Complementary Therapies in Clinical Practice 35 (2019) 353–360

Contents lists available at ScienceDirect

Complementary Therapies in Clinical Practice

journal homepage: www.elsevier.com/locate/ctcp

Using a Delphi consensus process to develop a structured reflexology treatment protocol to reduce preoperative anxiety

Samuel Attias[a,b,*,2], Elad Schiff[c,d,a,e,1], Zahi Arnon[a,f], Bluma Nae[g], Mostafa Somri[h], Ofri Avneri[i], Yael Gross[j], Lital Keinan Boker[k,b]

[a] Complementary & Integrative Surgery Service, The Surgery Department, Bnai-Zion Medical Center, Israel
[b] School of Public Health, University of Haifa, Israel
[c] Internal Medicine Department, Bnai Zion Medical Center, Haifa, Israel
[d] Rappaport Faculty of Medicine, The Technion-Israel Institute of Technology, Haifa, Israel
[e] Bnai Zion Medical Center, 47 Golomb Street, Haifa, 31048, Israel
[f] Yezreel Valley Academic College, Emek Yezreel, Israel
[g] Faculty of Health Sciences, Ben-Gurion University of the Negev, 1 Ave. Ben Gurion, Israel
[h] Department of Anesthesiology, Bnai-Zion Medical Center, Haifa, Israel
[i] Department of Obstetrics, Bnai-Zion Medical Center, Haifa, Israel
[j] Department of Hemato- Oncology, Bnai-Zion Medical Center, Haifa, Israel
[k] Israel Center for Disease Control, Ministry of Health, Israel

1. Background

1.1. Preoperative anxiety

Many individuals undergoing surgery have negative experiences associated with their operations due to major preoperative anxiety, as reported by 11%–80% of adult surgical patients [1,2]. A research study that examined treatment of preoperative anxiety in the waiting room area found that 70% of all surgical patients experienced an intermediate to high level of preoperative anxiety (Visual Analog Scale - VAS > 4 out of 10) [3]. A state of preoperative anxiety is liable to affect the course of the surgery and the postoperative recovery period. Moreover, it can also influence perioperative morbidities, such as pain [4], wound healing [5], nausea and vomiting [6], length of hospitalization and recuperation [7], immune system status [8] and anesthesia **use** [9]. Several studies have proven the effectiveness of anti-anxiety drugs as part of premedication treatment prior to surgery, among them Midazolam [10], Gabapentin [11], Diazepam [12] and Oxazepam [13]. The window of opportunity for providing treatment in the waiting room is narrow and challenging due to the relatively short amount of time the patient spends there before being brought to the operating room [3]. In addition, several studies have shown beneficial effects of various complementary treatment methods, among them reflexology, in reducing anxiety before surgery or medical procedures [3,14,15].

1.2. Reflexology

Reflexology is a massage treatment method based on the theory that the entire body is represented by reflex points on the feet (or the hands). The treatment involves applying deep pressure on points on the feet that represent specific organs [16,17]. There are several approaches to reflexology, among them the original and classic method developed by Eunice Ingham [17]; the Grinberg method, which involves physical and emotional diagnosis and treatment while considering the four elements of Greek medicine [18]; the Meunier method [19], which adopts a Western approach similar to that of Eunice Ingham; and the Chinese medicine approach [20].

The use of treatment guidelines has become increasingly more prevalent today in an attempt to ensure suitable and accurate treatments for specific medical conditions. Nevertheless, as of today neither the International Council of Reflexologists nor the Israeli Reflexology Association has issued any official guidelines offering protocols for treating various medical problems. Moreover, reflexologists do not always agree with respect to where some of the reflex points are located in the feet [21,22] or regarding the technique for stimulating these points. Consequently, research studies examining the effectiveness and safety of reflexology treatments experience difficulties in structuring a unified, reproducible therapeutic approach. Some claim that the holistic approach, which requires that individual attention be directed to physical and emotional aspects, is not suited for the establishment of

* Corresponding author. Complementary and Integrative Service, Bnai-Zion Medical Center, Israel, School of Public Health, University of Haifa, Israel.
E-mail addresses: Samuel.attias@b-zion.org.il (S. Attias), eschiff@bezeqint.net (E. Schiff), zahia@yvc.ac.il (Z. Arnon), bluma180@gmail.com (B. Nae), mostafa.somri@b-zion.org.il (M. Somri), ofriavneri@gmail.com (O. Avneri), Yaeli.gross84@gmail.com (Y. Gross), lkeinan@univ.haifa.ac.il, Lital.Keinan2@MOH.HEALTH.GOV.IL (L.K. Boker).

[1] Equal contribution to first author.

[2] Present/permanent address: Department of Surgery, Bnai Zion Medical Center, 47 Golomb Street, Haifa 31048, Israel.

https://doi.org/10.1016/j.ctcp.2019.03.016
Received 24 January 2019; Received in revised form 14 February 2019; Accepted 22 March 2019

protocols for reflexology treatments [18]. In addition, the recent framework of Whole-Systems Research in integrative medicine encourages the study of individualized complex CAM interventions as a system-level phenomenon [23,24].

However, this holistic approach makes it difficult to generalize such treatments in the health system, particularly within research outlines. Moreover, despite the existence of several publications showing the effectiveness of reflexology for anxiety, there are no guidelines for treatment approaches [15, 25].

In the context of conducting a clinical trial aimed at examining the effectiveness and safety of reflexology in relieving preoperative anxiety, we used the Delphi method to develop an agreed-upon structured therapeutic protocol for preoperative anxiety reduction. To the best of our knowledge, this article is the first to describe such an approach in the area of reflexology.

2. Methods

2.1. Delphi process

The research method used is based on the Delphi process, which addresses areas of debate or uncertainty through expert consensus. The consensus is reached through several rounds of discussions between stakeholders in a designated topic [26]. This technique allows dialogue, creativity, synergy and consensus among the experts. However, there are some limits to this approach: first, the length of the process that can lead to many rounds in order to reach a solution; second, when e-mail rounds are used, in-depth conversations with and among experts are lacking [27].

There are several variations to the Delphi process. In the current research, we used email communication to save time and expenses related to face-to-face meetings. In addition, raising issues for discussion via email gives participants sufficient time to formulate their answers. The anonymity of the process also enables participants to answer freely. Finally, the process has been proven effective in many research studies [27]. In this case, the objective of the Delphi process was to arrive at a structured and optimal protocol for using reflexology to treat preoperative anxiety. We chose to use the Delphi process based on experience gathered from similar studies in the field of medicine and particularly in complementary medicine [28,29].

2.2. Screening and recruiting study population

2.2.1. Participant sampling

The snowball sampling method [30] was used to choose the participants from among those engaged in reflexology in private practice, in health maintenance organizations and at hospitals, as well as those who teach reflexology at institutes for complementary medicine. Special emphasis was placed on locating therapists oriented toward treating anxiety.

2.2.2. Sample size

According to Reid's study from 1988, the number of participants in Delphi processes in various studies ranged from 10 to 1685 [31]. Other studies showed that around 20 or even fewer participants can still provide stable results [32,33]. Since the sample size for Delphi panels has not been established, a small number of participants is valid when they constitute leading experts in a well-defined knowledge area, who contribute to the process [33].

The current Delphi process was planned for and included 22 therapists who agreed to participate in an organized and documented study of team thinking. These participants were chosen according to predetermined inclusion criteria.

2.2.3. Inclusion criteria

Active therapists with at least two years of experience in reflexology treatment who had completed at least two years of reflexology studies.

2.2.4. Exclusion criteria

Therapists who had not engaged in reflexology treatment during the past year.

For all participants the following data were recorded: gender, age, education, years of experience working in reflexology, therapeutic approach (Eunice Ingham, Grinberg, other), number of patients per month, number of patients oriented toward reflexology treatment for anxiety, and number of patients being treated for preoperative anxiety.

2.3. Screening the topics

The following topics were planned for discussion in the Delphi process:

1. Foot or hand reflexology, as in rare cases reflexology is applied to the hands [15].
2. Different reflexology approaches (Eunice Ingham, Grinberg, other).
3. The need for preparatory massage. This is not always mentioned in the therapeutic protocols in research on reflexology.
4. Treatment technique [deep massage, creeping (caterpillar movement), other].
5. Reflex points and their location on maps of the foot [reflexology maps—head, spine, diaphragm, Solar Plexus (SP), (Celiac plexus)]. Complexity and differences.
6. Treatment safety, including the potential for treatment-associated reactions not considered adverse treatment effects. The reference here is to reactions to the treatment (i.e., a physical or emotional change related to reflex zone activation) as opposed to undesirable side effects of the treatment.

2.4. Delphi process

The open question for the first round was formulated by four therapists from the Bnai Zion Medical Center, a major hospital in Haifa, based on their experience using reflexology to treat preoperative anxiety. Three rounds were planned, with consensus defined as agreement among 80% of the therapists. Topics on which the participants did not reach consensus were to be brought up for discussion in another round, or documented as additional methods beyond the protocol determined at the end of the process. Participants were contacted via electronic mail (email) and their addressees were kept confidential (using the 'bcc' option). This ensured participant anonymity and precluded control and dominance by a single participant. After the first round, each participant was contacted by telephone or in person to clarify attitudes toward treatment techniques and the exact location of the reflex points.

2.4.1. Round 1 – open question (see Box 1)

The purpose of this round was to send an open question to the participants in the Delphi process in order to determine each participant's therapeutic approach. The participants were also asked to indicate how they would divide their treatment within a 15-min timeframe, in accordance with the time limitations in the waiting room.

Once all participants responded, each participant was interviewed by telephone or in person to clarify attitudes toward treatment techniques and the exact location of the reflex points, in preparation for the second round.

2.4.2. Round 2

The main objective of this round was to position the suggested reflex points on a reflexology map and to show what these points had in common and how they differed. This process took place by interview or by email and referred to a standard reflexology map. In addition, the techniques for applying pressure mentioned by each participant were documented.

Box 1
Open question

The purpose of the Delphi process is to arrive at a solution using experts. The proposed solution will undergo consideration until the discrepancies are reduced and a treatment consensus solution/protocol/approach is reached.

In your opinion, what is the most appropriate therapeutic protocol/treatment approach for using reflexology to treat preoperative anxiety? The treatment will be given about half an hour before the patient enters the operating room and will last about 15 min. In your answer, please refer to the method, treatment techniques, reflex areas and areas of division according to elements. Add any aspects or methods you believe should be included.

2.4.3. Round 3

Based on the previous two rounds, the participants reached agreement on the treatment protocol and on the proposed treatment procedure. Emphasis was placed on treatment safety and on the potential for reactions and their severity during and after treatment. Participants were asked to answer these questions on a Likert scale, ranging from 1 (do not agree at all) to 5 (highly agree).

2.4.4. Testing and control by three researchers

For the sake of quality control, three auditors (O.A, Y.G, S.A) examined the findings of the Delphi process. Additional treatment options comprising topics on which the participants did not reach consensus in the Delphi process was prepared and offered as an addition to the treatment protocol.

2.5. Analysis

The analysis entailed collecting themes that included therapeutic approaches, reflex points, treatment techniques and time needed for individual treatments, including time estimations for preparatory massages or SP pressure. The process involved examining the points of consensus and difference in each round. In addition, once the final protocol was determined at the end of the process, descriptive statistics using means, median and standard deviation were applied to the four questions. The participants were informed about these results for the different rounds.

3. Results

3.1. Participants

The Delphi process was conducted from January 2017 to January 2018. The research began with 22 participants. One participant dropped out at the beginning, claiming a lack of sufficient free time. Another participant dropped out after the first round for a reason unknown to the researchers. All 20 remaining participants took part in all rounds, and five reported consulting with other therapists who were not part of the Delphi team before responding to the Delphi process questions. Around 40% of the therapists had more than ten years of experience in the field of reflexology and most used the Eunice Ingham method. Six therapists working in the field of hemato-oncology constituted 30% of the research participants. Around 40% of the participating reflexologists treated preoperative anxiety. Table 1 summarizes the characteristics of the participants who completed the process.

3.1.1. Results of round 1

Each participant individually answered the open question via personal email. All the therapists chose foot reflexology and none raised the option of hand reflexology. Three of the twenty participants noted they would add reflexology of the shins in addition to the feet. More than 80% of the participants raised the need for preparatory massage to the SP, head, spine, diaphragm and pelvis reflex points (see Table 2). Topics that were raised in the first round but did not reach consensus were raised in the second round and added to a therapeutic arsenal beyond the proposed protocol (see Fig. 1).

Table 1
Characteristics of the participants in the Delphi process.

Participants (N = 20)	%	n
Gender		
Female	85	17
Male	15	3
Age		
24–35	15	3
36–45	25	5
46–65	60	12
Education		
Diploma Reflexology	55	11
BA + Dip. Refl.	25	5
Master's degree + Dip. Refl.	15	3
MD + Dip. Refl.	5	1
Years in Reflexology practice		
2–10	60	12
11–20	20	4
21–29	20	4
Reflexology approach		
Eunice Ingman + Greenberg	85	17
Greenberg	10	2
Others	5	1
Reflexology patients seen per month		
10–30	55	11
31–60	30	6
61–130	15	3
Reflexology patients seen per month with orientation to anxiety treatment		
5–30	40	8
31–60	40	8
61–100	20	4
Reflexology patients seen per month with orientation to anxiety treatment in hospital setting		
None	60	12
1–15	20	4
16–30	20	4
Principal domain in treatment		
Oncology	20	4
Oncology + Hemato-Oncology	10	2
Obstetrics	15	3
Gastroenterology	5	1
Others	50	10

3.1.2. Results of round 2

The reflex points that reached consensus in the second round achieved more than 80% agreement: SP, diaphragm, spine, head, shoulder belt and pelvis. Moreover, in this round a number of therapeutic techniques were suggested and received broad consensus: “opening” the chest area (see Fig. 2) by stretching it sideways three times, in addition to a breathing exercise performed with both feet held simultaneously in a plantar flexion position. Another technique involved gently pressing the SP area while the patient inhales. The foot massage and breathing exercise are planned for around two minutes (see Fig. 2 and Table 3). In addition, participants agreed upon most of the other treatment techniques raised in this round that were recognized in the reflexology literature. At the end of this round, the following protocol was prepared (see Box 2).

Table 2
Round 1 - Participants' reference: What is the proposed treatment?.

Participant No	Preparatory Massage	Toes Head reflex zone	Medial area of foot Reflex spine area	Heel Pelvic reflex area	[a] Diaphragm reflex area	[b] SP Celiac plexus	Foot or Hand Reflexology	Others comments
1	V		V	V	V	V	Foot	Breathing
2	V	V	V	V	V	V	Foot	Joint release + Shoulder belt
3	V		V	V	V	V	Foot	Shoulder belt + Third finger grip
4	V			V	V	V	Foot + Shin	Joint release + Breathing
5		V	V	V	V	V	Foot	Shoulder belt + Third finger grip
6	V	V		V	V		Foot	Breathing + Thoracic opening
7	V	V	V				Foot	Hormonal system
8	V	V	V	V	V	V	Foot + Shin	Breathing + Joint release + Thoracic opening
9	V	V	V	V	V	V	Foot	Breathing + Thoracic opening
10	V	V	V	V	V	V	Foot	Breathing + Shoulder belt + Thoracic opening
11	V	V		V	V	V	Foot	Breathing
12	V	V	V	V	V	V	Foot + Shin	Holding heels
13	V	V	V	V	V		Foot	Joint release + Thoracic opening
14	V	V	V		V	V	Foot	Breathing + Shoulder belt + Thoracic opening
15	V	V	V	V	V		Foot	Shoulder belt + Thoracic opening
16	V	V	V		V	V	Foot	
17	V	V	V	V	V		Foot	Joint release + Thoracic opening + Holding heels
18	V	V	V		V	V	Foot	Breathing + Adrenal
19	V	V	V	V		V	Foot	Hormonal system + Breathing + Thoracic opening
20	V	V	V	V	V	V	Foot	Breathing + Shoulder belt + Thoracic opening
No. of agreements of total (%)	19/20 (95)	17/20 (85)	17/20 (85)	16/20 (80)	16/20 (80)	16/20 (80)	20/20 (100)	

[a] SP (Solar Plexus), on the sole of the foot, in the depression when foot is in plantar flexion position, at the junction of the anterior 1/3 and posterior 2/3 of line connecting base of the 2nd and 3rd toes with the heel.
[b] Diaphragm reflex area: the point at which the ball and the arch of the foot are differentiated by color and textural changes represents the diaphragm zone.

3.1.3. Results of round 3

This round resulted in agreement among the experts regarding the protocol (4.35 out of 5), including agreement on the estimated evaluation of treatment effectiveness (4.35) and safety (5 out of 5), as well as assessment of the low likelihood of developing a reaction during and immediately after the treatment (1.6) and of the predicted strength of such a reaction (1.25) – (see Table 4).

3.1.4. Examination and control by three researchers

Only minor discrepancies emerged and were resolved with the primary investigator **(S.A)**.

3.1.5. Informing Delphi outcomes that were not under consensus

The following additional treatments emerged from the Delphi process but did not achieve a majority consensus (less than 80% agreement) (see Box 3).

4. Discussion

In this study, we constructed a reflexology treatment protocol for reducing preoperative anxiety based on expert consensus obtained through a Delphi process. The strength of this process lies in the participation of many experts with a great deal of professional diversity and experience. All twenty participants responded to all the rounds. Five of them reported consulting with other therapists (who did not take part in the research) before responding to the Delphi process questions, reflecting professional responsibility on their part and adding diversity to the data gathered.

The results indicate that reflexology of the hand is not recommended for treating preoperative anxiety. Foot reflexology is more prevalent both in the literature and in research [33,35]. Since patients are lying down, they can reach a deeper level of relaxation. Moreover, this position is more convenient for the therapist, and the foot offers a larger presentation area and a broader selection of reflex points than the hand.

The participants agreed that reflexology treatment should be limited to 15 min. This period of time is significantly shorter than the customary reflexology treatment of 40 min, which is typical of treatments given in the community for patients with chronic problems as part of a series of treatments. On the other hand, in a hospital setting shorter and one-time reflexology treatments can be administered to relieve symptoms only. In addition, the waiting room, which is crowded with medical staff members who are under pressure to move patients to the operating room, does not facilitate long treatment durations. In light of these points, the participants reached consensus regarding short treatment duration and agreed upon a protocol that concentrated on massaging reflex points that activate the parasympathetic nervous system. Therapeutic approaches that did not achieve consensus in the Delphi process were eliminated from the protocol. Reflexology approaches to different patients and for different conditions are heterogeneous and no one approach has been proven more effective than another. Therefore, a list of additional approaches that were raised during the Delphi process but that did not achieve consensus has been added as an addendum to this paper. Consensus does not necessarily predict therapeutic effectiveness. Hence, we chose to offer various approaches to the reader. These should be examined in future studies.

The Delphi process emphasizes the importance of selecting specific reflexology points for the treatment protocol. The unique “reflexes” triggered by specific point stimulation are the core concept of reflexology, thus the need to highlight relevant reflexology points in the consensus. Moreover, and beyond belief, recent research has supported point specificity in reflexology with fMRI studies showing correlation between reflexology charts and corresponding cortical activation [36,37]. We therefore chose to provide an illustration of the foot and

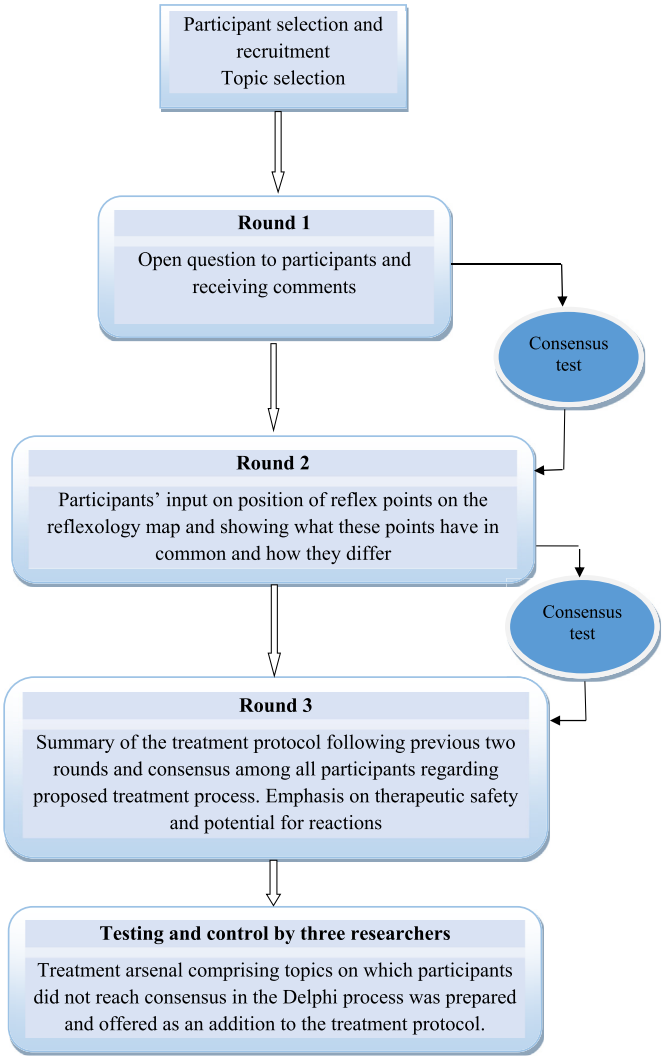

Fig. 1. Diagram flow - Delphi process.

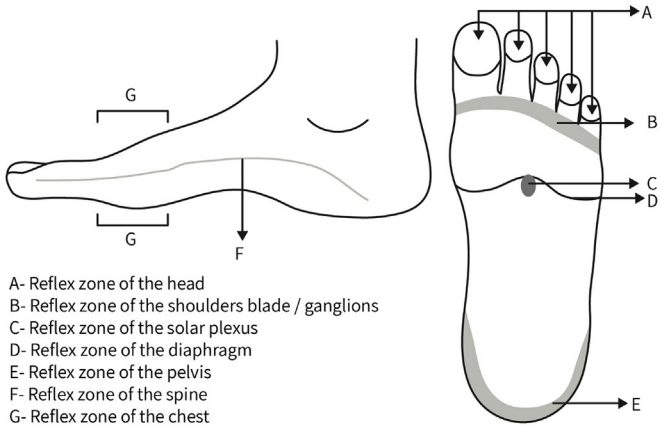

Fig. 2. Illustration of plantar view of areas of the foot and side view showing reflex points.

show the location of the reflex points emerging from the Delphi process (see Fig. 2).

Delphi participants were in complete agreement regarding the safety of the proposed treatment. Treatment in a hospital setting differs significantly from treatment in the community due to the acute and often fragile condition of the patients. Therefore, despite the potential to improve the patients' condition, reflexology may also cause them harm, which is why agreement on a safe therapeutic approach is crucial. It is important to note that the agreement regarding safety is not only theoretical. In a study of 120 patients given preoperative reflexology in the waiting room using a similar treatment approach developed at our center but not through a Delphi process, no side effects or significant reactions to the treatment were reported [3]. This can be attributed to the choice of safe therapeutic methods and adherence to designated safety procedures for complementary medicine in general and for reflexology in particular [38].

5. Research limitations

The reflexologists in our Delphi process were recruited using the snowball sampling method. In some cases, this method can lead to recruiting therapists with similar approaches, thus limiting the generalizability of the findings. Moreover, all reflexologists were Israelis, limiting the therapeutic diversity that might have emerged had the research group included a large international group of experts. Nevertheless, reflexology training in Israel includes all the approaches recognized in the Western world, some of which were developed in Israel. Therefore, it is reasonable to assume that the group of experts participating in the Delphi process represented the most prevalent practices in the world of reflexology. Furthermore, involving reflexologists from across Israel in the Delphi process was already complicated from a logistic perspective. Inclusion of reflexologists from different countries would have made the logistics of the Delphi process even more difficult.

The protocol did not include a diagnostic process, which is one of the cornerstones of reflexology. Some reflexologists may claim that the lack of diagnosis is deleterious to therapeutic effectiveness and therefore the Delphi findings are not valid. Yet the one-time therapeutic goal in this research was concrete and short term. The experts who participated in the Delphi process reached agreement on a therapeutic approach that would provide an adequate response to preoperative feelings of anxiety for most patients, without the need to consider the specific characteristics that would have emerged from a reflexology diagnosis. Nevertheless, in cases of patients who do not respond to the treatment protocol suggested in this article, therapists should certainly consider each patient's unique characteristics and additional approaches, as documented in the addendum to this paper.

In general, conducting a Delphi process to reach agreement on a uniform treatment protocol seems to contradict a fundamental principle of reflexology, according to which each patient is a unique and complex bio-psycho-social entity. We agree with this principle. Yet, we contend that in order to examine reflexology effectively within the framework of a clinical trial seeking to assess how to relieve the specific symptom of preoperative anxiety, using a uniform therapeutic approach is acceptable and in fact warranted, to grant the results higher impact. The term "therapeutic protocol" is liable to generate antagonism among holistic therapists. Yet very few studies in the field of complementary medicine have proven the effectiveness of an individualized approach over uniform therapeutic approaches. For example, the study by Patch et al., showed that individualized acupuncture was not superior to standardized acupuncture for patients experiencing chronic pain, whereas the study by Bensoussan et al., found that the Chinese herbal formulations individually tailored to the patient proved to be more effective than standard herbal formulas [39,40]. Moreover, none of the studies comparing individualized Vs protocolized approaches in complementary medicine evaluated reflexology.

Constructing a therapeutic approach using input from a large number of therapists, as was the case in this study, provides professional validity for the use of this approach in future studies.

Table 3
Round 2 - Participants' reference: What is the localization of reflex point?.

Participant No.	Techniques/Treatments	[a] SP Celiac plexus	[b]Diaphragm reflex area	Medial area of the foot Reflex spine area	Toes Zone of head reflex	Heel Pelvic reflex area	Shoulder belt reflex area
1	Complete and slow touching; downward movement	V	V	V	V	V	V
2	Creeping	V	V	V	V	V	V
3	Creeping	V	V	V	V	V	V
4	Alternating complete and gentle touching	V	V	V	V	V	V
5	Creeping; deep contact but not strong.	V	V	V	V	V	V
6	Creeping and crosswise	V	V	V	V	V	
7	Creeping, deep touching	V	V	V	V	V	V
8	Creeping	V	V	V	V	V	V
9	Creeping and crosswise, gentle massage	V	V	V	V	V	V
10	Creeping	V	V	V	V	V	V
11	Creeping and crosswise	V	V	V	V	V	V
12		V	V	V	V	V	V
13	Creeping and crosswise, gentle and circular touching	V	V	V	V	V	
14		V	V	V	V	V	V
15	Creeping and crosswise	V	V	V	V	V	V
16	Slow touching, downward massage	V	V	V	V	V	
17		V	V	V	V	V	
18	Gentle downward massage	V	V	V	V	V	V
19		V	V	V	V	V	V
20	Slow and downward touching, Creeping and crosswise	V	V	V	V	V	V
No. of agreements of total (%)		20/20 (100)	20/20 (100)	20/20 (100)	20/20 (100)	20/20 (100)	16/20 (80)

[a] SP (Solar Plexus): on the sole of the foot, in the depression when foot is in plantar flexion position, at the junction of the anterior 1/3 and posterior 2/3 of line connecting base of the 2nd and 3rd toes with the heel.
[b] Diaphragm reflex area: the point at which the ball and the arch of the foot are differentiated by color and textural changes represents the diaphragm zone.

Box 2
Protocol/Treatment approach

* Use neutral reflexology cream without aromatherapy supplements.
* Use protective gloves if there is significant biological risk.
* Patient should be lying down in the hospital bed.

1. Joint relaxation and preparatory/preliminary massage. General massage of both feet with full contact (not too strong) using downward motion from toes to heels. Around 2 min.
2. Relaxation (skeletal system and nervous system). Crawling around and between toes (head reflex area) and gentle circular massage of tips of toes. Crawling next to, over and under the bony path of the spine. Around 3 min.
3. Crawling massage of shoulder belt. Around one minute.
4. Crawling massage of diaphragm. Around one minute.
5. Gentle circular massage of the solar plexus (SP). Around one minute.
6. Breathing exercise: Massage two feet together while patient breathes deeply. Inhaling—toe pressed gently on SP. Exhaling—Toe remains gently touching SP. Around two minutes.
7. Opening the chest region (first meridian area) by pressing sideways three times. Horizontal and vertical crawling over the first meridian area. Two minutes—one minute for each foot.
8. Slow and deep massage of the third horizontal (heel) around the medial malleolus and the Achilles heel. Around one minute.
9. Simultaneously holding heels/ankles of both feet. Around one minute.
10. General concluding massage of both feet. Around one minute.

Table 4
Round 3 - Agreement among the experts regarding the protocol.

Questions	N	Mean	SD	Median
To what extent do you agree to the proposed treatment?	20	4.35	0.93	5
To what extent do you think treatment will be beneficial?	20	4.35	0.81	4.5
To what extent do you think the proposed treatment is safe?	20	5	0.00	5
What is the likelihood of a reaction as a result of the proposed treatment (response reaction)?	20	1.60	0.94	1
What is the expected intensity of the reaction (if one occurs)?	20	1.25	0.64	1

Box 3
Additional aspects of the treatment protocol

- Recommendation: Conduct a 5–10 min intake interview on the ward before patient is taken to the anesthesia induction room.
- Recommendation: Maintain eye contact with the patient during the treatment, including facial expressions, eyes, breathing and body language.
- Reflexology cream: Use a variety of oils and creams, sometimes with aromatherapy. Two therapists noted that they do not use cream at all to enable them to feel the texture and temperature of the skin.
- Because reflexology treatment promotes urination, the patient should be provided with overshoes and allowed to get up and urinate. However, if a patient has been given anxiolytic benzodiazepine medications, getting out of bed is not recommended.
- Treatment for the hormonal system, particularly the adrenal and hypophysis systems, which are believed to reduce sympathetic activity.
- Treatment by massaging the shins, which also constitute a somatotopic organ that, like the feet, reflect body reflex zones
- Diagnosing the areas needing relaxation and release through observation and touching the feet and according to the division into the elements of water, air, fire and earth (an approach originating in the Greenberg method).
- Treating the reflex points of the throat and the kidneys.

6. Conclusion

This study represents, to the best of our knowledge, the first Delphi process in the field of reflexology. Despite the great heterogeneity in reflexology treatment methods, it is possible to achieve a therapeutic consensus regarding the approach to short-term treatment for a focused problem. We intend to use this protocol in a clinical trial and thus also study its effectiveness in reduction of preoperative anxiety, but more clinical studies are needed to examine the effectiveness and safety of the proposed protocol. Moreover, the effectiveness of the proposed therapeutic approach should be examined in comparison to individual treatment approaches. In addition, we recommend conducting an international Delphi process to extend the generalizability of the study to additional geographic settings.

Conflicts of interest

The authors declare that they have no conflict of interest.

Disclosure

The authors declare that they have no conflict of interest.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgements

We extend our thanks to Ilana Merhav and Tanya Kligerman,

librarians at the Bnai Zion Medical Center, for their assistance in the literature search. We also would like to thank Monique Hasson, Dalia Harpaz, Yaffa Godorov, Tamar Stern Lavee, Avigail Sagee, Angelika Rubinstein, Shlomit Anker, Bat Zion Zidenberg, Zvia Oz-Cohen, Adi Antman Kollander, Nurit Dvir Shalev, Efrat Arnon, Efrat Naftali, Ayelet Dor, and Ilana Treger for their participation in the Delphi research process. We thank Judith Levy and Donna Bossin for linguistic editing of the paper.

References

[1] A. Agarwal, R. Ranjan, S. Dhiraaj, A. Lakra, et al., Acupressure for prevention of pre-operative anxiety: a prospective, randomised, placebo controlled study, Anaesthesia 60 (2005) 978–981.
[2] N. Flory, G.M. Martinez Salazar, E.V. Lang, Hypnosis for acute distress management during medical procedures, Intl Clin Exp Hypnosis (55) (2007) 303–317.
[3] S. Attias, L. Keinan Boker, Z. Arnon, E. Ben-Arye, et al., Effectiveness of integrating individualized and generic Complementary Medicine treatments with standard care versus standard care alone for reducing preoperative anxiety, J. Clin. Anesth. (29) (2016) 54–64.
[4] V. Hui Yun, V. Hui Yun, A.R. Abrishami, P.W.H. Peng, et al., Predictors of post-operative pain and analgesic consumption, A Qual. Syst. Rev. Anesthesiol. 111 (2009) 657–677.
[5] M. Ebrecht, J. Hextall, L.G. Kirtleya, A. Taylora, Perceived stress and cortisol levels predict speed of wound healing in healthy male adults, Psychoneuroendocrinology (29) (2004) 798–809.
[6] J.E. Van den Bosch, K.G. Moons, G.J. Bonsel, C.J. Kalkman, Does measurement of preoperative anxiety have added value for predicting postoperative nausea and vomiting? Anesth. Analg. (100) (2005) 1525–1532.
[7] M. Johnston, C. Vogele, Benefits of psychological preparation for surgery: a meta-analysis, Ann. Behav. Med. 15 (1993) 245–256.
[8] R. Levandovski, M.B. Cardoso Ferreira, M.P. Loayza Hidalgo, C.A. Konrath, et al., Impact of preoperative anxiolytic on surgical site infection in patients undergoing abdominal hysterectomy, Am. J. Infect. Contr. 36 (2008) 718–726.
[9] I. Maranets, Z.K. Kain, Preoperative anxiety and intraoperative anesthetic requirements, Anesth. Analg. 89 (1999) 1346–1351.
[10] K. Bauer, P. Dom, A. Ramirez, J. O'Flaherty, Preoperative intravenous midazolam: benefits beyond anxiolysis, J. Clin. Anaesth. 16 (2004) 177–183.
[11] V.K.F. Kong, M.G. Irwin, Gabapentin: a multimodal perioperative drug? Br. J. Anaesth. 99 (2007) 775–786.
[12] M. Pekcan, B. Celebioglu, B. Demir, F. Saricaoglu, The effect of premedication on preoperative anxiety, Middle East J. Anesthesiol. (18) (2005) 421–433.
[13] W. Kröll, U.V. Wisiak, W.F. List, Preoperative subjective anxiety. Double blind study using oxazepam, Anaesthesist 37 (1988) 752–757.
[14] M. Mobini-Bidgoli, M. Taghadosi, H. Gilasi, A. Farokhian, The effect of hand reflexology on anxiety in patients undergoing coronary angiography: a single-blind randomized controlled trial, Complement. Ther. Clin. Pract. (27) (2017) 31–36.
[15] B.F. Hudson, J. Davidson, M.S. Whiteley, The impact of hand reflexology on pain, anxiety and satisfaction during minimally invasive surgery under local anaesthetic: a randomised controlled trial, Int. J. Nurs. Stud. (52) (2015) 1789–1797.
[16] B. Kunz, K. Kunz, The Complete Guide to Foot Reflexology. 3. s.L. CreateSpace Independent Publishing Platform, Albuquerque, 2011, pp. 2–3.
[17] Eunice Ingham, Dwight Byers, Original Works of Eunice D. Ingham: Stories the Feet Can Tell Thru Reflexology/Stories the Feet Have Told Thru Reflexology, second ed., (1984).
[18] Avi Grinberg, Foot Analysis. The Foot Path to Self-Discovery, Samuel Weiser, York Beach, Maine, 1993, p. 320 6.
[19] M. Meunier, Manuel approfondi de reflexology plantaire, Guy Tredaniel, Paris, 2006.
[20] M. Meunier, L'energetique chinoise appliquee a la reflexologie plantaire, Guy Tredaniel, Paris, 2012.
[21] J. Jones, P. Thomson, W. Lauder, S.J. Leslie, Reported treatment strategies for reflexology in cardiac patients and inconsistencies in the location of the heart reflex point: an online survey, Complement. Ther. Clin. Pract. 18 (2012) 145–150.
[22] J. Jones, P. Thomson, W. Lauder, S.J. Leslie, et al., A proposed reductionist solution to address the methodological challenges of inconsistent Reflexology maps and poor experimental controls in Reflexology research, J. Altern. Complement. Med. 19 (2013) 232–234.
[23] T. Ostermann, A.M. Beer, V. Bankova, A. Michalsen, Whole-systems research in integrative inpatient treatment, Evid. Based Complement Altern. Med. (2013) 1–2.
[24] C. Ritenbaugh, M. Verhoef, S. Fleishman, H. Boon, A. Leis, Whole systems research: a discipline for studying complementary and alternative medicine, Altern. Ther. Health Med. 4 (2003) 32–36.
[25] M. Bagheri-Nesami, S.A. Shorofi, N. Zargar, M. Sohrabi, et al., The effects of foot reflexology massage on anxiety in patients following coronary artery bypass graft surgery: a randomized controlled trial, Complement. Ther. Clin. Pract. 20 (2014) 42–47.
[26] H. Linstone, M. Turoff, The Delphi Method: Techniques and Applications, Addison-Wesley, Reading, MA, 1975.
[27] A. Rotondi, D. Gustafson, Theoretical, methodological and practical issues arising out of the Delphi method, in: M. Adler, E. Ziglio (Eds.), Gazing into the Oracle: the Delphi Method and its Application to Social Policy and Public Health, Jessica Kingsley Publishers, Ltd, Bristol, PA, 1996, pp. 34–55.
[28] E. Schiff, E. Ben-Arye, M. Shilo, M. Levy, et al., Development of ethical rules for boundaries of touch in complementary medicine–outcomes of a Delphi process, Complement. Ther. Clin. Pract. 16 (2010) 194–197.
[29] E. Klimenko, K. Julliard, Communication between CAM and mainstream medicine: Delphi panel perspectives, Complement. Ther. Clin. Pract. 13 (2007) 46–52.
[30] E. Babbie, The logic of sampling, in: E. Howard (Ed.), The Practice of Social Research, Chap 7, tenth ed., Wadsworth/Thomson, Belmont, CA, 2004, p. 184.
[31] N.G. Reid, The Delphi technique: its contribution to the evaluation of professional practice, in: R. Ellis (Ed.), Professional Competence and Quality Assurance in the Caring Professions, Chapman and Hall, New York, NY, 1988.
[32] S. Howell, C. Kemp, Defining early number sense: a participatory Australian study, J. Educ. Psychol. 25 (2005) 555–571.
[33] R.B. Atkins, H. Tolson, B.R. Cole, Stability of response characteristics of a Delphi panel: application of bootstrap data expansion, BMC Med. Res. Methodol. 5 (2005) 37.
[35] M.M. Vardanjani, N.M. Alavi, N.S. Razavi, M. Aghajani, et al., A randomized-controlled trial examining the effects of reflexology on anxiety of patients undergoing coronary angiography, Nurs. Midwifery Stud. (2) (2013) 3–9.
[36] N. Miura, Y. Akitsuki, A. Sekiguchi, R. Kawashima, Activity in the primary somatosensory cortex induced by reflexological stimulation is unaffected by pseudo-information: a functional magnetic resonance imaging study, BMC Complement Altern. Med. 114 (2013).
[37] T. Nakamarua, N. Miurab, A. Fukushimab, R. Kawashima, Somatotopical relationships between cortical activity and reflex areas in reflexology: a functional magnetic resonance imaging study, Neurosci. Lett. 448 (2008) 6–9.
[38] E. Schiff, I. Levy, Z. Arnon, E. Ben-Arye, et al., First keep it safe: integration of a complementary medicine service within a hospital, Int. J. Clin. Pract. (2018) 1–9.
[39] A. Bensoussan, N.J. Talley, M. Hing, R. Menzies, et al., Treatment of irritable bowel syndrome with Chinese herbal medicine: a randomized controlled trial, J. Am. Med. Assoc. 280 (1998) 1585–1589.
[40] D. Pach, X. Yang-Strobel, R. Ludtke, S. Roll, et al., Standardized versus individualized acupuncture for chronic low back pain: a randomized controlled trial, Evid Based Complement Alternat Med. (2013) 1–8.