



## Research Article

# Backing the backbones—A feasibility study on the effectiveness of dance movement psychotherapy on parenting stress in caregivers of children with Autism Spectrum Disorder



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## ABSTRACT

Dance Movement Psychotherapy (DMP) utilises the therapeutic power of dance within a psychotherapeutic frame to both alleviate distress as well as promote overall wellbeing. The effectiveness of an integrative approach to DMP was explored on the parenting stress experienced by the caregivers of children on the autism spectrum. The present study was conducted in India. Twelve caregivers of children on the autism spectrum from different regions of India were recruited from a special education setting. They were divided into experimental (intervention) and control groups (waiting list) and were evaluated before and after six DMP group sessions. Parenting Stress Index-Short Form (PSI-SF) and Hamilton Depression Rating Scale (HAM-D) were the tools used for assessment. The comparisons of pre and post intervention assessments indicate reduction in parenting stress scores after DMP intervention. The results suggest that integrative approach to DMP may be an effective option to support the caregivers of children on the autism spectrum to maintain their state of wellbeing. Difficulty in recruiting the participants and to assign them randomly were the limitations of this study. However, the findings of the study merit further explorations with larger samples and in-depth study of the therapeutic process.

## Introduction

Autism is a neurodevelopmental condition with differences in social behaviour, communication and interests (American Psychological Association, 2013). People with autism present a remarkable degree of heterogeneity in the type, frequency and severity of symptoms. As a result, the condition is often described as a spectrum of conditions. A report from Centres for Disease Control and Prevention (2018) compiling studies from Asia, Europe, and North America suggest that an average prevalence of Autism Spectrum Disorder (ASD) is between 1%–2% (Centres for Disease Control and Prevention, 2018). According to the 2011 census data, 2.2 million children between 2–9 years of age were diagnosed as being on the autism spectrum in India (Census India, 2011). Although accurate figures are not available, the prevalence of autism alone in India (without including the whole spectrum) is estimated at 64 per 10,000 (Rehabilitation Council of India, 2007), indicating it is not a rare condition in India. Despite this, intervention

options offered by trained professionals are available only in certain urban areas of the country with very limited resources available in rural areas (Rehabilitation Council of India, 2007). It is not surprising that the parents of children with ASD are often in search of service provision and, at times, in urgent need to find solutions. Although having a child with ASD may disrupt parents' quality of life (Buescher, Cidav, Knapp, & Mandell, 2014; Siller & Morgan, 2018), the focus of most available services tends to be on children only.

A study conducted by Ayvazoglu, Kozub, Butera, and Murray, (2015) on the physical activity levels of parents of children on the autism spectrum indicate that they were largely inactive, the reasons being difficulties in addressing both physical and emotional demands on the family. Parents reported that they did not manage to find time to be physically active because of the time spent commuting from one therapy to another for their children. At the same time, as relevant research literature suggests (Lubans et al., 2016; Pan, Frey, Bar-Or, & Longmuir, 2005; Tomporowski, 2003; Yeh et al., 2016), physical

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activity levels can be directly linked with the overall wellbeing of a person. This raises the question of whether dance movement psychotherapy, a movement-based psychological intervention, can play a role in supporting parents. Dance has been an integral part of Indian culture and tradition. The therapeutic benefits of different forms of dance at all stages of life, starting from birth to death have been discussed in various ways in Vedic literature, (1700–1100 BCE) and also in ancient Indian dance and drama treatises such as Nāṭyaśāstra dated back between 200 BCE and 200 CE, Nandikeśvara's Abhinayadarpaṇam dated 5<sup>th</sup>–13<sup>th</sup> Century AD (Ghosh, 1959, 1957). Nonetheless, dance movement psychotherapy as a profession in India is still in its nascent stage. Hence research in this area is important.

### Parenting children with Autism Spectrum Disorder (ASD)

Parenting is described as a 'gift' (American Academy for Paediatrics, 2017) with distinct experiences, delights, surprises and challenges. Parents can be seen as the backbone for healthy development of their offspring. However, parenting can also turn out to be stressful when the demands of their role surpass the expected and actual resources available to them to succeed in their role (Deater-Deckard, Chen, & Mallah, 2015). When this is the case, parents can experience distress or discomfort known as *parenting stress* (Crnic & Ross, 2017; Deater-Deckard, 1998).

Stress is a highly subjective experience of negative emotions accompanied by predictable biochemical, physiological, cognitive, and behavioural changes that are directed either towards altering the stressful event or accommodating its effects (Patnaik, 2014). Carpenter and Steffen (2004) identify the broad effects of stress which include physical and/or psychological symptoms such as depression, fatigue, restlessness, elevated neural and hormonal pathways or an increased risk for ulcers or heart diseases. Stress levels of parents of children with ASD could be challenged by the characteristics of autism, as well as challenges of expense, time, adaptations, and less time for other relationships (Connolly & Gersch, 2016; Leigh & Du, 2015). Research studies have reported high levels of stress, anxiety, higher incidence of depression and lower levels of overall wellbeing in parents of children with ASD when compared to parents of neurotypically developing children (Bonis, 2016) as well as parents of children with other developmental disorders (Dabrowska & Pisula, 2010; Watson et al., 2011). Strong associations were found between symptoms of autism and parenting stress (Dabrowska & Pisula, 2010; Estes et al., 2009; Lutz et al., 2012; Schwartz et al., 2012; Watson et al., 2011). Parents have reported the social communication and behavioural difficulties of children with ASD as the main reasons for their stress (Davis & Carter, 2008).

Difficult family dynamics and poor quality in the parent–child interactions may result in higher levels of depression and parenting stress (Lutz et al., 2012; Senthil, 2016). It is also important to acknowledge that emotional strain may arise from various other reasons such as pre-existing pathology or other environmental stressors. Statistical results from epidemiological studies have documented significantly higher stress levels in mothers of children with disabilities from a developing nation such as India, when compared to reports of mothers from developed countries (Brezis et al., 2015; Daley, 2004; John, Morris, & Halliburton, 2012; Wilcox, Washburn, & Patel, 2007). Reasons for these differences may or may not be directly linked to having a child with autism (Hayes & Watson, 2013). Contributing factors may also be differences in perceived parental responsibility and presence (or absence) of support. Studies on parental stress throw more light on this issue.

According to Lazarus's stress model (Lazarus, 1993), there are four aspects of parenting stress with frequent interactions between each other: the agent of stress, the appraisal of stress, coping mechanisms and stress reaction. Neece, Green, and Baker, (2012) argue that these factors provide an outline for the experience of stress. They also argue that parenting stress is transactional in nature, in that there are bidirectional or reciprocal effects and continuous exchanges between a

person and the environment. These exchanges play a vital role in the development of an individual. Thinking of parental stress in this way helps us recognize the impact of reciprocal interactions in a parent–child relationship (Gottlieb, 2007; Sameroff, 2009). Research by Sossin and Birklein (2006) looked at the intricacies of explicit and implicit manifestation of parental stress using Kensternberg Movement Profile as a movement observation tool informed by a relational frame. They noticed differences in the movement of parents with higher life-stress in comparison with parents with less stress. The former group showed fewer instances of sudden, and thus spontaneous, changes in their movement than the latter group. This was associated with an underlining movement quality of zoning out or freezing.

Based on the perspective that stress is transactional, it can be argued that parenting stress and behavioural problems of children with ASD are connected (Smart, 2016). Furthermore, parents are considered to be playing a vital role in the successful outcome of almost every type of therapeutic intervention their children receive (Bearss, Burrell, Stewart, & Scahill, 2015). If parents themselves are under stress and feel depressed, parenting self-efficacy is likely to decrease (Smart, 2016). As a result, this may interfere with an effective treatment for children (Warren, Brown, Layne, & Nelson, 2011). In turn, perceived failure at parenting could increase depression, anxiety, withdrawal, and helplessness. Even if the sociocultural, interactional and family atmosphere are extensively valued as significant components in the development of children with disabilities (Ochs & Solomon, 2010; Skinner & Weisner, 2007), there are hardly any intervention programmes focusing on parental needs (Karst & Van Hecke, 2012). The main, and at times exclusive, emphasis is placed on intervention programmes for children. Furthermore, although parent and family factors may have an influence on both the immediate and long-term effects of therapy, they tend to be ignored. Thus, all these challenges faced by caregivers highlight the need to attend to them and certainly to explore ways in which they can receive appropriate psychological support. Dance movement psychotherapy could be one such option.

### Dance Movement Psychotherapy (DMP) and children on the autism spectrum

To our knowledge, there are no reports on the effects of DMP on caregivers of children with ASD specifically on emotional wellbeing, stress and depression. However, there are some studies and case reports that describe useful ways of working and some positive effects of DMP for children with ASD while working in group conditions (Athanasidou & Karkou, 2017; Chiang, Chu, & Lee, 2016; Devereaux, 2017). Studies that look at dyads are also available (Houghton & Beebe, 2016; Samaritter & Payne, 2015). Overall results suggest that DMP can support children to become aware of personal boundaries, experience social dynamics, improve communication and develop social and emotional skills (Athanasidou & Karkou, 2017; Devereaux, 2017). They have also noted an increase in expressive and receptive verbal communication and a reduction in stereotypical behaviours. The DMP research literature also explores attachment patterns, therapeutic relationship, attunement, kinaesthetic empathy, all important not only in clinical contexts but also in real life situations when parents try to relate and communicate with their children (Houghton & Beebe, 2016; Samaritter & Payne, 2015). It has therefore been argued that in order to improve interactions with their children, it is important for the caregivers to be really aware of their somatic and intuitive responses. Amos (2013), noticed that it was challenging for the parents to synchronise their body rhythms and communication style with their children on the autism spectrum as they exhibited dysregulated internal rhythms. Crnic, Friedrich, and Greenberg, (1983) documented that highly stressed mothers lacked cue recognition and responsivity during their interaction with four-month-old babies and in turn the new-borns were considered harder to read. Similarities have been reported between cognitive stress strategies of Cognitive Behavioural Therapy (CBT) and

the practice of DMP (Meichenbaum, 1994) as both the approaches have shown an impact on the way people respond to stress. It is speculated that DMP could influence the way stress is perceived and response to the stressors as it aims to promote awareness of senses, feelings, images and thoughts. Yet it is still unclear whether DMP would be useful as an intervention to reduce the stress experienced by the caregivers of children on the autism spectrum.

### Dance Movement Psychotherapy in the alleviation of stress and depression

A randomized controlled trial with 162 participants from different parts of Germany examined short and long-term effects of group DMP interventions in relation to stress (Bräuninger, 2012). The study concluded that the effects of DMP on stress management and stress reduction were positive and found these significant changes lasted over time. Stress was also assessed in 139 Chinese patients suffering from breast cancer awaiting adjuvant radiotherapy (Ho, Fong, Cheung, Yip, & Luk, 2016). The participants in the experimental group attended a short-term DMT intervention. Through self-reports, it was seen that DMT was beneficial to manage the anticipated perceived stress in women with breast cancer during radiotherapy. Although the Cochrane review of the effects of DMP on depression by Meekums, Karkou, and Nelson, (2015) was inconclusive, a recent systematic review with meta-analyses (Karkou, Aithal, Zubala, & Meekums, 2019) suggests that DMP can be an effective intervention for adults with depression. This is in accordance with the earlier meta-analysis conducted by Koch, Kunz, Lykou, and Cruz, (2014) that showed moderate effects of both dance and DMP on quality of life, depression and anxiety. However, to date there are no studies that examine the effectiveness of DMP to reduce emotional distress and improve coping strategies of parents/caregivers of children with ASD.

### Aim and research question

Consequently, the aim of this research is to study the effect of DMP on parenting stress as the primary outcome and the levels of depression amongst caregivers of children with ASD. The researchers asked the following question: What are the effects of a short-term DMP programme on stress reduction and management of parents/caregivers of children with ASD in comparison to a control group of parents/caregivers of children with ASD who received no intervention?

The study was undertaken in South India by the first author of this paper, received academic supervision by the second author, and support by the third and fourth in the recruitment of participants and analysis of results. It used a mixed methodology (Creswell, 2014; Creswell & Creswell, 2015) described in the following section. Although both qualitative and quantitative methods were used, in this paper only the quantitative results are presented.

### Methodology

This mixed methodology (Creswell, 2014; Creswell & Creswell, 2015) study was conducted in a special education setting from December 2016 - February 2017. Creswell and Creswell (2015) defined mixed methods as “an approach in social, behavioural and health sciences in which the investigator gathers quantitative (closed-ended) and qualitative (open-ended) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data to understand research problems” (P.2). Mixed-methods research is philosophically underpinned by pragmatism, which follows the idea of designing studies and collecting data in what works best in a given situation. According to pragmatism, concepts are considered to be appropriate and relevant only if the actions are reinforced, implying that importance is given to empirical and practical consequences.

Ethical approval for the study was sought through the appropriate

institutional procedures, including permission from the director of the institution and head of the department where the study was conducted. Written informed consent was gained from the participants for their involvement in the study, including the use of data for research purposes after the termination of therapy. For the participants to attend these sessions, arrangements for childcare were made by the special educators of the institution.

### Participants

Twelve mothers of children with ASD (mean age: 7.2 years) within the age range 28–35 years (mean age: 29.6 years) were non-randomly (based on their convenience to attend DMP sessions) recruited to the study. The only inclusion criterion for this study was to be a caregiver of a child with a confirmed and formal diagnosis of ASD. This allowed for any caregiver (mother, father, older sibling, caretaker or grandparent) of children with autism. But the situation was such that in reality mothers were the only participants. Those mothers participating were bilingual, educated at a degree level, of middle socio-economic status from different regions of India. The average monthly income ranged from less than 10,000 INR/month (approximately 106.5 GBP) to more than 55,000 Rs/month (approximately 577.86 GBP), and the median income was 25–35,000 INR/month (266.3 GBP–372.89 GBP). Families were equally split between joint and nuclear households, with an average of five persons per household (range of 4–11). 83.33% of the participants could read, write and understand English but their English-speaking competency varied. They came from different cultural backgrounds and varied in the first languages they spoke (among twelve participants, there were four Kannada speakers, four Malayalam speakers, two Tamil speakers, one Bengali, one Odisha), religion, caste, beliefs, family customs, values and traditions. Except for the two participants who lived in the particular location where the study took place, the other ten mothers had left their families and home towns and moved to the particular location in South India with their child. They had moved there because their child could receive long term education by the particular institution, a well-established service falling under the Ministry of Health, Government of India. At times, some fathers and grandparents joined the mothers during festivals and long weekends (depending on the distance), but virtually none participated in daily activities. They were away from their families for around two to three years prior to the study.

### Procedures

The study started with pre-therapy assessment for all the participants followed by six sessions of DMP for the participants in the experimental group spread equally across two weeks (three sessions of ninety minutes, alternate days in one week) and a final post-therapy assessment. The tools discussed here were used for pre-post intervention assessments and they were standardised methods described in the following section. During the intervention, qualitative and arts-based data were also collected. However, they are not presented and discussed in this paper.

### Tools for assessment

Parenting Stress Index–Short form (PSI-SF) and Hamilton Depression Rating Scale (HAM-D) were utilised for the pre-therapy and post-therapy assessment. PSI-SF is a brief version of the Parenting Stress Index (Abidin, 1995). It is a 36 item self-inventory which is widely used and a well-researched measure of parenting stress. This measure yields scores on a five-point rating scale from 1 (strongly disagree) to 5 (strongly agree) for the following subscales: Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI) and Difficult Child (DC). The PD and DC raw scores above 33, P-CDI scores above 27 and raw total scores above 90 indicate clinically elevated levels of stress (Abidin,

**Table 1**  
Mean and Standard Deviation for Parenting Stress Index across conditions for Experimental and Control Groups.

Parenting Stress Index	Experimental Group (N = 5)				Control Group (N = 6)			
	Pre		Post		Pre		Post	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Parental Distress (PD)	38.33	6.40	20.60	5.45	35.33	3.66	34.00	3.28
Parent-Child Dysfunctional Interaction (P-CDI)	37.50	5.31	26.00	5.09	38.50	8.06	36.50	8.14
Difficult child (DC)	45.00	5.54	29.80	2.68	43.16	9.38	40.33	8.11

Note. [SD – Standard Deviation].

1995).

HAM-D (Hamilton, 1960) is a clinician-rated 21 items questionnaire to determine the level of depression before, during, and after treatment. The scoring is based on the sum of the scores from the first 17 items with 8 items on a 5-point rating scale and 9 items on a 3-point rating scale. 20 or higher scores show moderate, severe, or very severe depression. A structured interview guide was utilised for administration (Williams, 1989). The scores obtained were subjected to appropriate statistical analysis.

### Description of the intervention

The development of the particular intervention was directly associated with an intention of offering support to the parents, to build their resources to face the challenges and strengthen their abilities. An integrative therapy framework (Garfield, 1980) was followed during the intervention as it incorporated useful and helpful DMP methods in a flexible way (Karkou & Sanderson, 2006). There were two major psychotherapeutic influences: humanistic thinking and psychoanalytic/psychodynamic perspectives. Influences under the humanistic umbrella included an overall client-centred approach (Rogers, 1951) that stressed the engagement of the whole person with self-responsibility and creativity. From a psychoanalytic/psychodynamic perspective, attempts were made to find links of current issues with the past of the participants (Erikson, 1959; Freud, 1953; Jung, 1990). An adapted version of the Chacian approach was used during group therapy sessions, namely: engaging in improvised, shared movement, and creating an interactional space through movement (Fischman, 2009; Levy, 1992). Symbolism and rhythmic activity as proposed by Chace (Chaiklin & Schmais, 1986) were also extensively used. The sessions were also informed by the Jungian concept of active imagination (Chodorow, 1991) and by considerations around groups. Yalom's (1970) concepts of group cohesiveness and recognition of the universal nature of emotional experiences were particularly relevant. The sessions began and ended with a movement ritual which was utilized as movement assessment data. The sessions progressed from warm up to theme development and would finish with a cool down. Verbal processing was encouraged before the closing ritual and sometimes after an intense activity; based on the groups' lead. A few Indian classical dance elements such as rhythmic patterns, gestural vocabulary, storytelling/narrative aspects of Indian dance were incorporated creatively within the sessions in order to tailor this integrative DMP approach to its cultural context. The initial sessions were structured in terms of task, spatial formation and role (Karkou & Sanderson, 2006) until the participants felt free, safe and comfortable to express themselves. However, towards the end, it was mainly client-led. Props like candles, scarfs, balloons, dancing sticks and cymbals were used. The sessions were delivered by the first author and principal researcher who received training in dance therapy recognised in India; she also holds qualifications as a speech-language therapist and a dancer. Both researcher and therapist were the same person because of limited resources and the fact that there were no qualified dance movement psychotherapists in the region. The researcher/therapist could communicate with the

participants in English, Kannada, Hindi, Tamil and Malayalam. She was broadly familiar with the socio-cultural background of the participants. The study was supervised by the second author, and the fidelity of the intervention programme was monitored.

### Results

Descriptive and inferential statistical tests were administered on pre-therapy and post-therapy scores of Parenting Stress Index–Short form (PSI-SF) and Hamilton Depression Rating Scale (HAM-D) using Statistical Package for the Social Sciences (SPSS) software. One participant dropped out of the experimental group. Hence, the results were calculated for N = 5 in the experimental group. Mean scores for all the sections of PSI-SF and HAM-D for pre-therapy and post-therapy are given below in Table 1 and 2. It is noticeable that the mean scores have reduced drastically in the post-therapy score of the experimental group. The lower the scores, the lesser the severity of the problem.

### Test of normality

The Shapiro-Wilk Test of Normality was conducted on all the quantitative data obtained from the Parental Stress Index (PSI) and Hamilton Depression Rating Scale (HAM-D) to check whether the data obtained followed a normal distribution. The test results revealed that the data was normally distributed  $\{p > 0.05\}$  for both PSI and HAM-D scores.

### Between-group comparison

It is evident that the pre-therapy HAM-D scores of the experimental and control groups were not similar. This made the comparison difficult. Hence, depression was considered as a covariant of the dependent variable (DV), and Multivariate Analysis of Covariance (MANCOVA) was administered to determine the effect of DMP (IV) on parenting stress (DV) as measured by three subsections of PSI-SF. MANCOVA results revealed significant differences for post-therapy condition between the experimental and control group on the combined dependent variable. The result is based on Wilk's lambda criterion [Parental Distress  $F(1, 426) = 21.88, p < .01$ ; Parent-Child Dysfunctional Interaction  $F(1, 277) = 5.11, p < .01$ ; Difficult Child  $F(1, 300) = 6.75, p < .01$ ]

**Table 2**  
Mean and SD for the Hamilton Depression Rating Scale across conditions for Experimental and Control Groups.

HAM-D	Experimental Group (N = 5)				Control Group (N = 6)			
	Pre		Post		Pre		Post	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
	22.83	7.38	13.40	6.38	10.75	8.42	11.44	7.62

Note. [HAM-D - Hamilton Depression Rating Scale; SD- Standard Deviation].

**Table 3**  
Results of Paired *t*-test on pre and post therapy scores of Parenting Stress Index (PSI).

Conditions	Experimental group		Control group	
	<i>t</i> value	<i>p</i> value	<i>t</i> value	<i>p</i> value
Pre PD- Post PD	3.9	0.01*	1.06	0.33
Pre P-CDI – Post P-CDI	3.1	0.03*	0.41	0.69
PreDC –PostDC	4.5	0.01*	1.02	0.35

Note. \* Significant level ( $p < 0.05$ ).

[Pre PD- Pre therapy Parental Distress; Post PD- Post therapy Parental Distress; Pre P-CDI – Pre therapy Parent-Child Dysfunctional Interaction; Post P-CDI – Post therapy Parent-Child Dysfunctional Interaction; Pre DC- Pre therapy Difficult Child ; Post DC- Post therapy Difficult Child].

### Within-group comparison

The PSI-SF scores of pre-therapy and post-therapy scores were compared within the groups. Statistically, significant difference was observed only in the experimental group results indicating that DMP had made a positive impact on parenting stress (Table 3).

### Discussion

Results provided information on the amount of stress the parents were undergoing, the type of stressors, the stages they underwent during DMP and the role of DMP in parenting stress reduction.

In particular, scores from pre-therapy subscales of PSI-SF may be stemming from a number of different stressors. As suggested by Patnaik (2014), the agent of stress can be anything that a parent perceives as a demand which is difficult to meet. In this study the high pre-therapy scores in PSI-SF may reflect the parents' difficulty in personal adjustment to parenthood, their feelings of disappointment, rejection, or alienation by/from the child, or a lack of proper bonding with their child and issues around the characteristics of child with autism as indicated in the literature (Davis & Carter, 2008). Among the three subscales of PSI-SF, the scores of the Difficult Child (DC) subscale was greater than in the other two sections; clearly indicating that the parents were having a hard time gaining their child's co-operation and/or handling their child's behaviour. The results are in par with several other studies which have established that having a child with special needs, especially a child with ASD, is highly demanding, adding multiple types of stress in their lives (Leigh & Du, 2015). The mean of PD and DC raw scores are above 33, P-CDI score above 27 indicating clinically elevated levels of stress. It is possible that the parent-child relationship was compromised due to issues relating to social reciprocity and responsiveness that are characteristic of the disorder (McDaniel, 2005). The behaviour of children was probably experienced as problematic, while they also struggled with communication and language difficulties, lack of emotional expression, and social disconnection (Siegal, 1997). Consequently, as the literature suggested (Koegel, Koegel, Hurley, & Frea, 1992), they were experiencing social rejection and blame for their child's behaviour leading to overwhelming feelings.

Experiencing and understanding stress can be dependent on environmental as well as personal variables (Seegerstrom & O'Connor, 2012). Hence, it was significant to recognize, examine, design the intervention programme and interpret the results from the data collected from these participants from an ecocultural perspective (Skinner & Weisner, 2007), that is by taking the context of the study into account. Within the context of India where educational achievement is highly valued (Kapur, 2018), and given that participants were themselves educated, it is possible that the fact that their children were underperforming academically could have led to high stress levels. It is also very likely that participants were experiencing strain due to difficulties

in accessing socio-economic resources as also discussed in the literature (Kulik & Heine-Cohen, 2011; Leininger & Kalil, 2014). Ongoing concerns about the future could have also been one of the stressors as indicated by Brezis et al. (2015). Kapur (2018) describes parents in India as subjecting their children with disabilities to one of the following two experiences: excessive mollycoddling or indifference. These patterns were possibly also relevant to the participants of this study. From a socio-cultural perspective, the six Asian value constructs identified by Kim, Atkinson, and Yang, (1999) and Kim, Yang, Atkinson, Wolfe, and Hong, (2001): collectivism, conformity, emotional control, family recognition through achievement, filial piety, and humility could also be relevant here in understanding the high levels of stress of participating parents. It is possible for example, that participants expected children to fulfil family duties, participating in family rituals and demonstrating socially appropriate conduct as argued by Rao (2006). It was, therefore, stressful to them when their own children did not fit into these social expectations in addition to them failing to promote their societal acceptance and inclusion in their social and familial groups. Skinner and Weisner (2007) note that daily experiences of the parents are not independent of elements such as the government policies, traditionally set gender roles, accessibility to the services and society's understanding, awareness and acceptance of disability.

A range of useful and less useful coping mechanisms have been identified in the literature as highly influenced by perceptions of stress. It is possible that if parents evaluated stressful events as intolerable, they could develop self-blame as a coping mechanism, or present avoidance, denial and engage in substance misuse, all of which, the literature (Friedman & Billick, 2014; Hastings, Daley, Burns, & Beck, 2006) suggests, are maladaptive coping mechanisms in nature. It is likely that as an adverse effect of these less useful coping strategies, some parents had reached the stage of depression which is evident through the pre-therapy HAM-D scores. The results are also in par with the observations of Patnaik (2014) that parental stress can have a wider impact on one's own mental health, physical health and relationship with the child.

For the participants in the study, DMP appeared to play a critical role in reversing the effects of parenting stress and reducing levels of depression; this can be inferred from the results of post-therapy scores of PSI-SF and HAM-D where there is a significant reduction in the post-therapy scores of the participants in the experimental group. DMP facilitated exploration of positive experiences drawing upon cultural practices inherent in an Indian context. For example, the climatic conditions in India supported the use of floor, direct contact of feet on the ground, connecting with breath and drawing attention to self. These were components of the DMP intervention as well as part of traditional Indian practices such as Yoga. These cultural practices could have allowed for an easy settling of participants in DMP techniques, enabling them to draw attention to their body and supporting them to develop self-awareness and enhance their inherent strength (Brezis et al., 2015; John et al., 2012)

It is important to note that DMP provided them with 'me' time and space (Crnic, Low, & Bornstein, 2002). Dance could have facilitated the expression of their inner self (Wigman, 1933). It is, therefore possible that the use of creative dance helped them in finding a middle ground between silence and disclosure. The non-verbal aspects of the work allowed for them to both retain privacy and avoid articulating shameful thoughts and feelings on the one hand as well as share and get understood by peers on the other; 'talking' took place, primarily and in the first instance, through movement. The accumulated feelings of guilt, shame, fear, helplessness and many more were expressed without any hindrance through movements. In this case, active imagination (Chodorow, 1991) was the key factor where ego defenses were relaxed, and spontaneous movements flowed without censorship. It is possible that once the unpleasant bottled up energy found its way out and was released, they were in a better state to look at themselves.

Symbolic work (Chaiklin & Schmais, 1986) with imagery, fantasy

and enactment allowed them to creatively dance as though they were moving with their children, cuddling them, hugging them and expressing their love towards them. In reality, these were the experiences which they could never get with their children. Engagement in concrete forms of movement activity filled them with enthusiasm and joy. It also encouraged them to be in the here and now which could be associated with better emotional regulation. It is also possible that the interactional elements in DMP gave them the feeling of being heard and the ability to empathise with the other group members. They certainly appeared to be able to support each other in the group activities, a characteristic of group work that has also been reported in the literature. Research studies say that social support facilitates the parents' acceptance and necessary adaptations while raising a child with a disability (Narayan, Madhavan, & Prakasam, 1993; Pal, Chaudhury, Das, & Sengupta, 2002). Finally, the creative components of the work encouraged them to think in alternative ways, while connections were taking place between body and mind. The verbal reflection of the qualities of the movement experiences was useful in concretising the abstract material and practically adapting it in real life conditions. By the end of the intervention, participating parents started adopting coping strategies characterized by positively reframing the situation, they stopped blaming themselves and they sought out peer support as the qualitative findings of this study indicate (first & second author in preparation). This led to a reduction in their stress levels (Dabrowska & Pisula, 2010; Stoneman & Gavidia-Payne, 2006). The results are consistent with the present-day line of resilience-oriented thinking in the field, which highlights the multidimensional nature of parenting.

It is interesting to note the significant reduction in the post-therapy scores of all the three subscales of PSI-SF. The significant reduction in DC subscale was noticeable although the characteristics of the child with autism did not vary. Hence, it can be deduced that the difference is evident because of the shift in the way they perceived challenges and their attitudes towards the condition. Reduction in the post-therapy score of P-CDI subscale could show that through bringing awareness to the self and their body responses in different contexts, they found their own ways to interact and connect with their children. Thus, the results are possibly associated with participants being able to identify their agent of stress, evaluate and decide how much weight to provide, accept the reality, think of adaptive ways of coping, primary control coping and secondary control coping (Band & Weisz, 1990) and provide a positive response to the stress.

## Conclusion

In the current study, there is an acknowledgement of the widely held belief that parenting children with ASD can be highly stressful. The social attitudes and poor awareness of the condition make it highly challenging for the caregivers to accept their children as they are. The results are suggestive that DMP, effectively mediated, can potentially reduce parenting stress and generate hope, enthusiasm and confidence to cope with stressful events in the participants. However, the study has limitations in terms of its small sample size which restricts generalisation and drawing firm conclusions. As it was a feasibility study and the focus was mainly on therapy, convenient sampling with non-randomised grouping was followed increasing the risk of bias. Hence, the initial two groups were not similar in terms of depression measures. MANCOVA was used as a test to reduce the noise from the difference in pre-therapy scores of HAM-D. Although it provided robust results, there was a risk for Type 1 error also known as 'false positive'; an error of rejecting a null hypothesis when it is actually true. Furthermore, therapy was available for a short duration only. It would be interesting to document if the effect is stabilized and generalised through follow up evaluations with a larger sample size. There is also a necessity to report on the therapeutic process as it can further understanding of the influence of therapeutic factors which here have only been hypothesised. The qualitative components of the work offer further descriptions and

relevant evidence (the first and the second author, work in preparation). Future studies can also focus on the relationship between the reduction of parenting stress and progress made by their children. This can provide subtle details on the bidirectional influence of stress and behavioural patterns. Existing research studies (Beebe, 2005; Seskin et al., 2010; Trevarthen, Aitken, Vandekerckhove, Delafield-Butt, & Nagy, 2015; Trevarthen & Delafield-Butt, 2017) have noted that there is no single modality through which stress is communicated or transmitted to the children. There are several modalities ranging from explicit ways of sharing verbally to implicit ways with subtle uneasy facial expressions, body language or even a crackling voice. Studies suggest that children with ASD generally exhibit difficulty in empathetically relating to others. So, the question arises as to what extent the well-being or stress of the parents influences their children with ASD. So, future DMP studies can also explore dyadic therapy settings of children on the autism spectrum and their caregivers to look more closely at attachment patterns. Further, these findings can promote a better understanding of a 'meeting of minds' alongside a good-enough 'meeting of body movement patterns' (Sossin & Birkelein, 2006, p.63).

Currently, as a part of the first author's doctoral study, a cross-over research design is being implemented to investigate the bidirectional influence of wellbeing of children on the autism spectrum, their caregivers and their teachers in the UK (first author, second author and supervisory team in preparation). Results will be able to provide significant details on similar work in the UK where certain factors such as facilities available, economic status, family hierarchy, demands of the society vary significantly. It is expected that a comparison between the two studies and future comparative studies will open up useful and insightful transcultural dialogue that could benefit both parents/caregivers and their children.

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