

# **“Exploring the Mental Health Benefits of Caregiver-Led Massage in Families with Neurodivergent Children”**

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A dissertation submitted in partial fulfilment of the requirements of Jing  
Advanced Massage Training for the Professional Diploma in Advanced Clinical  
and Sports Massage

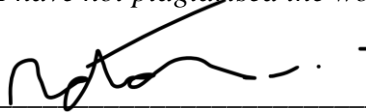
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**Mrs Natalie Brown:** \_\_\_\_\_



**Date: 20/01/2025**

### **ACKNOWLEDGEMENTS**

Great achievements seem like a flickering star in the distance when the journey begins, and how you will reach them can't be understood and may seem overwhelming at times, but still, they must be reached. Dedication, drive, and self-belief will take you most of the way, but without the support of a sturdy team in the toughest times, the power to keep going may falter. To this end, I am eternally grateful for my team. First and foremost, to my children, Isabel and Emily, they are small, but encourage me every day, not just with their words and undying belief in me, but with their presence, to give them everything they need and to be an example that you can achieve anything you set your mind.

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“To touch can be to give life” - Michealangelo

“Cafune” – Portuguese word for “the act of running your fingers through someone’s hair”

“Mass” – The Arabic word for touch

“The principal contributor to loneliness [in this country] is television. Families get together alone” – Ashley Montague

## **ABSTRACT**

### **Purpose**

The purpose of this study was to evaluate whether a caregiver-led massage protocol administered to the neurodivergent child, could positively impact the mental health of the parent/caregiver. This research aims to contribute to a growing body of evidence exploring the role of therapeutic touch in reducing depression, anxiety and stress among caregivers, while offering an innovative approach to family-centred interventions.

### **Method**

Eight participants who had a child diagnosed as neurodivergent or undergoing stage 1 of the NHS diagnostic pathway were recruited for this 16-week study. Using an in-group design, participants completed the DASS-21 questionnaire at baseline (week 1-6), during the intervention (week 7-12) and post study (week 16). During the intervention participants were instructed to perform a pre-recorded massage protocol on their child 3 times per week.

### **Results**

All participants reported improvements in their mental health. Scores for depression decreased by 59%, anxiety by 76% and stress by 60%.

### **Conclusion**

This study adds to growing evidence that providing touch therapy such as massage, can provide significant benefits to caregivers. The act of giving massage appears to have a positive impact on the person performing it, suggesting potential as a therapeutic tool for reducing depression, anxiety and stress in caregivers of neurodivergent children. Further research with a bigger participant group is recommended to validate these findings further and may benefit from assessing how the recipient feels simultaneously.

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## **ABBREVIATIONS**

ADHD – attention deficit hyperactivity disorder

APA – American Psychology Association

ASD – autism spectrum disorder

BPSM – Biopsychosocial Model

DASS – Depression Anxiety and Stress Scale

DD – Developmental Delays

DPT – Deep Pressure Therapy

IDD – Intellectual Development Disability

NDD – Neurodevelopmental Disorders

TA – Therapeutic Alliance

TD – Typically Developing

## LITERATURE REVIEW

### **What is neurodivergence and how does it affect families**

The term 'neurodiversity' has been attributed to autism advocate Judy Singer in a chapter of her research paper titled, "Why Can't You Be Normal for Once in Your Life?" (Aperly et al., 2024; Singer, 1999) where she coined this concept by likening the variety of neurodivergent thinkers to biological diversity (biodiversity). As such, the term neurological diversity was blended to become neurodiverse (Armstrong, 2010; Singer, 1999). Since then, neurodiversity as a movement has become popular and encompasses several perceived neurological deviations and learning patterns. Under this umbrella term are more specific diversities, such as autism spectrum disorder (ASD), attention deficit disorder (ADD), attention deficit hyperactivity disorder (ADHD), dyscalculia, dyslexia, and dyspraxia (Armstrong, 2010; Ekblad, 2013). The main aims of the neurodiversity movement are to advocate for the rights and interests of neurodivergent individuals, and to de-pathologise neurodivergent thinking (Shields and Beversdorf, 2021), thereby redefining neurodivergence as a difference, rather than a disorder (Kapp et al., 2013). This has raised some concerns, as it means there may be less support for caregivers who are providing support to neurodivergent individuals (Shields and Beversdorf, 2021).

A recent study by Sapiets et al. (2023) analysed the ease of access to early interventions for children with developmental delays (DD) and their families. One of the main outcomes of this study was a lack of access to mental health services for both children and families alike, whilst access to medical practitioners and speech and language therapy was the most easily accessible (Sapiets et al., 2023). This could indicate the high availability and supply of these services, it

could also support the notion that access to services is channelled into the medical model of treating neurodiversity as a disorder or delay that is to be made better, rather than focussing on ways to make the world around the neurodivergent individual and their families more adaptable. This study investigates whether giving touch to their child using massage techniques can reduce depression, anxiety and stress of the caregiver, thereby offering an accessible means of mental health support.

### **Caregiver burden and parental stress**

According to the American Psychology Association (APA), the definition of caregiver burden pertains to stress and other psychological symptoms that family caregivers experience due to providing care for individuals with mental or physical disabilities (APA, 2018). Studies have supported this definition (Liu et al., 2020), and although they focus specifically on caregiving in the nursing context, they still provide a clear analysis of caregiver burden as a concept which concluded as a series of negative responses that occur while caregiving. When applying this concept specifically to the context of parenting, parental burnout occurs (Mikolajczak et al., 2018). Parental burnout is a specific syndrome resulting from enduring exposure to chronic parenting stress. It encompasses three dimensions: an overwhelming exhaustion related to one's parental role, an emotional distancing from one's children and a sense of ineffectiveness in one's parental role (Mikolajczak et al., 2018).

In their study, Craig et al. (2016) show that caregivers of children with neuro-developmental disorders (NDD) often report higher levels of parenting stress, or parental burnout than those of typically developing (TD) children. A systematic review by Scherer et al (2019) explored the relationship between parenting a child with Intellectual Developmental Disability (IDD) and parenting stress and depression. The study compared parents of children with ASD and Cerebral Palsy (Scherer et al., 2019), although some young people on the spectrum would argue

that autism is not an IDD (Leadbitter et al., 2021), the review still illustrated that caregivers of children with ASD were at higher risk of depression and anxiety than those of TD children (Scherer et al., 2019).

A study by Han (2023) showed that caregiving can be a rewarding experience, which embodies qualities such as empathy, responsibility and connection (Kleinman, 2009). This could provide an ideal entry point for touch therapy such as massage to be included as a way of enhancing the care experience. Several studies conducted by students at the JING Institute of Massage and Complementary Medicine have indicated that massage therapy and online self-care techniques have been beneficial in the management of depression, anxiety and stress (Allen, 2021; O'Flynn, 2024; Stewart-Smith, 2024). In particular Stewart-Smith, (2024) illustrated the benefits of the use of the online delivery of massage therapy and self-care in caregivers of adults or children with disabilities, which resulted in a marked decrease in depression, anxiety and stress.

However, these studies do not factor the internalising and externalising behaviours exhibited by neurodivergent children (Tehee et al., 2009) which are shown to be the main contributing factors of parental stress among those caring for neurodivergent children (Giovagnoli et al., 2015; Podolski and Nigg, 2001; Tehee et al, 2009), nor do they account for other antecedents of parental stress and burnout, such as lack of financial resources, single parenting of a neurodivergent child, and feelings of isolation and limited community support for the caregiver (Bromley et al., 2004; Chou, 2000).

The Biopsychosocial (BPS) Theory proposed by Engel (1977) provides a more holistic approach to health and wellbeing, which could encompass some of these factors (D'Oliveira and Persico, 2023). Diagram 1 (NHS Mersey Care) depicts the modernised version of Engels' theory and illustrates the overlap of influencing factors across the biological, psychological and

social context. While some studies dispute its scientific validity (Bolton and Gillett, 2019; Ghaemi, 2012; McLaren, 2021), (Roberts, 2023) discussed its importance as a conceptual framework. This aligns with other studies within the massage industry (Birch, 2024; Desroches, 2024; Phelps, 2024) and in the medical industry (Dworkin et al., 2016; Gatchel and McGeary, 2014) who have attributed successful health outcomes to the BPSM. Diagram 2 shows a hierarchical view of Engels’ theory (1980). This illustrates how the person and two-person factors directly influence each other, health and external factors. The two-person level is the point of therapeutic alliance (TA) between person and practitioner (Engel, 1980). Fairweather and Mari (2015) discuss the relevance of TA within the massage context while other studies show its importance in improving chronic conditions (Ferreira et al., 2013; Jarrett, 2024). Furthermore, Kelley et al. (2014) notes how positive healthcare outcomes are impacted by the patient-clinician relationship.

Biopsychosocial approach to understanding health

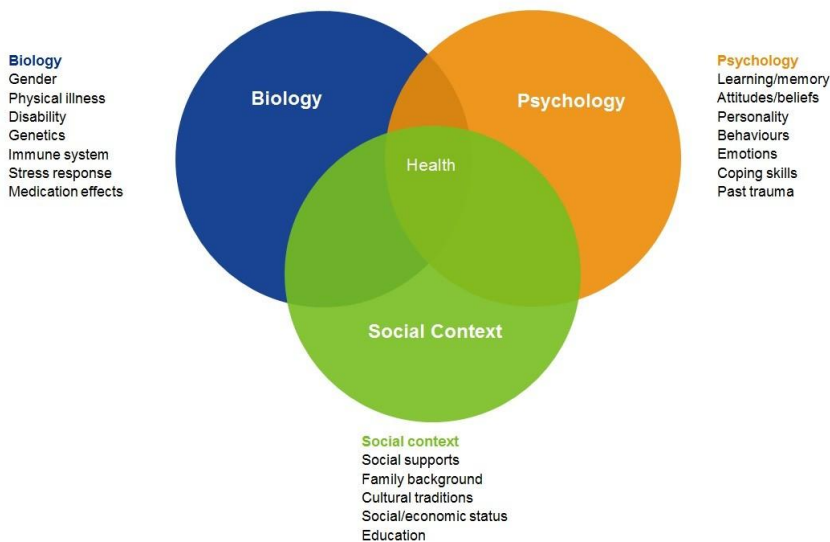


Diagram 1 - BPSM From the NHS website

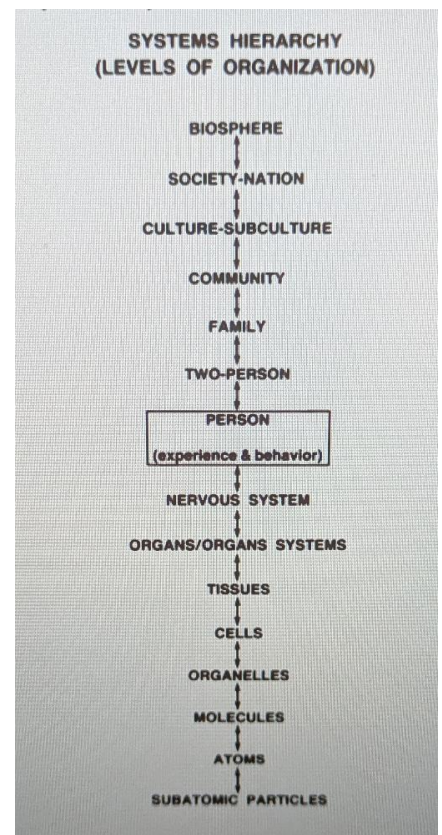


Diagram 2

## **The effects of caregiver stress on children**

Prolonged caregiving can leave the carer depleted when their own needs are not being met. This includes reports of poorer health, higher incidents of chronic conditions such as asthma, arthritis, back problems and migraine headaches (Lach et al., 2009). However, this does not stop at the caregiver, and research has shown that stress and depression experienced by a caregiver can have significant consequences for their child, which in severe cases can lead to child abuse (Mikolajczak et al., 2018b). Looking at the more practical effects of stress, better child outcomes have been reported when treatment interventions are supplemented in the home setting (Khan et al., 2016), whereas caregivers experiencing burden are less likely to implement these interventions at home (Osborne et al., 2008).

Furthermore, Van Der Kolk (2014) researched how children take cues from their parents during traumatic events, his research shows that as long as caregivers remain responsive to their needs, the child remains unscarred. While neurodivergent children may not be suffering from one singular traumatic event, there is an accumulation of daily stressors and sensory overloads often feel traumatic for them (Robertson and Simmons, 2015; Smith and Sharp, 2013).

## **Prosocial touch and the benefits of giving massage**

Massage has been used for thousands of years to relieve stress and increase wellbeing. It is well known to be beneficial for the person receiving massage (Calvert, 2002:2), while little research shows how giving massage affects the provider. A study involving massage therapy students showed that those from the intervention group providing massage had a significant reduction in the anxiety factor, as opposed to the control group who did not perform any massage that day (Jensen et al., 2012) There was no reduction in the depression and stress scale, but this was a small study which had a short intervention of one massage on one day. Another study provided parents of children with disabilities with a simple massage sequence (Barlow and

Cullen, 2002). While mainly targeted at determining musculoskeletal changes in the child, parents reported feeling less stressed and an increased closeness to their child. Additionally, massage between parents and children with ASD saw an increase in the ability to provide maternal touch and the child's willingness to be touched (Cullen and Barlow, 2002). These papers are centred around the effect of massage on the person receiving the therapy, with only anecdotal evidence on how touch has affected the parent, and yet neurobiological studies have evidenced that touching someone else activates the reward centre of the brain (Gentsch et al., 2015; Kida and Shinohara, 2013). Furthermore, using your hands actively can reduce depression (Lambert, 2008). Because of the limited research, this study will be viewed through the lens of prosocial touch.

There are many different types of massage, with a variety of definitions and techniques, however, Robert Calvert writes "The one thread that has passed through time is the act of human contact with the intent to give relief from suffering" (Calvert, 2002). This synchronises with the concept of prosocial touch or behaviours, defined as a person's willingness or ability to act on behalf of another person (Dunfield, 2014) to improve their physiological and psychological well-being (Eisenburg, 2014; Rault, 2019). Furthermore, primate studies revealed that the neurochemistry of touch ensures that it's pleasurable for both the giver of touch and receiver (Jablonski, 2021), which increased the propensity of touching between primate families and saw a reduction in their anxiety and aggression (Jablonski, 2021; Morrison, 2016; Wu et al., 2021). This is a clear indication of what drives individuals to comfort one another through touch for a harmonious and less anxious society. However, it needs to be considered how touch can become neutral or negative in detached or abusive situations (Green, 2017). This was illustrated previously as a possible consequence of extremely severe parental depression and stress (Mikolajczak et al., 2018b). This can also be seen in the classroom setting, where touch can be viewed as "risky" (Piper and Smith, 2003).

In contrast, other studies have shown how appropriate touch in the classroom can positively impact a child's academic results and feelings toward the teacher (Steward and Lupfer, 1987). Overall, if appropriate touch is implemented early and continued through a relationship, there may be a bi-directional reduction in depression, anxiety and stress, with an all-round improvement in relationships.

### **The use of compressions for neurodiverse children**

Compression is derived from the Chinese AMMA technique, which applies deep pressure, using the hands, to balance the body's natural Qi (Sohn and Sohn, 1996). It was adapted by Fairweather and Mari (2015) into AMMA fusion, which is the primary technique that has been used for this research. Other forms of compression can be seen in use by Occupational Therapists using deep pressure therapy (DPT), such as a hug, squeeze or a compression blanket (Krauss, 1987; Chen, 2013). For children with ASD when emotionally aroused, this can act as a way of regulating their nervous system (Edelson et al., 1999). The benefits of massage for neurodivergent children are well documented (Escalona et al., 2001; Field et al., 1998; Silva et al., 2008), and although some neurodivergent children may exhibit an aversion to touch, studies do indicate that an early implementation of massage and touch therapy can help to reduce touch sensitivity and increase contact and parental bonding (Walaszek et al., 2018).

This study intends to change the self-perception of caregiver stress and parental burnout and allow for the human aspect of caregiving to provide a rich source of connection. Touch is a resource that is available to everyone and could have the potential to enrich the caregiver experience, reducing depression, anxiety and stress, while simultaneously benefiting the child.

## **METHOD**

Ethical approval was obtained by Jing Advanced Massage Training to conduct this research study in April 2024, through completion of a research ethics form (Appendix 2). The goal of the research is to evaluate how providing massage to their neurodivergent child might positively impact the mental health of the caregiver. Participants were required to complete a consent form to participate (Appendix 3) and received a participant letter (Appendix 4) detailing the study once interest was expressed. Participants were able to opt out of the study at any point.

### **Recruitment**

A total of 12 participants were recruited through adverts posted on neighbourhood Facebook groups, Facebook groups designed for caregivers of neurodivergent children, a recruitment flyer emailed to schools and posters placed in local facilities (library and leisure centre) (Appendix 5). Inclusion criteria stipulated that caregivers must have a neurodivergent child that has either been diagnosed or is on stage one of the NHS pathway to a diagnosis, and the child must be tactile rather than sensory phobic (Appendix 4). Of the 12 initial participants, one was excluded as their child had upcoming hospital appointments, which would interrupt the study and affect the results. A further 3 participants pulled out for personal reasons, namely, a change in their child's temperament, or not having the time availability to include the regular massage into their routine. Eight participants remained for the duration of the study.

### **Study design and instrument**

A within-subjects design was chosen and implemented due to the small-scale nature of the study. This involved a 16-week study period, where the first 6 weeks formed the control phase of the study, and the participants were required to complete a DASS-21 questionnaire

(Appendix 6) at the end of each week to form a baseline for their depression, anxiety and stress scale, prior to intervention being introduced.

The participants were then provided with a massage protocol via a pre-recorded video to perform a minimum of 3 times per week and required to complete the same DASS-21 questionnaire at the end of the week for a total of 6 weeks. During this period, weekly zoom meetings were made available with the researcher to allow time for questions, and to discuss how frequently the participants were able to perform the massage.

A final DASS-21 questionnaire was sent out 4 weeks after the intervention phase to ascertain if there were any longer-term benefits of the intervention. (Oei *et al.*, 2013) The DASS-21 questionnaire is an abridged version of the DASS-42 (Lovibond and Lovibond, 1995). The DASS-21 has been shown to have good validity and reliability amongst British adults (Oei *et al.*, 2013). It was chosen as an appropriate measure for this study to understand the severity of symptoms of depression, anxiety and stress that can all form part of caregiver burnout. It is a short form allowing for quick completion and was easy to include in a weekly routine.

## **The intervention treatment**

The intervention took place in the format of a pre-recorded massage sequence of 9 minutes (Appendix 7), provided to the participants together with a pre-recorded instruction video of 4 minutes long (Appendix 8). The instruction video provided information on what the massage sequence entails, where to perform the sequence, tips on how to perform the sequence including communication with their child and asking for consent from their child before performing the massage. One sequence was provided to keep it accessible for the purpose of the study. The sequence was carried out in prone position (face down) and made use of AMMA compression techniques, to include the trunk, legs and arms. There were also ankle rotations, and a gentle calf stretch as well as an option for the parents to run their fingers up the head through the hair.

Parents were advised to always gain consent before massaging their child, and to have sensory toys, devices or comfort objects available for if their child wanted to fidget or started to lose interest. A guide on the amount of pressure to use was indicated using an inflated balloon, applying pressure with flat palms, and communication with the child on whether it felt like too much pressure, not enough or just right.

## RESULTS

The results for the DASS-21 were calculated by multiplying the data by 2 to match the DASS-42 scoring model, the total was then divided amongst the 8 participants to calculate the mean average. Table 1 shows the scoring table for the DASS-21 questionnaire which ranges from normal to extremely severe.

	<b>Depression</b>	<b>Anxiety</b>	<b>Stress</b>
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

**Table 1. DASS-21 severity rating**

Table 2 below provides a comparison between the mean average scores of weeks 1 and 12.

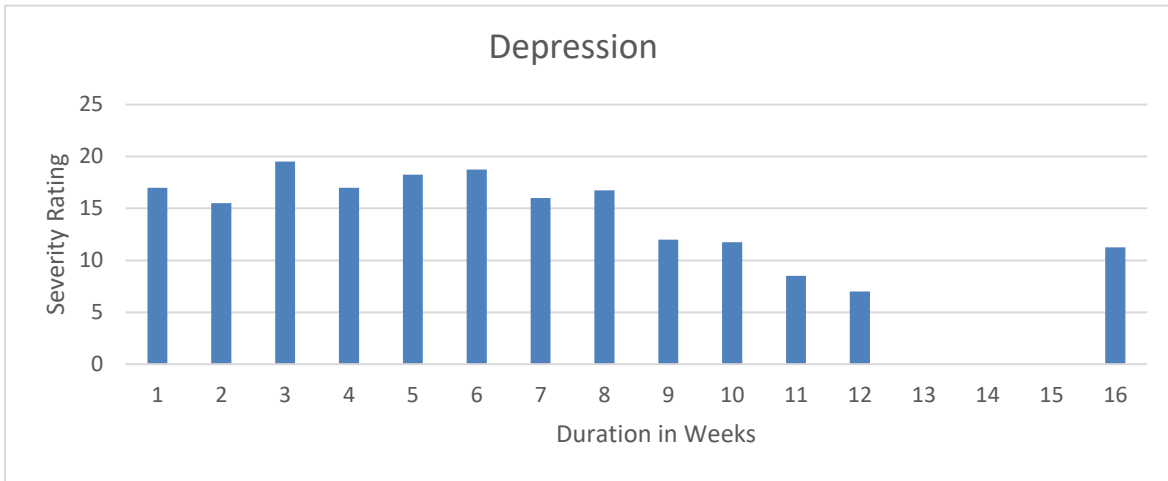
<b>Category</b>	<b>DASS score week 1</b>	<b>Dass Score Week 12</b>	<b>Point Deviation</b>	<b>Percentage %</b>
Depression	17	7	10	59%
Anxiety	13.75	3.25	10.5	76%
Stress	27.5	11	16.5	60%

**Table 2. 12 Week overview**

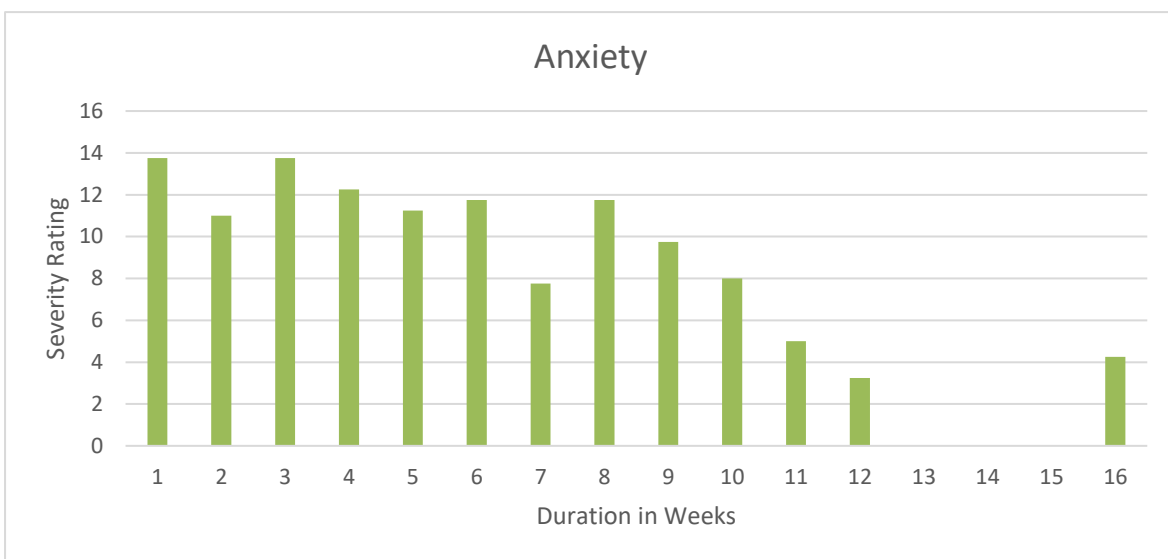
Table 2 shows that there is at least a 10-point variation in the average mean severity scoring across all three scales between weeks 1 and 12. Although the percentage appears lower, the stress scale shows the highest point difference of all three scales, with a 16.5-point variation, and achieving normal levels. The depression scale obtained an average 10-point difference which equated to a 59% decrease from week 1 to 12.

Figures 1-3 below represent the mean data on a week-by-week basis. The higher scores indicate a higher severity. As illustrated below, depression, anxiety scores fell within a moderately high range and stress was in the severe range and remained so during the first 6 weeks. There was a sharp decrease at week 7 (the first week of intervention) across all three scales, and by the end of week 12, on average the depression, anxiety and stress are within normal range.

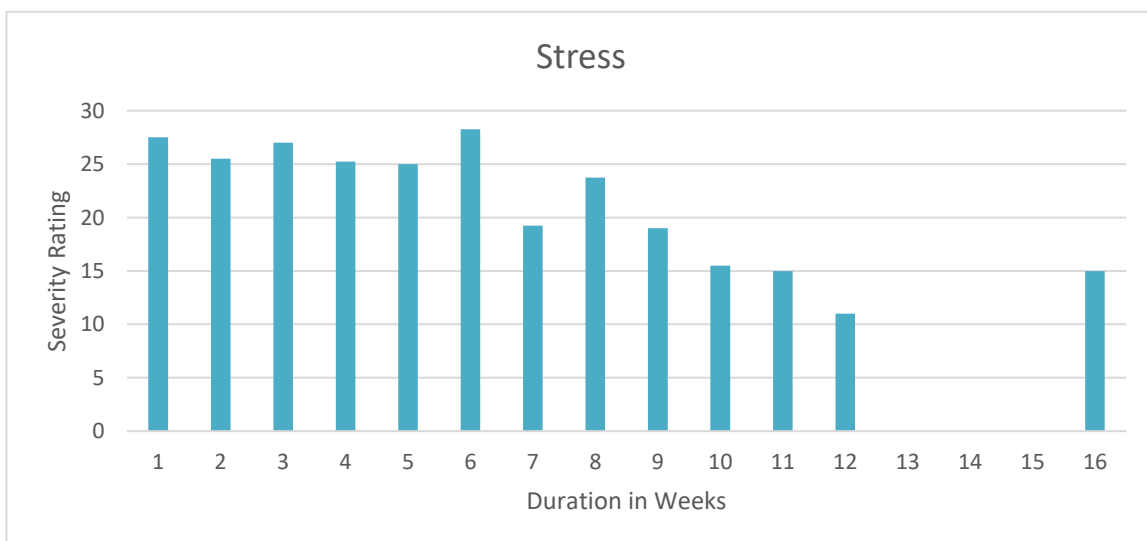
They also illustrate the differential at week 16 of the study. Participants were not instructed to provide massage during the weeks after the study, but some may have done so.



**Fig. 1. Depression Score**



**Fig. 2. Anxiety Score**



**Fig. 3. Stress Score**

## Severity Charts

Figures 4-9 are a visual representation of participant percentage comparing the severity from week 1 to week 12. This illustrates a powerful shift from the percentage of participants that were experiencing extremely severe, severe and moderate levels of mental health discomfort in week 1 compared to week 12. While there were still some extremely severe scores, most of the participants had shifted into a normal range.

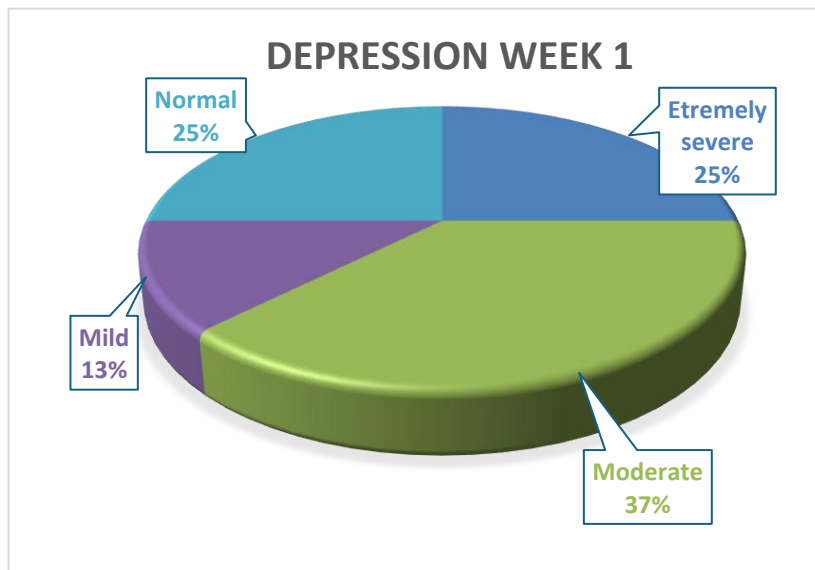


Fig. 4. Depression percentage chart - Week 1

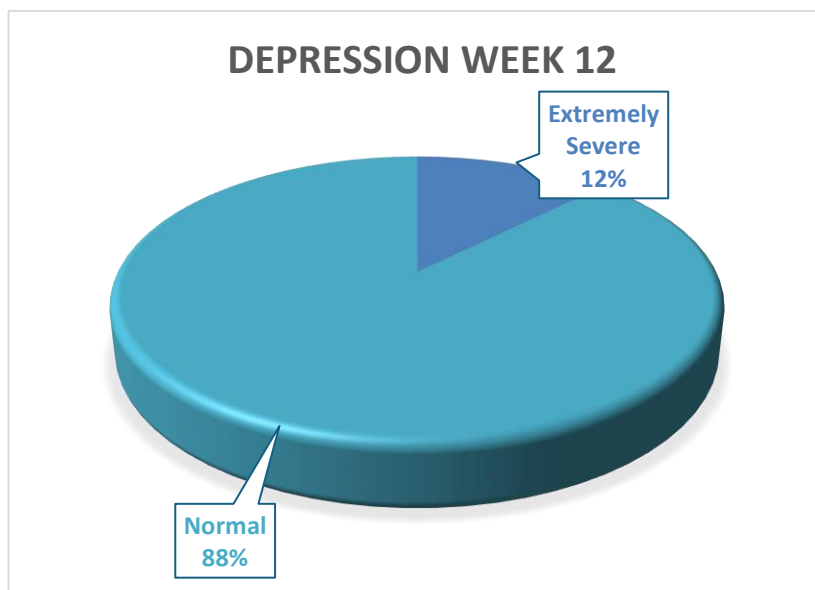
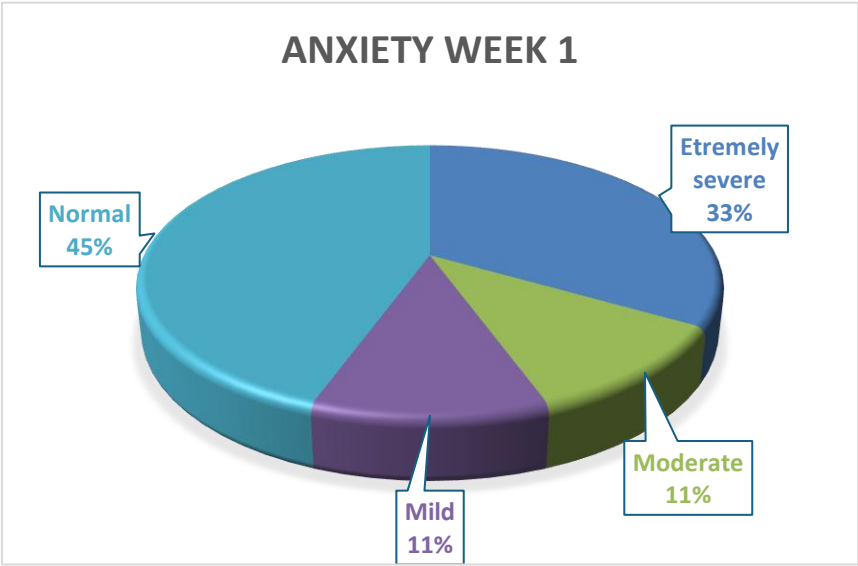
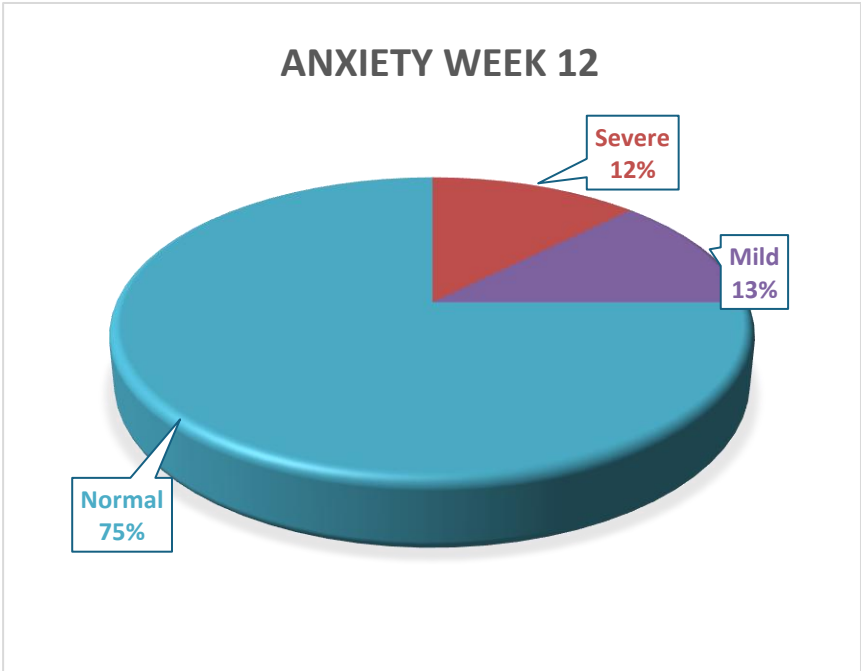


Fig. 5. Depression percentage chart - Week 12



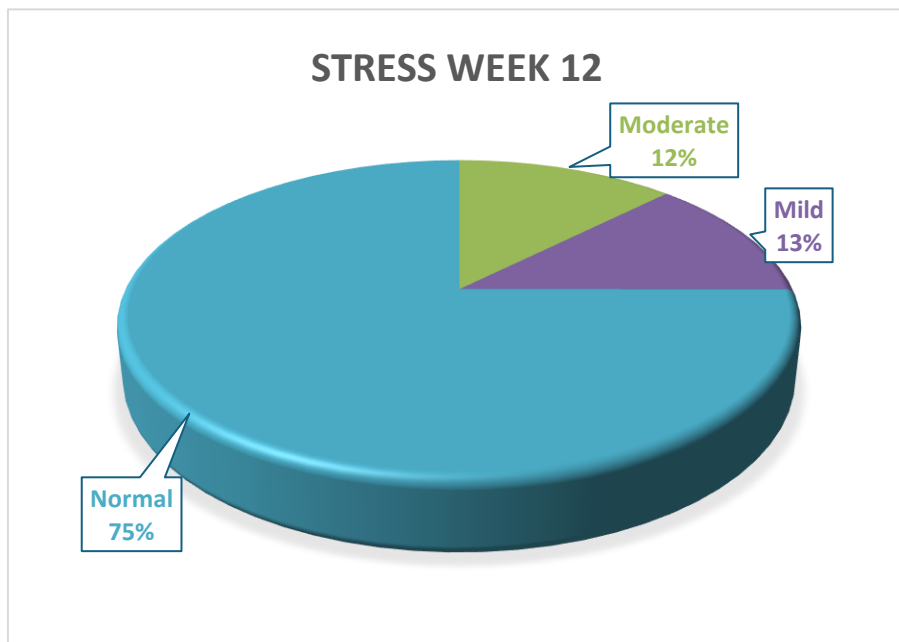
**Fig. 6. Anxiety percentage chart – Week 1**



**Fig. 7. Anxiety percentage chart – Week 12**



**Fig. 8. Stress percentage chart – Week 1**



**Fig. 9. Stress percentage chart – Week 12**

## DISCUSSION

The outcomes of this study indicate that an online massage protocol for caregiver-led massage in neurodivergent families can have a positive impact on depression, anxiety and stress for the caregiver.

Research conducted by Craig et al., (2016) and Scherer, Verhey and Kuper, (2019) showed that caregivers of neurodivergent children experience high levels of these mental health conditions in relation to parental burnout. The control phase of this study conforms to these notions, as the overall average score during this phase depicts moderately high depression, anxiety and severe stress levels. More specifically, as represented by the severity charts, 72% of participants were experiencing mild to extremely severe scores on depression and stress, and 55% were experiencing extremely severe anxiety.

An in-depth look at the average outcomes in figures 1-3, shows 2 noticeable decreases on all three scales. The first takes place at week 2 (the second week of the control phase) and the second takes place at week 7 (the first week of the intervention phase). One possible explanation, especially for the result at week 7, is that the mere act of receiving a self-care tool can help the caregiver to feel empowered, as previous research purports (Allen, 2021; Cloves, 2023; O'Flynn, 2024; Stewart-Smith, 2024). Although there was no self-care provided during the control period, completing the questionnaire could be considered reflection, like a journal, which has shown improvements in mental health (Sohal et al., 2022).

A comparative analysis of averages (Table 2) shows that from week 1 to week 12 the highest percentage decrease was in anxiety, which yielded a 76% differential. The previous study from Jensen et al. (2012) also found that giving massage had the greatest effect on anxiety levels, although their study revealed no impact on depression and stress. This could possibly correlate

to the primate studies which saw anxiety reduce with increased touching (Jablonski, 2021; Morrison, 2016; Wu et al., 2021) .

The present study obtains a difference in depression and stress, similar to previous studies which found that an online caregiver-led massage as a self-care tool could shift the caregiver locus of control from external to internal, known to impact feelings of depression and stress (Fairweather and Mari, 2015; Rotter, 1966).

When looking at the point variation on the depression scale, it appears to yield the lowest point differential between week 1 and 12, which could indicate that the protocol had the lowest impact in this area. A possible explanation for this could be attributed to factors to feelings of isolation and lack of financial resources which contribute to depression (Bromley et al., 2004; Chou, 2000), and may not have been addressed. They could possibly still fall into an external locus of control. However, the severity charts indicate differently, with a deviation from 25% (week 1) to 88% (week 12) ranking normal on the depression scale, which could tell us that the protocol still addressed at least some of these concerns, perhaps being attributed to the BPSM (Engel, 1977) and TA (D'Oliveira and Persico, 2023).

The intention of hosting weekly zoom calls did not manifest due to difficulty of finding a time suitable for all participants. However, an initial zoom call was held for a discussion and question session, as well as weekly emails and text messages sent to each participant to maintain a relationship and build a TA between researcher and participants. One could hypothesize that a TA between caregiver and child developed through the massage session and the communication advised before each caregiver-child session. Engel (1977) suggests that this two-person relationship is where intervention begins, and this has been supported in results from several studies in the carer context (Cloves, 2023; Jarrett, 2024; Stewart-Smith, 2024).

Although studies from Osborne et al. (2008) showed that caregivers experiencing poor mental health were less likely to implement at home interventions with their child, this protocol was successful in its delivery and effect. Meaning caregivers were able to both implement it and reap the rewards. As we can see from previous JING studies (Cloves, 2023; Stewart-Smith, 2024) online self-care has been a valuable mental health tool for carers, and this study adds to that research.

Taking an overall look at the scores for all three scales, there is an unambiguous and steady decrease across all three. This could contribute to and support recent research on the neurobiology of touch activating the reward centre of the brain and furthermore improving mental health (Kida and Shinohara, 2013; Gentsch et al., 2015), as well as contributing to the anecdotal evidence seen in Barlow and Cullen, (2002), in which parents reported improvements in mental health when massaging their children.

Education on the application of pressure and gaining consent from the child equips caregivers with confidence when applying DPT, possibly contributing to positive outcomes by empowering the caregiver and changing their perception of caregiving from something necessary, to something enjoyable, and giving a sense of purpose.

## **Implications for clinical massage and integrated healthcare**

This study highlights that massage can also be beneficial for the giver, underscoring the importance of reciprocal touch therapy for mental health. Paediatric massage is predominantly associated with infants and their parents. This protocol, however, introduces an opportunity for older children to engage in paediatric massage with a caregiver. Caregivers who used this protocol anecdotally reported that their child enjoyed receiving the massage, and furthermore, enjoyed giving it to others too. This suggests a potential area for future research. Exploring this

could open possibilities for incorporating peer massage in special educational needs (SEN) schools to support mental health, communication, and relationships among children.

As an online format, this protocol could integrate seamlessly into family routines and be expanded into a longer program. Beyond its role in massage therapy as a self-care practice, it could also serve as a valuable tool within integrated healthcare. Research has shown that caregivers of neurodivergent children experience some of the poorest mental health outcomes (Khan et al., 2016). While neuro-physiotherapy, occupational therapy, and autism-inclusive support groups provide essential resources, their primary focus is on assisting the child and equipping caregivers to better support them (Sapiets et al., 2023). In contrast, this protocol has a direct and immediate effect on the caregiver's well-being and could be further developed as a complementary intervention within integrated healthcare. Collaboratively work with parents' organisations such as National Autistic Society would offer an opportunity to highlight the benefits to caregivers.

### **Limitations and suggestions for future research**

While this study provides valuable insight into the impact that caregiver-led massage can have on mental health, certain limitations should be acknowledged to give context to the findings. Firstly, the small sample size (N=8) restricts the relevance of findings to a less diverse group of only female caregivers, which raises concerns over statistical power. A greater quantity of participants would be recommended in future studies to broaden the scope of findings.

Secondly, the DASS-21 questionnaire was selected due to its brevity, recognising the time constraints faced by caregivers within neurodivergent families. However, this shorter format inherently provides a narrower range of assessment compared to the DASS-42. This limitation may have affected the depth of insight into the mental health dimensions. Future research could explore more comprehensive assessment tools to gain a clearer understanding of the

intervention's effects. Future studies could also explore use of the parenting stress index (PSI) as an alternative. This could provide more specific results based on parental stress, as well as the parent-child relationship.

Lastly, the participant cohort consisted exclusively of female caregivers. While this could reflect the reality that woman often take on primary caregiving roles, it creates a limit on the applicability of the findings. The mental health experiences and outcomes of male or non-binary caregivers in response to a caregiver-led massage protocol may differ, and this exclusion reduces the diversity of perspectives within the study. Future research could aim to recruit a broader spectrum of participants to explore the potential differences in outcomes and the interventions effectiveness across genders.

## CONCLUSIONS

The results of this study highlight the potential for a caregiver-led massage protocol to support the mental health of families with neurodivergent children. The findings align with existing research on pro-social touch, self-care and the benefits of massage as a tool to foster connection, promote an internal locus of control and enhance caregiver well-being. By addressing both child and caregiver needs, this intervention could present a valuable addition to the limited support framework currently available for neurodivergent community and their families.

Further research is necessary to validate these findings, particularly through a larger, more diverse participant sample. Exploring caregivers' attitudes towards parenting, for instance, using the Parenting Stress Scale, may also provide additional insights.

Overall, this study emphasises that compressive massage, while offering relief to others, has the power to profoundly impact the caregiver themselves, providing a low risk which can easily integrate into a healthcare framework.

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## APPENDICES

### Appendix 1

Definitions of the different neurodivergent classifications. It is important to note that this list is not exhaustive, and while it does contain definitions of the most commonly seen neurodivergent conditions, there are more.

<b>Autism Spectrum Disorder (ASD)</b>	<p>The National Autism Society defines ASD as a lifelong developmental disability which affects how people communicate and interact with the world.</p> <p>The NHS describes ASD as a spectrum in which your brain works in a different way from neurotypical individuals. Autism can be accompanied by a learning disability but is not considered a learning disability.</p>
<b>Attention Deficit Hyperactivity Disorder (ADHD)</b>	<p>The National Institute of Mental Health defines ADHD as developmental disorder which can be characterised by symptoms such as inattention, hyperactivity and impulsivity.</p>
<b>Developmental Co-ordination Disorder (DCD) or Dyspraxia</b>	<p>According to the NHS DCD or Dyspraxia is a condition affecting co-ordination. It could affect a child’s ability to perform daily tasks in the expected way or reach developmental milestones in a different time frame.</p>
<b>Dyscalculia</b>	<p>According to the British Dyslexia Association website, dyscalculia is a specific and consistent difficulty in understanding numbers. This can lead to a diverse range of difficulties with numbers.</p>
<b>Dyslexia</b>	<p>The British Dyslexia Association website describes dyslexia as a neurological difference which can have a significant impact during education, in the workplace and in everyday life. Dyslexia is a considered a learning difficulty which actually about information processing, and can affect reading and writing skills.</p>

## Appendix 2



	<b>CHECKLIST OF INSTRUCTIONS FOR STUDENTS</b>	✓
1	Complete Section 1 to Section 13	✓
2	Electronically sign and date	✓
3	Participation information form (see separate form)	✓
4	Participation consent form (see separate form)	✓

### **Jing BTEC Research Ethics Form**

#### **BTEC Level 6: Professional diploma in Advanced Clinical and Sports Massage**

Student's name:	Natalie Brown
Student number:	PE31584
BTEC Year-group:	2023 – 2025
Date of application:	24.04.2024
Student e-mail address:	<u>natalie@ascensionmassagetherapy.co.uk</u>
Title of research project:	<i>“Exploring the Mental Health Benefits of Caregiver-Led Massage in Neurodivergent Families”</i>

**Section 2: Does your project involve any primary research using human subjects?**

Please indicate as appropriate.

	YES	NO
Does your project involve any primary research using human subjects?	<b>X</b>	
If yes, does it involve children under 16?	<b>X</b>	
If yes, does it involve children under 18?		<b>X</b>
Other vulnerable populations (i.e. mental illness, aged subjects)?		<b>X</b>
Does your project involve NHS patients, NHS staff or Local Authority Service Providers?		<b>X</b>
Are you planning to use deception?		<b>X</b>
Are you collecting sensitive personal data such as sexuality, mental health data, etc.?	<b>X</b>	

Does your study involve paying participants or an alternative incentive to participate		X
Could the study put you or someone else at risk of injury?		X
Does your project make use of a validated questionnaire?	X	
If yes, please specify the name of the validated questionnaire you are using and attach a copy here. DASS-21 See attached copy (Appendix A)		

### Section 3: Research premises

The research will take place online. Including an instructional video which participants will use in their own environment.	
If your research is being undertaken outside of your own premises, do you have written confirmation from the establishment involved? If yes, please provide evidence.	Not applicable

## Section 4: Recruitment

Participants will be recruited nationally, via Facebook groups, support groups for carers of neurodivergent children. Information will be sent to specialist educational facilities to share with the parents. Organizations such as NAS and AI and other groups from the autism charity directory will be informed and given the opportunity to share the study with their network of carers. Posters will be sent to local GP services and emailed to GP services in other areas.

## Section 5 Outline your project procedure

This is effectively a draft of your method, include information on when questionnaires will be used, what your intervention will involve, any stimuli used, etc.

This study aims to evaluate the effect on mental health of caregivers after they massage their neurodivergent child.

Participants will be recruited for this within group study design using social media, accessing families through specialist school facilities, and charity groups such as NAS, Autism Inclusive, and any other groups on the charity directories listing and GP services.

Applicants will be required to attend an initial consultation call with the researcher to discuss the study, ask questions and complete a DASS-21 questionnaire, ascertain whether they meet the inclusion criteria, and to obtain consent for the study. Once this is completed, the control period of the study can start.

Weeks 1-6 of the study will form the control period and will give a baseline of the client's depression, anxiety and stress scale.

- During this time the participants will fill in the DASS-21 questionnaire once a week, but there will be no intervention.

Weeks 7-12 of the study will be the intervention period.

- Clients will receive 2 videos. Video 1 will be an introduction video on how to use the massage protocol. And Video 2 will be an instructional video of the massage protocol.
- Clients will follow the 10 min instructional massage video to perform on their child 3 times per week, totalling 30 min of massage time with their child through the week.
- The instructional video will follow the protocol attached (Appendix B). It will be the same protocol each week.
- Clients will be provided with guidelines on asking consent from their child, the amount of pressure to apply for the massage, playing music/audio that their child enjoys, and having sensory toys available to help make the experience enjoyable for their child.
- On day 6 of the 7-day week, they will each be sent the questionnaire and asked to complete and return it within 24 hours.
- At the same time, they will be asked how often and for how long they were able to perform the massage with their child during that week.
- On day 7 they will join a group Zoom to ask any questions or provide any

feedback. The zoom calls will provide ongoing therapeutic alliance and contribute toward the psychosocial element of the biopsychosocial model.

At week 14 and week 16 of the study, a final questionnaire will be sent and asked to be returned within 48 hours to evaluate any lasting effects of the study.

### Section 6: Describe what your participants need to do

Participants are required to take part in an initial online consultation to:

- Check they meet the inclusion criteria,
- Have the study explained to them and obtain consent.
- Collect information required for the consultation process.
- Participants are required to inform the researcher of any other manual therapy, treatment, or medication they are taking throughout the duration of the study.
- Weeks 1-6 participants will complete the DASS-21 questionnaire without intervention.
- Week 7-12 participants will receive a standardized 10-minute instructional video for a massage protocol to perform on their neurodivergent child three times a week, for the duration of the 6-week intervention phase. They will also have an introduction video with guidance on how to use the protocol.
- During week 7-12 (the intervention phase) the participant will be sent the DASS-21 questionnaire on day 6 and required to complete and return it within 24 hours and before the start of the next week.
- The participant will also inform the researcher of how many times and how long each session lasted in the week they gave their child a massage.
- Participants will be required to attend a weekly zoom group call where the researcher can check in with participants, ensure there are no issues with the intervention, that they are well and provide them with a forum to ask questions. This Zoom group will take place on a Sunday evening, before the start of the next week, at a time that does not interfere with dinner or bedtimes.
- The participant will be required to complete a final questionnaire in week 14 and 16 of the study, to evaluate any long-term effects of the study.

## Section 7: Respecting confidentiality and ethical issues for participants

- Children under 16 will be included, but not directly involved or evaluated in my study.
- I will not be directly treating any children under the age of 16.
- Caregivers will be asked to request consent from their child at the start of the intervention period and guided on how to frame massage time with their child for each following session.
- Data will be held in accordance with the General Data Protection Regulation Act (GDPR)
- The initial sign-up form will inform the participant that their information will not be available to third parties.
- Participants will receive reassurance their details will not be shared or seen by anyone else.
- Participants names will be replaced by numbers so they will be anonymised.
- Upon completion of the study, participant details will be deleted.
- During the weekly online Zoom calls participants will be able to change their name or provide a pseudonym to maintain anonymity.
- Online Zooms will not be recorded, and participants will agree not to record the sessions to protect the identity of the participants.
- There is minimal risk of injury, but participants will be advised on the appropriate amount of pressure to use whilst giving their child a massage, and how to appropriately position themselves to be comfortable while performing the sequence.
- This study will be evaluating depression, stress and anxiety in caregivers. Should the researcher be concerned about the participant in any of these areas, they will be signposted to local specialists, or groups such as Mind.

## Section 8: Inclusion and exclusion criteria

The study will include:

- Caregivers of children under the age of 16
- Caregivers of children who have either been diagnosed as neurodiverse, or who have children that are on stage one of the pathway to obtaining a diagnosis.
- Caregivers of children who are tactile and will enjoy being massaged by their parent.

The study will exclude:

- Caregivers of children who are above the age of 16.
- Caregivers of children who have not yet begun the stage one process of the pathway to obtaining a diagnosis, and not have received a formal diagnosis of being neurodiverse either through the NHS or privately.
- Caregivers of children who will refuse touch.

**Section 9: Student declaration:**

I understand that I can only start my project, once this ethical application has been approved. This applies to ALL projects, whether using human participants or not.	YES <b>X</b>	NO
--	-----------------	----

Student's handwritten signature:



(To be completed, once ethical approval has been provided)

Print Name: Natalie Brown

Date: 02/05/2024

**ONCE YOU HAVE COMPLETED THE ABOVE ETHICS DETAILS, THEN YOU CAN PROCEED TO PARTICIPANT INFORMATION AND CONSENT FORMS, SO READ BELOW AS IT IS IMPORTANT TO BE CLEAR ABOUT WHAT YOUR PARTICIPANTS NEED TO DO.**

Informed consent must be obtained for all participants before they take part in your project. The Consent Form should clearly state the parameters and content of the research. It should explain what is expected of the participants and what they will be doing. It should draw specific attention to any elements that could conceivably cause subsequent objections, and the measures you are taking to ensure the confidentiality of their data. It should also state that the participants are free to withdraw from the study at any time.

Studies should not involve participants under 18 without express permission from your supervisor. Studies carried out in schools require the permission of the head-teacher, and of any responsible adults as per the head teachers' recommendation. Minors aged over 14 years should also sign an individual consent form themselves. If you are planning to carry out a project whereby you will be in contact with minors, you must establish from the head-teacher or other responsible adult whether the work proposed will require you to have the relevant DBS disclosure. Please seek advice from your Local Authority.

You must complete a consent form for every participant involved in your study.

**EITHER:**

This project is not designed to include fieldwork with human participants. Insofar as secondary data are to be used, I am confident that appropriate procedures are in place for data protection and non-disclosure of any personal or confidential data.

Signature: .....date: .....

**OR:**

This project is designed to include fieldwork with human participants.  
(please circle yes or no)

*YES* All necessary statutory, legislative or other formal external approvals have been obtained (e.g., permissions, police checks, external research ethics and governance approvals in the case of research involving NHS staff or patients or Local Authority service providers or users).

*YES* The design of this study ensures that the dignity, welfare and safety of the participants will be ensured and that if children or other vulnerable individuals are involved they will be afforded the necessary protection.

*YES* I am confident that participants will be given all necessary information before the study, in the consent form, and after the study if necessary.

*YES* I am confident the participants' confidentiality will be preserved.

*YES* I consider that any risks involved to the student, the participants, and any third party are minimal.

*YES* I consider that Departmental approval should be given, since ethical risks have been appropriately addressed in the proposal and I am confident that steps will be taken to minimise any risks.

Signature: .....**Susan Harrison** ..... date: .....**30/4/24**.....

If a second opinion was sought from a research ethics expert, the advisor should also sign this form below:

Advisor's name (please print):

Advisor's signature: ..... date: .....

Once the Jing's signature has been obtained, the student must return the completed form to the Jing Office.

**APPENDIX A**

**Please see PDF labelled Appendix A\_DASS 21**

## **Appendix B**

### **Massage Protocol for caregivers to provide to their child.**

#### **Video 1:**

##### *Introduction:*

- How to use the videos
- When to use the videos and finding a comfortable place
- Communicating with your child and how much pressure to use
- Guidance on using music or audio books to help your child relax.
- Availability of toys and sensory fidgets for your child

#### **Video 2:**

##### *Prone massage (face down):*

- AMMA Compressions on the back and down the back of the legs
- 1) 1st leg:
    - AMMA Compressions down the back of the leg x3
    - Gentle foot squeeze, bottom, middle and top x3
    - Foot circle x3
    - Dorsi flex and plantar flex x3
  - 2) Repeat on the other leg.
  - 3) AMMA Compressions on the back
    - Gentle shoulder squeeze x3
  - 4) 1<sup>st</sup> Arm:
    - AMMA Compression x3
    - Gentle hand squeeze bottom, middle and fingers x3
  - 5) Repeat on the other arm.
  - 6) Finish with compression to the back/running hands gently through hair and up head.

**Appendix 3**

**PARTICIPANT CONSENT FORM**



**Title of study:** Exploring the Mental Health Benefits of Caregiver-Led Massage in Neurodivergent Families.

**Name of student:** Natalie Brown

	Yes	No
I have read the participant information letter about this study.		
I have had an opportunity to ask questions and discuss this study.		
I have received satisfactory answers to all my questions.		
I have received sufficient information about this study.		
I understand that as a participant I am free to withdraw from this study: <ul style="list-style-type: none"> <li>• At any time (until such date as this will no longer be possible, i.e. once all anonymised data has been merged)</li> <li>• Without giving a reason for withdrawing</li> <li>• That I am free to refuse to answer any question without saying why</li> <li>• That the services I am receiving will not be affected whether I participate or not.</li> </ul>		
I understand that my research data may be used for a further project in anonymous form, but I am able to opt out of this if I so wish, by ticking 'No' here.		
I understand that online sessions may not be recorded.		
I understand the online sessions might involve other participants and I will respect the confidentiality of the group and not share information with others		
I understand that I am not able to share the instructional videos with anyone else		
I agree to take part in this study		
<b>Signature (participant)</b>		
<b>Date:</b>		
<b>Name: (BLOCK LETTERS)</b>		
<b>Signature (parent/guardian/other, if under 18)</b>		<b>Date:</b>
<b>Name: (BLOCK LETTERS)</b>		

**Natalie Brown**

**Tel no: 07990528963**

**Email: [natalie@ascensionmassagetherapy.co.uk](mailto:natalie@ascensionmassagetherapy.co.uk)**

## Appendix 4



**STUDENT NAME:** Natalie Brown  
**STUDY LOCATION:** Online  
**Tel:** 07990528963  
**e-mail:** natalie@ascensionmassagetherapy.co.uk



**Jing Advanced Massage Training**  
**28/29 Bond Street**  
**Brighton BN1 1RD**  
**[www.jingmassage.com](http://www.jingmassage.com)**  
**01273 628942**

Dear XX,

### **Re: Exploring the Mental Health Benefits of Caregiver-Led Massage in Neurodivergent Families.**

Thank you for showing interest in my study. I appreciate you responding to my call for participants. Let me tell you a little more about myself, and what the study entails.

I am Natalie Brown, and I have been a massage therapist for 4 years. I have been practicing Advanced Clinical Massage Therapy for 2 years now and specialize in the treatment of chronic pain. As well as having my own business for 4 years, I have also gained experience within a chiropractic clinic, and I provide complementary therapy at St Lukes Hospice in Cheshire. In my clinic, I work mostly with individuals suffering with a range of chronic pain such as headaches, low back pain, frozen shoulder, and fibromyalgia and more. I also have experience providing massage to children who have had a range of ailments, including toe walkers (who have very tight little calf muscles), scoliosis and children who just enjoy a nice massage.

In 2021, I embarked on an advanced degree qualification in my field: the BTEC Level 6 in Advanced Clinical and Sports Massage offered by Jing Advanced Massage, the highest level of education a manual therapist can achieve in the UK. It is overseen by experts in the field of Musculoskeletal Pain, Education, Sports Science and Psychology.

As part of our course work, we are given an opportunity to design and carry out a study into the effects of a clinical massage wellness program. I have chosen to evaluate the effects on mental health of caregivers after they massage their neurodivergent child.

I am looking for people who are caregivers who:

- Have a child/ren under the age of 16 and have had a diagnosis of neurodiversity.
- Have a child/ren under the of 16 that are on stage on of the NHS pathway to obtaining a diagnosis of neurodiversity.
- Whose neurodiverse child is tactile and enjoys the feeling of touch, heavy blankets and affection.

Unfortunately, this study will not be suitable for you if your child will not be happy to experience touch therapy. Nor will it be possible to include caregivers whose children have not yet either received a private or NHS diagnosis of being neurodiverse, or those who have not yet been put on the NHS stage one pathway to a diagnosis.

If you decide to participate in the study, it will begin around early September 2024 once the school year has begun and will be a 12-week total period. Participation is completely voluntary, and you can withdraw from the study at any time without giving a reason. All your information will be kept confidential, and your data will be anonymized.

### **What does the study involve?**

As mentioned above, the study will take place over 12 weeks in total. The first 6 weeks are about understanding your overall mental health, based on a Depression, Anxiety and Stress Scale (called a DASS-21 questionnaire). We will start with an initial 1-1 Zoom call, where I will gather your contact information, introduce you to the questionnaire, and talk you through the study. If you agree to take part in the study and meet the inclusion criteria you will complete a consent form before the project starts.

For this first 6-week period, every Sunday night, you will complete and return the DASS-21 questionnaire, which should take you no longer than 5-10 minutes. I will send an email every Saturday to remind you to complete the questionnaire. Once all this data has been gathered and interpreted, we will use the next 6 weeks to make a difference.

For the next 6 weeks (Weeks 7-12 of the study), you will be part of a wellness group that will receive a short and easy to follow video (about 10 minutes), which will provide you with a massage sequence to perform on your child. There will also be an instructional video guiding you on how much pressure to apply, communicating with your child, and obtaining consent from your child. You can perform this massage on your child any time in your schedule but recommended between 3 times per week.

In this 6-week period, you will continue to complete the same DASS-21 questionnaire every Sunday, and I will continue to send you a prompt every Saturday to remind you. A further 2 weeks after the completion of the intervention, you will receive the questionnaire to complete, and then a further 2 weeks after that (week 16) a final questionnaire to assess the

long-term effects of the program. Each week you will also inform the researcher how many times you were able to perform the protocol and for how long each week.

Each Sunday you will also attend a short Zoom group call with myself and all the participants to ask any questions and provide feedback.

### **Risks and benefits**

There are limited risks involved in this study and the instructional video provides guidelines on how to use the techniques, amount of pressure to apply, and communication with your child gaining permission to perform a massage on them.

Benefits of taking part include spending real quality time with your child, and being guided through an easily accessible touch therapy session they will enjoy. There is much evidence to support increased wellbeing through touch therapy between caregiver and child for both individuals. By taking part in this study, you will also be contributing to potentially furthering the support of this evidence, and helping more people in the future access quality touch therapy that can be beneficial to them and their child.

### **How your data will be handled:**

Your data will be mathematically analysed together with all the other participants' data, and the findings from this analysis will be communicated to the project supervisor and possibly other practitioners. Your name will be anonymised, and no one will know your identity. All your data will be deleted once the study is completed.

Once my research is published, I will share my findings with you and invite you to the conference, where my colleagues and I will be presenting all the findings of the studies we have done.

It is important for me to ask that you let me know if you engage in any other form of stress relieving activity or take any medication during the time of this study. You are also asked not to contact the other participants during the time of the study or have any communication with them, as this may skew the results of the study.

### **Cost:**

While there is no cost for this study, I will kindly ask for donations which will go to a charity for the neurodiverse. There will be a just giving page for this. I am happy to receive

suggestions for charities, which will go in a draw and be selected randomly. This means that you, the participant, have a say in where the money should go.

**Enquiries:**

**If you have any questions at all, I would be more than happy to answer them. You can either contact me by phone, email, or text, on the details below.**

Thank you again for considering this project, your participation will make a difference to your stress and wellbeing and that of others.

Sincerely,

Natalie Brown, BA Hons, ACMT

**Tel:** 07990 528 963

**Email:** [natalie@ascensionmassagetherapy.co.uk](mailto:natalie@ascensionmassagetherapy.co.uk)

## Appendix 5



# CAREGIVERS LEARN TO MASSAGE YOUR CHILD



Enhance Your Well-being Through the Power of Touch: Join This Study on Massage and Mental Health in Neurodiverse Families

## ABOUT THE STUDY



This study aims to evaluate how and if providing massage to your neurodiverse child can positively impact your mental health. It is free to take part, and you will receive a wonderful massage protocol to share with child.

## WHO CAN TAKE PART?

- Caregivers of neurodiverse children.
- Caregivers whose children have been diagnosed as neurodiverse.
- Caregivers whose children are on step one of the pathway to receive a diagnosis as neurodiverse.
- Children must enjoy the sense of touch and sensory stimulation.

## BENEFITS OF TAKING PART

- Gain an understanding of your mental health in the first 6 weeks of the study.
- Receive an instructional video with a short and easy massage protocol for you to follow and to provide your child for 6 weeks.
- Weekly zoom calls to talk about your experience and opportunity for Q&A

## REGISTER YOUR INTEREST

Click on the link or scan the code to register here your interest before June 30 2024, and I'll be in touch!

[Register your interest](#)



**Natalie Brown, BA Hons, ACMT**  
**natalie@ascensionmassagetherapy.co.uk**

[www.ascensionmassagetherapy.co.uk](http://www.ascensionmassagetherapy.co.uk)

## Appendix 6

# DASS21

Name:

Date:

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree or a good part of time
- 3 Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

## DASS-21 Scoring Instructions

The DASS-21 should not be used to replace a face to face clinical interview. If you are experiencing significant emotional difficulties you should contact your GP for a referral to a qualified professional.

### Depression, Anxiety and Stress Scale - 21 Items (DASS-21)

The Depression, Anxiety and Stress Scale - 21 Items (DASS-21) is a set of three self-report scales designed to measure the emotional states of depression, anxiety and stress.

Each of the three DASS-21 scales contains 7 items, divided into subscales with similar content. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest / involvement, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset / agitated, irritable / over-reactive and impatient. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items.

The DASS-21 is based on a dimensional rather than a categorical conception of psychological disorder. The assumption on which the DASS-21 development was based (and which was confirmed by the research data) is that the differences between the depression, anxiety and the stress experienced by normal subjects and clinical populations are essentially differences of degree. The DASS-21 therefore has no direct implications for the allocation of patients to discrete diagnostic categories postulated in classificatory systems such as the DSM and ICD.

Recommended cut-off scores for conventional severity labels (normal, moderate, severe) are as follows:

NB Scores on the DASS-21 will need to be multiplied by 2 to calculate the final score.

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

Lovibond, S.H. & Lovibond, P.F. (1995). Manual for the Depression Anxiety & Stress Scales. (2<sup>nd</sup> Ed.) Sydney: Psychology Foundation.

## **Appendix 7**

*Prone massage (face down):*

- AMMA Compressions on the back and down the back of the legs
- 7) Left leg:
  - AMMA Compressions down the back of the leg x3
  - Gentle foot squeeze, bottom, middle and top x3
  - Foot circle x3
  - Dorsi flex and plantar flex x3
- 8) Repeat on the right leg.
- 9) AMMA Compressions on the back
  - Gentle shoulder squeeze x3
- 10) Left Arm:
  - AMMA Compression x3
  - Gentle hand squeeze bottom, middle and fingers x3
- 11) Repeat on right hand.
- 12) Finish with compression to the back/running hands gently through hair.

## Appendix 8

Massage your child introduction video.

Hello and welcome.

In this introduction video, we will cover a few key points on how to use the massage sequence with your child. The aim of massaging your child is have a positive experience for both of you. I have kept the video short so that it can be easy to include in your routine during the week.

### 1. Where to perform this massage

This is a special time for you and your child to feel relaxed. You can perform this massage any where that you think this will be best suited to you both, so long as you are both in a comfortable position. As a suggestion, you can try to do this massage routine in bed before your child goes to sleep. Or you can make a comfortable area in the lounge or on the floor in any warm room. Use some cushions and place some your child's favourite things nearby. It is ok if they would like to play with a toy, read a book or have any sensory stimulation at the same time.

### 2. Asking for consent

No doubt you will have spoken with your child before signing up for this course. However, it is always important to ask your child for permission before you lay your hands on them. If they say no, then try again at another time. This is meant to be enjoyable, and there is no need to force anything on your child. You know them better than anyone, so try to pick a time when you think they will be receptive and open to having a massage.

### 3. How to perform the massage

This protocol is easy to follow and uses a compression technique which is proven to be highly enjoyable, it relieves stress and reduces anxiety, and it also increases a child's sense of their own internal awareness and the awareness of their body. You will want to compress enough for your child to feel, but not too much that it will hurt. If you imagine you are squeezing a balloon, trying to get make it smaller, but without popping it. Communicate with your child as you are doing this. Ask them how it feels and let them know that if it becomes uncomfortable or too much, you will release a little bit. If they feel like they would like the pressure a little firmer, feel free to add a little more pressure, slowly. Being slow and taking your time will really help them to experience the feeling of the massage and process it.

### 4. Ending the sequence

At the end of the sequence, take a moment of stillness with your child, while keeping both hands still on their back. Most importantly, enjoy this time.

## Appendix 9

### Participant Feedback

I really enjoyed learning the techniques and the bonding it's created between me and my daughter and the overall reaction it's caused at home being calmer and less tense

Na

Study has been very easy to incorporate. Massage techniques are incredibly useful.

The massage is a very special time between my child and me

Each week has been very different, some evenings I've not been allowed to do the massage, some evenings I've not been able to touch the feet, it has definitely built up trust between us.

It was great. [REDACTED] and I loved the experience of the massage. It made bedtimes very relaxing and stress free. [REDACTED] fell fast asleep on several occasions after the massage. The process of completing the questionnaires made me reflect on my behaviour and how I had to find time for myself to relax also.

It's been lovely to take part, thank you x

Massaging my child brought a calm to our lives that didn't exist anywhere else. It allowed my brain to forget everything else and just exist in that moment of connection. Thank you!