Journal of Cancer Survivorship
https://doi.org/10.1007/s11764-024-01682-4

"Art is just something that makes people heal"—a qualitative investigation of tattoo artists' perspectives on cancer survivorship therapeutic tattoos

Adam Daly[1] · **Johannes Karl**[1,2] · **Simon Dunne**[1]

Received: 12 June 2024 / Accepted: 16 September 2024

Abstract

Purpose Many cancer treatments can lead to a disrupted body image and identity. One intervention to address these outcomes is therapeutic tattooing. However, despite the wide dissemination of this practice for cancer survivors (CSs), current research on it is lacking. This study aimed to identify tattoo artists' (TAs') perspectives on the types, impacts, barriers, and facilitators of therapeutic tattooing for CSs and the impact of doing this work on themselves.

Methods Twenty-two international TAs who tattoo CSs were interviewed and resultant transcripts were analyzed thematically.

Results The following themes emerged: *Emotional Management of Artists*, *Emotional Transformation of CSs*, *Stigma and its effects on CSs, Artist Barriers*, *CS Barriers*, *Artist Facilitators*, and *CS Facilitators.* The findings also identify a typology of cancer survivorship therapeutic tattoos.

Conclusion This is the first study to identify barriers/facilitators of therapeutic tattooing, a typology of cancer survivorship therapeutic tattoos, TAs' perspectives on therapeutic tattooing, and potential negative outcomes from this practice. The findings indicate that therapeutic tattooing can be both beneficial and harmful for CSs and TAs, that there is a need for better therapeutic tattooing training for TAs and healthcare providers (HPs), increased awareness of therapeutic tattoos, and a reduction in barriers to the practice and greater collaboration between HPs and TAs.

Implications for cancer survivors Findings from this study have major policy implications for healthcare systems, non-profit organizations, and regulatory bodies, which could serve to empower cancer survivors to make more informed decisions about their bodies and support enhanced training and accreditation of this practice.

Keywords Therapeutic tattooing · Tattoo · Body modification · Cancer survivorship · Psycho-oncology

Introduction

Due to medical advances in cancer detection and treatment techniques, the number of cancer survivors (CSs) is increasing annually, particularly in high-income countries [1]. However, many cancer treatments are still aggressive, including radiotherapy or surgical procedures that may involve the removal or damaging of body part(s) that hold the cancerous cells and neighboring cell [2, 3]. Such treatments often have negative effects on the bodies of CSs, for example, skin discoloration and surgical tattoo marks from radiation therapy [4, 5], port-scarring from chemotherapy [6], and amputation of body parts such as the breast(s) in mastectomies [7]. The consequences of cancer treatments can also cause a disrupted body image and identity in CSs [8, 9]. Due to this, body modifications have been implemented to support CSs. Body modifications are defined as an intervention that voluntarily changes an individual's body permanently or non-permanently [10] for primarily aesthetic purposes [11], including minimally invasive modifications such as using wigs [12] and makeup [13] to more invasive surgical cosmetic procedures [14]. Exploring the efficacy of such interventions is important, as research would suggest that body modifications themselves can improve the body image and identity of CSs [15] and that having more information regarding their body modification options can improve CSs' satisfaction with their chosen body modification [16]. One such body modification is therapeutic

✉ Simon Dunne
simon.dunne@dcu.ie

[1] School of Psychology, Dublin City University, Dublin, Ireland

[2] Stanford Graduate School of Business, Stanford University, Stanford, CA, United States of America

Published online: 28 September 2024

tattooing, the pseudo-permanent pigmentation of the skin [17] performed to improve aesthetic and psycho-social outcomes, e.g., nipple reconstructions [18] or scar coverups [19]. Therapeutic tattooing is already being offered to different CSs across multiple countries with several international organizations being created to facilitate its use as an aesthetic intervention: P.ink [20], Tittoo [21], and The Alliance of Medical Tattooing [22]. While health professionals (HPs), such as physicians and nurses, perform therapeutic tattooing in many countries, the practice is also commonly performed by tattoo artists (TAs) [23, 24].

A small body of research on this practice has identified that tattooing is related to positive outcomes in CSs. A recent scoping review found that CSs who have received nipple-areola tattoos experience improved self-perception, identity, and nipple satisfaction [25], but 9/11 studies included were considered to have weak quality. Furthermore, a systematic review on the use of tattooing to support the aesthetic outcomes of individuals with a variety of medical conditions found that CSs found high satisfaction rates following nipple-areola tattoos [23]. Although Maselli and colleagues [25] identify some of the psychosocial effects of therapeutic tattoos, both reviews reflect the broader issues of current research in CS therapeutic tattooing, which focus almost entirely on white, Western, female breast CSs who have received nipple-areola tattoos, with a view to determining "outcome satisfaction." To our knowledge, there also appears to be a complete absence of published literature on negative experiences of therapeutic tattoos among CSs. This demonstrates a clear gap within the literature for research that comprehensively examines the psychosocial impact of therapeutic tattoos among CSs, including males and those with cancer types other than breast cancer.

Similarly, there is an absence of literature on the perspectives of, and effects on, the artists who do this work, as well as the potential barriers/facilitators for CSs and artists to engage with this practice. Artists' perspectives on these issues are important, considering their unique position in engaging with multiple CSs who are seeking a therapeutic tattoo. Understanding their views and experiences can provide a more holistic perspective on the variety of these tattoos, the potential effects of this practice, and the barriers and facilitators to engagement with it. To address these gaps in the literature, and to contribute to the emerging literature in this area, this study aimed (a) to identify the types of therapeutic tattoos CSs receive, (b) to identify the impacts of therapeutic tattooing on both artists and CSs, and (c) to identify the barriers/facilitators of this practice on both artists and CSs, from the perspective of artists.

Materials and methods

Design

This study used a qualitative research design. Semi-structured interviews were employed to ensure the flexibility needed for the inductive approach of this research [26], due to the dearth of literature on this topic, allowing the researcher to react to and investigate new information as it was brought up by the participants. In-depth one-on-one interviewing was employed due to the potential for the interview to focus on confidential subjects relating to CSs who had been tattooed and who could have been identifiable.

Participants and recruitment

This study consisted of a sample of 22 international TAs. To be eligible for inclusion, participants had to be over the age of 18, a fluent English speaker and worked for at least 1 year as a TA, tattooing at least one CS. These criteria were chosen to ensure that participants had experience, both working as a TA and with the population of interest, to guarantee an informed opinion on the topic.

Before official recruitment, 73 artists from P.ink.org were contacted to confirm their interest in participation in this project. Following ethical approval, those who expressed interest were followed up with, and additional participants were recruited using two other publicly available databases of artists who tattoo CSs: Tittoo.org and The Alliance of Medical Tattooing. The researcher also contacted local tattoo shops in Dublin and used snowball sampling on this group, due to the small population of TAs with experience working with CSs in Ireland. These targeted recruitment approaches were carried out by contacting the artists through the medium they conducted their work, i.e., email, Instagram, WhatsApp, SMS text, Facebook, and in person.

Data collection

Upon initial contact, artists were given a plain language statement to read and afterward, a consent form to sign. Following this, artists were able to book an interview specifying their preference between Zoom, FaceTime, and face-to-face for it to be held. All artists ($n = 22$) chose to do the interviews via Zoom ($M = 64$ min, SD = 12 min).

A semi-structured interview guide was developed based on findings from previous research which has identified the process of tattooing and practical design choices [27] as well as the impacts and symbolism of the tattoos [28] as important. Furthermore, broader literature was utilized to develop questions pertaining to identity, social dynamics, and culture [29–31]. Additionally, the first author leveraged their own experiences of the impacts, barriers, and facilitators of getting tattooed as a non-CS to contribute additional questions. The questions within the interview schedule centered on five main domains: sociodemographic information of the artists, the psycho-social effects on artists and CSs, the process of

therapeutic tattooing, the experience of living with tattoos of the artists and CSs, and the role of non-profits as well as the healthcare system in the practice. Through these domains, participants were asked to share their own experiences and their perspectives on the experiences of the cancer survivors they worked with.

Due to some missing sociodemographic information some participants were followed up with to gather this data. Further, due to apparent importance of images in demonstrating the effects of these tattoos, positive and negative, an additional consent form was sent to tattoo artists to request the use of their images. The resultant set of images include those which appear in the figures and tables of the current manuscript. Where images contained faces or identifying watermarks, they were blurred or cropped and no images are attributed to individual artists, as measures to protect their anonymity and the anonymity CSs they had tattooed (Figs. 1, 2, 3, and 4).

Data analysis

The data was transcribed by the first author in preparation for thematic analysis, with any identifiable or irrelevant information being omitted from each transcript. The transcripts were uploaded to NVivo for analysis using Braun and Clake's' reflexive thematic analysis [32]. Further, during the familiarization phase, all identifiable information was removed from the transcripts such as names, specific locations, and companies. Finally, due to the inherent subjectivity of reflexive thematic analysis, and their own experiences with tattoos, the first author monitored their bias through regular reflection on coding and consultation with the corresponding author.

Results

Twenty-two interviews were conducted. Of the 20 artists that reported the number of CSs they had tattooed, their collective experience of performing CS therapeutic tattoos comprised a total of 8712 male and female CSs (calculated using the lowest estimates from these artists). Twenty artists also reported their time spent tattooing CSs ($M = 9.5$ years, $SD = 4.71$) Further details on participant characteristics are provided in Table 1. All interviews were included in the final analysis.

Throughout the interviews, artists described different types of therapeutic tattooing. For the purposes of this manuscript, we have classified these types of therapeutic tattoos as medical reconstructive, medical decorative, non-medical reconstructive, and non-medical decorative (see Table 2 for further details and definitions).

Following reflexive thematic analysis, seven themes were identified: *Psychological Impact on Artists*, *Psychological Impact on CSs*, *Stigma and its effects on CSs*, *Artist Barriers*, *CS Barriers*, *Artist Facilitators*, and *CSs Facilitators*. These themes comprised several subthemes (see Supplementary file for review). In what follows, where quotations have been contracted, ellipses are inserted in square brackets, and where context was needed for the quotations, further contextual information has been placed in square brackets.

"You focus on the happy things and the positives": psychological impact on artists

Several artists spoke of how doing this work was meaningful for them, supporting them in *finding purpose*. Aurora, a CS herself, exemplified this, recounting that becoming a TA who tattoos CSs allowed her to fulfil a promise she made to herself:

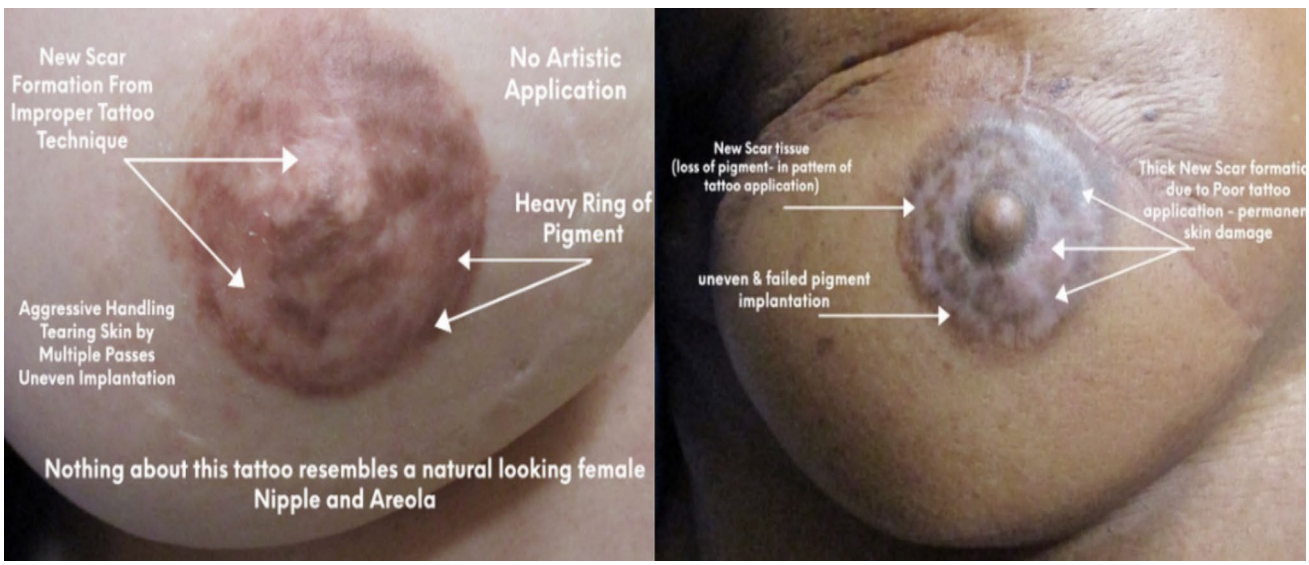


Fig. 1 Tattoo artists' analysis of two low-quality medical reconstructive tattoos performed by healthcare providers

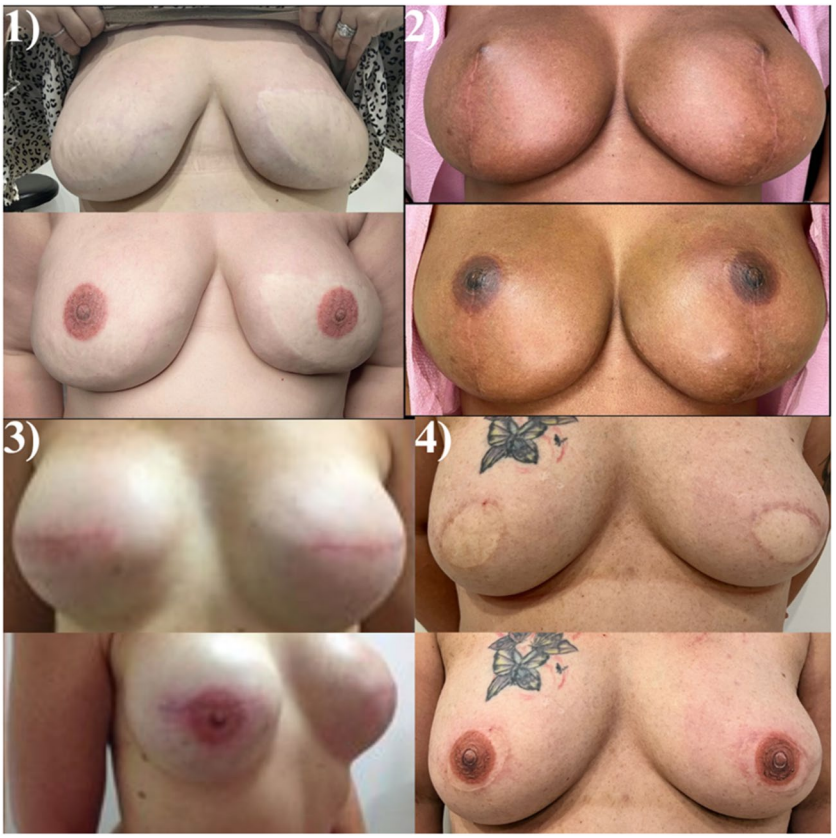


Fig. 2 Collection of four before and after images of medical reconstructive tattoos performed by tattoo artists on breast cancer survivors

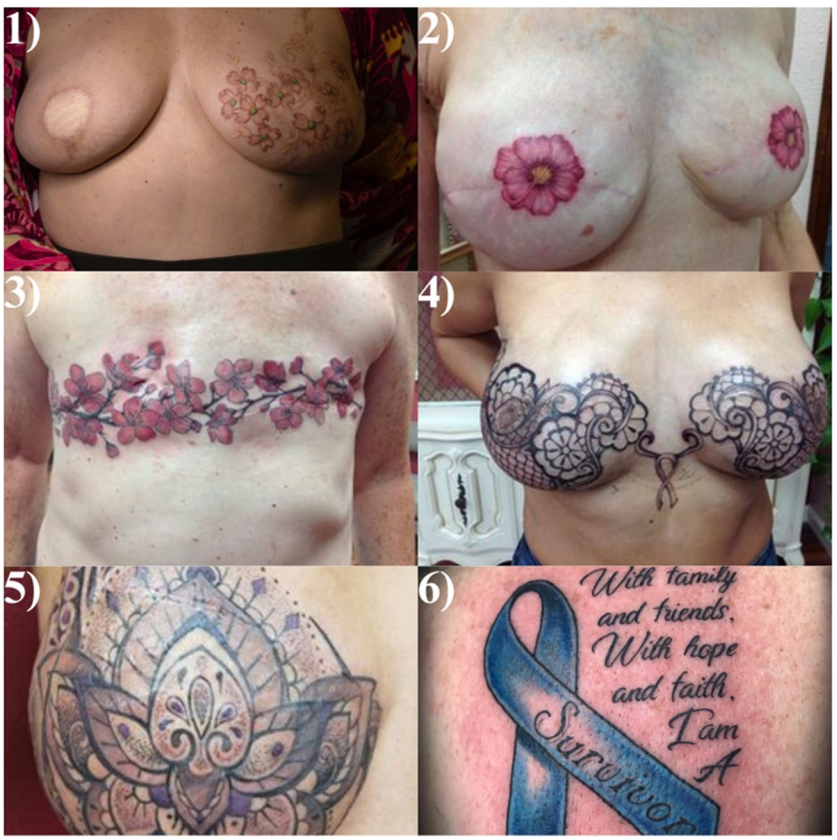


Fig. 3 (1–5) Medical decorative tattoos performed by tattoo artists on breast cancer survivors. (6) Non-medical decorative tattoo performed by a tattoo artist on a lung cancer survivor

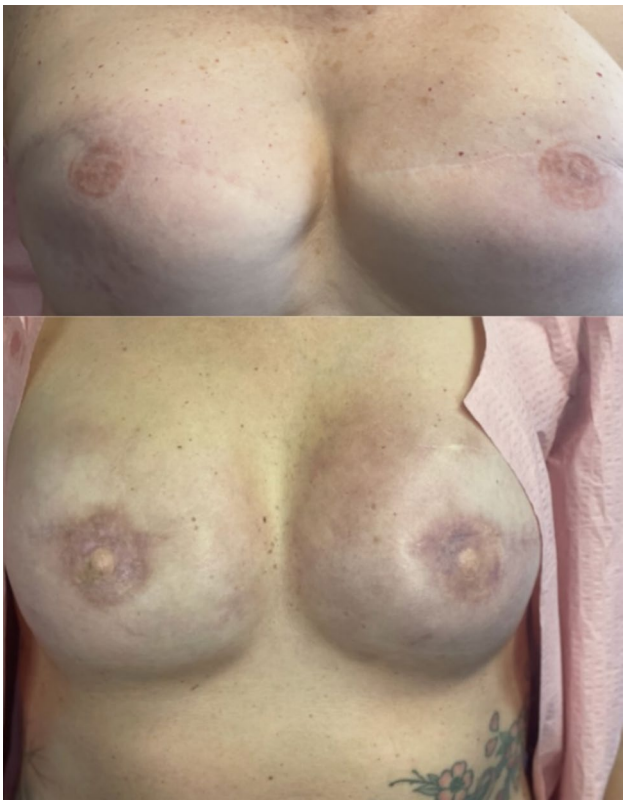


Fig. 4 Two low-quality nipple tattoos performed by healthcare providers

"During my cancer treatments, I asked the universe to keep me alive and [promised] 'I'll donate my life to help others in some way shape or form' and I've kept that promise."

Similarly, almost all artists agreed that this work helped them in *feeling fulfilled*. Jane described her view that, as much as CSs benefit from this work, she does too through the positive feelings it gives her: "It makes me feel good too, honestly, from a selfish perspective, I feel really fulfilled." The Priestess developed this point further by talking about how she believes that doing this work has allowed her to become a better person: "If I didn't do this, I'd be so gnarly. I'd be so fucking hardcore and regressive. No, this is good for me because it reminds me of my heart and my compassion."

However, as much as this work has positives, it was clear across interviews that the emotional weight of doing this work and *being impacted by stories* from CSs burdened artists. Bailey described this by recounting an experience she had where she tattooed a terminally ill CS with pictures his children drew so that he could take a part of his kids with him in death:

> I'm used to [Clients being] like 'I want this tattoo because it looks cool,' not like 'I want this tattoo because daddy's taking it to heaven.' I'm like, 'I fucking can't cope [with that],' so some of the stuff is like pretty impactful.

Similarly, numerous artists expressed *being concerned about the results* and the stress they feel about providing a good tattoo for CSs, as well as the shame they feel when they cannot. For example, Riley described the anxiety she feels about the possibility of giving CSs a negative experience: "The cons are kind of what comes with all this work, which is like 'what if like- did I give them a thing that they wanted or was it something that was a negative experience?.'" Tonya, an ex-nurse, explained her own experience with this, learning how to do medical tattooing as a nurse and her shame now from the damage she was doing to CSs due to her lack of training:

> I literally watched a nurse do one tattoo and then I was turned loose. With this permanent machine, I can't even lie, Permanent makeup machine and needles and a patient, and I was not prepared [at] all, it was like, 'do one, see one,' to 'teach one' […] It's terrible. Shameful. I'm appalled. It was me and I'm appalled.

Many artists also described the *coping mechanisms* they employed to deal with this emotional burden. Jane, for example, was able to rely on her support network, like her husband or therapist, to cope with the emotional backlash of this work:

> I have a husband who's also a tattoo artist; he doesn't do the medical tattoos, but he really relates to a lot of stuff I go through during the day with those frustrations and then he's so willing to listen to me emotion-wise; [I'm] so lucky that way, therapy is great too.

In contrast, Andre indicated that he relied on potentially unhealthy coping mechanisms such as substance abuse:

> There was a lot of just pushing stuff down, a lot of substance abuse. Just long nights, Needless tears. I think it's really easy for somebody going through all of that to go overboard on empathy. And start to take on some of the burden of these people's struggles.

"It's a huge transformation right there": psychological impact on CSs

Artists consistently spoke about memories they had where CSs had experienced *regaining body confidence* following a tattoo. Mr. G described his experience with CSs on whom he had performed medical reconstructive nipple-areola tattoos, with him being shocked that something as small as a reconstructed nipple (see Fig. 2) improved these individuals' body image so much:

> It's crazy that something as small as two little 50 Cent pieces as a tattoo could just absolutely change someone's mental focus where they're not staring at themselves in the mirror saying, 'How can someone love me, how can someone look at me?'

Table 1 Participant sociodemographic information

Pseudonym	Gender	Age	Estimated no. of years tattooing CSs	Estimated no. of CSs tattooed	Types of cancer worked with	Countries CSs tattooed in	Current country of residence
Emma	Female	NR	NR	5	Breast	USA, Russia	USA
Sarah	Female	36	10	100	Breast, lung, bowel, bone, skin	Ireland, Spain	Ireland
Catherine	Female	36	10	200	Breast	UK, USA	USA
Alice*	Female	31	5.5	300	Breast	Ireland, Canada	Ireland
Riley	Non-binary	31	9	50	Breast	USA	USA
Adel*	Female	30	8	15	Breast, cervical	USA, France, Germany	USA
Aurora*	Female	41	5	500 +	Breast, bone, lung, skin	USA	USA
Mr. G*	Male	47	4	25	Breast	USA	USA
The Priestess*	Female	54	14	1680	Breast, ovarian, skin	USA, Netherlands, Germany, Montenegro, UK	USA
Mac*	Female	40	13	2000	Breast, brain, skin, thyroid, testicular	USA	USA
Harriot	Female	40	15	100–200	Breast, skin, pancreatic, colon, ovarian	USA, Canada	Canada
Sandy	Female	25	3	5	Breast, lymphoma	USA	USA
Bailey	Female	42	8	NR	Breast, thyroid	UK	UK
Jane*	Female	42	6	1000 +	Breast, oral, prostrate, uterine	USA	USA
Laura B*	Female	33	5	12	Breast, throat, lung, skin	Canada	Canada
Rob	Male	44	23	NR	Breast, cervical, lung	USA	USA
Reggie*	Male	55	8	600	Breast	USA	USA
Charlotte	Female	39	NR	50–100	Breast, stomach	France	France
Andre*	Male	33	7	20	Breast, colon, lung, skin	USA	USA
Tonya	Female	NR	10	1600 +	Breast	Canada	Canada
Rose*	Female	41	16	50	Breast, colon, ovarian, stomach, pancreas	USA	USA
Tav*	Female	48	11	400	Breast	Canada	Canada

NR information that was not reported

*A self-selected pseudonym

Similarly, Sarah described a specific CS to whom she gave a medical decorative tattoo, who went from lacking body confidence to walking around topless after the tattoo: "I had someone who had a double mastectomy, [who] decided to just get one really long Rose floral [tattoo]. […] She couldn't take her top off at the gym beforehand, but now she's walking around topless."

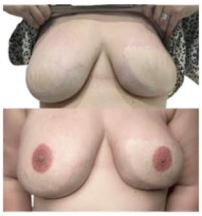
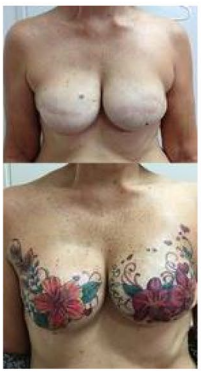
Aside from feeling more confident in their bodies, many artists perceived that these tattoos allowed CSs to develop the perception of *feeling at home in their new bodies*. Jane spoke about a particular CS who appeared to have this experience, with her feeling naked for the first time in years after receiving a medical reconstructive tattoo: "We did the stencils […] Then she's like 'I feel naked,' she says 'I haven't felt naked in over 10 years' and I, right there, I mean she started crying." Similarly, Rose perceived that getting these tattoos allowed CSs to reclaim their bodies and feel at home in them again:

> Choosing to get tattooed, choosing to change one's body in that way, they become like more embodied, more whole, they can reclaim all the things that they feel like they lost, or reclaim body parts that look different.

Similarly, many artists spoke of how getting these tattoos allowed CSs to begin *reinventing or reclaiming their identities* following treatment. Bailey explained that some CSs she had worked with had changed their identities by choosing the symbols that will mark their bodies (see Fig. 3).

> They get to reinvent themselves, of what they want to live with, so it becomes something that's almost like they get to choose either who they want to become, they get to choose how they represent their journey, and they get to choose how they're going to see themselves from then on.

Table 2 Therapeutic tattoo classifications for CSs

	Description	Image	Supporting Quote
Medical[1] Reconstructive	Tattooing over skin that is scarred, or damaged from a surgical procedure or medical condition where the design's goal is to return the body to how it looked before the damage, such as nipple-areola reconstructive tattooing.		"What makes it a breast to a lot of people and very culturally is that nipple and areola" (Mac)
Non-Medical Reconstructive	Tattooing over skin that is not scarred, or damaged from a surgical procedure or medical condition where the design's goal is to return the body to how it looked before the effects of treatment, such as eyebrow tattooing following hair loss from chemotherapy.	No image provided by participants	"They call [The tattoo] battle brows so lots of times women are going into cancer treatment you know they're gonna lose most of their body hair and so she'll do she'll do eyebrows on ladies before they go in or after that way, they could still have the appearance of normalcy" (Mr. G)
Medical Decorative[2]	Tattooing over skin that is scarred, or damaged from a surgical procedure or medical condition where the design's goal is to add a new symbol/image, such as flowers.		"It seems like they always put flowers or something like that with their tattoos where it's almost like a new start like, growth." (Rob)
Non-Medical Decorative	Tattooing over skin that is not scarred, or damaged from a surgical procedure or medical condition where the design's goal is to add a new symbol/image such as a ribbon.		"I think the ribbon is more like it, they've gotten through it and they're over it and it's part of them and they want to mark it somehow that happened" (Sarah)

[1]Medical is sometimes referred to as para-medical

[2]Decorative is sometimes referred to as cosmetic

However, despite all artists speaking of the positive effects that therapeutic tattoos had on the CSs they had worked with, it was also clear that these tattoos could be equally harmful when performed incorrectly, causing CSs to go through *experiencing trauma* all over again (See Figs. 1 and 4). For example, Bailey described a particular

case where she was unable to tattoo a CS whose skin was saturated with ink due to having received so many poor-quality tattoos from HPs, resulting in this CS being unable to look at her own body:

> She got to a point where the skin is that damaged and that saturated with pigment, the skin will only hold so much pigment before it becomes saturated [and] we can't do anything. […] She is that mortified and mentally scarred by what she's got that she won't get naked, she doesn't want to see it, so she literally bathes with a bra on, so she doesn't have to look at the shit job that she's got.

Bailey also explained how HPs often do not receive this feedback as CSs do not want to appear ungrateful:

> They [Healthcare Providers] came back to me and went 'well we've never been told' and I'm like 'who the hell would come to the NHS after they've saved your life and gone "this nipple tattoo is shit and thanks for saving my life"?'.

"A lot of them even can still feel that taboo of having a tattoo": stigma and its effects on CSs

Artists described their perceptions of how stigma negatively affected the decisions of CSs to receive therapeutic tattoos on multiple levels through the cultural, external, and systemic *judgment of the tattoo decision*. Emma described the internal stigmatization that some cultures have regarding tattooing, preventing CSs from getting certain designs following their treatment:

> [In] Russia, like, no ways; they never ask [for a] 'real' tattoo; they [ask instead] 'can we do a nipple tattoo, like areola?' Like, yea of course, why not, but I never asked 'would you like to move it into [Decorative] tattooing?' because it's like 100% no.

Furthermore, Tonya illustrated the external stigma CSs may be anxious about, through an example of a CS who received a negative reaction from family: "I'm like, 'good for you.' And she said, you know, her family was like mean to her. […] When she wanted to get the tattoo, they were really mean to her and not supportive at all." Jessie further described how some HPs can systematically judge the decision of CSs to get a tattoo, including discouraging them to do so:

> A lot of the stuff that I've heard from my clients and how, not only have they not been recommended to look into it as an option from their medical providers, but they've been actively discouraged a lot of the time.

Similarly, *misinformation* surrounding tattoo ink potentially created additional stigma towards tattoos for CSs and HPs, particularly surrounding how dangerous tattoo ink was for the body. For example, Bailey also described how a HP working in the oncology department of her local hospital incorrectly told a CS that the ink from a tattoo artist could give them cancer again, which was resolved when Lucy found that she and the HP were using the same ink.

> I had one oncology person in my local hospital who turned around and told the client who came for a consultation with me that my pigment in my tattoo ink would give her cancer again, Which is why we did the Freedom of Information [request] because I was like 'we use the same brand, mate.'

However, outside of the actions of any individual or organization, artists espoused their views that *the cultural shift of tattoo valuations* in western cultures is leading to tattoos becoming more accepted. Artists indicated that this may decrease levels of stigma and anxiety, which affects CSs decision-making surrounding their therapeutic tattoos. Sandy described this cultural shift by explaining how tattoos are now more valued in modern society.

> We're in 2024 now but I think that, every year, it's getting better and, every year, it's becoming more and more awesome and more and more valued to people you know it's not trashy as some people may say, it's meaningful it's life-changing.

"We've been tattooing bodies since they've been painting on cave walls": artist barriers

Several artists noted that issues with *finances* were a barrier in place for them to tattoo CSs due to the costs of tattooing. Mr. G explained how he tries to avoid charging CSs for this work; however, ultimately, that decision actively harms his financial situation: "The financial aspect of it is pretty difficult and it's been a struggle. It takes away from my everyday financial independence." This was described further by Andre who feels uncomfortable charging CSs: "I usually do not feel comfortable charging these people the way I should be charging them […] But I keep doing it because people need it."

Furthermore, numerous artists commented about the *lack of HP collaboration*, which made doing this practice more difficult. Mac spoke of her own experience with HPs who refused to stop performing medical tattooing on CSs despite being less skilled at it:

> I still have a few surgeons that refuse to let go of it and I'm like 'Why are you still doing [this]? You're great at reconstruction. I'm pretty good at what I do. Let's divide and conquer.'

Similarly, artists commented that they had experienced stigma as TAs which made it more difficult for them to collaborate with HPs to tattoo CSs. Bailey described her perspective that she is not trusted by healthcare services because she is a heavily tattooed artist: "I think if I wasn't so heavily tattooed, I would be more of a trusted source maybe for the [healthcare service] because they're very hard to outsource."

In addition to this, several artists highlighted their concerns with their *inability to advertise* their work to CSs, particularly through social media. On this, Alice explained how her posts kept getting blocked on social media due to being considered sexual content, regardless of whether she did decorative or reconstructive tattooing over CSs' breasts:

> For the last two years, everything [Images of tattoos] just keeps getting blocked because everything is automatic now on Instagram. So, they see a nipple or even my decorative stuff, they're like 'No that's too sexual,' and I'm like 'fuck right off, like, that's ridiculous.'

Equally, being able to learn how to tattoo CSs was a barrier for many artists because of the *lack of training* available for TAs, meaning that many had to develop their skills on their own, through trial and error. Sandy explained that, like many of the other artists, she had to train herself how to tattoo CSs:

> I had to study it all on myself on my own and I had to sketch and color and look at the different color palettes versus the different skin tones and there's a lot involved and being able to recreate it properly.

Artists mentioned that this barrier to training was particularly important in medical reconstructive and decorative tattoos, due to the scarred and post-reconstruction skin being more difficult to tattoo, as Bailey described:

> Because [With] reconstructions you can have chest tattoo like chest skin and stomach skin so you're tattooing two different types of skin. So, if you don't have knowledge, because these are all these things [to] take into consideration, and that's without how the skins been affected if it's still got the same vascular formation. Because, obviously, all the nerve endings and all the blood vessels have been cut, so it doesn't really work like normal skin

"The deck's really stacked against these patients": CS barriers

The potential issues of CSs having the *finances* for these tattoos was evident across several interviews, with artists from the EU, America, Canada, and the UK describing how this work was typically not covered by private medical insurance or public healthcare when undertaken by TAs. An exception to this was that, in rare instances, financial coverage was given where artists had a good relationship with insurance providers or where they worked within a doctor's office. Tonya described the situation in America; despite national policies entitling CSs to all stages of reconstruction, her CSs still struggled to be reimbursed for tattoos performed by artists: "This federal law Bill Clinton passed in '98 states that every woman has a right for breast cancer reconstruction. […] The way they get around not covering people like me is that we are not [considered to be] 'in-network providers.'" Similarly, Alice described a similar situation in Ireland where tattoos by artists are not funded by insurance or public healthcare: "It's not cheap and, unfortunately, insurance doesn't cover anything; it doesn't even cover the nipple tattoos, which it should [when it is done by an artist]. […] But, because they're a doctor, they're like 'Yeah, do whatever you want.'" Further, Rob described how these tattoos are often expensive making them unaffordable for CSs who may already be struggling financially:

> We're not cheap, you know, and a lot of people, when they're going to something like this, they can't afford [them]. [...] You know, they might be on disability in the United States, and that barely pays part of your bills and your food.

Being able to get these tattoos was also more difficult for CSs due to *difficulty accessing artists*, particularly ones who perform medical tattoos on CSs, with CSs often struggling to find a practitioner. On this, Tav explained how some CSs search for years to find an artist who has the skills to tattoo what they want over their scarred skin.

> I know there's not enough [artists doing medical tattooing] by way of conversation [with CSs] and options [for getting medical tattoos from TAs]. I know a lot of women come to me and they've been looking for years for somebody. [...] I know that there aren't many options for people out there.

Similarly, *difficulty accessing quality tattoos* was a barrier that artists identified CSs face, particularly regarding finding an artist or HP that has the necessary skills. Aurora reinforced this and described how HPs do not need additional certification to do this work, meaning there is not a standard of quality or skill for this work among HPs: "There's no requirement or extra licensing needed in any state for a doctor or nurse to learn how to tattoo; they work under their license and the state seems to be fine with that." The Priestess added to this by highlighting how there is also no standard system for TAs either: "We're not organized, you know, anybody, any failed musician, band guy can pick up a tattoo machinery."

Further, a *lack of information* about therapeutic tattooing for CSs was described across several interviews as a barrier, which artists suggested led to a lack of awareness of the practice among CSs. Reggie supported this, speaking about how he commonly hears that CSs did not get tattoos post-treatment as they weren't aware of them: "One of the most common things I hear is 'I would have done this years earlier if I knew this was a thing.'".

"It's a blessing for us to be able to give back": artist facilitators

When artists and their supporters could *advertise* this practice, they described how it facilitated them to continue tattooing CSs through increased awareness of the practice among CSs. Particularly, artists recounted the importance of word-of-mouth advertising from CSs, which was deemed extremely important. Jane said that, from her perspective, word-of-mouth advertising from CSs was integral to the practice:

> That's the great thing about breast CS groups too, you get one person that posts something in there, and, suddenly, you get like a little flood of things because they rely so heavily on each other, it's like it's a club.

For some artists, personal and financial *business support* facilitated them to carry out their work. Tonya's husband, for example, made sacrifices to allow her to keep doing this work: "He [Husband] took a second job at the hospital part-time so I- we can have health insurance for our family. And so that way, I can do what I wanna do". Similarly, financial support from the local community facilitated Mr. G to continue tattooing CSs in his area:

> We've started a nonprofit here, so I don't charge for any of these procedures. […] I found some people in the community who are willing to support what I'm doing and so they donate money to me to help me cover my costs.

Another facilitator for artists was *co-learning and having experience*, whereby artists develop their expertise by doing this work collaboratively or sharing tips with other artists. For instance, despite the current lack of standardized training, Andre spoke about how members of the tattooing community teach each other different techniques and skills, allowing them to improve at this practice:

> Tattooing is such a cool community where we can really reach out to just about any tattoo [artist, and an artist that] you reach out to is gonna tell you a secret, or a trick, or give you advice, if you make it apparent that you're someone who gives a damn.

Conversely, Bailey spoke about how having a lot of tattooing experience would make transitioning into medical tattooing easier for artists*:* "I think it's more easy for the transition of a TA that's probably got five years experience."

Numerous artists' also spoke about how *being perceived as more professional* by CSs facilitated them to do this work. For example, Jane described her decision to work in a medical office to avoid the potentially uncomfortable environment associated with tattoo shops:

> I opened my office because most of my clients are not people who generally get tattooed and so walking into an environment where there's a lot of heavily tattooed people and loud music, which in general is fun, but if you're not into that environment it can be super intimidating […] so that was a big priority for me to move into a medical office - that comfortability [for clients].

Similarly, Tonya believes that her previous training as a nurse gives her more credibility to CSs:

> The fact that I have a nursing license, I think that's a huge thing because people know I'm going to be aseptic, and I tattoo out of clean medical environments and positions like that. So, I definitely think that's to my, you know, like to my bonus.

"By the time they're with me, they've already worked that out": CS facilitators

Participants identified the value of non-profit organizations and TAs providing *financial support* to cover the costs of therapeutic tattoos as key facilitators to CSs who wanted to get tattooed. Catherine explained how shocked some CSs were when she refused to accept any payment for the service she provides: "They're always very shocked I don't want money for this, even tips." Tonya described how non-profit organizations organize fundraisers to cover the costs for CSs to go to TAs: "They [non-profit organization] helped pay for different things related to cancer treatment, but tattooing is one of them and then [other non-profit organization] does a fundraiser every year for things that insurance may deem medically not necessary like nipple tattoos."

Similarly, participants perceived that CSs having *access to information* about TAs who can perform tattoos for them, as well as what those tattoos may look like, facilitated some CSs to follow through on their decision about getting a therapeutic tattoo. Jessie mentions that nurses played a key role in giving this information, often unofficially telling CSs about local artists who tattoo CSs:

> It's usually nurses that will, like, on the side, pull them aside and be like, 'you should totally like look into it [getting a tattoo from an artist].' [...] They would tell

the patient to do it but it's not, they're not allowed to, most of the time.

Tonya, on the other hand, explained how she sent a friend of hers who had undergone a mastectomy temporary tattoos so that she could see what a medical reconstructive nipple-areola tattoo would look like: "I mailed her some. Little temporary nipple tear like tattoos, little temporary ones, and she put him on, and she was like, 'oh my god, give me your next appointment.'".

Discussion

To the authors' knowledge, this is the first study to describe the perspectives of TAs on the psychosocial impact of CS therapeutic tattoos, the first to identify barriers/facilitators to the practice, and the first to identify consequences of poor-quality therapeutic tattoos. Further, of the 20 artists that reported the number of cancer survivors they had tattooed, a total of 8712 were found (see Table 1). This suggests that these artists can speak on the impacts and experiences of cancer survivors in a broader context and on their own experiences. Based on this, seven themes and several sub-themes were identified. This includes three themes regarding the psychosocial impact of engaging with this practice for artists and CSs: *Psychological Impact on Artists (Finding Purpose*, *Feeling Fulfilled*, *Being Impacted by Stories*, *Being Concerned About the Results and Coping Mechanisms)*, *Psychological Impact on CSs (Regaining Body Confidence*, *Feeling At Home in a New Body*, *Reinventing or Reclaiming Identity and Experiencing Trauma)*, and *Decisional Effects of Stigma for CSs (Judgment of the tattoo decision*, *Misinformation and Cultural shift of tattoo valuations).* Additionally, two themes regarding the barriers in place for artists and CSs to engage with this practice were identified: *Artist Barriers (Finances*, *Lack of HP Collaboration*, *Inability to Advertise and Lack of Training)* and *CS Barriers (Finances*, *Difficulty Accessing Artists*, *Difficulty Accessing Quality Tattoos and Lack of Information).* Finally, we identified two themes describing the separate facilitators of engaging with this practice for artists and CSs: *Artist Facilitators (Ability to Advertise*, *Business Support*, *Co-learning and Having Experience and Being Perceived as More Professional)* and *CS facilitators (Financial Support and Access to Information).* An additional unexpected finding of this research was the development of a typology of CS therapeutic tattoos.

These findings suggest artists who tattoo CSs may benefit from this work, which they perceive as personally rewarding and impactful. However, a surprising finding was the negative emotional impact these artists experience. This finding reflects similar literature with HPs, such as nurses, who experience similar negative emotional impacts from working with CSs [33]. How some artists coped with emotions was concerning; although some artists spoke to healthy coping mechanisms, such as using social support networks [34] or therapy [35], others either resorted to alcohol and, in one case, substance abuse or lacked a coping mechanism.

Further, artists perceived that the CSs they worked with experienced positive outcomes, which is supported by previous literature [19, 36]. However, to our knowledge, this is the first study to report on the potential trauma experienced by CSs who receive low-quality therapeutic tattoos (see Figs. 1 & 4). This finding contradicts previous quantitative research which finds high levels of satisfaction from CSs receiving tattoos from HPs [23, 25]. This lack of previous reporting could be due to CSs who had negative outcomes not wanting to communicate this, in fear of appearing ungrateful, as suggested in other research [37], and as Bailey, an artist in this study, pointed out.

Regarding barriers and facilitators for artists to engage with this practice, there were several important findings. Artists described how pro bono work created a financial barrier for them to continue this work or negatively affected their personal finances. Another key issue raised was the lack of standardized training, which acted as a barrier to artists being able to learn and perform well in doing this work. Although there are some options available for standardized training, such as A.R.T (artistic restorative tattoo) certification training[1] [38], this currently costs $4500,[2] which may be inaccessible for artists already dealing with financial issues. Paired with an inability to advertise the work that they do online or collaborate with HPs, this could affect how reputable artists are considered to be by CSs. Nonetheless, the practice is currently facilitated by business and financial support, which can supplement any lost profits from doing these tattoos. Similarly, this work is facilitated where artists can advertise and spread awareness of the business and work with other artists to skill-share and co-learn (a practice which has been shown to be effective within other contexts) [39].

This research also highlights several key barriers and facilitators for CSs to engage in this practice. Findings such as finances being a barrier for CSs is consistent with the literature; on average, CSs in the USA, Canada, and Australia spend 16% of their annual income on out-of-pocket expenses related to cancer [40], and Irish CSs lose an average of €18,323 annually due to cancer [41], meaning CSs may lack disposable income to spend on tattoos [42] due to the costs of other aspects of survivorship, such as medications. Likewise, access to appropriate therapeutic tattoo artists acted as a barrier for CSs. This is unsurprising, as there were less than 350 practitioners identified in existing artist

[1] A type of training offered by ART, a training organization mentioned in several interviews.

[2] There is up to $1000 in discounts offered for artists already with experience working on scarred skin.

databases included in this study, with the majority being in the USA, and more limited artists being located across the UK, Ireland, Canada, Chile, Portugal, France, Italy, Montenegro, Sweden, the Netherlands, and France [20–22, 43]. Furthermore, previous literature has identified that 84% of an American sample of HPs do not currently recommend tattoos from TAs to breast CSs, despite not having evidence about the quality of their tattoos [44], clearly demonstrating the barrier in place for some CSs to gain information on therapeutic tattooing from TAs as identified in this study.

Related to the above, artists highlighted a significant degree of societal stigma relating to therapeutic tattooing, which participants indicated had an effect on CSs perceptions of such tattoos. A particularly unexpected finding was HPs giving some CSs misinformation regarding tattoos (e.g., relating to the carcinogenic properties of ink used by certain TAs) or even directly discouraging CSs from attending TAs for their tattoos. Such misinformation or encouragement to not seek out accurate information seems to contribute to the development of several health-related misconceptions regarding tattoos and how dangerous they and their inks can be, despite numerous restrictions and standards of practice being established to ensure that both the process of the tattoo and the ink of the tattoo are safe across the EU and America [45]. Furthermore, it seems that the general societal stigma towards tattoos [46] is also present for CSs, with concerns surrounding public or familial reactions to tattoos being noted by several participants. As described by one participant, there seems to be added stigma towards decorative tattooing as they are not reconstructive, and therefore more akin to a traditional tattoo, which may prevent CSs from fully exploring their design options. Despite this, it was suggested that the stigmatization of tattoos is slowly dissipating in the modern age.

Strengths/limitations

A major strength of this study is its novelty, addressing several gaps in the literature surrounding the barriers/facilitators of cancer survivorship therapeutic tattoos for both the artists and CSs, the impact of such tattoos on both groups, the types of these tattoos, and the artists' perspectives on these. Despite the small total population of TAs who tattoo CSs, we were able to recruit a diverse group of international artists. Finally, to our knowledge, we have developed a typology of the therapeutic tattoos available for CSs for the first time; while this broad typology may be in need of subsequent refinement, it is a necessary first step which allows for the development of consistent language and terminology for therapeutic tattoos to enable better communication between CSs, artists, and HPs.

However, it is important not to over-generalize the results of this study; due to the diverse sample across countries, some reported barriers and facilitators may be specific to a given country or health system; further research is needed to understand if these barriers and facilitators occur across different health systems. Additionally, the findings relating to CSs' barriers/facilitators and experiences are based on second-hand accounts from TAs, and future research is needed to confirm their veracity. Nonetheless, the artists' accounts are informed by a wealth of collective experience tattooing thousands of CSs and witnessing their impact on CSs.

Implications

Artists identified that tattoos are typically not covered by private insurance providers or public healthcare systems internationally. More specifically, in America, the Women's Health and Breast Cancer Rights Act 1998 entitles breast CSs to all stages of reconstruction [47]; however, it appears that CSs struggle to receive reimbursement for medical reconstructive tattoos from TAs. This is similar in Ireland and the UK, where insurers do not provide financial coverage for therapeutic tattoos performed by TAs. Given the potential for improved outcomes when tattoos are performed by TAs, formal recognition of TAs as providers of therapeutic tattoos for CSs done by TAs is necessary by insurers and healthcare systems.

To support artists being recognized as appropriate providers of therapeutic tattooing in this way, there is a need for standardized training to provide such tattoos, particularly regarding medical tattooing on scarred skin. Furthermore, internationally recognized accreditation for the completion of such training may help build TAs' reputability among insurers and healthcare systems. Such training may not be applicable to HPs who lack prior years of experience with tattooing; despite this, including HPs in the co-creation of training for artists is important, due to their medical knowledge and role as key stakeholders in the treatment of CSs, which may ultimately be an opportunity to break down any existing tattoo stigma.

The lack of collaboration between HPs and TAs, and the lack of integration of TAs within existing healthcare systems, was found to act as a barrier for the provision of therapeutic tattoos to CSs. This is concerning, particularly considering the misinformation spread about tattoos by some HPs towards CSs. Based on this, it is clear that there is a need for interventions to foster a more constructive relationship between TAs and HPs, and for campaigns and initiatives to share information regarding therapeutic tattooing with HPs and CSs. This could take the form of artists providing decisional aids to CSs such as temporary tattoos, or through artists being more integrated into the treatment process. Such measures may decrease the spread of misinformation about therapeutic tattooing among HPs, reduce negative tattooing

outcomes, and potentially enhance the options of CSs for, and increase their satisfaction with, body image interventions following cancer treatment [16].

However, such practical changes must be predicated on further research in this area. Particularly, there is a distinct need for high quality quantitative research on the effects of therapeutic tattoos on CSs [25], including research that quantifies the negative impact of poor-quality tattoos on CSs. Furthermore, the current research highlights the need for further research on the quality of life of artists and the development and evaluation of psycho-social interventions to deal with the emotional impact of doing this work among TAs and the trauma experienced from a bad tattoo among CSs. Finally, it is necessary to replicate this study within a cohort of CSs who have received tattoos to identify if the barriers/facilitators described by artists are relevant to them, and to investigate if there are any other barriers/facilitators to therapeutic tattooing among CSs from their perspectives.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11764-024-01682-4.

Author contribution A.D. contributed to conceptualization, methodology, data curation, data analysis and interpretation, and original manuscript preparation. J.K. contributed to data analysis and interpretation. S.D. contributed to conceptualization, data curation and design, supervision, data analysis, and Interpretation. All authors reviewed and edited the final manuscript.

Funding This study was self-funded.

Data availability The data that support the findings of this study are available upon reasonable request to the authors, but restrictions apply to the availability of these data, which were used with the permission of the participants and so are not publicly available.

Declarations

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. We received formal ethical approval for the study from Dublin City University Psychology Ethics Committee (DCUPEC_2024_102) as well as approval for an amendment of some content from the same committee (DCUPEC_2024_102_A01).

Informed consent Informed consent was obtained from all individual participants included in the study.

Consent for publication Authors affirm that the relevant research participants provided informed consent for the publication of the images in Figs. 1, 2, 3, 4 and Table 2.

Conflict of interest Authors Karl and Dunne declare they have no conflicts of interest to support. Author Daly is on the Board of Directors for the Alliance of Medical Tattooing and receives no compensation for this role.

References

1. Torre LA, Siegel RL, Ward EM, Jemal A. Global cancer incidence and mortality rates and trends—an update. Cancer Epidemiol Biomark Prev. 2016;25(1):16–27.
2. Jones C, Lancaster R. Evolution of operative technique for mastectomy. Surg Clin. 2018;98(4):835–44.
3. Shahzad H. Neoplasm. BoD – Books on Demand; 2018, 256
4. Fowble B, Yom SS, Yuen F. Types of Radiation-Related Skin Reactions. In: Fowble B, Yom SS, Yuen F, Arron S, editors. Skin care in radiation oncology: a practical guide [Internet]. Cham: Springer International Publishing; 2016 [cited 2024 Mar 11]. p. 15–29. Available from: https://doi.org/10.1007/978-3-319-31460-0_3
5. Naidoo W, Leech M. Feasibility of surface guided radiotherapy for patient positioning in breast radiotherapy versus conventional tattoo-based setups- a systematic review. Tech Innov Patient Support Radiation Oncol. 2022;1(22):39–49.
6. Voci A, Lee D, Ho E, Crane-Okada R, DiNome M. Impact of port site scar on perception of patients with breast cancer: patient-reported outcomes. Breast Cancer Res Treat. 2018;170(3):569–72.
7. Nowicki A, Licznerska B, Rhone P. Evaluation of the quality of life of women treated due to breast cancer using amputation or breast conserving surgery in the early postoperative period. Pol Przegl Chir. 2015;87(4):174–80.
8. Miller LE. "People don't understand that it is not easy being a cancer survivor": communicating and negotiating identity throughout cancer survivorship. South Commun J. 2015;80(1):1–19.
9. Fingeret MC, Teo I, Epner DE. Managing body image difficulties of adult cancer patients: lessons from available research. Cancer. 2014;120(5):633–41.
10. Cervantes-Luna BS, Alvarez-Rayón G, Gomez G, Díaz J. Reliability and constuct validity of the Body Modification Scale in adolescent males. Salud Mental. 2013Nov;1(36):487–92.
11. Lane DC. Understanding body modification: a process-based framework. Sociol Compass. 2017;11(7):e12495.
12. Zannini L, Verderame F, Cucchiara G, Zinna B, Alba A, Ferrara M. 'My wig has been my journey's companion': perceived effects of an aesthetic care programme for Italian women suffering from chemotherapy-induced alopecia. Eur J Cancer Care. 2012;21(5):650–60.
13. Taggart LR, Ozolins L, Hardie H, Nyhof-Young J. Look good feel better workshops: a 'big lift' for women with cancer. J Cancer Educ. 2009;24(2):94–9.
14. Dieckmann KP, Anheuser P, Schmidt S, Soyka-Hundt B, Pichlmeier U, Schriefer P, et al. Testicular prostheses in patients with testicular cancer - acceptance rate and patient satisfaction. BMC Urol. 2015;15(1):16.
15. Mohammadi SZ, Khan SM, Vanaki KZ. Reconstruction of feminine identity: the strategies of women with breast cancer to cope with body image altered. Int J Women's Health. 2018;1(10):689–97.
16. Fagerlin A, Lakhani I, Lantz PM, Janz NK, Morrow M, Schwartz K, et al. An informed decision?: Breast cancer patients and their knowledge about treatment. Patient Educ Couns. 2006;64(1):303–12.
17. Haney B. Permanent and semi-permanent micro-pigment treatments. In: Haney B, editor. Aesthetic procedures: nurse practitioner's guide to cosmetic dermatology [Internet]. Cham: Springer International Publishing; 2020 [cited 2024 Mar 11]. p. 59–66. Available from: https://doi.org/10.1007/978-3-030-19948-7_7
18. Sisti A, Grimaldi L, Tassinari J, Cuomo R, Fortezza L, Bocchiotti MA, et al. Nipple-areola complex reconstruction techniques: a literature review. Eur J Surg Oncol (EJSO). 2016;42(4):441–65.
19. Koller V, Bullo S. "Fight like a girl": tattoos as identity constructions for women living with illness. Multimodal Communication [Internet]. 2019 Jun 1 [cited 2024 Feb 1];8(1). Available from: https://www.degruyter.com/document/doi/https://doi.org/10.1515/mc-2018-0006/html

20. P.ink.org [Internet]. Fuck cancer c2022 [Cited 2023, Oct 2]. Available from: https://www.p-ink.org/
21. Tittoo.org [Internet]. Tittoo c2023 [Cited 2023, Oct 2). Available from: https://tittoo.org/
22. The alliance of medical tattooing c2023 [Cited 2023, Oct 2). Available from: https://allianceofmedicaltattooing.com/
23. Becker SJ, Cassisi JE. Applications of medical tattooing: a systematic review of patient satisfaction outcomes and emerging trends. Aesthet Surg J Open Forum. 2021;3(3):ojab015.
24. Somogyi RB, Ziolkowski N, Osman F, Ginty A, Brown M. Breast reconstruction: updated overview for primary care physicians. Can Fam Physician. 2018;64(6):424–32.
25. Maselli D, Torreggiani M, Livieri T, Farioli G, Lucchi S, Guberti M. Tattooing to reconstruct nipple-areola complex after oncological breast surgery: a scoping review. Support Care Cancer. 2024;32(3):153.
26. Horton J, Macve R, Struyven G. Qualitative research: experiences in using semi-structured interviews1. In: Humphrey C, Lee B, editors. The real life guide to accounting research [Internet]. Oxford: Elsevier; 2004 [cited 2024 Mar 19]. p. 339–57. Available from: https://www.sciencedirect.com/science/article/pii/B9780080439723500220
27. Allen D. Moving the needle on recovery from breast cancer: the healing role of postmastectomy tattoos. JAMA. 2017;317(7):672–4.
28. Reid-de Jong V, Bruce A. Mastectomy tattoos: an emerging alternative for reclaiming self. Nurs Forum. 2020;55(4):695–702.
29. Gerber JP. Social comparison theory. In: Zeigler-Hill V, Shackelford TK, editors. Encyclopedia of personality and individual differences [Internet]. Cham: Springer International Publishing; 2020 [cited 2024 Jan 8]. p. 5004–11. Available from: https://doi.org/10.1007/978-3-319-24612-3_1182
30. Greup SR, Kaal SEJ, Jansen R, Manten-Horst E, Thong MSY, van der Graaf WTA, et al. Post-traumatic growth and resilience in adolescent and young adult cancer patients: an overview. J Adolesc Young Adult Oncol. 2018;7(1):1–14.
31. Kira I. Toward an integrative theory of self-identity and identity stressors and traumas and their mental health dynamics. Psychology. 2019;10(04):385.
32. Braun V, Clarke V. Reflecting on reflexive thematic analysis. Qualitative Research in Sport, Exercise and Health. 2019;11(4):589–97.
33. Corner J. Nurses' experiences of cancer. Eur J Cancer Care. 2002;11(3):193–9.
34. Tolsdorf CC. Social networks, support, and coping: an exploratory study. Fam Process. 1976;15(4):407–17.
35. Algorani EB, Gupta V. Coping mechanisms. In: StatPearls [Internet]. Treasure island (FL): StatPearls Publishing; 2024 [cited 2024 Mar 20]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK559031/
36. Stutsman A. Inking agency: women's mastectomy tattoos and emotional healing. Fresno: California State University; 2016. p. 122.
37. Ozakinci G, Swash B, Humphris G, Rogers SN, Hulbert-Williams NJ. Fear of cancer recurrence in oral and oropharyngeal cancer patients: an investigation of the clinical encounter. Eur J Cancer Care. 2018;27(1):e12785.
38. A.R.T. [Internet]. A.R.T areola certification training c2023 [Cited 2024, Feb 8th]. https://www.artschool.ink/offers/j3BdjqCP/checkout
39. Wu LW, Lin JR. Knowledge sharing and knowledge effectiveness: learning orientation and co-production in the contingency model of tacit knowledge. J Bus Ind Mark. 2013;28(8):672–86.
40. Iragorri N, de Oliveira C, Fitzgerald N, Essue B. The out-of-pocket cost burden of cancer care—a systematic literature review. Curr Oncol. 2021Apr;28(2):1216–48.
41. Irish Cancer Society [Internet]. The real cost of cancer report c2019 [Cited 2024, Feb 8th]. https://acrobat.adobe.com/id/urn:aaid:sc:EU:d0c037ff-b5a8-49df-b853-c3c294d22da3
42. Sanders Cr. Colourful writing: conducting and living with a tattoo ethnography. In: Ethnographies revisited. Routledge; 2009.
43. Nipple innovation project [Internet]. NIP c2018 [Cited 2024, Feb 8th]. https://www.nipcharity.org/
44. DiCenso D, Fischer-Cartlidge E. Nipple-areola tattoos: making the right referral. ONF. 2015;42(6):E376–81.
45. European Society of Tattoo and Pigment Research. Tattoo legislation [Internet]. c2024 [cited 2024, May 28]. Available from: https://estp-research.org/
46. Broussard KA, Harton HC. Tattoo or taboo? Tattoo stigma and negative attitudes toward tattooed individuals. J Soc Psychol. 2018;158(5):521–40.
47. U.S. Department of Labour [Internet]. Women's health and breast cancer rights Act c1998 [Cited 2024, Feb 8th]. https://www.dol.gov/general/topic/health-plans/womens