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An analysis of survivorship care strategies in national cancer control plans in Africa

Elise M. Garton[1] · Zipporah Ali[2] · Mishka Kohli Cira[1] · Laura Haskins[3] · Paul B. Jacobsen[4] · Anthony Kayiira[5,6] · Nwamaka Lasebikan[7] · Tonia Onyeka[8] · Yannick Romero[9] · Sylvia Shirima[10] · Zuzanna Tittenbrun[9] · Michelle A. Mollica[4]

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Abstract

Purpose In 2017, the World Health Organization urged member states to develop and implement national cancer control plans (NCCPs) and to anticipate and promote cancer survivor follow-up care, which is a critical yet often overlooked component of NCCPs. This study aims to examine the inclusion of cancer survivorship-related strategies and objectives in NCCPs of African countries.

Methods Independent reviewers extracted strategies, objectives, and associated indicators related to survivorship care from 21 current or recently expired NCCPs in African countries. Building on a similar analysis of the US state cancer control plans, reviewers categorized these strategies according to an adapted version of the ten recommendations for comprehensive survivorship care detailed in the 2006 National Academy of Medicine report.

Results A total of 202 survivorship-related strategies were identified, with all NCCPs including between 1 and 23 references to survivorship. Eighty-three (41%) strategies were linked to measurable indicators, and 128 (63%) of the survivorship-related strategies were explicitly focused on palliative care. The most frequent domains referenced were models of coordinated care (65 strategies), healthcare professional capacity (45), and developing and utilizing evidence-based guidelines (23). The least-referenced domains were survivorship care plans (4) and adequate and affordable health insurance (0).

Conclusions The results of this study indicate that survivorship objectives and strategies should extend beyond palliative care to encompass all aspects of survivorship and should include indicators to measure progress.

Implications for cancer survivors Stakeholders can use this baseline analysis to identify and address gaps in survivorship care at the national policy level.

Keywords Cancer survivorship · Africa · National cancer control plans · NCCPs

Abbreviations

APCA	Africa Palliative Care Association
ECHO	Extension for community healthcare outcomes
EML	Essential medicine list
ICCP	International Cancer Control Partnership
LMIC	Low- and middle-income country
MASCC	Multinational Association of Supportive Care in Cancer
NAM	National Academy of Medicine
NCCP	National cancer control plan

✉ Elise M. Garton
elise.garton@nih.gov

[1] Center for Global Health, National Cancer Institute, National Institutes of Health, Rockville, MD, USA

[2] Kenya Hospices and Palliative Care Association, Nairobi, Kenya

[3] Johns Hopkins School of Nursing, Baltimore, MD, USA

[4] Division of Cancer Control and Population Sciences, National Cancer Institute, National Institutes of Health, Rockville, MD, USA

[5] Department of Reproductive Endocrinology and Infertility, Mulago National Referral Hospital, Specialized Women and Neonatal Hospital, Kampala, Uganda

[6] Lifesure Fertility and Gynecology Centre, Kampala, Uganda

[7] University of Nigeria, Ituku-Ozalla Campus, Enugu, Nigeria

[8] Dept. of Anesthesia/Pain & Palliative Care Unit, College of Medicine, University of Nigeria, Ituku-Ozalla Campus, Enugu, Nigeria

[9] Union for International Cancer Control, Geneva, Switzerland

[10] George Washington University, Washington, D.C, USA

NCCS	US National Coalition for Cancer Survivorship
NDCP	Non-communicable disease plan
NCI	US National Cancer Institute
US	United States
WHO	World Health Organization

Introduction

Global cancer survivorship

In 2020, there were an estimated 19.3 million new cancer cases, and the global cancer burden is expected to increase to 28.4 million cases in 2040 [1]. Much of this increase is expected to occur in low- and middle-income countries (LMICs) due to demographic trends, an increase in carcinogenic exposures, and lifestyle changes. Simultaneously, the number of cancer survivors globally is increasing because of improvements in cancer detection and treatment [2, 3].

One region experiencing this dual shift in cancer burden and cancer survivorship is Africa. Approximately 1.1 million people were diagnosed with cancer in Africa in 2020, and the age-standardized incidence rate across the continent is 132.1 cases/100,000 population [4]. The capacity to detect, diagnose, and treat cancer varies across and within countries in the region, as does access to post-treatment follow-up and supportive care [5]. While survivorship care guidelines and care plans exist and some have been adapted to the region [6], limited data exist to document the numbers of cancer survivors, uptake of these guidelines, and tracking of forms of survivorship care delivery, including through the work of local patient support and advocacy groups and faith-based organizations.

The US National Coalition for Cancer Survivorship (NCCS) defines a cancer survivor as anyone "living with, through, and beyond a cancer diagnosis," inclusive of the entire cancer continuum [7]. Meanwhile, the US Institute of Medicine, now the National Academy of Medicine (NAM), identified the period after an individual completes cancer treatment as the survivorship period in their 2006 report, *From Cancer Patient to Cancer Survivor, Lost in Transition* [8]. The report called out ten specific recommendations to improve the quality of survivorship care: *raising awareness for survivorship*, *implementing survivorship care plans, utilizing evidence-based guidelines, developing and implementing quality measures, improving models of coordinated care, elevating survivorship as a public health concern, increasing healthcare professional capacity, addressing employment-related concerns, adequate and affordable health insurance,* and *increasing investments in research* [8]. While these recommendations were focused on the delivery of quality survivorship care in the USA, there is an opportunity for policymakers and cancer planners to consider their relevance to the growing populations of cancer survivors globally — especially in Africa. The NAM recommendations can provide critical benchmark data for quality improvement efforts and inform decisions on addressing resource needs in LMICs.

For the purposes of this study, the term "cancer survivor" is used in accordance with the NCCS definition, with the recognition that individuals who have experienced the diagnosis of cancer may choose to identify themselves using different terms.

National cancer control plans

One way to guide implementation of the NAM recommendations in a country is through national cancer control plans (NCCPs). In 2017, the World Health Organization (WHO) urged member states to develop and implement NCCPs as a critical way to address their national cancer burden and to establish priorities in cancer control [9]. The NCCP acts as the framework for a country's national cancer control program, which oversees the implementation of all cancer prevention and control activities. In 2019 Jacobsen and Mollica recommended increasing the number of NCCPs that include survivorship care as one of their four recommendations to strengthen cancer survivorship care globally [10].

A 2018 global review of NCCPs and non-communicable disease plans (NCDPs) examined the content of plans from 158 countries to determine which of 15 aspects of cancer-related care, including survivorship, were included [11]. Findings indicated that only 32% of NCCPs and NCDPs addressed survivorship care, and only 17% of the NCCPs and NCDPs in WHO's Africa region. The importance of a country having a NCCP is underscored by evidence that survivorship care was addressed almost exclusively in countries that had a NCCP (97%) as opposed to countries that only had a NCDP (3%). Particularly striking, though not surprising given resource variation were differences between countries based on income levels. Whereas survivorship care was addressed in NCCPs or NCDPs for 60% of high-income countries, it was addressed in plans for only 17% of upper-middle income countries, 26% of lower-middle-income countries, and 13% of low-income countries [11]. Although useful, this review provided few details about the specific aspects of survivorship care addressed in the plans.

A more recent review analyzed survivorship objectives as represented in comprehensive cancer control plans in states and territories in the USA and utilized the NAM survivorship recommendations as a framework for analysis. Results demonstrated that the most prevalent domains addressed by plan objectives were raising awareness, the existence of survivorship care plans, healthcare professional capacity, and models of coordinated care [12–15]. The USA state cancer control plan analysis provided a model to inform the methods applied in the current analysis outlined in this paper.

Cancer survivorship and NCCPs in Africa

As the burden of cancer and the number of cancer survivors increases globally, many countries, including several in Africa, have followed WHO recommendations to develop and implement NCCPs. In 2018, just 11 countries in Africa had publicly-available NCCPs, and by 2022, 28 countries in Africa have either a current or recently expired NCCP [16, 17].

The Africa Cancer Research and Control ECHO® (Africa ECHO) is a virtual community of practice of researchers, practitioners, policymakers, patient advocates, and program implementers focused on cancer research and control in Africa. In September 2020, the Africa ECHO held a series of sessions on cancer survivorship. The community identified the topic as an area requiring more attention, and as a result, the Africa Survivorship Working Group was formed. Among other projects, this informal body of stakeholders seeks to conduct a 360° situational analysis to understand current practices and needs to inform recommendations to strengthen survivorship care in the region from the patient, caregiver, clinician, and policy levels. The current analysis has the potential to fill an important gap, as there is limited research reviewing survivorship care in Africa with a focus on policy development and implementation.

Objective

The aim of this study was to examine how survivorship care is currently represented in NCCPs in Africa and to disseminate the findings to African regional and international collaborators including policymakers, researchers, clinicians, and survivors and their caregivers to further address and improve survivorship in NCCPs globally and specifically in the African region.

Materials and methods

We identified publicly available NCCPs on the International Cancer Control Partnership (ICCP) Portal for inclusion in this study (http://iccp-portal.org). The portal, which is maintained and regularly updated by the ICCP since 2013, brings together in one searchable platform the experience, knowledge, and best practice of leading cancer organizations and their experts for the purpose of providing policymakers and cancer planners with cancer control–specific resources and tools. The portal includes publicly available NCCPs and NCDPs from over 120 countries [16]. NCCPs were included for analysis if they were shared on the ICCP Portal as of July 2021. The most recently published NCCP was used for each country in Africa. Countries with NCDPs but no NCCP were not included, as NCDPs often do not include specific information about each element of the cancer continuum.

Six coders worked in pairs to extract specific data items from the goals and objectives sections of the included NCCPs using Microsoft Excel. Preambles and overviews of the current state of cancer in the countries were not analyzed, but all other sections were analyzed. Each coder conducted their own extraction and compared it with their partner to create a final dataset. Data were extracted in the language of the plan by native speakers (English, French, or Portuguese) and the extracted text was translated into English using DeepL® Translator (DeepL) for later analysis. Any codes based on the translated text were validated with a native speaker. The following information was extracted from each plan:

- Definition:
    - “survivorship”
    - “palliative care”
    - “supportive care”
    - “patient navigation”
    - “psychosocial support”
    - “cancer continuum”
    - “community care”
    - “home care”

The definition and source of that definition were extracted if provided and left blank if not. The source of the definition was not extracted.

- Strategy (includes intervention, activity, or action) related to survivorship care
- Goal or objective that included the strategy related to survivorship care
- Whether an indicator was associated with the strategy related to survivorship care; note the indicator itself was not extracted
- Whether the strategy related to survivorship care was mentioned explicitly in the context of palliative care

For the purposes of this study, palliative care was synonymous with end-of-life or non-curative care. For all information, we extracted the exact text from the NCCP.

There is a significant overlap in the goals of care between palliative care and cancer survivorship. Palliative care can occur at any point after cancer diagnosis and is a key component of cancer survivorship, but there are also many aspects of survivorship that are beyond the scope of palliative care [18]. For the purposes of this study, all strategies explicitly related to palliative care were therefore extracted and noted.

This differentiation allows the analysis to reveal the prevalence of palliative care-associated strategies versus non-palliative care-specific strategies in the reviewed NCCPs. Both cancer survivorship and palliative care are nascent areas in Africa, but there is greater recognition of palliative care in research, policy, and practice.

Drawing on the methodology used in the 2020 review of state cancer control plans [12], we transformed the NAM framework of recommendations [8] into ten domains used to categorize each identified strategy from the NCCPs. However, we further modified the framework for this analysis to remove US-specific references such as specific government agencies and insurance mechanisms, and to be better suited to a global context. Ideally, the NAM framework should be continually adapted whenever it is used to reflect local needs and priorities in analysis. In addition, one framework domain was added, access to medicines. This domain was added via deductive analysis after coders recognized many references to essential medicines and access to pain relief that did not fit into an existing domain in the framework. The original framework is shown alongside the modified framework in Table 1, with changes to the text made for this study noted in italics.

Two coders categorized each of the strategies separately using the modified NAM framework and domains, compared and reconciled discrepancies, and consolidated results. These results were reviewed by four other coders for validation. Several strategies which could not easily be categorized were reviewed and discussed by all six coders until a consensus was reached on the most appropriate category. If strategies fit into multiple domains, the text was split until each individual strategy could be categorized into a single domain.

Results

Of 54 countries in Africa, as of July 2021, 21 (39%) had NCCPs published between 2012 and 2020 (Table 2). Eight plans were current at the time of analysis, while the remaining 13 had expired within the past 4 years but had not yet been replaced or rewritten. Across 21 plans, 202 survivorship-related strategies were identified, with all plans including at least one strategy. Of those 202 strategies, 83 (41%) had an associated indicator in the plan, and 74 (37%) were not palliative care-specific.

Survivorship and related definitions

The definitions for key survivorship-related terms were extracted from the plans where included. The term most often defined in plans was the "palliative care," found in 16 of 21 NCCPs, followed closely by "cancer continuum" in 12 plans. Of the 16 plans that included a definition of "palliative care," six used the 2002 WHO definition, and two used the 1990 WHO definition [19, 20]. The remaining terms ("supportive care," "community care," "home care," "patient navigation," and "psychosocial support,") were defined in three or fewer NCCPs. Notably, none of the four plans that provided definitions for "supportive care" used the standard definition provided by the Multinational Association of Supportive Care in Cancer (MASCC) [21]. Lastly, "survivorship" was defined only in Malawi's NCCP, and it mirrored the National Cancer Institute (NCI) definition of survivorship as "the whole process of having cancer or living with cancer and its post-cancer treatment life to those who survive" [22, 23]. Many plans used these key survivorship-related terms but did not formally define them.

Survivorship references in strategies and objectives

Across all 202 survivorship strategies that were extracted, the most referenced domains were models of coordinated care (65 strategies across 19 plans), healthcare professional capacity (45 strategies across 16 plans), and utilizing evidence-based guidelines (33 strategies across 11 plans). In fact, models of coordinated care and healthcare professional capacity domains comprised a majority (54%) of all strategies included across the plans. The least-referenced domains were survivorship care plans (four strategies across three plans) and employment-related concerns (five strategies across four plans). All domains were referenced at least once except for adequate and affordable health insurance, which was the only domain to which no strategies were categorized.

The distribution across domains of the 74 strategies not explicitly related to palliative care followed similar patterns. Eighteen of the 21 plans contained at least one strategy not explicitly related to palliative care. A count of all survivorship-related strategies per domain is shown in Fig. 1, with the darker bars indicating all strategies, and the lighter bars indicating strategies not explicitly related to palliative care.

An alternative way to view the aforementioned data is by counting the number of framework domains covered in each plan. Of the 11 domains, two plans (Morocco and Nigeria) contained 7 unique domains, while most plans included either 4 or 6 domains. When counting, only the 74 strategies not explicitly related to palliative care, the number of domains included in a NCCP ranged from 0 to 5, with a plurality of plans including only one domain. The distribution of plans by domain count is shown in Supplemental Fig. 3.

Lastly, plans were analyzed to determine the proportion of survivorship-related strategies that included associated indicators. Eighty-four total indicators were extracted from the 21 NCCPs. The specific text of indicators varied between plans and strategies but generally referred to either the establishment or expansion of something, such as palliative care facilities, the number of

Table 1 Original and modified NAM framework of cancer survivorship domains

#	NAM Framework Domain	Description of domain per 2006 NAM report	Adapted description of domain used for this study
1	Raising Awareness	Health care providers, patient advocates, and other stakeholders should work to raise awareness of the needs of cancer survivors, establish cancer survivorship as a distinct phase of cancer care, and *act to ensure* the delivery of appropriate survivorship care	Health care providers, patient advocates, and other stakeholders should work to raise awareness of the needs of cancer survivors, establish cancer survivorship as a distinct phase of cancer care, and *advocate for* the delivery of appropriate survivorship care
2	Survivorship Care Plan	Patients completing primary treatment should be provided with a comprehensive care summary and follow-up plan that is clearly and effectively explained. *This Survivorship Care Plan should be written by the principal provider(s) who coordinated oncology treatment. This service should be reimbursed by third-party payors of health care*	Patients completing primary treatment should be provided with a comprehensive care summary and follow-up plan that is clearly and effectively explained and *is provided at no additional cost to the patient*
3	Utilizing Evidence-Based Guidelines	Health care providers should use systematically developed evidence-based clinical practice guidelines, assessment tools, and screening instruments to help identify and manage late effects of cancer and its treatment. Existing guidelines should be refined and new evidence-based guidelines should be developed through public- and private-sector efforts	Health care providers should use systematically developed evidence-based clinical practice guidelines, assessment tools, and screening instruments to help identify and manage late effects of cancer and its treatment. Existing guidelines should be refined *and where they are insufficient,* new evidence-based guidelines should be developed through public- and private-sector efforts
4	Developing and Implementing Quality Measures	Quality of survivorship care measures should be developed through public/private partnerships and quality assurance programs implemented by health systems to monitor and improve the care that all survivors receive	Quality of survivorship care measures should be developed through public/private partnerships and quality assurance programs implemented by health systems to monitor and improve the care that all survivors receive
5	Models of Coordinated Care	*The Centers for Medicare and Medicaid Services, National Cancer Institute, Agency for Healthcare Research and Quality, the Department of Veterans Affairs, and other qualified organizations* should support demonstration programs to test models of coordinated, interdisciplinary survivorship care in diverse communities and across systems of care	Models of coordinated, interdisciplinary survivorship care should be tested and implemented in diverse communities and across systems of care, *with support from organizations across many sectors e.g., insurance, research, and policy*
6	Survivorship as a Public Health Concern	*Congress should support Centers for Disease Control and Prevention, other collaborating institutions, and the states* in developing comprehensive cancer control plans that include consideration of survivorship care, and promoting the implementation, evaluation, and refinement of existing state cancer control plans	*Comprehensive cancer control plans at the national and/or regional level* should include consideration of survivorship care, and *governments should promote* the implementation, evaluation, and refinement of existing cancer control plans
7	Healthcare Professional Capacity	*The National Cancer Institute,* professional associations, and voluntary organizations should expand and coordinate their efforts to provide educational opportunities to health care providers to equip them to address the health care and quality of life issues facing cancer survivors	*Government agencies,* professional associations, and voluntary organizations should expand and coordinate their efforts to provide educational opportunities to health care providers to equip them to address the health care and quality of life issues facing cancer survivors
8	Employment-Related Concerns	Employers, legal advocates, health care providers, sponsors of support services, and government agencies should act to eliminate discrimination and minimize adverse effects of cancer on employment, while supporting cancer survivors with short-term and long-term limitations in ability to work	Employers, legal advocates, health care providers, sponsors of support services, and government agencies should act to eliminate discrimination and minimize adverse effects of cancer on employment, while supporting cancer survivors with short-term and long-term limitations in ability to work

Table 1 (continued)

#	NAM Framework Domain	Description of domain per 2006 NAM report	Adapted description of domain used for this study
9	Adequate and Affordable Health Insurance	*Federal and state policy makers* should act to ensure that all cancer survivors have access to *adequate and affordable health insurance. Insurers and payors of health care* should recognize survivorship care as an essential part of cancer care and *design benefits, payment policies, and reimbursement mechanisms to facilitate coverage for evidence-based aspects of care*	*Governments* should act to ensure that all cancer survivors have access to *adequate and affordable survivorship care*. Survivorship care should be recognized as an essential part of cancer care *facilitated by health insurance, universal health coverage, and reduced out-of-pocket expenditures*
10	Investments in Research	*The National Cancer Institute, Centers for Disease Control and Prevention, Agency for Healthcare Research and Quality, Centers for Medicare and Medicaid Services, Department of Veterans Affairs, private voluntary organizations such as the American Cancer Society, and private health insurers and plans* should increase their support of survivorship research and expand mechanisms for its conduct. New research initiatives focused on cancer patient follow-up are urgently needed to guide effective survivorship care	*Government agencies, private voluntary organizations, and health insurance providers* should increase their support of survivorship research and expand mechanisms for its conduct. New research initiatives focused on cancer patient follow-up are urgently needed to guide effective survivorship care
11	*Access to Medicines*	*N/A*	*Patients should be provided access to necessary cancer care medications, including curative therapies, symptom management, and palliative care, through their inclusion on an essential medicines list, regardless of patient ability to pay or location of treatment*

Italicized text, text that was changed as part of framework modification

Table 2 List of 21 NCCPs included in the study

Country with included NCCP	Plan years	Plan language
Algeria	2015–2019	French
Burkina Faso	2013–2017	French
Cameroon	2020–2024	English
Cape Verde	2015	Portuguese
Eswatini	2019	English
Ethiopia	2016–2020	English
Ghana	2012–2016	English
Kenya	2017–2022	English
Malawi	2019–2029	English
Mauritius	2010–2014	English
Morocco	2010–2019	French
Mozambique	2019–2029	Portuguese
Nigeria	2018–2022	English
Rwanda	2020–2024	English
Senegal	2015–2019	French
Sudan	2012–2016	English
Tanzania	2013–2022	English
Togo	2016–2020	English
Tunisia	2015–2019	French
Zambia	2016–2021	French
Zimbabwe	2014–2018	English

healthcare workers trained or engaged in survivorship care, or the percentage of the public and/or cancer survivors who received an intervention, such as a survivorship care plan or exposure to an awareness campaign. Eleven plans included a measurable indicator for at least one survivorship-related strategy, and six of those plans had indicators associated with all of their NCCP's strategies. Of note, four NCCPs combined — Ethiopia, Kenya, Nigeria, and Zimbabwe — contained over half of all indicators associated with survivorship-related strategies. See Supplemental Fig. 4 for these results.

A summary of results by the NAM framework domains across all 21 reviewed plans is shown in Table 3. Each domain is listed along with a count of strategies per domain, the number of plans with at least one strategy in that domain, the proportions of each, and an example of a strategy that was coded to that domain and the plan in which it is included. Models of coordinated care was the most common domain across all measurement columns, followed by healthcare professional capacity. Strategies coded to survivorship as a public health concern only made up 8% of all strategies, but these strategies were well-distributed across plans, with at least one included in 12 (57%) different plans.

The supplementary material includes data about the distribution of domains and strategies across individual country plans and more information about the subset of strategies not explicitly related to palliative care.

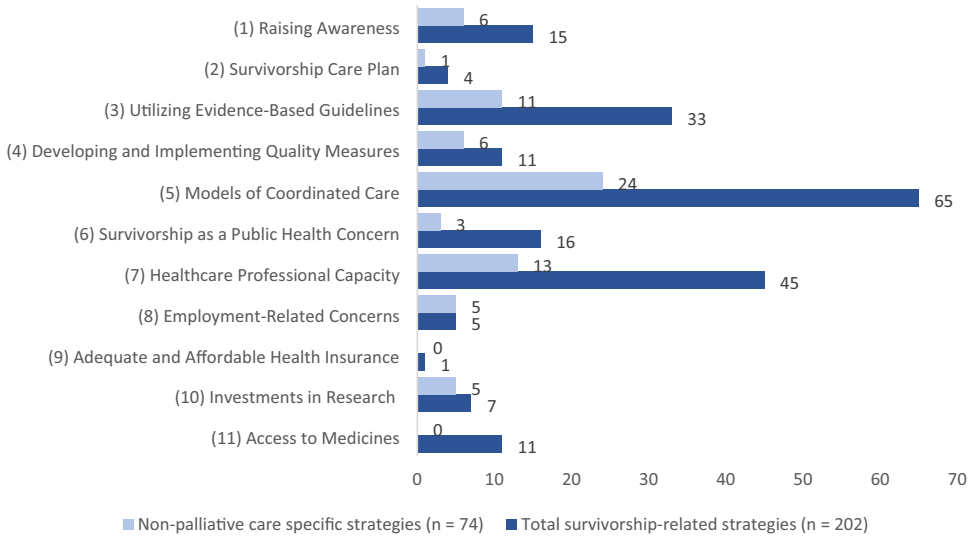

Fig. 1 All survivorship strategies extracted from NCCPs, shown per domain, and stratified by palliative care

Discussion

This study serves as a baseline for how survivorship care is currently represented in 21 NCCPs from Africa, as mapped to a modified NAM framework for improving the quality of survivorship care. The results of this study demonstrate that there is a foundation already present in many NCCPs that can be built upon to implement and expand survivorship care in African countries, but more dedicated work and attention are needed to encompass all aspects of survivorship care. These results can inform efforts to strengthen components of such care in NCCPs, and ultimately enhance the implementation of survivorship and supportive care for individuals and communities. It is promising that all 21 plans reviewed included at least one survivorship-related strategy.

Survivorship and related definitions

Providing definitions in NCCPs is important to clarify the objectives and activities included in each part of the plan. The use of shared, standardized definitions across plans encourages mutual understanding of these elements, facilitates plan comparisons, and allows countries to better exchange information and best practices. Defining "cancer survivorship" is particularly important, as the term was only introduced with its current meaning in 1986, after the NCCS recognized a need for a common language to discuss survivorship issues and for survivors themselves to name their shared experiences [24]. While some plans included such definitions as described earlier, the degree to which NCCPs used standard definitions varied between key terms. It is highly recommended that NCCPs include definitions of key terms that align with standard definitions from multilateral institutions like WHO, and to specifically clarify the differentiation between survivorship care and palliative care to ensure that survivorship care objectives are not limited to end-of-life care objectives.

Trends and patterns among plan strategies

There were several patterns within or across plans that merit focused discussion. Only 37% of survivorship-related strategies in the NCCPs were not specific to palliative care, which suggests that a comprehensive recognition of survivorship as a dedicated element of the cancer care continuum is not yet present in most NCCPs of African countries. Choosing wisely Africa's campaign for value-based cancer care and the work of the Africa Palliative Care Association (APCA) on psychosocial support over the past 20 years have contributed to increased awareness and policies related to palliative care in Africa [25, 26]. Palliative care is an important component of survivorship and merits specific focus in an NCCP. Cancer cases in the region often present at a late stage, which may explain the emphasis on palliative care services. However, increasing access to cancer treatment facilities and improvements in effective treatments may lead to a growing number of individuals living longer beyond their initial cancer diagnosis. Therefore, a dedicated component on follow-up survivorship care and post-cancer diagnosis and/or treatment (as presented in the adapted NAM framework) should be recognized, included, and implemented.

Similarly, there were limited survivorship-related strategies (84 or 40%) with an associated measurable indicator. Plans tended to include indicators for every strategy or no strategies, so this should be addressed among all contributors to an NCCP to ensure the inclusion of indicators throughout the plan. The inclusion of indicators is important to monitor the translation of policy to practice. While the 2018 global review of NCCPs did not count individual indicators in

Table 3 Summary of results across all NCCPs and all NAM framework domains

NAM framework domain	# of strategies in domain	Proportion of aggregate survivorship strategies represented by domain ($n=202$)	# of plans including at least one strategy in domain ($n=21$)	Proportion of plans including at least one strategy in domain ($n=21$)	Example strategy
(1) Raising awareness	15	7%	9	43%	Conduct awareness campaigns on palliative care that target policy-makers, the public, media, health care personnel and regulators. (Ethiopia)
(2) Survivorship care plans	4	2%	3	14%	Participate in the development of an individualized home-based care plan for each patient. (Ghana)
(3) Utilizing evidence-based guidelines	23	11%	12	57%	Work in collaboration with Ministry of Education and relevant key stakeholders, to develop guidelines for the support and rehabilitation of children and adolescents with cancer. (Kenya)
(4) Developing and implementing quality measures	11	5%	8	38%	Conduct an evaluation of the palliative care referral and counter-referral system every 2 years. (Senegal)
(5) Models of coordinated care	65	32%	19	90%	Develop supportive care for patients and their relatives by involving others (social workers, psychologists, religious psychologists, civil society organizations). (Burkina Faso)
(6) Survivorship as a public health concern	16	8%	12	57%	Advocate for the review and reorganization of existing treatment facilities/programs to incorporate pediatric cancer treatment and supportive care services. (Kenya)
(7) Healthcare professional capacity	45	22%	16	76%	Build capacity of healthcare workers on pain management. (Nigeria)
(8) Employment-related concerns	5	2%	4	19%	Develop a vocational plan that includes realistic goals, timelines, and outcomes for all participants. (Tanzania)
(9) Adequate and affordable health insurance	0	0%	0	0%	N/A

Table 3 (continued)

NAM framework domain	# of strategies in domain	Proportion of aggregate survivorship strategies represented by domain ($n=202$)	# of plans including at least one strategy in domain ($n=21$)	Proportion of plans including at least one strategy in domain ($n=21$)	Example strategy
(10) Investments in research	7	3%	5	24%	Include cancer treatment and palliative care services indicators in national surveys such as demographic and health survey. (Malawi)
(11) Access to medicines	11	5%	8	38%	Develop a plan to manage medications, supplies, and devices that ensures the availability of opioids and other medications for pain control. (Mozambique)

plans, it found that 70% of countries reported at least one target related to their cancer control goals but standardization of indicators to monitor progress was needed. Process evaluation reports from the four countries that had indicators attached to all of their survivorship-related strategies (Ethiopia, Nigeria, Senegal, and Zimbabwe) could be used to determine whether their strategies were successful and inform the initiation of similar survivorship strategies in other settings. In addition, further analysis of the specific indicators by domain and feasibility of measurement could be beneficial.

Another notable pattern was the high prevalence of strategies in the domains of models of coordinated care and healthcare professional capacity. Strategies referring to models of coordinated care included strengthening referral networks, integrating services into the health system (particularly for palliative care-related strategies), building capacity at the primary care level, and empowering the community and community health worker system to support survivorship care. This emphasis on integration and coordination of services indicates the priority of building on the existing healthcare system, in line with WHO guidance for health system strengthening [27]. As the majority of strategies in this domain (63%) are palliative care–specific, future NCCPs can include detailed survivorship care components and how to integrate them into the existing system.

According to the WHO, health workforce spending accounts for 57% of total health expenditure in the African region [28]. This aligns with the significant emphasis on healthcare professional capacity within the NCCP strategies for survivorship care. Further exacerbating the situation is a worldwide oncology workforce shortage that is even more pronounced in Africa, in part due to the lasting effects of colonialism [29]. Strengthening the health workforce in Africa is key to providing care for individuals across the cancer continuum and is a critical element to include in a NCCP [27]. However, a listing of survivorship-specific training and capacity-building components (including components like patient navigation and psychosocial support) was rarely referenced in the 21 NCCPs and should be further developed for reference in future NCCP development.

Conversely, none of the 21 NCCPs included survivorship strategies in the domain of adequate and affordable health insurance, even under our modified description that relates this domain more broadly to health financing, regardless of a country's health coverage structure. It is possible that reference to patient financing and universal health coverage is referenced elsewhere in the NCCP which was not analyzed in this study or in other documents such as national health insurance policies or white papers. For countries that did not include health

financing in the NCCP, this should be addressed in future plans as it is an important aspect of cancer survivorship. For example, a study in the USA found that cancer survivors who reported medical financial hardship had a higher adjusted mortality risk than those without financial hardship [30], and two recent systematic reviews found that nearly 50% of cancer survivors in the USA and 57% of survivors across 17 LMICs reported experiencing financial distress because of their cancer treatment [31, 32]. Even in countries nearer to universal health coverage, (e.g., Australia) cancer survivors may pay up to $22,000 out of pocket for treatment, and Australian patient advocacy groups have proposed the creation of a safety net and accompanying patient navigation and financial concierge system to address this challenge [33, 34].

Notably, 38% (eight of 21) of the plans mentioned access to medicines in the context of palliative and survivorship care, which is above the global average of 30% reported in Romero and colleagues' 2018 global review [11]. More recently, Razis et al. showed that the inclusion of the national essential medicine list (EML) was positively associated with palliative care strategies in NCCPs [35]. This finding, along with the Lancet's commission on palliative care and pain relief which identified including opioids in national EMLs as a fundamental step towards improving access to essential medicines globally, demonstrates that access to medicines has been considered crucial to palliative care and survivorship strategies [36]. National cancer control planners should include in their strategies a plan to manage medications, supplies, and devices that ensures the availability of opioids and other medications for pain control.

It may be useful to consider the results of this study in the context of the previously referenced review of survivorship objectives among comprehensive state cancer control plans in the USA, which also utilized the framework of the NAM survivorship recommendations [12] but did not analyze the inclusion of definitions for key terms or indicators of progress on survivorship-related strategies. These results similarly demonstrated that the most common domains addressed were models of coordinated care and healthcare professional capacity, signaling a commitment to improving the quality of survivorship care delivery. Conversely, domains such as employment-related concerns, developing and implementing quality measures, and research investments were less represented in the US review. Lastly, the analysis of NCCPs in Africa found that most survivorship objectives were focused on palliative care. The fact that palliative care objectives were also present in the US analysis, albeit to a lesser extent, signals the need to consider supportive care needs from the point of diagnosis forward for all individuals impacted by cancer.

Implications and opportunities

Along with the domain-specific recommendations included above, this research has implications for policymakers, clinicians, and researchers; and thus, implications for survivors and their caregivers. First, the results of this study are intended for use by countries seeking to include more concrete survivorship care priorities in their NCCPs. This work has generated country-level, comparative data regarding the current state of survivorship care documented in the NCCPs and could provide cancer planners with a framework for the inclusion of context-relevant components to improve survivorship care when crafting their national strategies. Policymakers can further discuss findings from this study with the Africa survivorship working group, which provides a forum for knowledge exchange and technical guidance. Similar fora are beneficial for convening stakeholders from various perspectives, including clinical, research, policy, and advocacy.

This research can also be shared with clinicians in the region to increase their awareness of cancer survivorship as an important aspect of the cancer continuum. Countries can develop and adapt training modules on survivorship and patient navigation as part of the integration of survivorship into primary and specialty care [37, 38]. Proven learning and guided practice models, such as the extension for community healthcare outcomes (ECHO) platform, can be used to build a community of clinicians engaged in survivorship care and a community of survivors (both in-country and between LMICs) to benefit from such care, [39, 40] and can be used for quality improvement of survivorship care implementation and outcomes [41].

Lastly, the global review of NCCPs performed in 2018 served as a starting point for analyses of NCCP content, and this review provides a more in-depth analysis of a particular aspect of NCCPs. Researchers can build on this study by adapting its methodology to other focused sub-analyses (e.g., breast cancer or reference to surgical care). Further research could also include an analysis of the authorship of NCCPs, with a particular eye towards the amplification of survivors' and caregivers' voices and local authors more broadly. As part of a comprehensive look at current practice and policy and set against an evidence-based framework, this study provides a baseline to inform future policies and plans and to track progress towards strengthening cancer care delivery.

Limitations

There are some limitations to this study. First, although implementation of NCCPs was not an objective of this study, it is important to recognize that the inclusion of survivorship-related objectives, strategies, and indicators in an NCCP does not equate to implementation of those policies

and serves only as an indicator of intent and prioritization. Second, this review is not inclusive of all national documents which may contain survivorship-related strategies. Only publicly available NCCPs were reviewed, though other countries may have non-public or in-progress versions of their NCCPs. Many countries publish non-communicable disease plans, which may include survivorship-related objectives for a broader subset of diseases. Third, it is possible that survivorship-related content was omitted from extraction if it was unclear or located in an unexpected section of the NCCP, but it is also possible that content was "over-extracted" due to researcher bias and a desire to find results. The lack of researcher representation from all countries of the included NCCPs may have also introduced some interpretation bias. To mitigate this, each NCCP was reviewed by at least two researchers. Lastly, the strategies were not assigned a weight or counted any differently within or between NCCPs. Strategies requiring significantly different amounts of time, human resource capacity, and financing were all counted equally throughout the analysis.

Conclusion

Survivorship is an important part of the cancer control continuum and is increasingly relevant in Africa due to the rise in cancer burden, improvement in access to cancer diagnosis and treatment, growing public awareness about cancer survivors' needs, and increase in cancer survival rates. This study helps identify the current state of survivorship as a priority among national cancer control plans in the region. Policymakers can use these results as strategies to follow and fill gaps in their current or future NCCPs. Policymakers should ensure that all eleven domains of the modified NAM framework for cancer survivorship are addressed in their NCCPs and done so outside of the context of palliative care. Attention to resources available to successfully implement and sustain such policies is critical. Further research should evaluate the implementation of survivorship-related strategies in-country and its impact on survivorship care and the lived experience of survivors and those who support them, including caregivers, clinicians, and advocates.

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AK, TO: data analysis, writing-original drafts, writing—review and editing

EMG: conceptualization, methodology, data analysis, project administration, writing—original drafts, writing-review and editing

LH: data extraction, writing—review and editing

MAM, PBJ: conceptualization, methodology, data extraction, writing-original drafts, writing—review and editing

MKC: conceptualization, methodology, data extraction, project administration, writing—original drafts, writing-review and editing

YR, ZT: conceptualization, methodology, data acquisition, data extraction, writing-original drafts, writing—review and editing

ZA, NL, SS: writing—review and editing

Data availability The data that supported the findings of this study are available in the ICCP Portal at https://www.iccp-portal.org/map. Analyzed data are available on request from the corresponding author.

Declarations

Competing interests The authors declare no competing interests.

Ethics statement Ethical approval was not required for this study.

Conflict of interest The authors declare no competing interests.

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References

1. Sung H, Ferlay J, Siegel RL, Laversanne M, Soerjomataram I, Jemal A, et al. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. 2021;71(3):209–49.
2. Allemani C, Matsuda T, Di Carlo V, Harewood R, Matz M, Nikšić M, et al. Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. Lancet (London, England). 2018;391(10125):1023–75.
3. Parry C, Kent EE, Mariotto AB, Alfano CM, Rowland JH. Cancer survivors: a booming population. Cancer Epidemiol Biomarkers Prevention : Pub Am Assoc Cancer Res, Cosponsored Am Soc Preventive Oncol. 2011;20(10):1996–2005.
4. The Global Cancer Observatory. Africa fact sheet. International Agency for Research on Cancer; 2020 March 2021.
5. Ngwa W, Addai BW, Adewole I, Ainsworth V, Alaro J, Alatise OI, et al. Cancer in sub-Saharan Africa: a Lancet Oncology Commission. Lancet Oncol. 2022;23(6):e251–312.
6. National Comprehensive Cancer Network (NCCN). NCCN harmonized guidelines (Sub-Saharan Africa) - guidelines for supportive care: survivorship 2020 [Available from: https://www.nccn.org/global/what-we-do/harmonized-guidelines.
7. National Coalition for Cancer Survivorship (NCCS). Defining cancer survivorship 2022 [Available from: https://canceradvocacy.org/defining-cancer-survivorship/.

8. Medicine Io, Council NR. From cancer patient to cancer survivor: lost in transition. Hewitt M, Greenfield S, Stovall E, editors. Washington, DC: The National Academies Press; 2006. 534
9. World Health Organization (WHO), editor Cancer prevention and control in the context of an integrated approach. Seventieth World Health Assembly; 2017; Geneva: World Health Organizaiton (WHO).
10. Jacobsen PB, Mollica MA. Understanding and addressing global inequities in cancer survivorship care. 2019;1(1):e5.
11. Romero Y, Trapani D, Johnson S, Tittenbrun Z, Given L, Hohman K, et al. National cancer control plans: a global analysis. Lancet Oncol. 2018;19(10):e546–55.
12. Mollica MA, Falisi AL, Geiger AM, Jacobsen PB, Lunsford NB, Pratt-Chapman ML, et al. Survivorship objectives in comprehensive cancer control plans: a systematic review. J Cancer Survivorship : Res Practice. 2020;14(2):235–43.
13. Institute of Medicine. Cancer care for the whole patient: meeting psychosocial health needs. Adler NE, Page AEK, editors. Washington, DC: The National Academies Press; 2008. 454
14. Hidde MC, Lyden K, Henry K, Leach HJ. Reallocating time to physical activity and sleep: associations with quality of life in cancer survivors. Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer. 2022:1–8.
15. Amo-Antwi K, Agambire R, Konney TO, Nguah SB, Dassah ET, Nartey Y, et al. Health-related quality of life among cervical cancer survivors at a tertiary hospital in Ghana. PLoS ONE. 2022;17(6):e0268831.
16. International Cancer Control Partnership. National Plans 2022 [Available from: https://www.iccp-portal.org/map.
17. Duncan K, Cira MK, Barango P, Trimble EL. Challenges and opportunities in the creation and implementation of cancer-control plans in Africa. Ecancermedicalscience. 2019;13:938.
18. Dy SM, Isenberg SR, Al Hamayel NA. Palliative care for cancer survivors. Med Clin North Am. 2017;101(6):1181–96.
19. Iwase S, Mori C. Palliative Care. In: Gellman MD, Turner JR, editors. Encyclopedia of behavioral medicine. Springer, New York: New York, NY; 2013. p. 1432–3.
20. WHO Expert Committee on Cancer Pain Relief and Active Supportive Care & World Health Organization. Cancer pain relief and palliative care report of a WHO expert committee. Geneva; 1990 3 to 10 July 1989.
21. Berman R, Davies A, Cooksley T, Gralla R, Carter L, Darlington E, et al. 2020 Supportive care an indispensable component of modern oncology. Clinical oncology (Royal College of Radiologists (Great Britain)) 32(11):781–8.
22. Ministry of Health and Population GotRoM. National Cancer Control Strategic Plan. 2019.
23. National Cancer Institute. NCI Dictionaries "survivorship" 2022 [Available from: https://www.cancer.gov/publications/dictionaries/cancer-terms/def/survivorship?redirect=true.
24. Survivorship NCfC. Defining Cancer Survivorship 2022 [Available from: https://canceradvocacy.org/defining-cancer-survivorship/.
25. Rubagumya F, Mitera G, Ka S, Manirakiza A, Decuir P, Msadabwe SC, et al. Choosing wisely Africa: ten low-value or harmful practices that should be avoided in cancer care. JCO global oncology. 2020;6:1192–9.
26. African Palliative Care Association. African Palliative Care Association 2022 [Available from: https://www.africanpallativecare.org/.
27. Oar A, Moraes FY, Romero Y, Ilbawi A, Yap ML. Core elements of national cancer control plans: a tool to support plan development and review. Lancet Oncol. 2019;20(11):e645–52.
28. WHO Regional Office for Africa. The state of the health workforce in the WHO African Region, 2021. Brazzacille, Congo: World Health Organization (WHO); 2021.
29. Vanderpuye V, Hammad N, Martei Y, Hopman WM, Fundytus A, Sullivan R, et al. Cancer care workforce in Africa: perspectives from a global survey. Infectious Agents and Cancer. 2019;14(1):11.
30. Yabroff KR, Han X, Song W, Zhao J, Nogueira L, Pollack CE, et al. Association of medical financial hardship and mortality among cancer survivors in the United States. J Natl Cancer Inst. 2022;114(6):863–70.
31. Altice CK, Banegas MP, Tucker-Seeley RD, Yabroff KR. Financial hardships experienced by cancer survivors: a systematic review. JNCI: Journal of the National Cancer Institute. 2016;109(2).
32. Donkor A, Atuwo-Ampoh VD, Yakanu F, Torgbenu E, Ameyaw EK, Kitson-Mills D, et al. Financial toxicity of cancer care in low- and middle-income countries: a systematic review and meta-analysis. Supportive care in cancer : official journal of the Multinational Association of Supportive Care in Cancer. 2022.
33. Private Cancer Physicians of Australia and Rare Cancers Australia. Cancer Care, no gaps: protectins Australian cacner patients, and their families, from financial toxicity. 2022.
34. Martha Stutsky CH. Assessing the impact of patient assistance programs on financial toxicity in oral oncology. Pharmacy Times. 2022 June 2022.
35. Razis E, Kassapian M, Andriakopoulou C, Martei YM, Zurn SJ, Hammad N, et al. Essential medicines list in national cancer control plans: a secondary analysis from a global study. Lancet Oncol. 2022;23(3):e144–54.
36. Knaul FM, Farmer PE, Krakauer EL, De Lima L, Bhadelia A, Jiang Kwete X, et al. Alleviating the access abyss in palliative care and pain relief-an imperative of universal health coverage: the Lancet Commission report. Lancet (London, England). 2018;391(10128):1391–454.
37. Duangchan C, Steffen A, Matthews AK. Perspectives and practices regarding colorectal cancer survivorship care: online survey results from oncology nurses in Thailand. Eur J Oncol Nursing : official J European Oncol Nursing Soc. 2021;55:102048.
38. Chidebe RCW, Pratt-Chapman ML. Oncology patient navigation training: results of a pilot study in Nigeria. Journal of cancer education : the official journal of the American Association for Cancer Education. 2021:1–7.
39. Lasebikan N, Nakaganda A, Fadelu T, Ibeka P, Haskins L, Cira M. Demonstration of impact through the evaluation of the 2020–2021 Africa cancer research and control ECHO. 2022;8(Supplement_1):37-.
40. Harvey A, Zhang Y, Phillips S, Suarez R, Dekle L, Villalobos A, et al. Initial outcomes of an online continuing education series focused on post-treatment cancer survivorship care. J Cancer Educ : Official J Am Assoc Cancer Educ. 2020;35(1):144–50.
41. Nolan TS, Hatfield R, Browning KK, Kue J, Klemanski DL. Survivorship fellowship: evaluation and evolution of a program for advanced practice providers. Clin J Oncol Nurs. 2019;23(6):575–8.