

Title: Cancer-treatment related decision-making among culturally and linguistically diverse older adults with cancer: A scoping review by the International Society of Geriatric Oncology Nursing and Allied Health Interest Group

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Introduction

Countries with large economies are observing a growing number of culturally and linguistically diverse (CALD) older adults, many of whom will be affected by cancer. Little is known about the experiences and factors that influence cancer treatment decision-making in this population. The purposes of this scoping review are: (1) to summarize the published literature on cancer treatment-related decision-making with this population; and (2) to identify potential differences in how cancer treatment decisions are made compared to non-CALD older adults with cancer.

Materials and methods

We conducted a scoping review following Arksey and O'Malley and Levac methods, Preferred Reporting Items for Systematic Reviews and Meta-Analyses Scoping Review Guidelines. We conducted a comprehensive multidatabase search, screening 1,139 titles/abstracts. Following data abstraction, we analyzed the data using tabular and narrative summary.

Results

We extracted data from 6 studies that met the inclusion criteria: 4 quantitative and 2 qualitative; 5 from the United States and 1 from Canada. Three themes were identified: (1) barriers to decision-making, (2) the influence of family and friends on decision-making, and (3) differences in uptake and types of treatment received between CALD and non-CALD older adults.

Discussion

This comprehensive review of treatment decision-making amongst CALD older adults with cancer highlights the paucity of research in this area. The findings are limited to North American populations and may not represent experiences in other regions of the world.

Future research should focus on studying their treatment-related decision-making experiences to improve the quality of care for this vulnerable population.

Background

As a result of globalization and international migration, countries with large economies, such as the United States (U.S.), Canada, and Australia have observed increasing cultural and linguistic diversification of their populations (1). For countries like Canada and Australia, residents identified with over 300 ethnic or cultural origins and reported more than 300 languages spoken in homes (2–4). Another major demographic shift is the growing number and proportion of older adults. The youngest baby boomers will turn 65 years of age by 2030 and this cohort of older adults is projected to increase at an accelerated pace over the coming decades (5–7). Consequently, im/migrant-receiving countries are expected to see an increase in the proportion of culturally and linguistically diverse (CALD) older adults. In Canada, the proportion of diverse older adults is projected to increase from 12.4% in 2016 to 26.2% in 2041 (8).

Terminology to describe or categorize the CALD population varies from region to region. Terms such as BIPOC (Black, Indigenous, and other people of colour), and racial/ethnic minorities are used in Canada and the U.S., whereas in the United Kingdom, BAME (Black, Asian, and minority ethnic) is more commonly used. CALD is used in Australia and it is a multidimensional term that was first used by the Australian Bureau of Statistics (ABS) in 1999 to replace the term “Non-English Speaking Background” in government policy documents related to the migrant population (9,10). Currently, ABS defines the CALD population by country of origin, language spoken first and/or at home, English proficiency, parents’ country of birth, religious affiliation, Indigenous status, and year of arrival in Australia (11,12).

The CALD older adult population is heterogeneous, ranging from differences in people’s countries of origin, languages spoken first and/or at home, and religious affiliation.

Even within the same cultural or ethnic groups, there can be significant heterogeneity due to intergenerational cultural dissonance among first and subsequent generations of immigrants, degree of acculturation, reasons for migration (e.g., voluntary or forced migration, family reunification), age at migration, year of migration, duration of residency in the country of destination, exposures to risk factors, and access to resources over their life course (13–15). These factors can influence the level of social integration, access to social and health services, and health outcomes. For example, Chu et al. found recent Canadian immigrants (mean age 66.2 years) were more likely to receive aggressive end-of-life cancer care and less likely to receive supportive care compared to long-term residents(16). Sub-analyses of immigrant populations within the same study also identified differences among ethnic groups, where West Asians/Arabs, Southeast Asians, and South Asians had the highest composite rates of aggressive care compared to White-Eastern Europeans, White-Western Europeans, and long-term residents. The authors hypothesized that these differences may be due to communication barriers, lower health literacy, and decreased familiarity with health services and end-of-life care (16).

CALD older adults living in their countries of destination may experience intersecting barriers accessing quality health care, including: communication and cultural barriers; discrimination by language, age, race, gender, and citizenship status; poor literacy in the language of the country of destination; lower socio-economic status; and poor health literacy (14,17). These barriers can result in communication challenges with their clinicians, higher decisional conflict, lower satisfaction with care, feelings of being alone and misunderstood, poorer treatment adherence, poorer health outcomes, and worse quality of life (14,18–22).

Advancing age is the most significant risk factor for developing cancer and the incidence rates for cancer steadily rises with age (23). In/migrant-receiving countries must prepare for the growing number of CALD older people who will be diagnosed with cancer. Cancer care is rapidly evolving and complex, and treatment choices have serious implications for an older person's health outcomes and quality of life (24). To deliver high quality cancer care, cancer care systems must engage people with cancer in decision-making and support them in making informed decisions (25), however, there is a paucity of information about the decision-making experiences of CALD older adults with cancer. The primary purpose of this scoping review is to understand the nature and extent of the published literature on cancer treatment-related decision-making with CALD older adults with cancer. The secondary purpose is to identify differences in how decisions are made compared to non-CALD older adults with cancer.

Methods

Protocol and Search

We followed the Arksey and O'Malley (26) approach to scoping reviews and subsequent extension by Levac and colleagues (27), and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Scoping Review Guidelines (PRISMA-ScR) (28). We developed a protocol and performed a preliminary search to identify key search terminology. With guidance from a research librarian (CB), we designed a comprehensive search of relevant databases to identify published literature related to CALD older adults and cancer treatment-related decision-making. The search strategy was developed in Medline and incorporated both subject headings and keyword searches. Keywords were searched in title/abstract/keyword/subject heading fields, and searches were built using Boolean operators, without the use of search limiters. This search strategy was peer-

reviewed by a health science librarian not affiliated with the project. The final Medline strategy, from which strategies for other databases were extrapolated, is included in the supplemental material (Appendix B). In addition to MEDLINE(R) and In-Process, In-Data-Review & Other Non-Indexed Citations and Daily (OVID), databases searched (from inception to June 14, 2022) were: APA PsycInfo (OVID), CINAHL Plus with Full-Text (EBSCO), and the Cochrane Library (including both Database of Systematic Reviews and Central Register of Controlled Trials) were searched from inception to May 11, 2022. EMBASE (OVID), Web of Science Core Collection, and Scopus were searched from inception to June 14, 2022.

Terminology

We use the term “culturally and linguistically diverse” to broadly encapsulate the heterogeneous characteristics of people living in a country other than their country of birth (11,29,30). While length of residency may mediate some of the differences between native- and foreign-born older adults, foreign-born individuals, especially older adults, are more likely to experience barriers, such as language barriers, poverty, lack of insurance, lack of access to culturally safe or appropriate care, poor health or cancer-related health literacy (31,32). We define older adults as people aged 65 years or older, as most high-income countries use this arbitrary age as a threshold for the purpose of eligibility for pension (33,34).

Eligibility Criteria

We included articles published in all languages reporting on cancer treatment-related decision-making amongst adults aged ≥ 65 years (or the study sample had a mean or median age ≥ 65 years), with a diagnosis of cancer and who are CALD. Cancer-related treatments included both curative and palliative intent systemic therapy, radiation therapy,

oncological surgery (including breast reconstruction surgery following mastectomy), and participation in cancer-related clinical trials.

Editorial, commentary, opinion papers, conference papers/abstracts, and practice guidelines were excluded. We further excluded studies pertaining to cancer screening, survivorship, advance care planning, and those solely focused on palliative or end-of-life care. We excluded studies regarding older adults diagnosed with basal cell skin cancer and cervical cancer in situ as they are often treated outside of the cancer care system (35–37). We further excluded studies that were conducted in countries where older adults would identify as their ethnic/cultural origin (i.e., studies of Japanese older adults living and receiving cancer care in Japan).

While Indigenous and Aboriginal people are also culturally and linguistically diverse, we did not include studies that examined this population as we felt their history and persistent, systemic experiences of oppression, displacement, and trauma are unique and should be studied separately (38). Similarly, we excluded studies that only compared Black versus White people as this binary comparison only refers to the social construct of race (39), rather than ethnocultural or linguistic differences which may influence decision-making. Overall, Black Americans are less likely to experience language barriers compared to immigrants or those who are foreign born (40). While we recognize there are migrants from Africa or the Caribbean who would meet our inclusion criteria, unless the authors specified the proportion of Black participants who are migrants (whether 1st, 2nd, or 3rd generation) from these regions or spoke a different language, we excluded these studies.

The Latinx population within the U.S. is comprised of people from diverse origins including Mexico, and countries from Central and South America. Nearly one-third are immigrants and two-thirds of the population speak Spanish at home (41). We included

studies describing findings among Latinx older adults as according to the U.S. Census Bureau, identifying as Latinx or Hispanic is a matter of origin rather than race (42) and they are more likely to experience language barriers. In the review, we use Hispanic and Latinx interchangeably based on how the participants were identified in the referencing papers.

Study Selection

Results were stored and managed using Covidence, an online systematic review software (www.covidence.org), which eliminated 445 duplicated publications. An additional 5 duplicates were manually removed during the title and abstract screening process. Title/abstract screening and full-text review were completed in Covidence by two independent reviewers from the authorship team. Disagreements were resolved by BL, SP, or KRH. We included systematic literature reviews from the title and abstract screening phase into full text screening for the purposes of searching all references for potential eligible articles. This process of hand-searching yielded an additional 34 articles that were included in the full-text review.

Data Abstraction and Quality Assessment

As there were only six studies included in the review, four authors (BL, SP, MP, KRH) completed the data abstraction. An electronic form was developed to guide data abstraction of key study characteristics (see Appendix A). For each study, data were abstracted by two reviewers independently and results were collated into an Excel spreadsheet. All abstraction was reviewed by the first author. The quality of the research studies was assessed using the Mixed Methods Appraisal Tool (MMAT) version 2018 (43); a tool that can assess qualitative, quantitative, and mixed methods studies. The MMAT was embedded in the data abstraction form for each reviewer to input their independent assessment. We defined good quality as

having “yes” on all relevant quality criteria and moderate as having items with “can’t tell” and “yes”.

Analysis

We analyzed data using tabular and narrative analysis for quantitative and qualitative studies, respectively. The first author was responsible for summarizing and synthesizing the abstracted data with the support from the senior authors (KRH, SP, MP). Using an iterative approach, BL examined the text of the included studies and developed descriptive codes, which were grouped together into smaller number of categories to identify common themes among them.

For stakeholder consultation, we presented the review findings to members of the International Society of Geriatric Oncology (SIOG) Nursing and Allied Health Interest Group on 10 February 2023. The group represents international multidisciplinary oncology care practitioners and researchers. The objective in consulting with the members was to disseminate, validate, and draw attention to any discrepancies in the review findings, as well as obtaining feedback and recommendations for future research.

Results

Of the 1,139 titles and abstracts screened, 1,012 were excluded (see Figure 1 for the Prisma flow chart). One hundred and twenty-seven articles were included for full-text review; six articles were included in the data abstraction phase. We present the characteristics of the included published studies in Tables 1 and 2.

Quality Assessment

The overall quality of the included studies was moderate to good (Table 3). Five studies were considered good quality with both independent reviewers answering yes to all of the evaluation questions (44–48). The remaining study was considered moderate in

quality as the reviewers answered “can’t tell” in two of the evaluation questions (49). The response rate for the three cross-sectional cohort survey studies were 64% (45,46) and 72% (49). Sampling method was not described in the qualitative study by Kreling et al (48).

Characteristics of the Included Studies

Quantitative Studies

All four studies (Table 1), including two by Maly et al. from the same sample (45,46), were conducted in the U.S. and compared the differences in treatment-related decision-making amongst White, Black, and Latinx people with cancer (44–46,49). Three studies were cross-sectional (45,46,49) and one was a retrospective cohort study using data from a cancer registry (44). The two studies by Maly et al. included 257 women aged ≥ 55 years (mean age 68.7 years) who were within three to nine months of diagnosis of any stage of breast cancer (45,46). The first study examined the racial/ethnic differences in decision-making for all types of treatments for breast cancer (45) and the other in health-related quality of life and type of breast cancer treatment as mediated by physician- and individual-level variables amongst CALD older women with breast cancer (46). The third cross-sectional study by Gopal et al. aimed to identify factors for refusal or acceptance of systemic therapy amongst 37 adults (people living with cancer and caregivers) aged ≥ 50 years (mean age 73.1 years and median age 75 years) regardless of types and stages of cancer (49). However, this paper did not report the time frame between diagnosis to recruitment into the study. The retrospective cohort study by Denberg et al. included 27,290 older men aged ≥ 65 years with prostate cancer, examining the sociodemographic predictors of curative intent surgery versus radiation and included race/ethnicity as a dependent variable (44).

All studies (44–46,49) included participants from three racial groups: White, Black and Latinx participants; however, Gopal et al. combined Hispanic participants with people

from other racial/ethnic groups (not otherwise specified). Only Maly et al. specifically provided a rationale for why participants other than White, Black, and Latinx were not recruited into their studies (45,46), which was due to restrictions by the local cancer registry. The majority of participants in the studies conducted by Denberg et al. and Gopal et al. were White (84% (44) and 59% (49), respectively). The languages spoken by participants were not reported in either of the studies. The two studies conducted by Maly et al. reported distribution amongst all three racial groups as 36% White, 26% Black, and 38% Latinx and offered the survey in Spanish, but did not report on the proportion of Spanish-speaking patients (45).

Qualitative Studies

One qualitative study was conducted in the U.S. (48) and the other in Canada (47) (Table 2). Kreling et al. conducted English and Spanish focus groups amongst 34 White, Black, and Latina women aged ≥ 65 years old with breast cancer to understand factors for the use and non-use of adjuvant non-hormonal chemotherapy (48). The Canadian study by Hirpara et al. included participants from thirteen different racial groups and reported speaking seven different primary languages (47). The authors conducted semi-structured interviews with 20 participants aged ≥ 18 years old (mean age 71.5 years) to examine the factors associated with acceptance or refusal of adjuvant chemotherapy after colorectal surgery (47).

Kreling et al. did not specify why they restricted participant recruitment to only White, Black, and Latina women (48). Latina women included in the study were in the Spanish-speaking focus groups. Hirpara et al. did not report which language was used to conduct the interviews (47).

Key Findings

We organized the findings into three key themes: (1) barriers to decision-making, (2) the influence of social support in decision-making, and (3) differences in uptake and types of treatment received.

(1) Barriers to Decision-making

Potential Association of Medical Mistrust and Perceived Discrimination

Two studies conducted in the U.S. identified medical mistrust or perceived discrimination by physicians as being negatively associated with receipt of treatment (46,48). In their cross-sectional study, Maly et al. (46) reported that medical mistrust predicted for decreased feelings of self-efficacy in interacting with physicians and in turn, may have decreased the likelihood of receiving breast-conserving surgery, which is associated with equivalent probabilities of breast cancer survival and better quality of life compared to mastectomy, among Latina and African American women. In focus groups conducted by Kreling et al. (48), Latina women reported feeling that physicians (race/ethnicity of physicians not reported) perceived Hispanic women as stupid or ignorant based on their accent and felt that *American* physicians 'talked down' to them. This resulted in Latina women feeling less empowered to seek information on treatment options for their breast cancer from their physicians.

Socioeconomic Factors

In focus groups conducted in the U.S. by Kreling et al. (48), older Latina women reported unique concerns about employment and lack of insurance, and language problems as barriers to receiving chemotherapy. These concerns led to feelings of less empowerment to seek information from their doctors regarding chemotherapy treatment. In a retrospective cohort study using an administrative database in the U.S., Denberg et al. (44)

found being married was associated with increased likelihood of receiving curative therapy for prostate cancer with no differences across all racial/ethnic groups.

(2) The Influence of Social Support on Treatment Decision-making

Four studies found that family members and friends play central roles in supporting older people with decision-making (45,47–49), but only two analyzed this finding based on race (45,47). In the cross-sectional study by Maly et al. (45), Latina women from the U.S., especially those who are less acculturated, were more likely to have family members or friends as final decision-maker for breast cancer-related treatments compared to African American and White women. In contrast, the Canadian study by Hirpara et al. (47) found no difference in family involvement regarding surgery for colorectal cancer across all age groups, language, and cultural and ethnic backgrounds.

(3) Difference in Uptake and Types of Treatment Received

Two studies reported Latinx older adults were less likely to receive cancer treatment compared to White older adults (46,49). Gopal et al. (49) reported Hispanic older adults were less likely to accept systemic therapy compared to White older adults (50% Hispanic versus 94% White). Although the authors did not hypothesize why Hispanic people were less likely to accept systemic therapy, the study identified medical mistrust as a potential factor associated with refusal of treatment. Similarly, Maly et al. (46) reported that older Latina women were more likely to elect to undergo mastectomy over breast-conserving surgery compared to White women. The study findings suggest medical mistrust, knowledge about breast cancer and its treatment options, and patient-empowering communication from the physician played important roles in surgical treatment selection (46). In a third study, Denberg et al. (44) reported Latino and White men aged 70 years or older had similar rates

of curative-intent therapy and prostatectomy compared with older African American men with prostate cancer.

Consultation with Stakeholders

Members of the SIOG Nursing and Allied Health Interest Group who attended the presentation of the review findings reported this topic was relevant to their practice and understudied. Many described observing similar experiences in their clinical practice and felt more knowledge is needed to develop evidence-informed guidelines to address the barriers CALD older adults face with treatment-related decision-making.

Discussion

To our knowledge, this is the first review focusing on treatment-related decision-making amongst CALD older adults with cancer and it highlights the paucity of research in this field. While our search found many studies examining decision-making amongst older adults with cancer or decision-making amongst CALD adults with cancer, there were only six studies that simultaneously fulfilled all three criteria. In addition, all six of the included studies originated in North America and five of these studies focused exclusively on the experiences and differences in treatment decision-making among Black and Latinx older adults compared to White older adults, which is a limited representation of the CALD population and their experiences. Studies of older im/migrant populations have found significant differences in communication challenges, access to health services, health literacy, and health beliefs among im/migrant groups (22,31,50,51). Our findings are similar to those from a systematic review on shared decision-making among the overall CALD population (52). Mead et al. (52) found the majority of the included studies originated from the U.S. (83%) and primarily compared African American and Latinx people to non-Hispanic White. Therefore, more research is needed to examine the experiences of other CALD

populations of older adults within the context of cancer treatment-related decision-making to identify barriers and to develop strategies and interventions to mitigate them.

The studies in our review suggest notable differences in treatment-related decision-making between Latinx and White older adults with cancer. Latinx older adults were more likely to report medical mistrust and/or perceived discrimination by physicians and express concerns about employment and health insurance. These barriers may have negatively influenced their decision-making resulting in a lower likelihood to undergo recommended treatments. While these findings may overlap with native born older adults who are socioeconomically disadvantaged (44), foreign born older adults are more likely to be further disadvantaged with communication or language barriers (40). Language barriers are more common among older im/migrants due to a combination of educational factors, decreased ability or opportunity to learn a second language or navigate a new health care system (53). Language barriers can further contribute to mistrust and increased hesitancy to seek care or information regarding treatment options from their physicians (54,55). For the CALD older adult population, the intersections of age, race and/or ethnicity, and language proficiency may potentially increase care gaps and disparities in their cancer care(56). Due to these disparities, cancer care institutions and cancer care practitioners should provide resources and support, such as professional medical interpreters, educational materials that are both linguistically and culturally adapted for CALD older adults, and education for cultural safety training (31).

Another finding in our review relates to the role family members and friends play to support CALD older adults with cancer treatment-related decision-making. Older adults with cancer are more likely to have family involvement with treatment-related decision-making(57). However, certain ethnic groups, such as Latinx and Asian people, and individuals who are not language proficient, rely more heavily upon family members for

shared treatment decision-making compared to White people (57,58). Although clinicians should consider including family members and friends in the decision-making process, it is important to ensure the older adult's values, preferences, and expectations remain the priority and that decisions align with what is mutually understood between the clinician and the older adult (59). Family and friends frequently act as facilitators for treatment-related decision-making, but conflicts may occur between them and the care recipient (60,61). Within some cultures, older people may choose not to participate in decision-making, or family members may have a desire or feel obligated to protect their older loved one by concealing information from the person receiving care (62,63). Assessing family dynamic and function, and the older person's preference for family involvement in decision-making should be a part of routine care, especially for CALD older adults with cancer (58).

Strengths and limitations

A limitation to our review is a result of the lack of consensus on the definition of CALD populations in the literature. Due to the evolving nature of the terminology in this field, our search may have missed studies related to CALD populations. We addressed this issue by developing the search strategy with an experienced research librarian who searched in seven databases. We did not restrict studies based on language, geography, or date to increase the inclusivity of our search results. We conducted this review following a rigorous methodology based on scoping review guidelines. Another strength of this scoping review is that the review team consists of clinicians and researchers in the field of geriatric oncology from four different continents who provided critical input and contextual information.

Implications for research and practice

The CALD older adult population is not a monolithic group; both researchers and clinicians must recognize the heterogeneity of the CALD older adult population, even amongst those with intersecting cultural or ethnic backgrounds and identities. Increased efforts should be focused on collecting more consistent and comprehensive data to describe people beyond their race, ethnicity, country of origin, or language proficiency. For example, information on patients' migration history, length of residency in their adoptive country, and socio-economic status would help better define this cohort and generate meaningful data with which the specific needs of this population could be better understood and addressed. Other contextual factors should also be considered when collecting and interpreting study findings related to CALD older adults, as treatment-related decision-making is embedded in historical and social contexts. The life and health care experiences of the care recipient; societal and cultural norms; the beliefs, values and biases of the people involved in the decision-making all contribute to the decision-making process (59,64).

Conclusions

This review highlights the scarcity of literature on cancer treatment-related decision-making in the CALD older adult population with cancer. The findings identify factors that may hinder or facilitate decision-making in this subset of the older adult population. While progress has been made over the past decade to describe cancer health disparities among racialized or ethnic groups (65–69), additional efforts are needed to understand their experiences and the factors that influence their cancer treatment-related decision-making. By expanding the evidence base in this field, cancer care clinicians and policy makers can improve this population's access and utilization of health services, and develop policies to reduce inequities which will ultimately improve quality of life and cancer health outcomes among CALD older adults.

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Study Concepts: BL, SP, MP, KRH

Study Design: BL, SP, MP, KRH

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Data Analysis and Interpretation: BL, SP, MP, KRH

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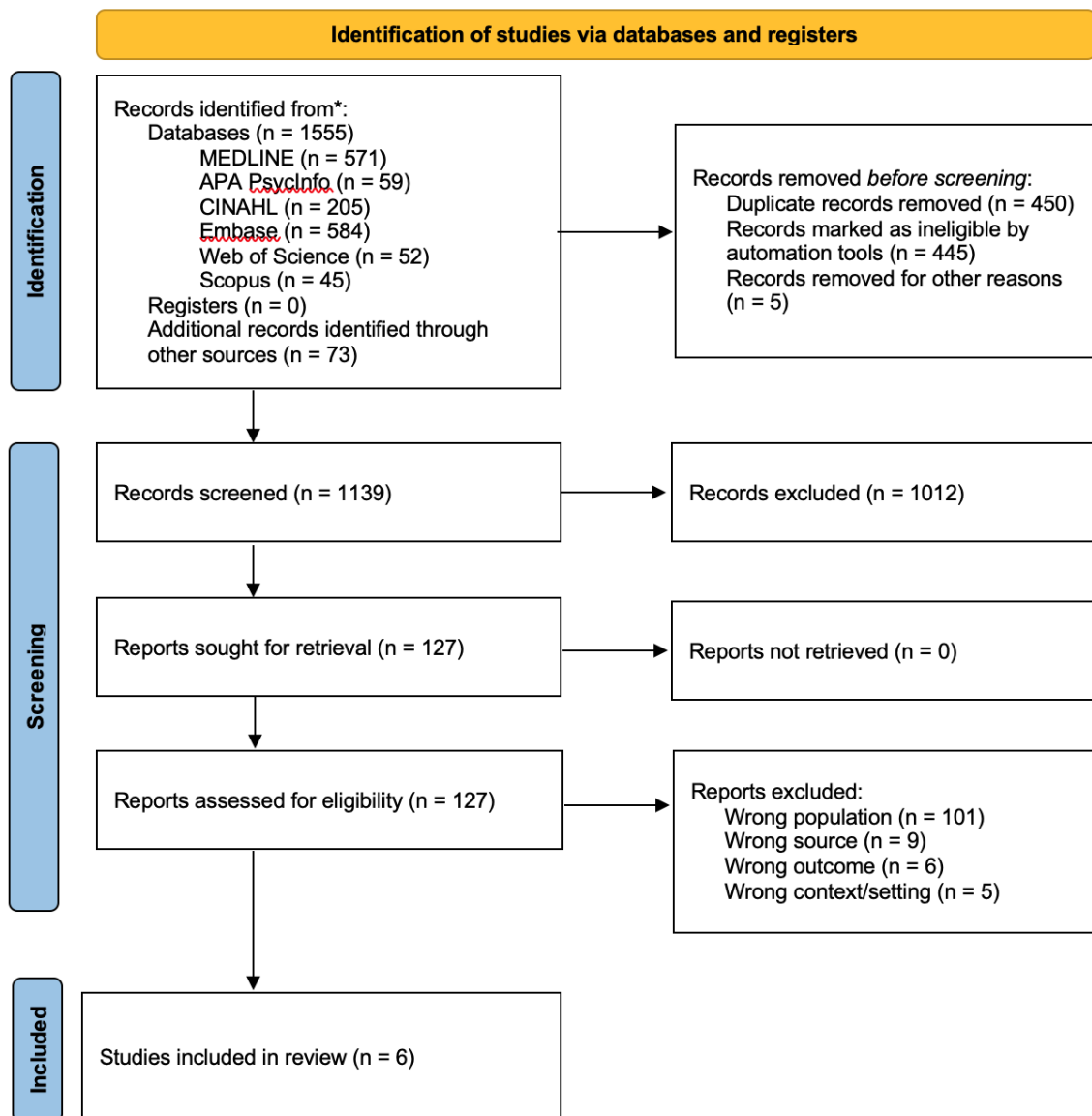
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Figure 1. PRISMA diagram



1 Table 1. Overview of quantitative studies included

Author (year)	Study Design	Location	Sample & Population	Data Source	Cancer Site	Type of Treatment	Purpose	Analysis	Key Findings
Denberg (2005) (37)	Retrospective cohort	United States	Total (N = 27,290); White (n = 23,040); Black (n = 2698); Latino (n = 1552) Age categories: <70 years: all n= 11,107; White n = 9011; Black n = 1375; Latino n = 721 ≥70 years: all n = 16,183; White n = 14,029; Black n = 1323; Latino n = 831 No mean age was reported	Cancer registry	Prostate	Prostatectomy , Radiotherapy	To assess whether a number of clinical and sociodemographic variables predict treatment choice	Descriptive analysis, Multiple logistic regression	Latino and White men age ≥70 had similar rates of receipt of curative therapy (54% vs 58%) and prostatectomy (28% vs 22%); Black men were less likely to receive any form of curative therapy (51%) and prostatectomy (14%); Marriage was associated with receipt of curative therapy in all racial/ethnic groups
Gopal (2017) (42)	Cross-sectional	United States	Total (N = 37); White (n = 22); Black (n = 9); Hispanic/other (n = 5) Age: mean (SD) 73.1 (8.0) years; Median 75.0 years (*5 participants were <65 years) People with cancer (n=29); Caregivers (n=8)	Survey	All cancer	Systemic therapy	To explore specific reasons for acceptance or refusal of recommended chemotherapy in older adults with cancer	Descriptive analysis	Black and Hispanic/other participants were less likely to accept chemotherapy compared to White (55.6% vs 50% vs 94.1% respectively)

Maly (2008) (39)	Cross-sectional	United States	<p>Total (N = 257); White (n = 92); African American (AA) (n = 66); Latina (n = 99)</p> <p>Mean Age (SD): total 68.7 (8.5) years; Latina 68.7 (8.5) years; AA 68.4 (8.6) years; White 68.8 (8.1) years</p>	Survey	Breast	Breast conserving surgery (BCS)	To examine racial/ethnic disparities in older women's health-related quality of life (QOL) and type of breast cancer treatment as mediated by physician level and individual level variables	Confirmatory factor analyses, Latent variable path analysis	<p>Older Latina and AA women were less likely than whites to receive BCS (51% vs 59% vs 71% respectively)</p> <p>Predictors of receipt of BCS included greater breast cancer knowledge, lower stage of cancer, and greater perceived self-efficacy in interacting with physicians. Medical mistrust predicted decreased feelings of self-efficacy in interacting with physicians and the likelihood of receiving BCS among AA and Latina women</p>
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Maly (2006) (38)	Cross-sectional	United States	Total (N = 257); White (n = 92); AA (n = 66); Latina (n = 99) Mean Age (SD): total 68.7 (8.5) years; Latina 68.7 (8.5) years; AA 68.4 (8.6) years; White 68.8 (8.1) years	Survey	Breast	Breast cancer surgery (mastectomy, breast conserving surgery), Systemic therapy, Radiation therapy, End-of-life/supportive care	To examine racial/ethnic group differences in the treatment decision-making process of older patients with breast cancer and the differential impact on treatment received	Multiple logistic regression	Latina women were more like to have family/friend as the final treatment decision-maker compared to AA and white women (49.3% less acculturated and 17.9% more acculturated vs 3% AA vs 2% white); OR for more acculturated 4.48 (95% CI 1.09-18.45) and less acculturated 7.97 (95% CI 2.43-26.20) compared to white and AA women When family made the final treatment decision, older women were less likely to receive BCS (AOR 0.39; 95% CI 0.18-0.85)
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2 Table 2. Overview of qualitative studies included

Author (year)	Study Design	Location	Sample & Population	Data Source	Cancer Site	Type of Treatment	Purpose	Analysis	Findings
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Hirpara (2016) (40)	Descriptive thematic analysis	Canada	<p>N = 20; Race: Portuguese (n = 5), Italian European (n = 3), African (n = 2), British, White Canadian, Jewish Canadian, Ecuadorian, Filipino, Israeli Muslim, Latin American, Polish, Russian and Spanish European (n = 1 per group); Language: English (n = 10), Portuguese (n = 5), Arabic, Filipino, Polish, Russian, Spanish (n = 1 per group)</p> <p>Age: Mean (range) 71.5 (42-88) years; <50 years n = 1; 50-59 years n = 1; 60-69 years n = 7; ≥70 years n = 11</p>	Semi-structured interview	Colorectal	Surgery	To examine the complexities of the interactive SDM process among patients, their families and the health care team in colorectal cancer surgery	Transcripts were descriptively coded by hand	3 major themes: 1) family plays a central role in supporting patients and social support reduces patient burden in decision-making, 2) patient confidence in care and decision-making process is influenced by clinician communication and information provided, and 3) patients experience and accept a lack of control and limited choice in treatment decisions; these findings persisted across race and disease stage
Kreling (2006) (41)	Thematic analysis	United States	<p>N = 34; White (n = 18), Black (n = 10), Latina (n = 6)</p> <p>Age of participants were not reported but only women 65 years or older were recruited into the study</p>	Focus group	Breast	Systemic therapy	To understand factors involved in older women's use or non-use of indicated adjuvant non-hormonal chemotherapy	Transcripts analyzed using NVIVO software	Latina women had concerns about employment and insurance, and language problems that affected their chemotherapy decisions; perceived doctors believe Hispanic women are stupid or ignorant because of accent; Felt talked down by doctor; lack of insurance and communication problems led to Latinas feeling less empowered to seek information and little knowledge of options

5 Table 3. Quality assessment using the Mixed Methods Appraisal Tool

Qualitative Study							
First author & year published	Are there clear qualitative and quantitative research questions?	Do the collected data address the research question?	Is the qualitative approach appropriate to answer the research question?	Are the qualitative data collection methods adequate to address the research question?	Are the findings adequately derived from the data?	Is the interpretation of results sufficiently substantiated by data?	Is there coherence between qualitative data sources, collection, analysis and interpretation?
Hirpara (2016) (40)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kreling (2006) (41)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quantitative Non-randomized							
First author & year published	Are there clear qualitative and quantitative research questions?	Do the collected data address the research question?	Are the participants representative of the target population?	Are measurements appropriate regarding both the outcome and intervention (or exposure)?	Are there complete outcome data?	Are the confounders accounted for in the design and analysis?	During the study period, is the intervention administered (or exposure occurred) as intended?
Denberg (2004) (37)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maly (2008) (39)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Quantitative Descriptive							
First author & year published	Are there clear qualitative and quantitative research questions?	Do the collected data address the research question?	Is the sampling strategy relevant to address the research question?	Is the sample representative of the target population?	Are the measurements appropriate?	Is the risk of nonresponse bias low?	Is the statistical analysis appropriate to answer the research question?
Gopal (2017) (42)	Yes	Yes	Yes	Can't tell	Yes	Can't tell	Yes
Maly (2006) (38)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

