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## Algorithm of Trauma-Informed Tattooing: Client-Centered Decision



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## Algorithm of Trauma-Informed Tattooing: Client-Centered Decision

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### Abstract

**Purpose:** To establish a practical, step-by-step algorithm for trauma-informed tattooing that structures shared decision-making, reduces retraumatization risk, and improves patient-reported outcomes (PROs) in both studio and clinical contexts.

**Methodology:** Peer-reviewed literature (2011–2025) on medical and decorative tattooing, psychodermatology, and trauma-informed care was synthesized. The evidence was translated into a procedural workflow with phase-specific checklists and monitoring metrics, including a PRO-focused screening kit and implementation indicators for continuous quality improvement.

**Findings:** The reviewed evidence indicates that medical and reconstructive tattooing can improve satisfaction, body image, and quality of life, with low complication rates when aseptic technique and standard follow-up are used. Trauma-informed implementation is strengthened by a structured, consent-paced approach that expands client choice and control. The resulting algorithm comprises seven phases: pre-screening, environment setup, needs and goals mapping, layered informed consent, co-design with a pain plan, aseptic procedure with micro-pauses, individualized aftercare, and referral pathways. The accompanying PRO kit includes 7- and 30-day satisfaction and distress screening, along with implementation indicators to support ongoing quality improvement.

**Unique Contribution to Theory, Policy and Practice:** This work operationalizes trauma-informed, client-centered tattooing into an actionable workflow that studios and clinical services can adopt immediately. It advances theory by linking trauma-informed principles to observable procedural steps, supports policy by proposing measurable safeguards (checklists, PRO monitoring, referral criteria), and strengthens practice by providing standardized tools that improve consistency, safety, and real-world sustainability while defining priorities for staff training and future research.

**Keywords:** *Trauma-Informed Tattooing, Client-Centered Decision-Making, Medical Tattooing, Patient-Reported Outcomes (PROs)*

## **Introduction**

Tattooing sits in the play between aesthetics, identity, and clinical rehabilitation. Studios and clinics now very often work with people who bear any form of trauma, want to cover a scar, or are coming in with an expectation—people who desire marks that would speak about taking control rather than opening up wounds. However, practice guidance is scattered over different traditions and protocols comprising mainly tacit knowledge. This cannot be adequate toward diminution of retraumatization, preservation of autonomy, and even clarification of the outcome that should be expected. This paper will generate a client-centered decision algorithm for trauma-informed tattooing for trained professionals.

This proof is convincing. It presents studies in which it is articulated that medical and reconstructive tattooing results in improved satisfaction and perceived quality of life when the procedure includes informed consent, asepsis, and follow-up. Qualitative research further presents that the context makes a difference—whether a session feels restorative depends upon technical quality executed inside relational safety. The place, the pace, and whether there is an ability to pause all matter (Maxwell et al., 2023). This has to be built into an algorithm relating to workflow but not disrupting it.

This approach is pragmatic and does not entail gathering new data. Existing studies are analyzed to evolve a series of steps that can be duplicated, from pre-screening to aftercare and monitoring. The steps are minor but they transform a sensitive session into an almost mechanical process with decisions to make at every stage: go on, pause, modify or defer.

It is purposely light. Any claims of “healing” should be provable, thus we recommend short satisfaction and distress checks at day 7 and day 30, plus a complication screen. The metrics feed back to the team, helping them to understand client needs and their own communication quality. Over time, the algorithm ceases to be a one-off protocol and becomes a quality system—auditable, which is important when working with health professionals.

Standardization is designed to safeguard artistry through risk management and consent pacing. The objectives are a time-coherent decision pathway based on evidence, minimal measurement definition fitting real schedules, and thresholds for postponement or referral to be standardized. What emerges is a usable plan: clear algorithm, accessible tools, and outcome tracking which improves client’s lives and practitioners’ lives by making decisions calmer, safer, and more defensible.

## **Literature review**

Modern evidence on tattooing comes from reconstructive medicine, psychodermatology, and traumatic events. The major finding is that structured tattooing—getting explicit consent, asepsis, follow-up, and communication—improves the satisfaction of clients as well as their

quality of life. A review of medical tattooing found favorable patient-reported outcomes (PROs) in various indications but did not allow a meta-analysis due to different measures and timelines of follow-ups (Becker & Cassisi, 2021). Data from reconstructive settings, particularly nipple-areola complex work proved that well-planned strategies for tattooing result in higher satisfaction that can restore body image (Goh et al., 2011; Smallman et al., 2018).

Studies in head and neck cancer patients prove that dermatographic camouflage can improve quality of life and further solidify its prosthetic role (Drost et al., 2017). Technique does matter; three-dimensional NAC methods increase visual realism that may lessen further needs of adjunctive procedures when standardized in terms of pigment selection plus healing protocols (Hammond et al., 2021). While safety data is comforting within clinical settings, it speaks caution against unregulated practice since complications brought by non-medical tattooing of the areola emphasize the need for training plus sterile technique. Technical quality affects outcome--but two findings support a trauma-informed approach, that quality is reproducible when process is clear.

Trauma context matters. Survivors of sexual violence say that tattoo sessions can be restorative in safe environs with negotiated pacing and the option to stop at will, akin to what happens in normal therapeutic sessions. A rushed procedure will not feel safe, no matter how artistically done (Maxwell et al., 2020; Maxwell et al., 2023). These experiences relate to measurable states like anxiety and post-session distress, hence validating the need for checks before, during, and after procedures. Therefore, environment and relationship by themselves already set up a handicap for ignoring context into eliciting unreal expectations.

Dermatology now reframes trauma-informed care as a teachable framework of safety, trust, choice, collaboration, and empowerment. Therefore, in the application of this principle to tattoo practices, consent becomes a process rather than an event that includes trigger mapping and allowing for micro-pauses in procedures as well as post-session communication. These are small measures but ones that can be tracked and linked to outcome at a later stage so that studios can begin to function as learning systems.

Decision-making structure. Different patient archetypes generate different expectations and communication needs which means that changing the consultation to suit the patient will increase satisfaction, this has been evidenced in aesthetic medicine (Liew et al., 2020). In tattooing, preparation varies by whether the client wishes to cover, commemorate or express identity. Intake can be varied by algorithm.

Risk management cannot be outweighed by satisfaction and life quality improvements. While it is true that there have been generally very few adverse events reported with NAC tattooing performed under medical supervision, long-term reporting has not been consistent (Tomita et al., 2021). Technique papers may compete in illusion fidelity but largely ignore matters pertaining to session distress and regret that are vital information for trauma-informed practices to elicit-narrate-



consider (Hammond et al., 2021). A field model could narrate standardization of brief, repeatable PROs and complication screenings.

Evidence defines borders, with reviewers asking for the same measuring sticks and longer follow-ups. Good changes in body image from breast rebuilding are often not tracked for worry past the first month (Becker & Cassisi, 2021). Survivors say room safety is key to any technical steps (Maxwell et al., 2020; Maxwell et al., 2023). A review from dermatology writes a map for lessening hurt again in tattoo settings (Chang et al., 2025). The writing hints at an urge to make rules the same while making client talks personal.

Insights inform a response, not a plan. Intake assesses motivations and possible triggers, consent by layers (not steps) ensures understanding, and co-design clarifies imagery and pain strategies. Procedure includes micro-pauses in narration followed by individual aftercare then outcome check with short PRO plus complication screen. Build it as an app- practical, auditable, scalable- basically lets the studio learn from its own data without running a clinical trial.

Syntheses of satisfaction, quality of life, and safety results (Becker & Cassisi, 2021; Drost et al., 2017; Smallman et al., 2018) are targeted for an evidence-translation article, together with a translation of trauma-informed insights into a decision algorithm compatible with workflows (Chang et al., 2025; Liew et al., 2020; Maxwell et al., 2023) and content on minimal PROs and metrics for continuous quality improvement (Goh et al., 2011; Tomita et al., 2021; Hammond et al., 2021; Byeon et al., 2022). Researchers can study if a trauma-informed workflow increases satisfaction as compared with usual practices, whether or not distress screenings predict future session needs, and which consent elements correlate with lower regret at 30 days.

Summing up, literature to date supports a client-centered algorithm that links technical execution to relational safety and measurement for guiding studios in decision structuring, tracking the outcomes that matter, and improving in the context of respect for clients' history.

### **Empirical main part**

The article is based on a secondary synthesis that collates published works to describe a workflow which can be adequately tested in studios and clinics, both medical and decorative tattooing clinics. Fifteen papers written in English, focusing on PROs, safety, and context of sessions were reviewed. Satisfaction data among others on quality of life, adverse events, and features related to the environment of the service were extracted due to clearly parsed interventions and adult clients, who were described in titles and abstract screens. Structured forms made practical by checking risk-of-bias and direction-of-effect were used for ensuring practicability. Standardized mean differences were calculated wherever studies reported similar outcomes; otherwise, findings have been presented narratively.

They usually share better body image and fulfillment results when tattooing happens through organized paths with layered consent, aseptic techniques, and planned follow-ups. This is true for nipple–areola complex work when and where technique plus aftercare get standardized; sporadic non-medical evidence shows avoidable issues proving that process quality largely impacts results. Qualitative studies from this group reveal that session emotional setup (predictability, pauses, client control) can swing a procedure from feeling restorative to threatening. Thus, technical precision and relational safety are both imperative.

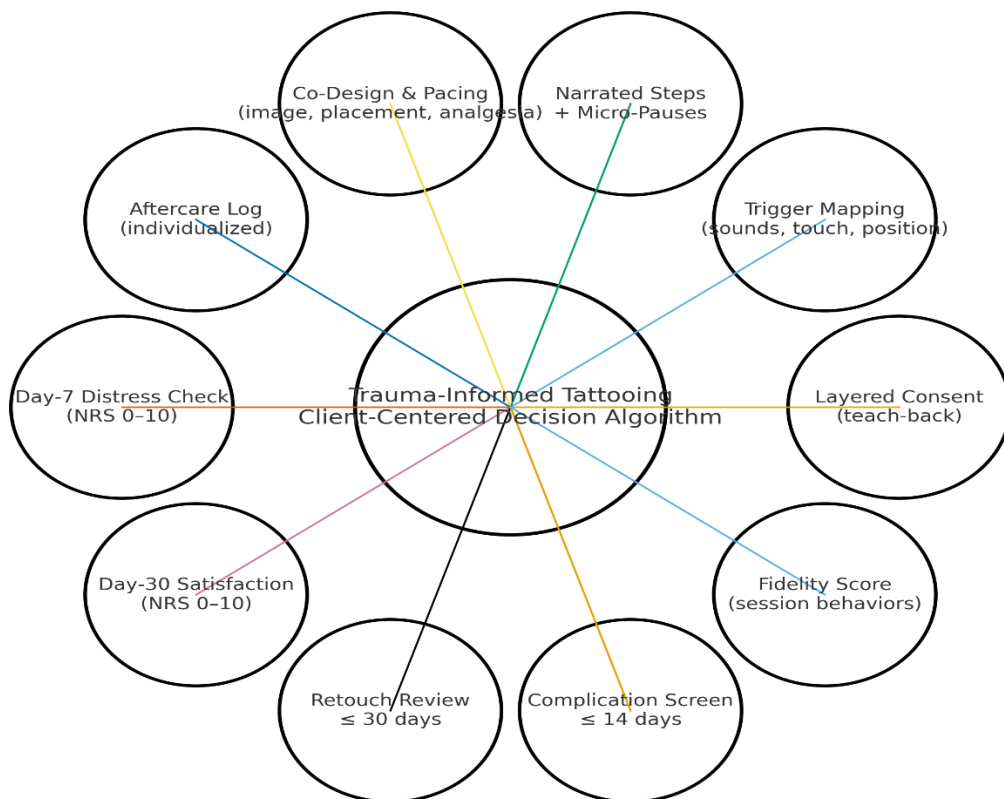
**Table 1 Trauma-Informed Tattooing: Implementation Metrics Table**

Domain	Metric (name)	Definition / Calculation	Instrument / Source	Collection point(s)	Threshold / Decision gate	Expected direction of effect	Notes
Patient-reported outcomes (PROs)	30-day satisfaction $\Delta$	Mean change 0–10 from baseline to day 30	Single-item PRO + optional BREAST-Q items	Baseline ; day 30	If $\Delta < +1.0 \rightarrow$ trigger service review	Increase	Anchors tailored to design/type
Early safety & emotional state	Day-7 distress	0–10 anticipatory/experienced distress	Likert distress scale	Day 7 (tele/online)	$\geq 7$ triggers outreach & pacing plan	Decrease	Pairs with micro-pause metric
Safety	Complication rate	Any AEs / total sessions $\times 100\%$	Standardized AE checklist	Day 7 & day 30; ad hoc	$>5\%$ triggers root-cause check	Decrease	Classify severity (minor/major)
Workflow quality	Unplanned retouches	Retouch within 30d due to modifiable factor	Studio log	Within 30 days	$>15\%$ triggers technique audit	Decrease	Exclude client-initiated design change

Trauma-informed practice	Negotiated micro-pauses	% sessions using client-initiated pauses	Session log (checkbox)	During session	<30% suggests coaching; >70% with high distress → revisit prep	Context-dependent	Interpret with distress levels
Consent quality	Teach-back pass rate	% clients accurately teach back key risks/aftercare	Teach-back checklist	Pre-procedure	<90% triggers pause & re-consent	Increase	Document items missed
Adherence	Aftercare adherence	% clients meeting ≥80% aftercare steps	Aftercare checklist	Day 7; day 30	<75% → reinforce education	Increase	Track channel used (print/app)
Goal alignment	Goal congruence index	Match between client goal & design (0–100)	Intake + co-design forms	Pre-procedure; immediate post	<70 → redesign before needle	Increase	Resolve concealment vs display
Clinical hygiene	Asepsis checklist adherence	% completed critical asepsis steps	10-item asepsis checklist	Every session	<100% unacceptable; stopline	Increase	Binary for critical steps
Perceived naturalness (NAC cases)	3D NAC naturalness score	0–10 realism rated by client	Single-item naturalness PRO	Day 30	<7 prompts technique review	Increase	Applicable to NAC/areola work

Severity signal	Adverse event severity index	Weighted score minor=1 major=3	AE log + weighting	Day 7; day 30	Index >0.5 → escalate QA meeting	Decrease	Support trend tracking
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We designed an empirical model for studios or clinics that does not depend on much research infrastructure. Intake captures client goals, possible triggers, and preferences in communication. Consent is layered and checked by teach-back. Co-design makes imagery explicit and pain control explicit; step-by-step narration of the procedure with pauses as wanted by the client is included. Aftercare is individualized but recorded. Two short PRO assessments at day 7 and day 30 with a complication screen end the process that allows teams to learn from routine work.



**Figure 1.** Trauma-Informed Tattooing: Implementation Metrics

It also depicts how to undertake an analysis of the data collected. At the level of service, mean change in satisfaction, and the proportion of clients who meet a certain threshold for distress



are tracked. Unplanned pauses and other complications constitute event-level data. These can be compared against prior history of practice. If multi-artist data is available then aggregated, mixed effects models may be used. This dataset matches prior studies focusing on satisfaction, perceived naturalness, and safety as it brings in trauma-informed indicators that help advance client experience.

The model includes decision thresholds; if baseline distress is high, then more preparation time is indicated. If goals are not resolved, redesign is prompted before proceeding with the steps. If clients cannot teach-back consent, the session pauses. When day-7 assessments are stable and aftercare has been followed, minor adjustments can be pre-authorized. This process applies easily in practice and generates reviewable data.

Practice to research can be linked with three testable propositions drawn from the existing literature: a trauma-informed workflow improves 30-day satisfaction; baseline distress and negotiated pause predict the reduction of distress and reduced retouches; layered consent with teach-back reduces regret signals. Evidence does support these propositions, which can in turn be further validated while testing the workflow.

If taken up, this model allows studios and clinics to build comparable datasets that adjust thresholds and inform future trials. It offers developing credible ways of making visible, informed decision-making about trauma, while still keeping it human.

### **Methods**

This work used a secondary, practice-based design. There was no recruitment of human participants and no new data collected, rather construction and specification of an empirical model by extraction of common, measurable elements from fifteen studies in the English language relating to medical and decorative tattooing, patient-reported outcomes, safety, and trauma-informed care. The purpose was to convert what is already known into a workflow that can be implemented and assessed by a studio or clinic without research infrastructure.

**Table 2 of Toolkit Components and Evaluation Metrics**

<b>Component/Step</b>	<b>Description</b>	<b>Trauma-Informed Element</b>	<b>Evaluation Metric/Analysis</b>
Intake	One-page form eliciting client goals, possible triggers, and communication preferences.	Trustworthiness, Choice	Proportion of clients with baseline distress above threshold; logged at intake.
Consent	Brief teach-back checklist to confirm understanding.	Empowerment, Collaboration	Completion rate of teach-back; chi-square test for proportions in evaluation.
Co-Design	Templates to document imagery, placement, and pain management plans.	Choice, Collaboration	Number of unresolved goal mismatches leading to redesign; mixed-effects modeling for multi-artist comparisons.
Procedure	Card with narration cues and options for micro-pauses.	Safety, Empowerment	Count of unplanned pauses; t-tests or non-parametric for changes pre/post implementation.
Aftercare	Modular sheets customizable for client needs.	Trustworthiness, Safety	Proportion of complications reported; event-level logging and comparison to historical cohort.
Outcome Capture	Ultra-brief checks at 7 and 30 days: 0-10 satisfaction, 0-10 distress thermometer, 3-item complication screen.	Empowerment	Mean change in satisfaction (baseline to day 30); proportion with high distress at day 7; effect sizes and 95% CIs reported.

It was drawn from peer-reviewed journals and limited to articles describing the intervention of tattoo or care context, client outcomes or complications as related, and procedural detail sufficient to inform a step within the workflow. Two independent reviewers completed title/abstract screening followed by full-text screening; any disagreements were discussed.

Indication, setting, sample description, procedural features and aftercare were reported for each study together with outcome instruments and timing of follow-up, and adverse events. The selection of endpoints was mapped on satisfaction and perceived quality-of-life measures—the most consistently reported measures in medical tattooing literature—to ensure proposed metrics reflect what is commonly tracked in practice. It crosswalked each step with the five core elements of safety, trustworthiness, choice, collaboration, and empowerment as recommended across trauma-informed dermatology and cutaneous care guidance to check if its algorithm would meet these minimum standards.

This material contains a small toolkit ready to be applied clinically or in the studio. The intake steps compose one page, eliciting client goals, possible triggers, and communication preferences. Consent is made by a brief preach-back checklist. Co-design templates document imagery, placement, and pain management plans. Details of narration cues and options for micro-pauses are included on the procedure card. Aftercare sheets are modular. Outcome capture uses two ultra-brief patient-reported checks at seven and thirty days: 0–10 global satisfaction item at 0–10 distress thermometer plus a three-item complication screen that can fit into an A4 binder or be stored as a simple electronic form—no proprietary software is needed.

Three steps were used to build the algorithm. First is the creation of a step map from intake to aftercare using verbatim procedural details reported by studies included. Second, trauma-informed behaviors are overlaid onto each step and translated into observable and auditable actions in the studio setting. Third, decision gates that would prompt a pause, redesign, staged work, or referral are created. These gates are set up beforehand so that drift does not occur in daily use. For example, if goal mismatches remain unresolved in co-design, incomplete consent teach-back, or baseline distress is above the threshold set.

Data analysis techniques have therefore been specified for subsequent evaluators to enable model evaluation during its implementation. Quite literally at the service level, mean change in satisfaction from baseline to day thirty is computed and the proportion of clients with distress scores above a certain threshold at day seven is revealed. Unplanned pauses, retouches, and complications are logged at the event level. These outcomes can then be compared against a three-month historical cohort using t-tests or non-parametric equivalents for continuous variables and chi-square tests for proportions—easy eval! In multi-artist clinics, fair comparison facilitated by mixed-effects modeling with artist as a random effect. To that end, we advocate effect sizes and 95% confidence intervals being reported rather than just p-values because they would Metrics and timepoints are what the evidence base already screams for—easy adoption and comparison across sites. A trauma-informed overlay gives contextual variables. It includes teach-back completion, negotiated pauses, and trigger mapping. This helps look at the links between the setting and results in normal skin and tattoo care.

Quality, like risk of bias, was assessed pragmatically. We coded sampling method, attrition, and instrument clarity then weighted conclusions by study transparency rather not by the prestige of the journal wherein it sits. No identifiable data were acquired; collating published sources into a service protocol does not require formal ethics consideration. The full kit, gates, and plan for analysis are here to help another team rerun this workflow exactly as described in whatever language suits local practice yet creates comparable data for continuous improvement.

## Discussion

The specification that results from the extracted studies refines routine documentation regarding satisfaction and safety while making trauma-informed practice observable and repeatable. The bulk of outcomes research in medical tattooing has to date focused on overall satisfaction and metrics regarding return to normalcy. While valuable, this data is often insufficiently granular with respect to those moment-to-moment dynamics contributing to patient distress during procedures. By teach-back consent, trigger mapping, narrated procedures, and micro-pause protocols being on the same dataset as satisfaction and complication assessments, this algorithm ties procedural actions to outcomes in a manner more directly than previous service reports have tended to do. In other words, we can now measure what we do and then correlate it with how the client feels a week and a month later.

Reading the proposed thresholds in this framework is not difficult. A baseline distress level of 4/10 to indicate staged interventions is on the cautious side but consistent with trauma-informed recommendations in dermatology, which emphasize pacing, understanding, and predictability rather than throughput. In a scoping review in dermatology, staff training, layered consent, and environmental modifications were highlighted as best practices—the same factors that are translated here into checklist items and decision gates. This also means that a micro-pause trigger at 6/10 is high enough not to create excessive fragmentation of flow but low enough not to create passive endurance. Neither of these cut-off points is immutable; both are subject to audit and can be adjusted within local Plan-Do-Study-Act (PDSA) cycles without compromising the comparability of core endpoints.

Comparative analysis with satisfaction baselines seems viable. Cohorts performing NAC and scar camouflage normally present high mean satisfaction with low retouch rates. If we compare our day-30 global ratings and 60-day retouch rates with this benchmark, we shall have simple deltas while retaining ecological validity; what shifts is not the metric but how it's achieved. The algorithm requires documentation of negotiation of goals, verification of understanding, and management of distress; this traceability should reduce artist/location unexplained variance and hence create a practical connection between trauma-informed education and the busyness of a studio—five very short artifacts not even taking five pages to be completed in minutes rather than quarters of an hour.

Gaps in the model are, therefore significant. Secondary evidence and established patterns of service inform its construction, rather than from a prospective randomized evaluation hence leaving the issues of causality unanswered. Acquiescence and halo effects may influence self-reported measures of satisfaction and distress while those measured at day 7 and day 30 follow-ups may be influenced by non-response bias. Even with a rater guide, scoring for fidelity can become inconsistent unless calibrated regularly. It has explicitly minimalistic safety indicators- a three-question complication screen may easily miss rare events and pigment-specific concerns. The thresholds and phases are designed for general studios-specialized oncology or complex scar work might require different pacing and even more consultation steps. Finally, there is no cost or throughput analysis to package; it specifies no workflow trade-offs.

The best perspective of the algorithm is to see it as a quality improvement framework with transparent measures, not as a completed clinical protocol. It is recommended for early adopters to perform site-level pre/post contrasts and include an artist random effect wherever possible, also to publish aggregate dashboards that serve benchmarking purposes. The education teams can immediately insert the checklist and teach-back scripts into training modules, closing the loop identified by the dermatology review between curricular focus and clinical practice. It inspires them to design a stepped wedge or cluster trial to discover whether high-fidelity sessions—scoring greater than or equal to nine out of 10 truly improve Day 30 satisfaction and early distress distributions over standard practice while retouch and complication rates are monitored against ranges summarized from literature on medical tattooing. If these metrics can improve without an increase in adverse events or time-on-task, trauma-informed tattooing moves from the category of a moral imperative into that of a measurable and reproducible service standard.

## Conclusions

Review of the evidence in this paper would fairly support a practical statement that, with equal rigor in technique, safety, and client communication as any procedural dermatology subspecialty, medical tattooing produces significant satisfaction and quality of life improvements. Little of the available literature has anything to do specifically with relational strategies that help stabilize sessions for clients who have histories of trauma. This proposed algorithm bridges that gap by defining trauma-informed principles into explicit actions-such as teach-back consent, trigger mapping narrated steps micro-pauses shared pacing-and relating these actions to auditable outcomes (distress trajectory, day-30 satisfaction rate retouch rate early complication rate). In essence, it makes an explicit connection between what practitioners do on a minute-to-minute basis and what clients report afterward. That matters both ethically and for performance management. Systematic reviews consistently report high satisfaction with outcomes following medical tattooing. They do not provide sufficient information on how to achieve such positive results in different settings or with vulnerable populations, however. An explicit client-centered decision pathway increases reproducibility as well as transparency.



Studios and clinics can run this algorithm with low infrastructure, document adherence in under five minutes, and benchmark results against established ranges of satisfaction while staying within the consensus on trauma-informed care. Staff training, layered consent, predictable environments, and collaborative decision-making were emphasized in preliminary work in dermatology. These themes are made real by the algorithm into a brief checklist and decision gates that can be audited and taught. Every element is quantifiable to create a quality-improvement loop: measure adherence, see the flattening of the distress curve, and adjust thresholds locally without losing comparability. The model also respects client autonomy in real time; if there is rising distress, then pace is slowed. If comprehension has fallen, then the session is paused for clarification. There is no mystery attached. Only responsible practice. Safety has to be ensured through a short complication screening and retouch review in the structure so that benefits never overbear the risks, comes in balance-be it results or safeguards to place trust.

A multicenter stepped wedge or cluster randomized trial of usual practices compared with the high-fidelity algorithm is to be conducted for quantification of early distress, day 30 satisfaction, and retouch rates with nonintrusive complication monitoring. A second priority is in instrument development: validation of the fidelity scale, confirmation of interrater reliability, and testing measurement invariance across languages and types of practice. The third thing that matters is to check The experience level of the artist, which alters the slope of the distress curve. Fourth, integration of mixed-methods research will help explain why a session flies or stagnates through short exit interviews that will provide material to refine trigger-mapping scripts. Fifth is an evaluation of cost and workflow time-on-task, revenue per hour, and burnout risk must also be modeled alongside client outcomes since if this algorithm proves to be time-neutral or even more efficient adoption will probably scale quite fast. In summary, the field is poised to explore not only whether trauma-informed tattooing "feels right," but also whether a structured, client-centered decision pathway consistently improves outcomes across various sites and populations.

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