# Designing Supportive Environments for Adolescents and Young Adults with Cancer: A Qualitative Study of Preferences at the Solace Cancer Care centre for Adolescent and Young Adults with Cancer

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## Abstract

**Background/ Objective:** Despite growing recognition of adolescents and young adults (AYAs) as a distinct oncological population with unique psychosocial needs, empirical evidence on how physical environments in community cancer care settings shape their wellbeing remains limited, particularly in Asian contexts. This study explores how the design and physical environment of a community AYA cancer care center in Singapore influences the psychosocial experiences of Malay-Muslim AYAs with cancer, addressing a critical evidence gap in culturally situated psycho-oncology.

**Methods:** A qualitative study was conducted using semi-structured individual interviews with ten AYAs with cancer following the renovation of Ain Society Solace Cancer Care center, Singapore. Participants ranged in age from 13 to 24 years old, spanning early adolescence through young adulthood. Interviews explored how the center's physical environment affected comfort, social connectedness, identity, and overall care experience. Data were transcribed verbatim, with Malay portions translated by a bilingual team member, and analyzed using Braun and Clarke's six-phase reflexive thematic analysis. Ethical approval was granted by the National Council of Social Service Institutional Review Board (Approval NERC/012/2024).

**Results:** Five themes were identified: developmentally appropriate spatial segregation; opportunities for social and recreational engagement; naturalistic and sensory elements promoting serenity; creation of a home-like environment; and functional infrastructure supporting autonomy. Collectively, findings reveal that physical space functions as an active psychosocial agent that shapes AYAs' sense of belonging, identity affirmation, peer connection, and capacity for independent engagement within the care setting.

**Conclusions:** This study provides empirical, patient-centered insights into AYA design preferences in community oncology settings, with direct implications for youth-responsive, culturally attuned care environment development. Integrating evidence-informed design principles that age-appropriate spatial segregation, recreational infrastructure, naturalistic elements, and accessible functional design, which are elements that may enhance psychosocial

wellbeing, engagement, and quality of life for AYAs with cancer. Findings underscore the importance of participatory, culturally responsive design processes in AYA oncology care.

*(5-8 relevant Keywords):* AYA, cancer patients, Youth, centre design, adolescent, Singapore

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## *Introduction*

Cancer among adolescents and young adults (AYAs), defined as individuals aged 15 to 39 years old, represents a growing global health concern. While clinical treatments have led to declining mortality rates in high-income regions, the significant psychosocial burdens borne by AYAs remain critical. Beyond the biological challenges of the disease, AYAs face distinct psychosocial impacts that profoundly affect their mental health, developmental trajectory, and overall quality of life. Recognizing these intersecting challenges underscores the urgent need for comprehensive psychosocial interventions tailored to their unique needs [1-3].

In Singapore, cancer incidence among AYAs reflects this global trend, with a steady rise, particularly among those aged 30 to 39 years, as evidenced by the latest Singapore Cancer Registry data.[4].

Psychosocially, AYAs confront challenges such as disruptions to identity development, social isolation, and difficulties accessing age-appropriate support services, issues frequently overlooked in conventional cancer care settings. A pervasive problem is that AYAs are often treated in healthcare environments not specifically designed for their developmental stage. AYA with cancer is too old for pediatric wards yet too young for adult units. This resulted in amplifying their feelings of being “in-between” and overlooked [5-7]. This leads to engendering a lack of belonging in these care settings. Such inappropriate environments may negatively impact psychological wellbeing, reduce engagement with care, and diminish overall treatment satisfaction. Addressing this gap is critical because supportive, youth-sensitive care environments have the potential to enhance social connection, coping, and resilience among AYAs navigating cancer. Therefore, a non-treatment, community-based center for young people with cancer is significant because it offers a psychologically safer, more familiar environment than hospitals, with many people associating hospitals with procedures, fear, and distress. By operating outside the clinical setting, the center can focus exclusively on psychosocial, social, and practical needs such as supporting emotional coping, peer connection, education and work disruption, and identity reconstruction, while partnering with hospitals to complement rather than duplicate medical services.

There is a notable gap in empirical research on the preferences of adolescents and young adults (AYAs) in Singapore regarding cancer care centre design [8]. This gap is particularly significant given the crucial role that social support plays in the wellbeing of AYAs with cancer [9]. Social

support not only fosters emotional resilience but also helps AYAs develop a sense of belonging and identity during a vulnerable time, creating a space where they feel at home, can grow, and recover emotionally and socially so that they do not feel isolated. Literature consistently underscores the importance of social support in improving psychosocial outcomes for AYAs with cancer, enhancing their mental health, quality of life, and overall adjustment to illness [10].

**Theoretical underpinning**

The theoretical framework grounding this study is person-centered therapy, which emphasizes understanding and addressing the individual's unique experiences, promoting autonomy, empathy, and supportive relational environments critical for AYAs navigating cancer. Additionally, environmental theories provide robust foundation for designing spaces that foster calm, reduce stress, and support well-being through multisensory, nature-based interventions. These frameworks align with the aim of exploring how care centre design can nurture therapeutic elements in the lived environment.

Against these backdrops, the objective of the present study is to explore how cancer care centre design influences the experiences, social interactions, and emotional wellbeing of AYAs with cancer in Singapore. Through a qualitative examination of patient perspectives, this research aims to inform the design and development of care environments that are not only clinically effective but also psychologically and socially supportive for this AYAC population.

The research questions are the following: :

1. What essential features and aesthetics would AYAs include in ideal youth friendly spaces in the center?
2. How could the AYA center design better address their needs?

## *Methods*

### *Study Design and Rationale*

This study adopted an exploratory qualitative research design using semi-structured interviews to capture adolescents and young adults (AYA) in-depth perspectives, experiences, and preferences regarding cancer care center design. Qualitative methods were chosen as they allow for rich,

detailed understanding of complex psychosocial aspects that quantitative approaches may not fully capture.

*Location of the study*

Data were collected at the Ain Society Solace Cancer Care Ain Society in Eunos, Singapore, a specialized center in the community, serving AYA cancer patients aged 13 to 24 years old. The center underwent significant renovations between August to September 2024, with the objective in creating a youth-friendly environment, specifically in meeting the psychosocial needs of AYAs.

*Recruitment of participants*

Adolescents and young adults (AYAs) with cancer aged 13–24 years receiving services at the Solace Cancer Care Center were invited to participate in this study. Of those approached, 10 youths expressed interest and provided consent to take part in the study.

These youths were diagnosed with cancer for at least the last 3 months at the point of the study, or at least 3 months post-diagnosis or currently undergoing treatment, and who were fluent in English to allow meaningful participation in the interview. the youths who were recruited reflected a range of employment statuses, including both employed and unemployed youths.

Exclusion criteria comprised severe cognitive impairment, active psychiatric disorders , significant communication difficulties, or an inability to understand spoken or written English. All participants (and, where applicable for all participants aged below 18 with their legal guardians) provided written informed consent prior to study enrolment.

Participant demographics that include age, gender, cancer type, and treatment status, are summarized in Table 1.

| Participant ID | Age | Gender | Cancer Type | Treatment status |
|---|---|---|---|---|
| P01 | 23 | M | Lymphoma | Treatment |
| P02 | 15 | M | Leukemia | Remission |
| P03 | 24 | F | Thyroid | Maintenance |
| P04 | 22 | F | Hodgkin's lymphoma | Remission |
| P05 | 17 | M | Lymphoma | Remission |

| | | | | |
|---|---|---|---|---|
| P06 | 17 | F | Lymphoma | Remission |
| P07 | 19 | F | Lymphoma | Treatment |
| P08 | 18 | M | Leukemia | Remission |
| P09 | 13 | M | Leukemia | Remission |
| P10 | 15 | M | Leukemia | Remission |

*Table 1*

*Data collection*

Semi-structured individual interviews were selected as the primary data collection method, to gather in-depth exploration of lived experience. Interviews lasted between 45 and 60 minutes, with duration guided by participant responses rather than a predetermined endpoint.

The interview topic guide was developed through an iterative process involving systematic literature review, stakeholder consultations and pilot testing. This participatory approach ensured the guide was developmentally appropriate, culturally responsive, and attuned to the specific psychosocial dimensions of AYA cancer care. Topics explored included space aesthetics, privacy, peer interaction opportunities, staff interaction, and comfort amenities.

Interviews were conducted in private rooms at Ain Society, minimizing social desirability bias and creating conditions for candid disclosure. All interviews were audio-recorded with informed participant consent and transcribed verbatim. Given the multilingual nature of Singaporean Malays in our sample, participants naturally code-switched between English and Malay, Malay portions were transcribed in their original form and subsequently translated by a bilingual member of the research team, with translations reviewed for accuracy and cultural equivalence. Field notes capturing non-verbal cues, emotional tone, and contextual observations were maintained throughout data collection and integrated into the analytic process to enrich interpretive depth.

**Data analysis**

Thematic analysis was conducted following Braun and Clarke's six-phase reflexive approach, encompassing familiarization with the data, systematic code generation, theme construction, theme review, theme definition, and write-up [11]. An independent coder analyzed the data

manually, with coding decisions subsequently reviewed and discussed with two lead researchers to ensure analytical rigor. Divergences in coding were resolved through consensus discussion rather than majority rule, preserving the interpretive depth characteristic of reflexive thematic analysis. Credibility was enhanced through member checking, whereby preliminary findings were shared with participants for validation, and peer debriefing with research consultants. Dependability was maintained through a systematic audit trail and reflexive journaling, enabling transparent documentation of analytical decisions throughout the process. Confirmability was established through independent verification and explicit documentation of researcher assumptions and positionality.

***Ethical considerations***

Ethical approval was granted by the National Council of Social Service Institutional Review Board (Approval NERC/012/2024, September 2024). Written informed consent was obtained from all participants aged 18 and above prior to data collection. For participants below the age of 18, written informed consent was obtained from a parent or legal guardian, alongside written assent from the minor participant in age-appropriate language. Interviews with minor participants were conducted without parental presence, and this is a decision made deliberately to minimize potential inhibition of candid disclosure on sensitive cancer-related experiences, and was reviewed and approved as part of the institutional ethical approval process. In lieu of parental presence, safeguarding measures were implemented where interviews were conducted in a private but accessible room within the care center, a trained research assistant was present throughout, and both the minor and their parent or guardian were clearly informed of the right to withdraw at any time without consequence.

Identifying information was removed during transcription, and participants were assigned unique ID codes. Audio recordings were securely stored and deleted following analysis, with anonymized transcripts retained on a password-protected, locked hard drive accessible only to the research team. Data retention procedures adhered to institutional policies. Given the sensitive nature of cancer-related interview content, participants were informed of and provided access to psychosocial support through cancer navigators and counsellors at Solace Cancer Care before, during, and after interviews as needed.

*Researchers' Positionality*

The team consisted of research assistants who were trained with interviews with backgrounds in psychology during data collection. They had no prior relationships with the participants, therefore minimising bias. The team conducted weekly check-ins to verify the accuracy of the transcribed data. During these meeting sessions, any unclear content was identified as a follow-up, and the team contacted participants for clarifications when necessary. Research assistants were also instructed to transcribe interviews verbatim and to refrain from making assumptions or interpretations beyond the participants' actual statements. This was done to maintain analytic neutrality throughout the process. Regular team meetings facilitated critical discussion with the research consultants for the study to arrive at a conclusion for theme development.

*Findings*

Participants were youths (n=10) who were diagnosed with cancer from Ain Society Solace Center Care in Eunos, Singapore. Each participant took part in an interview to assess the depth of their preference on a cancer center design.

Analysis of participant narratives highlighted several key insights into the physical environment of the cancer center and important considerations for the design of an AYA-specific space.

Participants shared important views into the elements for an AYA center. This includes both practical and aesthetic considerations essential to fostering comfort, autonomy, and psychosocial well-being.

**Theme 1: Developmentally appropriate spatial segregation**

Participants emphasized the importance of dedicated spaces for adolescents and young adults, distinct from areas used by younger children and older adults, to better reflect their social preferences and developmental needs. Creating differing spaces was viewed as essential in fostering age-appropriate peer interactions, supporting privacy within the environment.

One participant, P01,, reflected that before there was a segregation of space between youth and children in the center:

*"I think definitely ah coz sometimes makcik2 datang with anak and all that and macam feel like childcare, a bit too much of them to datang. But I mean nothing wrong with them coming since the child came with the parents. But sometimes I want to interact with youths, not really with makcik2. So not really cater to the youths ah."*

*[I think definitely (overwhelming) as sometimes the parents to the children, who are aunties, will come to the center and it does feel like childcare. But I mean there's nothing wrong with them coming to the center as the children need their parents to accompany them to the center. But sometimes, I want to interact with the youths, and not with the aunties (children's parents). The place did not feel like it catered to the youths.*

Another participant, P03, who was diagnosed with thyroid cancer, highlighted the overstimulation caused by mixing age groups:

*"Like I mentioned, I honestly didn't feel welcomed—the space previously felt more for kids. I went to Ain Society for counseling, just like with the SSO, but it felt actually sad. Even back then, it catered to children, so there was no spot for me to sit; it felt weird, like I had nowhere of my own. Previously, there was just nowhere for us adults to sit. Now we can unwind—if we're with the kids, we're dealing with them and overstimulation. Compared to now, I actually look forward to coming here; I feel included, not just another social worker session."*

Together, these accounts underscore AYAs' preference for age-specific social environments that recognizes their evolving identities and independence, aligning with psycho-oncology principles that call for developmentally tailored psychosocial care and supportive spaces [12].

**Theme 2: Opportunities for social and recreational engagement**

Participants described how redesigning the centre to include distinct areas for youths, separate from younger children, created more opportunities for peer interaction and meaningful engagement in shared activities. They perceived the addition of youth-oriented facilities, such as a café-style area and equipment that enabled activities like baking, as tangible signs that their interests and preferences were being prioritized. One participant, P04 mentioned,

*"Having small activities like a pool table is nice where some people would be into that. But for me, a small chill room or game room just for us, to relax while playing games? I'll come more often. For youths, it's mainly about finding people with the same issues, so it's easier to socialize.*

*I never got to interact much; it was very awkward ah. Felt a little out of place, like 'kirakan datang tangkap handsome ah,' (to waste time) because I don't really know people and never socialize much."*

Another participant, P03 shared,

*"(Now) Ain Society has two places—one for kids, one for youths. Here, it's not just for kids anymore; Pak Yusof (CEO of Ain Society) focuses on youth like me. Before, it was mostly kids' area, with no oven, and no café. Now we can bake, make our own coffee, and that's interesting ah...everything's changed positively, which is an enhancement (to the center). This design is for youth my age, so we spend more time here. Kids don't know these things. Back then, youth just played on phones or waited by the door for vouchers. Now we have private rooms to sit, chill, and talk—more selesa,(comfortable) though still a bit kosong (empty). Add some color or gambar (picture), and please dont make it like a lock-up (prison) room."*

**Theme 3: Naturalistic and sensory elements to promote serenity**

Participants recalled naturalistic features, as calming sensory stimuli that enhanced psychological comfort. One participant, P05, noted:

*"When I got cancer, I didn't feel anything—it impacted my family more. Hospitals for adults feel like old, creepy hospital lama ah, menyeramkan (scary). I went to different hospitals for appointments. But Ain Society's space was always comfortable, like home, which is my second home. Even after renovation, it still feels that way. I miss the old fish tank area and the pictures of calmness. Now the café is interesting ah, brings new serenity."*

These recollections highlight sensory and nature-based elements as sources of stress reduction and normalcy.

**Theme 4: Creating a home like environment**

Participants expressed a strong preference for a homelike atmosphere as an antidote to the clinical or institutional feel typical of hospitals or social service offices. They valued spaces that are clear, calming, and equipped with practical amenities supporting daily life:

*" Pastel colours, just have more tables and a lot of nice seats like bean bags and stuff like that...home is already hectic as it is and I think for most Malay households, their home is quite maximalist. So we need a space that is clear of everything you know to just chill.... have like*

*what was done at the cafe like charging ports. I think that was something that I found very useful. Because when we are hanging out here sometimes, we come here in the middle of the day, and the battery is low. Maybe just like some space to use a projector and maybe watch a movie together"*

*"Hospital was scary where theres one room for me, all alone. I couldn't walk around because of the (treatment) line (on me). I only talked to people on my phone. I could not see others and I feel so isolated. For 6 months, no physical contact, just stuck in that single room. I get so easily got sick from the cancer. The old ward showed wear and tear—bright but with outdated, rundown items."*

**Theme 5: Functional infrastructure supporting autonomy**

Participants articulated how cancer treatment left lasting physical marks on their bodies, and how the physical environment of Ain Society either accommodated or fell short of these embodied realities. Their accounts revealed a nuanced relationship between bodily disruption, spatial design, and the maintenance of dignity and functional independence.

One participant described the physical demands of chemotherapy with striking candor, conveying both the procedural invasiveness of treatment and its lingering bodily consequences:

*"Like tough ah. It was frustrating with my own body...rasa rimas je (feels uncomfortable)...Like it gets uncomfortable and gets frustrated like why are you sick ya know suddenly...Usually (the doctor) will put line here (showing at the thighs) but mine is at the groin area, every (chemotherapy) cycle I have to take it out and put it in back. So like difficult ah, I can't sit down for long. Now I have issues, there is water inside my lungs."*

This account illustrates how treatment-related physical constraints such as inability to sit for extended periods shaped what the participant needed from a care environment. After the cancer treatment, the body is rendered unpredictable and difficult by cancer treatment, and this therefore became a mediating force between the participant and the spaces they occupied. Seatings merged here as a clinically significant design consideration in determining if a young person could comfortably remain in a space at all.

A second participant drew attention to peripheral vision loss as a lasting consequence of cancer treatment:

*"I can't see with my right eye after cancer. Peripheral views cannot see at all. Can see straight and left but right definitely cannot see, dark/blank. Only eyesight impacted, the rest (of my body) are fine."*

Notably, this participant framed their visual impairment with a degree of pragmatic acceptance yet, the spatial implications of this limitation are profound. Navigation, orientation, and independent movement become significantly more demanding when peripheral vision is absent on one side. For this participant, the spaciousness, navigability, and degree of clutter within the physical layout of Ain Society were directly consequential to their capacity for autonomous engagement.

Together, these accounts underscore that functional infrastructure in AYA cancer care settings must be understood not as a generic accessibility consideration, but as a deeply individualized response to the specific, lasting, and often invisible physical consequences of cancer and its treatment.

**Discussion**

This study set out to explore how the physical design of a community cancer care center shapes the psychosocial experiences of AYAs in Singapore which is a question that has received remarkably little empirical attention in Asian psycho-oncology contexts. Across five interrelated themes, findings reveal that physical space is not a neutral backdrop to AYA cancer care but an active psychosocial agent that can affirm or undermine identity, enable or foreclose peer connection, restore or compound the psychological toll of illness, and support or obstruct the functional autonomy that young people require to engage meaningfully with care. Taken together, these themes explore AYAs navigating cancer in community settings where the environment itself is a dimension of care and its design demands the same intentionality, developmental attunement, and cultural responsiveness that we expect of any psychosocial intervention.

**Theme 1: Developmentally appropriate spatial segregation**

Across participant accounts, poorly designed spaces were experienced as alienating rather than supportive. P01's discomfort with an environment that "felt like childcare" and P03's description of a space that "felt actually sad" reflect the compounded disruption of navigating a cancer diagnosis within an environment that fails to reflect their developmental stage. Critically, participants' accounts suggest that spatial inclusion *preceded* emotional inclusion, where it was only when the physical environment signalled belonging that participants, as P03 described, began to "look forward to coming."

**Theme 2: Opportunities for Social and Recreational Engagement**

Beyond spatial segregation, the design of recreational infrastructure carries its own therapeutic function. Youth-oriented amenities — a café area, baking facilities, and a chill room — communicated to young people that their identities and developmental needs were being taken seriously. P03's observation that Ain Society now "focuses youth like me" reflects this directly: A felt sense of being valued within the organisation.

These findings speak to the social complexity of AYA peer connection during cancer. Hotchkiss, Ahmad and Ford [15] demonstrated that such connection is highly contingent on contextual conditions that either enable or foreclose it. P04's prior experience — arriving, feeling out of place, and leaving without meaningful interaction — illustrates how the absence of shared recreational infrastructure removes the scaffolding through which spontaneous peer connection might otherwise form. P03's plea to avoid making private rooms feel like a "lock-up" signals an important design principle that enclosed spaces require deliberate humanizing elements such as warmth, color, and sensory comfort to avoid replicating the institutional coldness [16].

**Theme 3: Naturalistic** Participants' accounts of naturalistic elements reveal that for AYAs navigating cancer treatment, their feel for a space carries profound psychological consequences. P05's contrast between the "old, creepy" atmosphere of adult hospital settings and Ain Society's home-like environment points to two different psychological experiences of illness. Hospital environments communicate clinical urgency, institutional authority, and distressing chemotherapies, whereas Solace Cancer Care offers an embrace of safety, normalcy, and continuity of self beyond the patient role through naturalistic features which are the fish tank, calming imagery, and sensory warmth of the café.

**Theme 4: Homelike Environments.**

The account presented here described the psychological stakes of environmental design in AYA care. One participant's description of six months in isolation where he was unable to walk, unable to touch others, and communicating with the world only through a phone screen, essentially captures the devastating effect of institutional healthcare environments, through a young person's sense of self, connection, and humanity. This experience reflects what Umaretiya et al. identified that strips away the everyday relational and spatial experiences through which young people maintain identity beyond their diagnosis [18]. This participant subsequently found that Solace Cancer Care's home-like atmosphere repair what clinical environments erode.

Maersk JL, Cutchin MP, la Cour K (2018) offer important theoretical grounding here, demonstrating that environments imbued with personal, relational, and sensory familiarity are deeply significant to identity continuity during illness [19]. For AYAs, whose developmental stage is already characterized by negotiating independence and personhood, the enforced institutionalization of cancer treatment represents a compounded disruption. Solace Cancer Care with its home-like qualities, which are the walls painted in pastel colors, bean bags, charging ports, and the the group activity of watching a movie together, are functioning as environmental cues that communicates that in Solace Cancer Care, you are a person, not a patient.

**Theme 5: Functional Infrastructure Supporting Autonomy.**

For AYAs, a cancer diagnosis imposes lasting physical constraints that fundamentally alter how young people inhabit and move through space. As established in AYA survivorship literature, a cancer diagnosis during this life stage interferes with the attainment of age-specific milestones including autonomy, independence, and identity formation. As participants' accounts reveal, the physical environment can either compound or counteract this interference.

The first participant's account of chemotherapy lines positioned at the groin, rendering prolonged sitting impossible, illustrates how treatment-related physical constraints translate directly into spatial requirements. For this participant, seating becomes a determinant of whether meaningful engagement within the space is possible at all. This finding has direct design implications where varied seating arrangements including armchairs, recliners, and floor-level options are not

aesthetic choices but functional necessities that communicate respect for the bodily realities AYAs bring with them into care settings.

Taken together, these accounts argue for a more embodied understanding of AYA psychosocial care where  one that recognizes the body not as incidental to the care environment but as a primary mediating force between the young person and their capacity for autonomous engagement.

**Limitations**

Drawing from the lived experiences of AYAs engaged with cancer support services, the study captures the depth and authenticity in the perspectives shared. However, there are several limitations observed.

One limitation is that the participant sample does not fully represent the entire age spectrum of adolescents and young adults (AYAs) with cancer, which is typically defined as 13 to 35 years globally. The sample was skewed toward younger, predominantly school-going and unmarried individuals, with no representation of older AYAs, particularly those who are married and may have different life circumstances and responsibilities. For instance, older AYAs with caregiving roles may value additional supportive features, such as child-friendly spaces within community cancer care centers. Future research should aim to include a more age-diverse and socio-demographically varied AYA population to better understand the full range of preferences across this group.

Additionally, the sample size was modest and drawn from a single specialized cancer center, which may limit the generalizability of the findings to the broader multicultural ethnic AYA cancer population in Singapore.  all participants in this study were Malay-Muslim, therefore cultural factors unique to the local setting may influence how this group of AYAs articulate their needs, suggesting the value of further exploring these themes in diverse cultural and healthcare contexts.

Future research could explore these themes among AYAs from diverse ethnic and cultural backgrounds to enhance the transferability and inclusivity of the findings.

**Implications for Practice and Future Research**

These findings underscore the value of collaborative and contextually grounded design in developing adolescent and young adult (AYA) cancer care environments. Healthcare professionals, architects, and policymakers could engage in co-design processes that integrate AYAs' spatial, sensory, functional, and psychosocial needs to create environments that promote comfort, autonomy, and social connectedness. Incorporating participatory design, whereby AYAs, caregivers, and clinicians collectively shape design features, will consequently lead to enhancement of the relevance, inclusivity, and sustainability of an adolescent and young adult cancer center.

This evolving body of evidence affirms that the physical environment of cancer care is intrinsic to the dignity, wellbeing, and developmental continuity of AYAs navigating a profound and often protracted illness experience. The themes identified across spatial, sensory, functional, and psychosocial domains reflect purposefully designed care environments that meaningfully shape AYAs sense of safety, autonomy, and belonging during one of the most disruptive periods of their lives.

Ultimately, the design of environments in which AYAs receive cancer care must be understood as a clinical and ethical imperative rather than an aesthetic consideration. Translating the lived experiences documented in this study into actionable design principles will require sustained collaboration across disciplines and a genuine commitment to centring the voices of young people throughout the planning, development, and evaluation of future AYA cancer care spaces.

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