


A mixed methods evaluation of medical tattooing for people who have experienced a burn injury

Scars, Burns & Healing
Volume 4: 1–10
DOI: 10.1177/2059513118784721
Reprints and permissions:
sagepub.co.uk/journalsPermissions.nav
© The Author(s) 2018
journals.sagepub.com/home/sbh


Rebecca Yeates¹, Ezinna Rospigliosi²
and Andrew R Thompson¹ 

Abstract

Introduction: There are no existing studies examining the psychological merits of using facial medical tattooing (MT) following burn injury. This study evaluated an MT service supported by The Katie Piper Foundation. It examined accessibility, satisfaction and whether there were improvements in quality of life (QoL).

Methods: Thirty-five service-users were invited to participate in a cross-sectional online survey. Twenty-five (71%) responded (24 women; age range = 21–64 years), and of these five (4 women; age range = 26–59 years) also participated in telephone interviews, which were analysed using descriptive thematic analysis.

Findings: The service was largely considered easy to access (22/25) and convenient (25/25). Most service-users (22/25) were satisfied with the results of MT. Some areas of dissatisfaction were described, by a minority of service-users, including: the procedure being painful (1/25); the tattoo being below expectation or fading over time (3/25). The majority reported that MT had improved confidence (22/25); mood (19/25); and ability to socialise (19/25). The procedure improved some service-users' ability to carry out essential activities (14/25) and enjoyable activities (16/25). The qualitative responses provided during interview, indicated that all respondents found the procedure useful to their adjustment, although a minority (3/5) found it painful and also commented on fading (1/5). All described MT as contributing to a sense of increased normality.

Conclusions: MT had the largest impact on emotional wellbeing and interpersonal domains of QoL. MT services should now improve awareness of the procedure, lobby for further support to provide wider access to the procedure, and routinely use measures assessing psychosocial outcomes.

Keywords

Medical tattooing, burn injury, appearance, quality of life, adaptation, visible difference, trauma, evaluation

¹The Department of Clinical Psychology, University of Sheffield, Cathedral Court, Floor F, 1 Vicar Lane, Sheffield S1 1HD, UK. @DrARThompson.

²The Katie Piper Foundation, PO Box 334, 19–21 Crawford Street, London W1H 1PJ, UK. @KPFoundation.

Corresponding author:

Andrew R Thompson, The Department of Clinical Psychology, University of Sheffield, Cathedral Court, Floor F, 1 Vicar Lane, Sheffield S1 1HD, UK.
Email: a.r.thompson@sheffield.ac.uk



Lay Summary

As part of their support 'for' individuals who have experienced burn injuries, The Katie Piper Foundation has offered to support medical tattooing (MT), a procedure which can enhance and restore the appearance of individuals' eyebrows, eyes and lips following a burn injury. There are no known studies examining the psychological impact of MT for individuals with burn injuries. This evaluation asked its service-users (35 people) about their levels of satisfaction with the referral and assessment procedures, the procedure itself and its results, and whether medical tattooing had led to perceived improvements in quality of life.

Twenty-five people agreed to complete a survey and five people agreed to be interviewed by telephone. Almost all respondents considered the service easy to access and convenient. Staff were perceived to be warm and friendly. Most respondents were satisfied with the results. Some areas of dissatisfaction were described, by a minority of respondents, including: the procedure being painful; the tattoo being contrary to expectation or fading over time. Large proportions of respondents reported that MT had improved their confidence, mood and ability to socialise. A small number of respondents reported functional benefits (e.g. ability to carry out essential daily tasks). All respondents reported finding the procedure helpful to their adjustment and that it had helped restore a sense of normality. The results of this evaluation suggest that medical tattooing has the potential to have a positive impact on emotional well-being of people who have experienced a burn injury. Providers of MT services could now consider ways to improve access to the the procedure and look to measure psychosocial outcomes in routine practice.

Introduction

Burn injuries can be sudden and devastating events for individuals who experience them. They can also create significant short- and long-term physical and psychological challenges, including adjusting to wounds and subsequent scarring.¹

Scars may become the focus of unwanted and stigmatising attention from others and visible burn scars have been found to be associated with poorer social adjustment and greater psychological distress, and be triggers for intrusive recollections.²⁻⁵ Indeed, some individuals who have experienced burn injuries have reported finding negative self-appraisals of their appearance one of most challenging aspects of adjustment.³ Links have also been found between post trauma reactions, negative appraisals of appearance, social withdrawal and reduced engagement in valued activities.⁶ Therefore, interest has grown in treatments which could facilitate self-acceptance and re-engagement with valued activities.⁷

This evaluation focuses on medical tattooing (MT), a procedure which can enhance the appearance of eyebrows, lips and eyes for individuals who have experienced a facial burn injury.⁸ In MT, tiny individual pieces of pigment are implanted into the dermal layer of the skin.⁹ While MT is offered within private practice and in some burns and plastic surgery NHS services in the UK, there are no existing studies examining the psychological and psychosocial impact of MT for individuals with burn injuries; however, studies have reported high levels of patient

satisfaction after MT for individuals who have undergone nipple-areolar reconstruction after breast cancer, individuals with vitiligo affecting the lips and clinician-reported improvements in self-confidence in service-users with cleft palates.¹⁰⁻¹²

Gaining rigorous feedback from service users when implementing new services is crucial to ensuring they are effective and able to meet people's needs.¹³ In addition, the findings from investigations of early service provision of MT have the potential to inform whether further research and development into this form of intervention are warranted.

Within The Katie Piper Foundation's (KPF) MT service, service-users either self-refer or they are directly referred by their NHS burns service. At the time of conducting the study, 35 individuals had received one or more MT procedures as a result of receiving the support of the Foundation. The aim of this study is to evaluate service-users' views of MT service processes, with a specific focus on whether: (1) the referral and assessment procedures were acceptable; (2) service-users were satisfied; and (3) MT had led to changes in quality of life (QoL).

Methods

Design

A mixed-methods cross-sectional survey design¹⁴ was utilised. The use of mixed-methods allowed researchers to first elicit broad quantitative

information about levels of satisfaction and acceptability with specific structural elements of the service (e.g. was the venue accessible) using an online survey. The online survey format allowed service-users to share their experiences of the service anonymously and efficiently. Telephone interviews were subsequently conducted with a small proportion of the online survey sample to explore the psychological and social impact of MT in greater depth.¹⁵ In addition, respondents to the survey were invited to participate in in-depth qualitative telephone interviews¹⁶ so as to provide an opportunity to gain detailed information about the perceived benefits and limitations of the service. All qualitative data were analysed using descriptive thematic analysis.¹⁷

Ethics

Ethical approval was granted by the University of Sheffield Research and Ethics Committee on 11 July 2016.

Participants and procedure

All individuals ($n = 35$; 33 women) who had been provided with the service were invited to participate by a staff member of the charity (second author). Individuals with burn injuries affecting the face had been invited for a consultation with an MT practitioner following contacting the charity and a review of their needs identifying that they might benefit from MT. The decision to offer MT was made by the service provider and not the charity. The invitation to participate in this study was sent to service-users by the charity via email. This email provided information about the evaluation and a link to the survey (see supplementary materials) administered by Qualtrics®. The first page of the online survey contained the consent form.

Twenty-five respondents (71%) completed the online survey between 12 August 2016 and 7 February 2017. The long recruitment period allowed all interested service-users to participate. The contents of the survey are described below in the measures section. The same pool of 35 service-users were contacted again to invite them to participate in a follow-up telephone interview and five service-users responded and participated. The interviews were guided by a structured interview schedule (see supplementary materials) which included questions and prompts in line with the core aims of the study. Interviews were conducted

by the first author, who was independent of KPF and the MT services, and lasted 16–38 min ($M = 30.45$). A telephone interpreting service was used to facilitate one telephone interview with a service-user whose first language was not English; however, the service-user opted to complete the online survey in English. Verbal consent was obtained to record the conversations to aid data collection and analysis.

Measures

Demographic questionnaire. Participant characteristics were collected as part of the survey (see supplementary materials).

MT questionnaire. A 38-item survey tool was developed based on the aims of the study. The survey was developed by the first and third authors in conjunction with the KPF service-manager (second author) so as to ensure that it was likely to yield information useful to the service and also so as to check that it was likely to be understandable to users of the service. In addition, the survey questions were informed by a literature search aimed at establishing quality of life (QoL) dimensions that have been previously associated with burn injury recovery (e.g. relationships).¹⁸ The resulting items covered eight areas: satisfaction; staff perception; general QoL; mood; confidence; facial appearance; functional ability; and relationships with others. Commensurate with good survey practice, 14 items were negatively worded to minimise the risk of response pattern bias.¹⁹ The first 32 items were statements about the MT service and service-users were asked to rate how much they agreed with these statements according to a 5-point Likert scale ranging from 1 'strongly disagree' to 5 'strongly agree'. The final six survey items were free-text qualitative questions focusing on the three core study aims: accessibility; satisfaction; and change.

Data analysis

Quantitative data analysis. Quantitative data was analysed by the first author and checked by the third author using SPSS statistical software (Version 23). Participants' responses to the demographic and MT surveys were summarised using descriptive statistics. To measure whether the questionnaire items were reliably measuring the desired concepts, Cronbach's alphas were calculated for the eight subscales.²⁰

Table 1. Demographic information for the online survey and telephone interview samples.

	Online survey	Telephone interview
Participants	25	5*
Male (n)	1	0
Female (n)	24	5
Age, years (M, SD)	37.96 (13.98)	40.67 (16.67)
Range (years)	21–64	26–59
Ethnicity (n)		
White English	14	2
Pakistani	4	0
Black – Other	2	0
White – Other	1	0
Indian	1	1
Pakistani	1	0
African	1	0
Arab	1	0
Time since burn, years (M, SD)	19.47 (14.00)	16.57 (16.57)
Range (years)	1.60–55.30	2.70–27.00
MT procedures (n)		
1	10	1
2	4	1
3	6	0
4	1	0
5	3	1
Employment status (n)		
Employed full-time	8	2
Employed part-time	3	1
Unemployed, looking	1	0
Unemployed, not looking	1	0
Retired	2	0
Student	4	0
Disabled	6	0
MT procedure received (n)		
Eyebrow	22	3
Eyeliner	4	1
Lipliner	6	0
Lip colour	6	1

*Five service-users participated in telephone interviews (two did not provide demographic details.

M, mean; SD, standard deviation.

Qualitative data analysis. Service-users' responses to the open-ended survey questions and telephone interview questions were analysed together by the first author using descriptive thematic analysis and the veracity of analysis was checked by the third author.¹⁷ The steps followed were: (1) becoming familiar with the data; (2) generating data-driven initial 'codes'; (3) analysing whether there are relationships between the codes which form overarching 'themes'; and (4) defining and naming each theme.¹⁷ A realist position was adopted by the research team; meaning the analysis was focused on summarising the data provided by service-users, and the resulting themes are representative and descriptive of the content of the interviews.

Quality control. A log of the qualitative coding process was maintained by the first author to document decisions made and the coding process. This was audited by the third author.

Inter-rater reliability. All free-text response data and telephone interview transcripts were provided to an independent rater along with the thematic structure. The independent rater was asked whether they found the themes to be present or absent in the data.

MT questionnaire item reliability

Most Cronbach's alphas were acceptable once three problematic items had been removed, except the general QoL, mood and relationships subscales (Table 2). These subscale items may therefore not have reliably measured the subscale concept; however, these subscales consisted of two or three items which can lead to underestimations of reliability.²¹

Results

Participant demographics

Survey findings. The majority of respondents (22/25) reported being satisfied with the results of their MT procedure/s (see Table 3 for full breakdown of results). The service was largely considered easy to access (22/25) and the staff were perceived to be warm and friendly (24/25). All service-users found the service to be convenient. The majority of the respondents stated that MT had improved their confidence (22/25), mood (19/25) and ability to socialise (19/25). A small proportion of respondents stated that MT had also improved their ability to carry out

Table 2. Cronbach's alphas for survey subscales, after removal of problematic items.

	Items (n)	Cronbach's alpha
Overall satisfaction*	3	0.70
Access	4	0.69
Staff communication [†]	5	0.68
General QoL	2	0.58 [‡]
Mood	3	0.59 [‡]
Confidence [§]	2	0.78
Facial appearance	3	0.72
Functional ability	3	0.75
Relationships with others	2	0.55 [‡]

*Item 7 removed.

[†]Item 18 removed.

[‡]Regarded as having 'poor internal consistency'.²²

[§]Item 29 removed.

essential activities (14/25) and enjoyable activities (16/25). Less than half of respondents stated that MT had improved their ability to work (8/25), possibly because most service-users were either employed, retired, a student or disabled.

Qualitative findings. Six higher-order themes emerged: accessibility; hopes for treatment; relationships with staff; treatment; change; and satisfaction. All higher-order themes encompassed sub-themes which are described below.

Inter-rater reliability. The independent rater found all the themes to be present in the data, indicating a perfect level of agreement; however, they did provide some feedback and suggestions for amendments to the thematic structure and some revisions were subsequently made.

Accessibility. MT was largely described as easy and convenient to access.

MT referral developed from existing relationship with charity. Many respondents had contacted the charity after watching a documentary about a public figure associated with the service and described MT being offered as part of wider discussions about available services.

Access via burns service. A minority of respondents stated that they had heard about the MT service via their local burns unit.

Ease of access. Most service-users described their MT referral being completed on their

behalf which was easy and convenient for them:

'I didn't really have to do anything at all. I was contacted and everything was organised for me' (Respondent 8 [P8], Online Survey [OS]).

The referral process was largely described as swift and appointments were held at convenient locations and times. However, two service-users described the process to have taken 'a while' (P13, OS) and one service-user stated, 'the wait was confusing' (P16, OS).

Coincidental referral. A smaller number of respondents described their awareness of the service to have occurred coincidentally and a desire for all individuals with burn injuries to be aware of the procedure:

'I found the [service] through Google: I stumbled across it. I never knew anything like this was available.' (P17, OS)

Hopes for treatment. Some respondents described being unsure of what to expect and having some reservations about MT: about the word 'tattoo'; and whether it would be painful or make a difference. Most respondents described seeking MT as an alternative to self-applicable make-up, which many described as unsatisfactory, stressful or time-consuming:

'I'd always wanted eyebrows so I used to stencil them in but those kinda things are never even, they're ridiculous. One was thicker or thinner, the shape would be odd, the colour wasn't right' (P1, Telephone Interview [T1]).

Relationships with staff. An area all respondents agreed on was their positive relationships with staff.

Quick rapport with staff. All service-users described finding it easy to develop relationships with the staff: 'Definitely [felt at ease], 100%, from the minute I met her' (P5, TI). Many attributed their comfort around staff to their warm, caring and non-judgmental stance.

Expertise. Many described liking that practitioners worked collaboratively by explaining the procedure and choosing the colour and shape of the tattoo together;

'She was so warm and she gave me an idea of what they would look like, based on my personality, face and shape' (P1, TI).

Table 3. Frequency data for survey items.

	Strongly disagree	Disagree	Neither agree not disagree	Agree	Strongly agree
Overall satisfaction					
I am satisfied with the results of the MT	1/25	2/25	0/25	6/25	16/25
I am disappointed by the results of the MT	20/25	1/25	2/25	2/25	0/25
I would recommend MT to a friend	0/25	0/25	1/25	5/25	19/25
Access					
The MT service was easy to access	0/25	1/25	2/25	11/25	11/25
The assessment process was acceptable	0/25	0/25	2/25	10/25	13/25
The referral process was confusing	16/25	6/25	1/25	1/25	1/25
The MT referral process was convenient	0/25	0/25	0/25	10/25	15/25
Relationships with others					
MT has improved my ability to socialise	0/25	0/25	6/25	12/25	7/25
MT has not helped me feel more connected to other people	8/25	6/25	7/25	4/25	0/25
General QoL					
MT has improved my QoL	0/25	0/25	4/25	13/25	8/25
MT has not changed my QoL	5/25	10/25	5/25	2/25	2/25
Mood					
MT has helped me feel more positive about my future	1/25	2/25	1/25	12/25	9/25
MT has helped improve my mood	1/25	1/25	4/25	14/25	5/25
My mood has felt the same as before MT	6/25	10/25	3/25	6/25	0/25
Confidence MT has made me feel more confident in myself	0/25	0/25	3/25	11/25	11/25
MT has improved how attractive I feel	0/25	2/25	5/25	11/25	7/25
Staff perception/communication					
Staff I communicated with were warm and friendly	1/25	0/25	0/25	3/25	21/25
I felt unable to ask staff questions	16/25	6/25	1/25	2/25	0/25
Staff were prompt to respond to my questions and/or concerns	1/25	0/25	2/25	9/25	13/25
Staff put me at ease	0/25	1/25	1/25	8/25	15/25
There were delays in my communication with staff	13/25	8/25	2/25	2/25	0/25
Functional ability					
Since MT, I have been more able to carry out my essential activities	1/25	1/25	9/25	10/25	4/25

Table 3. (Continued)

	Strongly disagree	Disagree	Neither agree not disagree	Agree	Strongly agree
Since MT, I have been able to do more of the things that I enjoy	0/25	1/25	8/25	12/25	4/25
MT has improved my ability to work	0/25	6/25	10/25	4/25	4/25
MT has not changed my ability to do what's important to me	2/25	5/25	10/25	8/25	0/25
My ability to work has not changed since receiving MT	3/25	1/25	7/25	8/25	5/25
Facial appearance					
MT has lessened the anxiety I have felt about my facial appearance	1/25	1/25	5/25	12/25	6/25
MT has not changed how I feel about my facial appearance	9/25	7/25	4/25	2/25	3/25
I still feel dissatisfied with my facial appearance after MT	9/25	7/25	2/25	6/25	1/25

Respondents reported being impressed by the knowledge and skills of the practitioner and how this contrasted with their previous experiences:

'[They] know a lot about scars and burns and how the skin is different and what you have to do, and you can just tell, the skill is totally different' (P4, TI)

Treatment. Descriptions of the procedure itself indicated that it was not without discomfort or pain.

Painful procedure. Some respondents described the procedure as 'a bit uncomfortable' (P2, TI) whereas others described it to be 'extremely painful' (P13, OS). Others stated that numbing cream minimised any pain experienced.

Providing information. Almost all respondents described feeling fully informed about the procedure by the information provided at the consultation. One respondent noted they had not received any written information but had found relevant websites to be very informative.

Individually tailored. Clinicians were said to have advised as to what tattoo shape was likely to be most useful, based on their face, look and personality:

'I'm a diva, I love to dress up so [clinician] goes I'm gonna do that kinda shape, very Liz Hurley kinda shape, slightly higher brow, soft sort of end, that's me' (P1, TI).

Change. All service-users described experiencing some degree of change either to their appearance, confidence or daily routine.

Appearance. Most respondents described how their appearance had changed considerably since MT and praised the shaping, colouring and symmetry of their tattoos. Some described looking and feeling 'normal' after MT.

Inner confidence. Almost all respondents described the largest change being to their inner confidence. They described feeling 'pretty', 'attractive' and 'content' within themselves:

'I suppose the confidence is the main thing, you just feel more comfortable with yourself... It's not just an outward confidence, it's just makes you happier' (P5, TI)

Relational confidence. Many described a change to how they felt around others too: 'I feel better about people looking at my face' (Participant 13, OS) and their ability to speak in public. Many service-users described how they had previously avoided going out, socialising or having pictures taken; however, since MT they had experienced a new sense of freedom:

'Being able to wear my hair off my face for the first time instead of hiding behind a long fringe' (P16, OS).

'Whenever I used to do any kind of talking, the first thing you're thinking is what are they thinking of me, so

to get it so much on the aesthetic side, now I don't have that, I don't carry that' (P1, TI).

However, one respondent described how they felt restricted by their tattoo which they were unhappy with:

'[I am] worried to go out, what if people look at [me] and call [me] names... and those things make [me] conscious to go out' (P3, TI).

Having more time. Many service-users described how MT had saved them time:

'It is great to wake up in the morning, getting out of the pool, the shower etc. actually having eyebrows, not having to constantly touch up with an eyebrow pencil' (P21, OS).

Some respondents also described how MT had given them the time to focus on other aspects of their adjustment:

'Because...it's not just your face, it's your arms and legs, everything else. So that's one less thing to worry about if you know what I mean' (P5, TI).

Satisfaction. Most respondents described being very satisfied with the results of MT, often beyond what they had initially expected.

Exceeding expectations. Almost all service-users described MT meeting and surpassing their expectations. However, one participant describing dissatisfied: 'you can notice they are a different colour...they did not do a good job' (P3, TI) and another service-user described how their tattoo had faded and looked 'a mess' (P13, OS).

'It's only my lips... but it makes a big difference.' Some described being surprised by the difference MT had made to their face:

'Now, I don't think I could be without them. I would have never believed what a difference having eyebrows could make to how I feel about my face' (P12, OS).

Accentuate features not scars. Respondents also found that MT had helped frame their face and draw their and other people's gaze to their features, not their scars:

'It was strange because you looked in the mirror and you didn't see anything else, you just saw these lovely eyebrows and nice shaped lips which were coloured' (P5, TI).

Natural finish. Respondents praised the natural finish of their tattoo and attributed this to the 3D finish which gave the appearance of hair:

'It is so natural, people don't even know I've had it done and when I tell them, they're amazed!' (P9, OS).

However, one person described how they found their tattoo to look unnatural:

'[I] was expecting that the way they do paint to be like hair, but they did not do it' (P3, TI).

Getting something back that was lost. Many respondents described how MT had given them back something that had been missing and that this experience had sometimes been overwhelming:

'Honestly, she showed me it in the mirror and I was absolutely gob smacked, I couldn't believe it, I have lips! I haven't had them for like 15 years!' (P2, TI).

Receiving compliments. Several people described enjoying that others noticed and/or complimented their tattooed features:

'Everyone always comments on my eyebrows and they always say they're better than everyone else's.' (P4, TI).

Fading. The necessary top-up appointments which helped maintain the colour to have been were typically described to be straightforward and convenient. However, one respondent stated:

'My worse fear [being] not knowing whether I can have it re-done when it starts to fade' (P17, OS).

One respondent described how their tattoo had faded and looked 'a mess' (P13, OS) and another described hoping innovation would lead to future colour-boosts not being required.

Gratitude. Many found it hard to put into words the impact of MT on their lives and described feeling grateful for the service they had received.

Discussion

The current study's results suggest that service-users were largely satisfied with the results of their MT procedure which supports findings in relation to the provision of MT in other health conditions.¹⁰⁻¹² MT had the largest reported impact on emotional wellbeing and interpersonal domains of QoL, which suggests, for the first time, that there are psychological and social benefits to MT for individuals who have experienced a facial burn injury. Increased confidence and positive appraisals of appearance also enabled some service-users to be able to reconnect

with activities they used to do (e.g. socialising with friends) or always wanted to do (e.g. public speaking). A small proportion of respondents also reported that MT increased their ability to work. However, this might simply reflect the pre-existing employment status of the group and further research is needed to substantiate this finding.

The findings suggest that by helping individuals to change the appearance of scarred areas, MT might help to contributing to addressing feelings of social isolation, which are frequently reported by individuals who have experienced a burn injury.⁵ However, while the online survey results suggest that MT reduced anxiety around facial appearance for the majority of service-users, one-quarter of service-users reported continuing to feel dissatisfied with their facial appearance. This probably indicates that while some changes to appearance might be achieved by MT, managing and coping with changes to facial appearance and the associated difficulties this may cause, is a complex phenomenon.^{6,23} It is possible that MT might be enhanced if delivered alongside psychological interventions (e.g. cognitive behavioural therapy) aimed at addressing underlying difficulties with self-esteem and social interactions.⁵ It might also be useful to offer MT alongside the provision of other appearance altering interventions such as training in the use skin camouflage products.

Considering the high levels of satisfaction with MT found in this small sample, and MT's reported impact on confidence, mood and ability to socialise, further investigation is required to examine whether this result can be replicated with a larger sample. Further, almost all individuals provided with a MT service were women, which limits the findings' applicability to men and also raises questions about whether the service is routinely being offered to men or is not attractive to them. This ratio of men to women is representative of the charity's historic service-user base; however, it is also worth noting that the majority of MT procedures offered were eyebrow tattooing and the first choice of treatment for men would be restoration of eyebrows using hair transplant surgery, rather than medical tattooing.²⁴ Services offering MT could lobby for further support to provide this service to a larger and more gender diverse sample. Some service-users described how their awareness of MT had developed coincidentally and the service could consider strategies to improve awareness of how patients can access MT, either via the service itself

or via NHS burns and plastics surgery services where an MT service is available.

Some areas of dissatisfaction with MT were described, by a minority of service-users, including: the procedure being painful; and the tattoo being contrary to expectation or fading over time. MT services may consider providing more written information to individuals to ensure individuals know that they are able to access ongoing 'colour-boost' treatments to maintain their tattoos' colour. Furthermore, MT services may wish to include access to psychological pain management techniques to equip individuals with skills to manage their pain.

Limitations and future research

The results of this study need to be considered within the context of the study's limitations. Administering an online retrospective survey with follow-up qualitative interviews allowed for a broad evaluation of the acceptability of the KPF service processes before the exploration of potential psychological and social processes in greater depth. However, conducting qualitative interviews first would have allowed the online survey's items to be driven by service-user experience as opposed to the aims of the evaluation and existing theory. This deductive process may also have limited the study's ability to measure broader QoL changes which may have occurred as a result of MT, which have not yet been studied. It was evident that demographic and outcome data were not being collected by the MT service and there is clearly a need for such data to be routinely collected so as to enable continuing scrutiny of the benefits of this form of treatment. Indeed, the use of a standardised QoL questionnaires would have strengthened the service (and study's) ability to have captured change reliably. While the survey and interview tools used were reviewed by the second and third authors who have experience of working with people receiving burn care services, the tools might have been refined following piloting with service users.

The use of a retrospective design increased potential for recall bias and socially desirable responding and future studies using a longitudinal qualitative approach enhanced with such methods as photo-elicitation might facilitate a more in-depth understanding of the change processes over time.²⁵ Finally, an interpreting service was used to facilitate communication with a service-user, for whom English was not their first language. While this facilitated their participation,

the use of interpreting services raises some methodological considerations.²⁶

Conclusions

Clearly, this study is a retrospective evaluation of a small sample of people receiving MT provided with the support of a charitable foundation; consequently there are limitations in drawing conclusions about effectiveness and satisfaction. Nevertheless, the findings of the study are unique in demonstrating that this type of procedure may have psychological benefits for people who have sustained a burn injury and consequently should be subject to further, more rigorous, research. The results suggest that MT had the largest impact on emotional wellbeing and interpersonal domains of QoL. MT services should now improve awareness of the procedure, lobby for further support to provide wider access to the procedure, and routinely use outcome measures to assess the psychosocial benefits.

Declaration of conflicting interests

Ezinna Rospigliosi is the Charity Service Manager at The Katie Piper Foundation and Dr Andrew Thompson is the charity's psychological advisor.

Funding

This evaluation received no grant from any funding agency in the public, commercial or not-for-profit sectors and was completed as part of the first author's Doctor of Clinical Psychology qualification.

ORCID iD

Andrew R Thompson  <https://orcid.org/0000-0001-6788-7222>

References

1. Fauerbach JA, Heinberg LJ, Lawrence JW, Bryan AG, Richter L and Spence RJ. Coping with body image changes following a disfiguring burn injury. *Health Psychol* 2002; 21: 115–121.
2. Thompson A and Kent G. Adjusting to disfigurement: Processes involved in dealing with being visibly different. *Clin Psychol Rev* 2001; 21: 663–682.
3. Rumsey N and Harcourt D. Body image and disfigurement: Issues and interventions. *Body Image* 2004; 1: 83–97.
4. Browne G, Bryne C, Brown B, Pennock M, Streiner D, Roberts R, et al. Psychosocial adjustment of burns survivors. *Burns Incl Therm Inj* 1985; 1: 28–35.
5. Van Loey NEE and Van Son MJM. Psychopathology and psychological problems in patients with burns scars. *Am J Clin Dermatol* 2012; 4: 245–272.
6. McLeod R, Shepherd L and Thompson AR. Posttraumatic stress symptomology and appearance distress following burn injury: An interpretative phenomenological analysis. *Health Psychol* 2016; 35: 1197–1204.

7. Muftin Z and Thompson AR. A Systematic Review of Self-help for Disfigurement: Outcomes and User Perspectives. *Body Image*, 2013; 10: 442–450. doi: 10.1016/j.bodyim.2013.07.005.
8. Gunay Y, Erkan M, Gurbuzer B and Karayazgan B. Facilitation of facial prosthesis placement with tattoo markers: A clinical report. *J Prosthet Dent* 2007; 97: 256–260.
9. Heath J. Wound art: Exploring the use of medical and decorative tattooing to disguise scars. *J Aesthet Nurs* 2017; 5: 500–501.
10. Smallman A, Crittenden T, MiinYip J and Dean NR. Does nipple-areolar tattooing matter in breast reconstruction? A cohort study using BREAST-Q. *JPRAS Open* 2018; 16: 61–68.
11. Singh AK and Karki D. Micropigmentation: Tattooing for the treatment of lip vitiligo. *J Plast Reconstr Aesthet Surg* 2010; 63: 988–991.
12. Van Der Velden EM and Van Der Dussen MFN. Dermatography as an adjunctive treatment for cleft lip and palate patients. *J Oral Maxillofac Surg* 1995; 53: 9–12.
13. Harper D and Thompson AR (eds.) *Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners*. London: Wiley, 2012.
14. Creswell JW, Plano Clark VL, Gutmann ML and Hanson WE. Advanced mixed methods research designs. In: Tashakkori A and Teddlie (eds) *Handbook on Mixed Methods in the Behavioral and Social Sciences*. Thousand Oaks, CA: Sage Publications, 2003, pp. 209–240.
15. Dures E, Rumsey N, Morris M and Gleeson K. Mixed methods in health psychology: Theoretical and practical considerations of the third paradigm. *J Health Psychol* 2010; 16: 332–341.
16. Opendakker R. Advantages and disadvantages of four interview techniques in qualitative research. *Forum: Qualitative Social Research* 2006; 7: 11.
17. Boyatzis RE. *Transforming Qualitative Information: Thematic Analysis and Code Development*. London: Sage Publications, 1998.
18. Corry N, Pruzinsky T and Rumsey N. Quality of life and psychosocial adjustment to burn injury: Social functioning, body image, and health policy perspectives. *Int Rev Psychiatry* 2009; 21: 539–548.
19. Hinkin TR. A review of scale development practices in the study of organisations. *J Manag* 1995; 21: 967–988.
20. Cronbach LJ. Coefficient alpha and the internal structure of tests. *Psychometrika* 1951; 16: 297–334.
21. Tavakol M and Dennick R. Making sense of Cronbach's alpha. *J Med Educ* 2011; 2: 53–55.
22. George D and Mallery M. *Using SPSS for Windows step by step: a simple guide and reference*. Boston, MA: Allyn & Bacon, 2003.
23. Clarke A, Thompson AR, Jenkinson E, Rumsey N and Newell R. *CBT for appearance anxiety: Psychosocial interventions for anxiety due to visible difference*. London: Wiley, 2013.
24. Motamid S and Davami B. Eyebrow reconstruction following burn injury. *Burns* 2005; 31: 495–499.
25. Radley A and Taylor D. Images of recovery: A photo-elicitation study on the hospital ward. *Qual Health Res* 2003; 13: 77–99.
26. Squires A. Methodological challenges in cross-language qualitative research: A research review. *Int J Nurs Stud* 2009; 46: 277–287.

How to cite this article

Yeates R, Rospigliosi E and Thompson AR. A mixed-methods evaluation of medical tattooing for people who have experienced a burn injury. *Scars, Burns & Healing*, Volume 4, 2018. DOI: 10.1177/2059513118784721