimental group of 12 AABCS paired with "Breast Health Buddies" and a control group of 12 AABCS without affiliation to the program. The study used qualitative measures to assess change in perceived social support, with both the control and experimental groups answering semi-structured qualitative interviews following the study about their post-cancer psychological journeys. When asked who they rely on for social support during breast-cancer survivorship-related stressors, the majority of participants in the control group reported handling the stress on their own, while several participants in the experimental group said they relied on their "Breast Health Buddy." Further, the majority of the experimental participants reported increased opportunities to show their emotional vulnerability, whereas most women in the control group did not report having the same resources with which to cope. Peer support also positively impacted how BC survivors perceived the stress that accompanied side effects of treatment, since their experiences were normalized by their "Breast Health Buddy." Most of the experimental group participants were able to positively adjust to their newfound identities, perceiving their ability to survive as an indicator of their internal strength, whereas only one control group participant reported feelings of acceptance of their new identity as a BCS.

Both Mollica et al. [48] and Nicks et al. [49] highlight the importance of integrating fellow AABCS into psychosocial interventions designed specifically for this population. Shared cultural norms in the AA community enabled the Peer Navigators and Breast Health Buddies to provide support and validation to their peers. Further, the Peer Navigators and Breast Health Buddies had the opportunity to give back and make meaning out of their experience, which may have facilitated post-traumatic growth for them.

Community/group interventions (n=2)

Lechner et al. [47] and Knobf et al. [46]'s interventions were community/group interventions, in which an interventionist implemented the intervention for a group of participants in a community setting.

Lechner et al. [47]'s randomized superiority trial utilized an intervention known as project CARE, which equipped AABCS with cognitive behavioral stress management (CBSM) skills. The control group was educated on cancer wellness with discussions on salient topics related to cancer survivorship. The researchers hypothesized that individuals in the CBSM experimental condition would show better adaptation to BC survivorship than the cancer wellness control group. Cancer adaptation was assessed by changes in mood disturbances, quality of life, intrusive thoughts, depressive symptoms, and perceived stress. The results of this study did not support the hypothesis. Both conditions showed a significant positive change in quality of life and a significant negative change in intrusive thoughts, depressive symptoms, and perceived stress from the beginning of the study to 6-months after the study's completion. Further, qualitative analyses of the sessions highlighted the benefits of both interventions; all participants mentioned the power of coming together as a sisterhood of AA women with shared experiences. Due to the 95% retention rate in both the CBSM and cancer wellness conditions, this study's intervention is an effective way to cultivate community among AABCS [47].

Knobf et al. [46]'s community-based mixed-methods feasibility study included Latina and AABCS. Participants were encouraged to recruit a partner to attend the intervention with them. Each session of the six-week intervention was led by a different interventionist who was an expert on a specific topic ranging from BC nutrition to physical activity to community resources. Quantitative findings supported the effectiveness of the intervention. Following this intervention, the researchers found a significant increase in exercise, healthy lifestyle behaviors, stress management, emotional wellbeing, and improved nutritional content of meals [46]. Further, qualitative analysis highlighted that the intervention enabled the participants to invest in their own personal wellbeing and learn the importance of a healthier lifestyle.

Both Lechner et al. [47] and Knobf et al. [46]'s interventions highlight community-based interventions as an effective model to facilitate connection and teach important health-related topics to AABCS.

Psychoeducational/skills-based interventions (n=3)

Davis et al. [22], Germino et al. [45], and Ashing & George [44] implemented psychoeducational/ skills-based interventions designed to equip AABCS with the skills necessary to navigate their psychosocial wellbeing during and after treatment.

Davis et al. [22]'s pilot skills-based psychoeducational intervention consisted of a culturally appropriate version of the Cancer Survival Toolbox. The intervention was designed to decrease distress in cancer survivors by teaching necessary skills to maneuver the stressors associated with cancer survivorship. The control group received one session on medication adherence or standard care. Home visits were conducted to collect qualitative data at baseline and at a 4-6-month follow-up for both groups to assess the outcomes of interest: self-advocacy skills, psychosocial functioning, and quality of life. The results showed no significant associations between group membership and quality of life, self-advocacy skills, or psychosocial functioning. However, some qualitative data showed that the participants found the intervention beneficial.

Germino et al. [45]'s study included both AA and white BC survivors aged 50 years or younger, since younger BC survivors often report higher levels of distress relating to their psychological, social, and sexual wellbeing. The intervention consisted of two parts: a professionally scripted CD-ROM that highlighted cognitive/behavioral strategies to manage uncertainty in BC survivors and a guide that addressed specific uncertainties commonly associated with BC treatment. These interventional materials were supplemented with four 20-minute weekly training calls led by a nurse to help apply the intervention's skills and discuss any relevant topic. Participants randomly assigned to the control condition only received the four 20-minute weekly training calls. Women in the intervention group reported significantly lower levels of uncertainty, higher levels of knowledge on BC's long-term side effects, more sources used to cope with BC, and enhanced use of cognitive coping strategies. Notably, there was a significantly greater decrease in AA participants' negative affect levels following the intervention compared to their White counterparts.

Ashing & George [44]'s study included AABCS who had moderate to severe health related quality of life concerns. The intervention consisted of eight bi-weekly telephone calls to educate the intervention group participants on relevant topics to AABCS, such as managing medical issues, balancing emotions and stress, and sexual health concerns. The intervention group was also provided with an "Embracing Hope " booklet, which included clinically-relevant details about BC and culturally responsive information on the psychosocial impact of cancer. The control group only received the "Embracing Hope" booklet. Each of the interventional sessions included problem-focused coping strategies to encourage each participant to apply the psychoeducational tools to their individual experience. The study's results showed significant changes in the intervention group with reduced feelings of sadness and nervousness and increased emotional wellbeing and coping mechanisms. These results provide support for a low-cost telephone-delivered psychoeducational intervention to improve quality of life for AABCS.

Qualitative studies

We included a total of 21 articles in our qualitative review. The total sample size of AABCS for the studies ranged from 10 to 155 and studies represented a variety of geographic regions. Socio-demographic variables such as marital status, education, work status, income, and religion were collected in some of the qualitative studies, and when present these variables were included in Table 2. Several overarching themes emerged from our review of qualitative studies examining AABCS' quality of life and psychological wellbeing: 1) spirituality/religion, 2) social support, 3) cultural perceptions of BC 4) lack of representation 5) negative impacts of treatment, 6) healthcare system experience, and 7) barriers to psychosocial care.

Spirituality and religion

Spirituality and religion were mentioned in a variety of contexts. Faith was cited as a coping mechanism [50, 51] and, in some instances, the primary/most valuable coping mechanism [52] or primary support [53]. Some participants identified spirituality as a source of guidance, illness management, and a facilitative recovery process [31]. In one study, participants associated a loss of their independence with a need to depend on God [54]. Some survivors identified spirituality and prayer as *active tools* they leveraged in their recovery [55]. Some mentioned feeling encouraged through

bible scriptures [56]. Notably, participants living in rural settings mentioned the importance of their doctors respecting their faith in God, with one participant even praying with their medical provider [51]. These protective factors facilitate post-traumatic growth for AABCS, since many participants perceived their cancer survivorship as a gift from God.

In addition to *personal* spirituality/religion, some studies described the importance of the church community as a major part of their lives [46], as well as attending religious services as a place to receive the support of others [56]. Some participants reported valuing the counsel of religious leaders, attending prayer groups, and their relationship with Jesus as critical to their psychological adjustment post-cancer [52]. Importantly, the study by Adams et al. [57] outlined both the potential positive and negative influence of spirituality: being appreciative of God/health vs. too reliant on God and not seeking medical or psychological care. In the study by Greg [52], some participants identified their cancer as a test of their faith. A common belief that the cancer was in God's hands was actually cited as a coping mechanism for psychological distress [31] and some participants described persevering through struggles by relying on their faith as a support [58].

Social support

Social support outside of the church community was also an important factor in many AABCS' psychological adjustment to post-cancer life. In the Davis et al. [53] study, social support was cited as a primary coping mechanism. Emotional support was particularly important to some participants [58, 59]. In one study, participants identified support as helpful *only* when it was in line with what they expected/desired [60]. Many survivors appreciated the impact of survivor-to-survivor relationships [59, 61–63]. In one study, participants expressed feeling pressure to be the backbone of their families and a perception that they had less social support than their White counterparts [50]. Others cited a need to rely on their support networks as a result of losing their independence [54]. Participants in several studies struggled to rely on others and seek social support due to cultural stigma in which help-seeking behaviors were perceived as a weakness among strong Black women [50, 57, 64].

In terms of sources of support, some survivors expressed a desire for family members to support the healthcare provider's plan and/or provide instrumental support such as driving to treatment [60]. Others mentioned their relationship with healthcare providers positively influencing their emotional health [61] and believed it was part of providers' jobs to give support [60].

Interestingly, there was overlap between social support and spirituality/religion: some participants viewed church as an important support system [46, 51, 64] and others mentioned feeling emotionally and spiritually supported through prayer [56].

Cultural perceptions of breast cancer

Another recurring theme in the qualitative literature was how cultural norms in the AA community influenced AABCS' psychosocial wellbeing. In the study by Adams et al. [57], participants mentioned a belief in their communities that cancer equates to death (fatalism). There was also misinformation about the causes of cancer (concerns about "catching" cancer). Adams et al. [57] also cited the lack of disclosure about a cancer diagnosis amongst AA women, creating a sense of isolation. In more than one study, participants described a norm of secrecy surrounding cancer as

common among AAs [46, 50, 64]. In one study, participants cited myths and stigma as barriers to seeking out medical treatment [55].

In the study by Ceballos et al. [61], participants brought up the concept of reluctance to discuss emotional issues due to a "strong black woman" stigma and/or medical mistrust, citing a preference for community resources. Other AABCS identified the "strong black woman" identity with being a caregiver and prioritizing the health of other people over their own [52, 55], while others mentioned balancing caregiving for themselves and others and a desire to retain independence [54]. Still others felt that being a "strong black woman" was the healthiest part of their identity due to their strong family and faith-based values [65]. In Lewis et al. [59]'s study, the majority of participants thought that BC had a unique significance to them as AA women. Some participants cited AA women's historical strength, spirituality, and communal culture as beneficial when coping with BC, while others cited feelings of isolation and a lack of culturally competent resources as barriers when coping with BC [59].

Lack of representation

In two studies, participants mentioned the lack of representation of AABCS in pamphlets and other resources both during treatment and post-treatment [61, 62]. The majority of participants in Haynes-Maslow et al. [62]'s study mentioned a desire to see support groups specifically created for AABCS. Further, participants noted that prosthetics did not always match their skin tone, which negatively impacted AABCS' body image [62].

Negative impacts of treatment (complications, body image, and lack of intimacy)

Some survivors experienced poor body image due to inappropriate prosthetic sizes/colors and/or skin discoloration [61]. In another study, participants reported learning to accept their new bodies/scars and overcoming the cultural emphasis on breasts [52]. "Chemobrain" was a frequently-cited more immediate negative effect of treatment [66]. Some survivors cited relationships ending/less intimacy as a challenge [55]. Shock at the physically debilitating nature of treatment was raised amongst AABCS [67].

Beyond treatment, another study cited physical issues persisting [58]. In fact, following treatment some AABCS reported feeling a sense of isolation following the initial celebration [61] or losing support after completion of treatment [60].

Healthcare system experience

Some AABCS cited that having an active voice in their treatment enabled them to trust their providers' medical decisions [63]. Knobf et al. [46] also highlighted health care providers' knowledge gaps relating to cultural/racial issues in BC. In one study, there was an overlap between healthcare system experiences and spirituality: survivors highlighted the importance of their providers respecting their faith in God [51]. Further, AABCS' stigma and distrust of medical services was cited as a source of anxiety throughout the BC treatment experience [68]. In one study, participants described their

perception that doctors are motivated by money/insurance, highlighting the need to cultivate trust between AABC patients and their medical providers [55].

Barriers to psychosocial care

Participants in one study identified that survivorship materials often outline physical but not psychological effects of BC treatment [61]. Therefore, participants were less aware of the importance of psychosocial care when adjusting to post-BC life [57]. Another potential barrier to care included lack of transportation to sessions. Survivors also cited an inability to locate culturally-appropriate resources in their area [55]. Many survivors highlighted the need for a more streamlined way to access support groups, as relying on word of mouth was challenging and often unsuccessful [69]. Some survivors expressed disappointment in their healthcare providers for not mentioning support groups, which may have been a beneficial resource to them [55].

Discussion

Intervention studies

This integrative review synthesized current evidence about psychosocial interventions designed to improve psychological well-being and quality of life among AABCS. This review revealed a paucity of literature on psychosocial interventions for AABCS in the post-treatment phase of survivorship. In our search, seven intervention studies were identified [22, 44–49]. Most interventions focused on psychoeducation and cognitive behavioral therapy. This review provides support for several effective models for psychosocial interventions to improve AABCS' psychological well-being and quality of life. Three of the interventions only used quantitative measures to assess change [44–46], three used both quantitative and qualitative measures [22, 47, 48], and one [49] used only qualitative measures. Six of the seven interventions significantly increased quality of life/ psychological wellbeing [44–49]. Although the intervention assessed by Davis et al. [22] was not associated with quantitative changes in stress levels, psychosocial functioning or quality of life, qualitative data collected from participants suggested that participants found the intervention helpful and would highly recommend it to other participants.

The three studies that used only quantitative measures to assess change [44–46] assessed different outcome measures: HRQOL, negative affect, and stress management. Ashing & George [44]'s intervention was associated with significantly improved HRQOL, Germino et al. [45]'s intervention was associated with a significant decrease in negative affect, and Knobf et al. [46]'s intervention was associated with a significant increase in stress management skills. Despite the variance in the outcome measures used, each of these three interventions provided quantitative evidence of significant improvements in the participants' psychological wellbeing.

Three of the studies included in this review, Davis et al. [22], Lechner et al. [47], Mollica et al. [48], integrated both quantitative and qualitative methodologies to assess their interventions' effectiveness. In Davis et al. [22]'s study, the researchers conducted interviews and gathered quantitative data to assess the intervention's effectiveness on changing self-advocacy skills and quality of life. While the quantitative results in this study did not show that the intervention

significantly impacted participants' stress levels or psychosocial functioning, the qualitative data showed that participants perceived the intervention as beneficial [22]. In Lechner et al. [47]'s study, participants in both the intervention and control groups reported significant improvements in psychological wellbeing and quality of life, limiting inferences about which intervention should be used in the future. Qualitative data collected in this study also supported both interventions' effectiveness. The cognitive behavioral stress management intervention group and participants in the cancer wellness control group both showed improved psychological wellbeing. In Mollica et al. [48]'s feasibility study, the peer navigation intervention was associated with a decrease in symptom distress, perception of support from God, and preparedness for recovery. Since this was a pilot trial with a small sample size, collecting qualitative data uncovered important insights about the participants' experience with the intervention. The qualitative themes that emerged from this study, such as the power of home visits and AABCS' desire to give back, could inform the creation of future interventions. Since home visits fostered trust and comfort, future interventions should consider hosting study sessions at participants' homes. Further, participants in the current interventions could be trained to become the interventionists for future psychosocial interventions for AABCS, fulfilling these participants' desire to give back to the community.

Nicks et al. [49] was the only study that used only qualitative methods to assess the efficacy of the intervention. While this study's in-depth interviews demonstrated the intervention's ability to provide quality social support, the lack of quantitative evidence limits inferences that can be made about the intervention's generalizability. However, the rich qualitative evidence that Nicks et al. [49] gathered should be used to inform the creation of future psychosocial interventions in this population. Peer mentorship amongst AABCS should be integrated into future interventions in order to foster a support system in this population.

Findings of this review highlighted areas of research opportunities for developing psychosocial interventions for AABCS. Culturally-responsive and patient-centered interventions are effective at facilitating an emotional connection and promoting participant engagement in AABCS [58]. According to Ashing & George [44], the interventionists who were familiar with the AA community's culture were able to create a welcoming environment that promoted trust and may have improved retention of participants in the intervention. Effectiveness of interventions may be further improved if delivered in a peer support group format rather than as individual therapy [22, 45].

Our findings from this review showed a broad range of strategies for delivering interventions to AABCS. Given the heterogeneity in mode, duration, and frequency of the intervention delivery, it was not possible to establish whether certain types of interventions were superior for improving quality of life. More randomized controlled trials with strong methodological designs are necessary to create effective psychosocial interventions that improve AABCS' psychological wellbeing. Of the seven studies, six studies were delivered in person, which may limit their scalability and accessibility of the interventions on a broader scale. Only one study [44] was telephonic-based, which provided information and support. Incorporating a technology component (via telephone or computer) may increase accessibility by overcoming logistical and financial access barriers. There may be an important rationale to include internet- and technology-based approaches in psychosocial interventions, such as decreasing labor costs and minimizing ongoing program costs to increase participant engagement. This could ultimately lead to the long-term cost-efficacy of technology-based techniques when compared to traditional face-to-face interventions.

Qualitative studies

The 21 qualitative studies in this review included a diverse group of AABCS with varying levels of education, employment, religious involvement, income, and marital status. Through the analysis of these qualitative studies, seven themes emerged: 1) spirituality/religion, 2) social support, 3) cultural perceptions of BC 4) lack of representation 5) negative impacts of treatment, 6) healthcare system experience, and 7) barriers to psychosocial care. These themes highlight the unique needs of AABCS, which could inform future interventions.

Fifteen of the 21 studies [31, 46, 50–53, 55–58, 60, 65, 66, 68, 70] highlighted the importance of spirituality as a protective factor for AABCS during the transition from initial diagnosis to survivorship, highlighting the need to incorporate spirituality into future interventions. Further, many AABCS described churches as a source of communal, spiritual, and social support throughout the cancer survivorship journey.

The qualitative findings show that social support is a protective factor for AABCS' psychological wellbeing. Since AABCS experience unique psychosocial stressors, due to cultural pressures to be the backbone of their families, several of the qualitative studies highlighted the need for connection with fellow AABCS [50, 53, 55, 62]. Due to the multitude of responsibilities AA women traditionally have and the stigma surrounding BC in the AA community, many of the AABCS rarely spoke of their BC diagnosis with their family and friends [46]. This secrecy around BC in the AA community may compound the stress AABCS experience. While many AABCS spoke of the importance of social support throughout BC, AA women face cultural barriers to disclosing their psychological struggles, impeding AABCS' ability to garner an adequate support system. AABCS' social support is intertwined with another theme found in the qualitative literature: the lack of representation of AA/Black BCS in resources both during and post-treatment. In two studies, AABCS voiced that there was a lack of representation both during and post-treatment, citing examples such as the lack of darker colored prosthetics and not enough support groups catered specifically to AA/Black BCS [61, 62].

The qualitative findings also revealed the unique adverse side effects that AA/Black BCS may experience following BC treatment such as skin discoloration, body image concerns, "chemobrain", and lack of intimacy [52, 55, 61, 66]. AABCS have distinct experiences with the psychological and physical side effects of BC treatment, influencing this populations' overall quality of life. Further, the qualitative findings highlighted how AABCS satisfaction with their healthcare experience was dependent on the healthcare providers' ability to address cultural/racial issues [46, 55, 63, 68]. The qualitative findings also elucidated the barriers that AABCS face when seeking psychosocial care post-treatment, due to both the healthcare systems' underemphasis of BC's psychological impact and a lack of culturally appropriate and accessible psychosocial resources for AABCS [55, 57, 61].

Our findings provide valuable insights into the psychosocial concerns and needs of this population. It allows healthcare providers to develop tailored interventions that meet the needs of AABCS. Future interventions should aim to increase AABCS' spiritual quality of life, as this was found to be a protective factor for this populations' psychosocial wellbeing. Further, the lack of representation that AABCS experience both during and post-treatment can contribute to feelings of isolation amongst this population. It is therefore essential that future psychosocial interventions encourage social support between fellow AABCS. It is also important for future interventions to delve into the cultural perception of BC in each AABCS' community, since this may vary based on communal norms. Psychosocial interventions should also address the negative physical and psychological impacts of BC treatment in order to normalize the distress that may follow BC

survivorship, which will result in helping them adjust to the long-term effects of their treatment. Additionally, it is critical for healthcare providers to be sensitive to AABCS' unique cultural needs, since this population may experience heightened anxiety due to mistrust in healthcare settings. Participants in future interventions should also be asked to identify barriers to seeking psychosocial care post-BC, so that researchers and clinicians can begin to address these concerns, as we aim to minimize barriers to mental healthcare and psychosocial interventions.

Strengths and limitations

The goal of this study was twofold: to provide a comprehensive summary of the current psychosocial interventions to improve AABCS' psychological wellbeing and to review the qualitative literature in this population to inform the creation of future interventions. This review utilized a highly structured systematic methodology, which represents a strength of the review. Further, multiple reviewers extracted themes from the included studies, which minimized bias.

The integrative review model, which includes both interventions and qualitative data, is another strength of the study, as it showcased the dearth of current interventions for AABCS and elucidated the unique needs of AABCS. To our knowledge, this is the first review to comprehensively analyze both psychosocial interventions for AABCS and qualitative studies in this population. The post-treatment phase of BC is often understudied, particularly among AABCS. Therefore, this review fills a critical gap in the literature for AABCS, who may be less likely to vocalize their cancer-related stressors [23]. The results of this study should inform the development of future interventions for AABCS.

Several limitations exist in the current literature, such as the dearth of interventions and small sample size in several interventions [44, 48, 49]. Further, Nicks et al. [49]'s study only used qualitative data to demonstrate the intervention's effectiveness. More evidence is necessary to prove the Breast Health Buddy intervention's effectiveness. The variability in the duration and methodology of the interventions highlights the need to determine which type of intervention is most effective for AABCS. Once more interventions are introduced, critical appraisal of existing interventions should be conducted to evaluate the interventions.

Another limitation in the current literature is the lack of a systematic approach to alleviating attention to structural barriers, such as socioeconomic status, transportation, and access to childcare, all of which may impact the ability to participate in any of the interventions. All of the interventions used different strategies to combat structural barriers, with methods such as telephonically-delivered interventions, community-based locations, offering services to participants (childcare, refreshments, and transportation vouchers), and home visits. While each of these strategies may be effective at reducing structural barriers, future research should explore which methods are most effective at increasing AABCS's engagement in future psychosocial interventions. Since cancer is the costliest illness in the U.S., totaling approximately $183 billion in 2015, it is especially important for psychosocial interventions for cancer survivors to be created with structural vulnerabilities in mind [69]. Additionally, a qualitative study by Darby et al. [71] uncovered that underserved AABCS experience additional stressors during and after medical care, including a feeling of isolation due to the financial, physical, and emotional toll that cancer took on their wellbeing. In order to mitigate these feelings of loneliness, researchers crafting interventions for AABCS should utilize an evidence-based framework, such as social support interventions, that have proven to minimize stress and maximize AABCS' retention in psychosocial interventions.

Further, certain variables, such as cancer recurrence, were not always included in the qualitative studies, limiting the generalizability of the results. Other variables, such as urban vs. rural location were mentioned -- Adams et al. [57] was a focus group with participants from rural counties and Ford et al. [50] was a focus group specifically for participants from two urban areas -- but differences in environment were not further analyzed.

Conclusion

This review highlights the importance of social support for AABCS, emphasizing the need for more peer support interventions. Additionally, while all of the interventions in this review surveyed the participants' demographic characteristics, such as employment status and socioeconomic status, more attention should be given to addressing structural dimensions when creating interventions and recruiting participants. Further, future studies should assess spirituality and social support more systematically in order to more fully elucidate these protective factors for AABCS' psychological wellbeing. Participants from peer support studies [48, 49] should be recruited and trained as peer navigators/ breast health buddies themselves. In doing so, these AABCS can simultaneously provide support to other AABCS and fulfill their desire to give back to their community.

Engagement with AABCS should also be used to guide the creation of patient-centered interventions in the future. These psychosocial interventions should be integrated into communal healthcare facilities in order to create a more sustainable model of change. Web-based interventions should also be created in order to improve participant engagement and retention.

From a methodological perspective, more longitudinal studies should be conducted in order to understand the impact of psychosocial interventions on AABCS' psychological wellbeing throughout the course of their lives. Interventions should also measure biomarkers (e.g. salivary cortisol levels or salivary alpha amylase) as an outcome in order to assess AABCS' physiological stress levels.

Future research is needed to explore ways to create more culturally and structurally appropriate interventions that improve AABCS' psychosocial wellbeing. The BC journey does not end with survivorship, rather it is an ongoing lifelong process with psychosocial stressors following survivors throughout their lives. Therefore, the period after cancer remission is a critical time to implement psychosocial interventions. This is especially important for AA women, due to the historical perception of a "strong Black woman" which may decrease help-seeking behaviors in this population [72].

The dearth of psychosocial interventions for AABCS highlights a critical need that must be addressed. The scientific community must create psychosocial interventions that ease the transition from cancer patient to survivor. These interventions should be culturally specific and build upon the existing research detailed in this review. By creating more culturally appropriate psychosocial interventions, researchers and clinicians can empower AABCS to navigate their psychological health, actively engaging in the lifelong healing process.

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Appendices

APPENDIX A: Search Terms

Population	Breast (Mammary) Disease	Outcome
African American OR African Americans	cancer OR cancers	attitude to health
Black OR Blacks	carcinoma OR carcinomas	breast neoplasms/psychology
survivor OR survivors OR survivorship	malignancies	breast neoplasms/rehabilitation
survivors/psychology	malignancy	post-cancer life
	malignant	psychosocial AND (interventions OR well-being OR concern OR concerns)
	neoplasm OR neoplasms	quality of life
	oncology	quality of life/psychology
	tumor OR tumors	

APPENDIX B: Search Strategies

Date: July 5, 2020, updated search May 26, 2021
Limiters: 2011-2021, English

PubMed

("African American"[Title/Abstract] OR "African Americans"[Title/Abstract] OR "African Americans"[MeSH] OR Black[Title/Abstract]) AND (survivor[Title/Abstract] OR survivors[Title/Abstract] OR survivorship[Title/Abstract] OR "survivors/psychology"[MeSH Terms])

AND

(breast[Title/Abstract] OR mammary[Title/Abstract]) AND (cancer[Title/Abstract] OR cancers[Title/Abstract] OR carcinoma[Title/Abstract] OR carcinomas[Title/Abstract] OR malignancies[Title/Abstract] OR malignancy[Title/Abstract] OR malignant[Title/Abstract] OR neoplasm[Title/Abstract] OR neoplasms[Title/Abstract] OR oncology[Title/Abstract] OR tumor[Title/Abstract] OR tumors[Title/Abstract])

AND

("attitude to health"[MeSH] OR "breast neoplasms/psychology"[MeSH] OR "breast neoplasms/rehabilitation"[MeSH] OR "post-cancer life"[Title/Abstract] OR ((psychosocial[Title/Abstract]) AND (well-being[Title/Abstract] OR concern[Title/Abstract] OR concerns[Title/Abstract])) OR "quality of life"[Title/Abstract] OR "quality of life/psychology"[MeSH])

Academic Search Ultimate (EBSCO)

CINAHL (EBSCO)

PsycINFO (EBSCO)

TI (("African American*" OR Black*) AND survivor*) OR AB (("African American*" OR Black*) AND survivor*) OR SU (("African American*" OR Black*) AND survivor*)

AND

TI ((breast OR mammary) AND (cancer* OR carcinoma* OR malignan* OR neoplasm* OR oncolog* OR tumor*)) OR AB ((breast OR mammary) AND (cancer* OR carcinoma* OR malignan* OR neoplasm* OR oncolog* OR tumor*)) OR SU ((breast OR mammary) AND (cancer* OR carcinoma* OR malignan* OR neoplasm* OR oncolog* OR tumor*))

AND

TI ("attitude to health" OR "post-cancer life" OR (psychosocial AND (intervention* OR well-being OR concern*)) OR "quality of life") OR AB ("attitude to health" OR "post-cancer life" OR (psychosocial AND (intervention* OR well-being OR concern*)) OR "quality of life") OR SU ("attitude to health" OR "post-cancer life" OR (psychosocial AND (intervention* OR well-being OR concern*)) OR "quality of life")

Web of Science (Clarivate)

TS=(("African American*" OR Black*) AND survivor*)

AND

TS=((breast OR mammary) AND (cancer* OR carcinoma* OR malignan* OR neoplasm* OR oncolog* OR tumor*))

AND

TS=("attitude to health" OR "post-cancer life" OR (psychosocial AND (intervention* OR well-being OR concern*)) OR "quality of life")