Assessing the feasibility of applying a combined osteopathy and psychoeducation therapy (OsteoPeCT) and its influence on levels of psychological and physiological stress in adult participants with moderate stress: A pilot study

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Research

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Abstract

Background: There is mounting evidence suggesting a relationship between stress and adverse health outcomes. Stress is a multidimensional phenomenon requiring a multimodal approach. While there is some evidence indicating a positive effect of massage therapy, there is limited research regarding the impact of related approaches such as general osteopathic techniques (GOTs). Further, research examining the feasibility and effectiveness of combining GOTs with psychoeducation in the management of stress is lacking. The present pilot study aimed to assess the feasibility of applying a therapy package consisting of GOTs and brief psychoeducation and its influence on moderate stress in a convenience sample.

Methods: A pilot uncontrolled trial with mixed pragmatic and exploratory design was conducted. The therapy package comprised of ten GOTs and ten minutes of scripted psychoeducation (OsteoPeCT) was applied in two sessions over two consecutive days to 18 adult participants with moderate stress. Feedback from participants and challenges experienced by both participants and researchers were recorded. The effects of OsteoPeCT were assessed by measuring pre- and post-intervention scores of self-reported perceived stress (Perceived Stress Scale-10, PSS-10; Profile of Mood Scale, POMS) and salivary levels of physiological stress biomarkers (cortisol; secretory immunoglobulin A, sIgA and interleukin-6, IL-6).

Results: All aspects related to the application of OsteoPeCT (participant recruitment, participant retention, therapy application, administration of health screen and self-reported perceived stress questionnaires, and the collection of saliva samples for biomarker analysis) were feasible. A total of 18 participants were enrolled. The timing of sessions on consecutive days was reported to be challenging. While a measurable decrease in perceived stress (PSS-10) and in mood scores (Tense, Fatigue, Depression, Anger) were noted post therapy (OsteoPeCT) application, physiological stress markers were unaffected. Diurnal variations of these biomarkers may need further consideration.

Conclusion: The application of OsteoPeCT was feasible, well received with some beneficial influence on perceived stress indicating that an integration of psychoeducation and osteopathic care may confer benefits to patients. Future investigations with adapted protocols and larger sample size is warranted to assess effectiveness.

Trial registration: Retrospectively registered in Australian New Zealand Clinical Trials Registry (registration number ACTRN12620000763943 ) and ICTRP .

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

Tables

Table 1 - Inclusion and exclusion criteria for participant recruitment

| Key inclusion criteria | Participants (females and males) over the age of 18 |
|------------------------|---------------------------------------------------|
|                        | Able to communicate in English                    |
|                        | The ability to provide informed consent           |
|                        | The presence of moderate stress levels (>14 on the PSS-10) at the time of screening (Healthy volunteers were not allowed to participate) |

| Key exclusion criteria | Presence of any pathological conditions including diabetes, Addison's disease, hypopituitarism, Cushing's syndrome, heart conditions, arthritis, any known chronic inflammatory condition and/or cancer |
|------------------------|--------------------------------------------------------------------------------------------------|
|                        | Breathing difficulties                                                                              |
|                        | Hypertension (controlled by medication)                                                             |
|                        | Current musculoskeletal condition or injury                                                        |
|                        | Neurological symptoms (numbness, tingling, nausea, vomiting, sense of weakness)                    |
|                        | Presence of any oral disease                                                                      |

PSS-10 = Perceived Stress Scale-10

Table 2 - Participant characteristics
| Participant ID number | Sex | Age | Marital status | Blood pressure (mmHg) | Heart rate (bpm) | Height (cm) | Weight (kg) | Body Mass Index (BMI) (kg/m²) | Systems Review (presence/indication of any issues) | General Health | Ne Sys | Systems Review (presence/indication of any issues) | General Health | Ne Sys |
|-----------------------|-----|-----|----------------|-----------------------|------------------|-------------|-------------|------------------------------|---------------------------------------------------|---------------|--------|------------------------------------------------|---------------|--------|
| 1                     | F   | 31  | S              | 122/82                | 82               | 168         | 67          | 23.7                         | N                                                | N             | N      | N                                               |               |        |
| 2                     | F   | 22  | R              | 111/69                | 61               | 158         | 63          | 25.2                         | N                                                | N             | N      | N                                               |               |        |
| 3                     | F   | 23  | R              | 112/68                | 78               | 167         | 63          | 22.6                         | Y (Fungal infection)                             | N             | Y      | Y (Fatigue)                                    |               |        |
| 4                     | F   | 27  | Md             | 110/74                | 56               | 182         | 66          | 19.9                         | N                                                | N             | N      | N                                               |               |        |
| 5                     | F   | 51  | Md             | 118/84                | 79               | 157         | 51          | 20.7                         | Y (Fungal infection)                             | N             | N      | N                                               |               |        |
| 6                     | F   | 58  | Md             | 118/89                | 78               | 177         | 78          | 24.9                         | Y (Musculoskeletal injury)                       | N             | N      | N                                               |               |        |
| 7                     | F   | 21  | S              | 116/80                | 62               | 170         | 68          | 23.5                         | N                                                | N             | N      | N                                               |               |        |
| 8                     | F   | 28  | Md             | 110/75                | 51               | 165         | 72          | 26.4                         | N                                                | N             | N      | N                                               |               |        |
| 9                     | F   | 28  | Md             | 120/81                | 41               | 176         | 70          | 22.6                         | N                                                | N             | N      | N                                               |               |        |
| 10                    | F   | 53  | D              | 117/77                | 76               | 172         | 78          | 26.4                         | N                                                | Y             | N      | Y (Fatigue)                                    |               |        |
11  F  29 S  130/87  89  152  86  37.2  Y  (Asthma – mild, controlled with Ventolin)  N  Y

12  M  43 Md  130/70  80  173  81.5  27.4  P (Allergies)  P (Weakness)  NP

13  M  28 R  160/80  40  192  93  25.2  NP  (Heartburn)  NP

14  M  29 Md  122/81  60  182  80  24.2  P (History of Jaundice and inflammatory condition)  P (weight-gain)  NP

15  M  52 Md  132/82  68  184  102  30.1  P (Allergies and history of musculoskeletal condition)  NP  NP

16  M  44 Md  120/80  72  188  90  25.5

17  M  23 R  Y (history of asthma and musculoskeletal condition)  P (Weight loss, fatigue and weakness)  P (numbness, memory loss and headaches)  No saliva collected at Timepoint 1

18  M  22 R  119/70  64  180  100  30.9  NP  P (weight gain)  NP

Married = Md, Relationship = R, Single = S, Divorced = D
Y = Present, N = Not indicated

Table 3 – Challenges encountered by participants

| Category/item | Description | Rationale for design | Challenge encountered |
|---------------|-------------|----------------------|-----------------------|
| Time of the therapy session | 8:10 am | Participants were required to attend each consecutive session at 8-9:30 am to achieve consistency and reliability with the selected salivary biomarkers, as these biomarkers show diurnal variation. | Early morning appointments on two consecutive sessions proved difficult for participants with early morning weekday commitments. |
| Therapy sessions | Approximately one hour, on two consecutive days (Monday and Tuesday) | As the intervention only ran for two days, having the two sessions 24 hours apart lasting approximately 1 hour was chosen for consistency. | Arranging/organising two consecutive days were difficult for some participants in light of their daily life commitments, i.e. work. Furthermore, peak hour traffic and the clinic's location off a busy main road added to difficulties. |

Table 4 – Challenges encountered by the Osteopath researchers
| Category/item | Description | Reason/explanation | Challenge encountered |
|---------------|-------------|--------------------|-----------------------|
| Recruitment process | Errors made with initial PSS-10 scores for three participants (#1, #2 and #4) | Osteopath researcher made an error in scoring, which led to the inclusion of three participants who scored <14. | Data analysis and interpretation. Three participants (#1, #2, #4) were included in the study although scored <14 PSS-10 due to nature and aim of the study. This included participants who scored <14 due to the nature and aim of the study. |
| Therapy sessions | Feasibility regarding the timing of the sessions and consecutive days. | Timing – 8-10 am decided to avoid diurnal variation observed in the selected biomarkers. Two consecutive days of the week: The study was run as part of the student osteopaths’ research for their Masters, alongside completing clinical hours, which is a compulsory component for their studies. | The two available dates were mid-working week, which became difficult for the student researchers to liaise with their participants. In addition, due to the selection of the times (8-10 am) the participants encountered challenges with arriving on-time (between 5-20 minutes late). |
| Collection of saliva samples | Difficulty collecting saliva from participant, #5, #2, #4, #10 and #12. | It took nine minutes to collect and fill two cryotubes with saliva for participant #5 at TP1. It took between 5-7 minutes to collect saliva from participants #4 and #10 at TP1. Participant #4 had a coffee at 6:30 am that morning. Participant #12 could not produce any saliva. | Participants who could not produce saliva as easily appeared more stressed and agitated. Not producing enough saliva may have caused participants to feel tense, further increasing stress levels. |

Timepoint = TP