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Surveys

The impact of childhood cancer on sexual identity development: the CISEO (Cancer-Induced Sexual Exploration Obstacles) model

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Young Adult Childhood Cancer Survivors (YACCS) often face significant challenges to their psychosexual development, including body image issues, later sexual debut, and worse sexual functioning and/or satisfaction.[1] While physical consequences are well-studied, emotional and developmental impacts on sexuality—defined here as the broader constructions of sexual identity and practice—remain under-examined. Sexual identity development, i.e., the process of defining oneself as a sexual being, is a critical adolescent milestone which relies on two essential components: exploration and commitment.[2] Life-threatening trauma, such as childhood cancer (CC), can profoundly disrupt this process by creating barriers that complicate identity development and integration. Survivors struggle to integrate their pre-cancer and post-cancer selves, potentially leading to maladaptive identity formation (eg, identity diffusion or foreclosure).[3] Since YACCS consistently report unmet sexual health needs,[4] identifying the psychosocial drivers of these challenges is essential to improve routine clinical interventions.

To address this gap, the first author, a female clinical psychologist, conducted semi-structured interviews via video-call with 41 YACCS, lasting between 45 and 90 min. These explored sexual and romantic trajectories, body image, clinical history and perceptions on CC's impact on sexual development.

Participants were recruited from a pediatric solid tumor oncology unit in a Spanish hospital. Inclusion criteria required diagnosis before the age of 18 and at least two years in remission. The sample mean age at interviews was 21.9 years (range:19-28) and mean age at diagnosis was 12.3 years. In total, 63.5% were male and 95% self-identified as heterosexual. Detailed sociodemographic and clinical characteristics are in the supplemental material (Supplementary Table S1).

A central finding was that most participants displayed minimal sexual self-awareness and had never considered the possible impact of CC on their sexuality. This suggests a widespread pattern of avoidance or de-prioritization of cognitive and behavioral sexual exploration: "I didn't address the issue of sex for a long time. It wasn't because I wasn't interested: I just felt apprehension about the subject" (German, 24, M). When asked about whether they believed CC impacted their sexual development, participants described having been unable to engage in sexual exploration. Given the essential role of exploration in healthy identity development, this absence of exploratory behavior suggests truncated sexual development, possibly leaving many survivors in a state of sexual identity diffusion (no commitment, no exploration) or foreclosure (commitment without personal exploration, often imposed by external factors).[2,3]

Using a critical realist perspective, we conducted a reflective thematic analysis, synthesizing codes into overarching themes until thematic saturation was achieved (no new codes). This analysis identified five specific pathways through which CC impeded sexual exploration and development. We organized these findings into a Model that we called "CISEO"—"The Cancer-Induced Sexual Exploration Obstacles Model" (see supplemental material for comprehensive results—Supplementary Table S2—and conceptual map—Supplementary Figure S1).

1) Direct complications: physical and temporal consequences of CC, including extended hospitalizations, physical isolation, and enduring late effects were primary barriers to peer interaction and relationship formation. Mónica (21, F) said: "I haven't had any kind of experience, because I've been in the

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hospital for such a long time. It made me very closed off."

2) Insecurity: participants experienced profound insecurity and inadequacy rooted in compromised body image, impaired functionality, low sexual self-esteem, and fear of rejection. Visible scars, amputations, and late effects led participants to perceive their bodies as "damaged" and "unworthy": "When they cut my leg off, I thought I was never going to find a girlfriend" (Martín, 24, M). This insecurity was exacerbated by feelings of shame, social pressure, and a perceived lack of sexual experience in comparison to peers. Some even faced explicit sexual or romantic rejection: "She was practically ashamed to be with me and said she had her dignity to protect. She said 'dignity'! What's so wrong with being seen with me?" (Felipe, 23, M).
3) Social difficulties: the CC experience created a physical and emotional distance from their peer group, leaving participants feeling different and out of place, with a perceived loss of social skills. Emma (28, F) shared: "I was always the typical weird girl with the scar on my forehead, who didn't have friends." Furthermore, negative social experiences, such as bullying or being pitied, often triggered social withdrawal and over-independence. Paradoxically, even outcomes identified as positive, such as accelerated maturity, became a barrier, as survivors often felt disconnected from their peers' interests, jeopardizing their chances of finding compatible partners.
4) Emotional difficulties: shame, disgust, and fear of rejection were prevalent, yet many participants struggled to process and communicate these feelings due to diminished emotional awareness. This resulted in being either emotionally guarded or overly dependent, thus complicating the formation of healthy romantic relationships: "It's challenging for me to be close or intimate in a relationship. I still don't open up" (Ignacio, 20, M). Participants often actively avoided negative emotions and emotional risks (e.g., flirting or dating), by deprioritizing sexuality in favor of survival concerns. Furthermore, the trauma of a life-threatening illness often impaired their ability to envision a future, making it difficult to plan or engage in future-oriented activities, such as dating.
5) Overprotection: although family, especially parents, provided crucial support, participants consistently noted that their caretakers' fears and medical surveillance led to persistent dependence and overprotection. This restricted the participants' autonomy and limited their ability to explore their sexuality, often delaying developmental milestones: "My first kiss was much later than my friends; [it occurred] when I could be more independent" (Jaime, 20, M). Conversely, participants often described a role reversal, in which they became protective of their parents, suppressing their own pain and negative emotions to shield their parents from further suffering: "I feel a lot of emotional responsibility. Like I have to protect them" (Rafael, 21, M). This focus on caring for the carers led participants to suppress their own developmental needs for independence, including sexual explorations.

While these qualitative insights are constrained by sample homogeneity, limiting generalizability, our findings indicate that these 5 themes form a reciprocal loop of developmental interference, where environmental obstacles and relational dynamics reinforce internal psychological barriers, ultimately stalling identity achievement. The 5 barriers within the CISEO Model (direct Complications, Insecurity, Social difficulties, Emotional difficulties, and Overprotection) cannot be analyzed or addressed in isolation, as they constantly amplify and reinforce one another; for instance, overprotection fuels social isolation, which in turn deepens emotional insecurity and low self-esteem, collectively reducing opportunities for successful dating and sexual exploration.

Rather than treating isolated symptoms, clinicians may utilize the CISEO Model to provide multidimensional care. Screening for these five barriers should be integrated into routine follow-ups throughout the cancer-continuum but especially during key developmental transitions, such as between ages 15 and 25, when survivors begin navigating romantic and sexual milestones. Through guided dialogue, clinicians across all disciplines can feasibly identify and address environmental and social barriers, such as direct obstacles, social difficulties, and overprotection. When screening reveals internal psychological barriers such as profound insecurity or emotional distress, a targeted referral for specialist support is required. Care should transition toward guided cognitive and emotional exploration of sexual values, body-image integration, and relationship skill-building. By facilitating these discussions, clinicians can help YACCS explore their own perspectives and reclaim agency over their sexual lives, preventing the CC experience from unnecessarily defining their sexual future.

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Conflicts of interest

None declared.

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