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Effectiveness of basic body awareness therapy on depression in parents of disabled children: A cross sectional study

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Abstract
Background: The parents of children with disability have behavioural problems and higher negative attitudes. This parental attitude affects the way their children with disability are treated. Also, there is much focus on treatment for disabled children but parental mental health is neglected one. Hence, there is a need to expand interest towards mental health of parents with disabled children and the parent-child relationship is primarily reliant on parental attitude and behaviour.
Aim: To study the effectiveness of Basic body awareness therapy on depression in parents of disabled children.
Method: 30 participants were selected on basis of selection criteria. All of them were assessed for depression using beck depression inventory scale (BDI- II) before and after 6 weeks of intervention. The Basic body awareness therapy (BBAT) was given for 90 minutes twice a week for 6 weeks.
Results: The data of 28 parents who were having symptoms of borderline clinical depression, moderate depression and severe depression were analyzed using Graph Pad Instat Trial Version 13.3. The mean and standard deviation of BDI- II score Pre and post intervention were 29.49 ± 7.86, 3.14 ± 2.52 respectively. It was found that this difference was extremely significant with p value <0.0001 and t- value 16.96 at 27degrees of freedom.
Conclusion: Basic Body Awareness Therapy can be effectively used as psycho physiotherapeutic tool to reduce depression in parents of disabled children.

Keywords: beck depression inventory scale, basic body awareness therapy

1. Introduction

Having disability brings different hardship for children and their parents [1]. Disability condition of the body or mind impairment that makes it more difficult for the person with condition to do certain activities like activity limitation and interact with world around them as participation restriction [2]. Caring for a child with a disability brings multiple challenges to parents, such as additional financial burdens for treating their child's condition, dealing with the child's problematic behaviour, and social stigma associated with disabilities [3]. In India, disability is in view and in terms of a disaster or better dead than disabled approach, this approach by society produces tension in all family members [4].

Many studies have recorded significant organization of both maternal (74) and paternal (142) depression with negative parenting behaviors [5]. Prevalence of depression in Indian mothers was seen to be more, in female patients (90%) as compared to the male (82.5%) [6]. Moussavi et. al subsequently summarized data on parental depressive episode in the WHO, World Health audit across 60 countries, prevalence estimates ranged from 1.5% (Taiwan) to 19.0% (Beirut), 9.2% (West Germany) and 9.6% (Edmonton, Canada). 0.8% (Taiwan) to 5.8% (Christchurch, New Zealand), with the midpoints at 3.0% (US) and 4.5% (Paris) 16.9% (US), with midpoints at 8.3% (Canada) and 9.0% (Chile),10% (US), with midpoints at 4.5% (Mexico) and 5.2% (West Germany) [7].

The cause of parental depression, anxiety and stress were explained by the community, they consider parenting is a positive thing, but it is in outlook the birth of a disabled child negative thing. The positive and negative social interactions have distinct impacts on comfort, the negative social interactions tend to have more powerful effects than positive social interactions [8].

Living with a disabled child can have profound effects on the entire family–parents, siblings, and extended family members [1]. When children are diagnosed with developmental delays, their parents may experience psychological turmoil similar to that experienced by suicidal individuals. It is commonly noticed that if one child is disabled in family, parents usually experienced with different feeling and psychological problems [9].

Parents of disabled children suffers from different life challenges on daily basis. The parents are plagued with feelings of pessimism, hostility, and shame. Refusal, projection of blame, guilt, burden, isolation from others, rejection, and acceptance are the usual parental reactions [3]. Some parents also experience incapable, feelings of imperfection, anger, shock and guilt whereas others go through periods of mistrust, depression, and self-blame. The peaceful relationship may suffer excessively due to the stresses of shame, blame and anxiety. The siblings also experience feelings of guilt, shame, and embarrassment [4].

Depressed states can cause changes in the posture as seen in all planes, and lower the movement components of attention, intention, and emotion, and inhibition of

functional movement. The relationship with emotional reaction and motor response also affect behaviour with other members in the family [2].

Sadness might possibly change posture and induce mild dissatisfaction with body image, and mostly psychological factors unconsciously degrade movement quality and reduce an individual's interest in or awareness of his or her own body. When the intention necessary for movement diminishes, movement quality declines, and guiding attention to movement or awareness and self-behaving in the environment becomes difficult. The relationship between emotional states and the motor system has provided provisional support for a bidirectional impact of the motor system and emotional processes, studies on the effects of mood on the motor system have shown that experimentally induced mood states, such as sadness, happiness, and pride, which affect
posture [6].

Exercise has been reported to improve mild cognitive impairment, concentration, focus, mood state and can play an important role as psychosocial intervention. Exercise is both a treatment modality and healthy life style change to maintain optimal mental and physical health. Other than exercise, psychosocial interventions especially specific types of psychotherapy including cognitive behavioral therapy and mindfulness based cognitive therapy have been found to offer significant benefits to those suffering from depression [10]. Among all these therapies basic body awareness therapy is most effective to reduce stress, depression, improve coping strategies and posture [11].

The construct of body awareness refers to a particular kind of mindful, non-judgmental awareness and a sense of self, grounded in physical sensations in the present moment, these methods used as treatment by physical therapists called BBAT, the main determination is to initiate awareness of body and self-analysis of basic movement principles such as functional balance, free breathing, mental awareness, and simplify presence [6, 12].

2. Methods

This cross-sectional before after study has only one group involving parents of disabled children with depression from January 2019 to September 2019. The intervention included 1-hour session twice a week for 6 weeks of duration. The ethical clearance was obtained from the institutional Ethical Committee of Dr. A.P.J Abdul Kalam College of Physiotherapy, PIMS-DU, Ref. No. PIMS/CPT/IEC/2019/74.

The patients who were willing to participate in the study were briefly explained about the study in the language best understood by them. They were encouraged to clarify queries regarding the study, if any. An informed written consent form was then obtained from 38 participants. They were then screened according to the inclusion and exclusion criteria. The Beck Depression Inventory scale (BDI- II) was used for screening as well as outcome measure in the study. It is originally in English form which was translated into Marathi language for the better understanding to the participants. The Translated version of BDI- II was tested for its Psychometric properties and was reliable, valid. The questions in BDI- II scale were explained to the participants and also were given idea about how to choose or mark the appropriate answers. They were asked to answer about their emotional status from their past week experiences in the scale. The fully filled up scale was then received from the participants. Out of 38 participants, 30 were fit to participate in the study. Thus, the participants in the range between borderline clinical depressions, moderate depression and depression on BDI-II scale were included for basic body awareness therapy. Basic body awareness therapy was given for twice a week for 6 weeks.

Intervention was given by following phases:

Preparation phase

Before session (15 minutes)- Rooms made open, mats and pillows placed on the floor, calm and soothing background music were set on, participants asked to rest in sitting or lying down position to make them comfortable and ready for the session.

Phase 1

About 20 minutes- In supine lying on the mats, participants were asked to perform active movements, self-stretching of the extremities followed by body scanning which means exploring contact with the ground, breathing pattern, relaxation and connecting to one's body.

Fig 1

Phase 2

About 20 minutes- It include balanced standing and walking exercises and exploring a functional posture and wholeness, for example: slowly moving up and down along one's midline, flexing in the knees and hips, letting the arms float up when rising, and softly sinking down when lowering one's body, integrating the whole movement with breathing, maintain the postural stability throughout, follow the flow and rhythm of movements, force and coordination.

Fig 2

Phase 3

About 10 minutes- Participants were asked to perform seated meditation aligning and anchoring oneself in a seated position on a meditation cushion or stool, 5 min silent focus on features of the body, such as the breathing, Postural stability, free breathing, mental awareness.

Fig 4

Phase 4

5 to 10 minutes-After the meditation session participants were asked for verbal reflection which means taking turns to share something about today's experiences, answering the questions like what did you notice during training today? sharing and verbalizing body experiences with each other or with therapist.

Among 30 participants in the study, 2 participants dropped out of the study due to some personal reason. Thus, 28 participants continued and received 6 weeks of intervention of BBAT. The depression was assessed pre and post intervention by BDI-II scale.

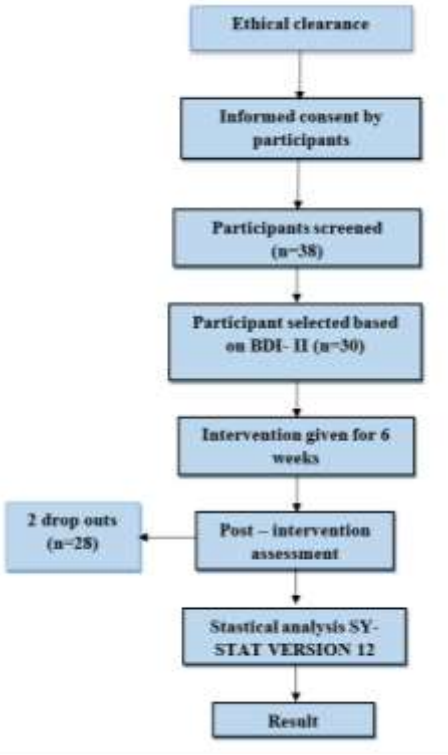


Fig 5: Flow chart representing the procedure and selection criteria of the study

3. Data Analysis and result

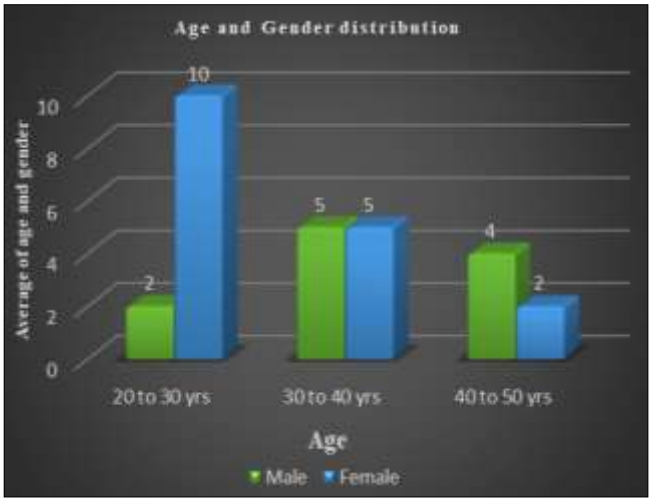
The objective of the study was to determine the effectiveness of Basic body awareness therapy on depression in parents of disabled children following 6 weeks of intervention. Among 30 participants in the study, 2 participants dropped out of the study due to personal reason. Thus, 28 parents who were having symptoms of borderline clinical depression, moderate depression and severe depression continued and completed 6 weeks of intervention of BBAT. Finally, 28 parent's data were entered in the excel spread sheet, tabulated and subjected to statistical analysis. Data was analyzed using Graph Pad Instat Trial Version 13.3. Descriptive statistics for all outcome measures were expressed as mean, standard deviations and test of significance as paired- t' test.

4. Demographics

28 parents who were having symptoms of borderline clinical depression, moderate depression and severe depression received Basic body awareness therapy. Effectiveness of Basic body awareness therapy were analyzed by comparing pre and post-test values of Beck depression inventory scale (BDI -II) after 6 weeks of duration.

Table 1: Age and Gender distribution

Sr.no	Age	Gender		Total Participants
		Male	Female	
1.	20 to 30 year	2	10	12(42.86%)
2.	30 to 40 year	5	5	10(35.71%)
3.	40 to 50 year	4	2	6(21.41%)
	Total	11(39%)	17(61%)	28(100%)

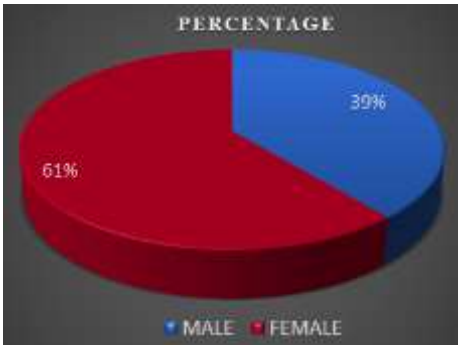


Graph 1: Age, Gender distribution and Percentage

Total of 28 participants were included in the study, of which 12 participants (43%) were with 20 to 30years of age, 10 participants (36%) were with 30 to 40 years of age, 8 participants (21%) were with 40 to 50 years of age. Total average of age group is 28 participants (100%).

Table 2: Male and Female Ratio in Percentage

Sr.no	Gender	No of Participants	Percentage
1.	Male	11	39%
2.	Female	17	61%
	Total	28	100%

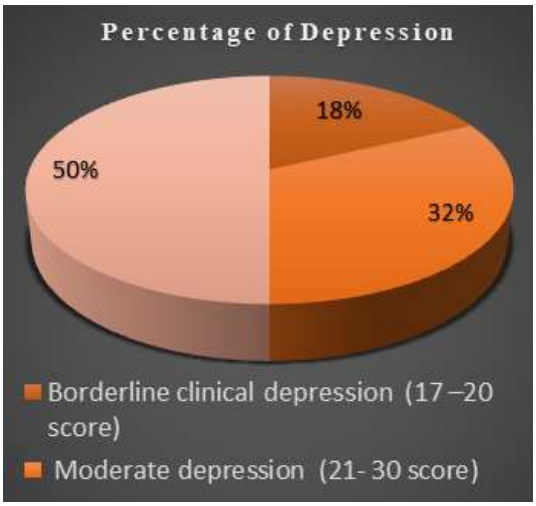


Graph 2: Male and Female Ratio in Percentage

Out of 28 participants, 11 participants (39%) were male and 17 participants (61%) were female, received treatment for 6 weeks. 28 (100%) participants completed treatment for 6 weeks.

Table 3: Average and percentage of depression score according to BDI scale

Sr. No	Depression score	Number of participants and percentage
1.	Borderline clinical depression (17 – 20 score)	5 (18%)
2.	Moderate depression (21- 30 score)	9 (32%)
3.	Severe depression (31- 40 score)	14 (50%)

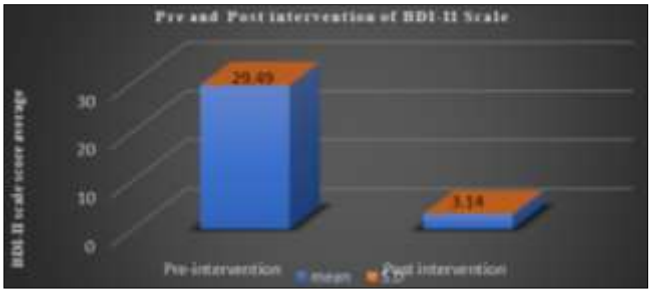


Graph 3: Average percentage of depression according to BDI-II Scale

According to BDI- II scale percentage of borderline clinical depression was 18%, moderate depression was 32% and severe depression was 50%.

Table 4: Comparison of Pre-Intervention and Post-Intervention BDI-II Scale

Sr. No	Pre-intervention Mean, S. D	Post-intervention Mean, S. D	t-value	P-value	Result
1.	29.49±7.86	3.14 ±2.52	16.96	<0.0001	Highly significant

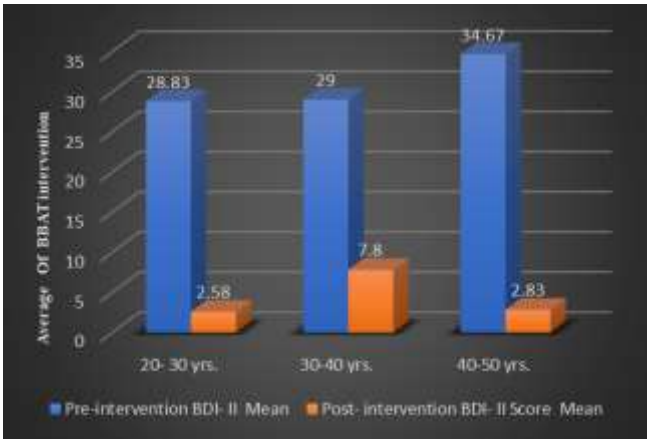


Graph 4: Comparison of Pre- and Post-Intervention BDI - II Scale

The mean and standard deviation of BDI- II score Pre-intervention was 29.49 ± 7.86, mean and standard deviation post- intervention was 3.14 ± 2.52. On comparing scores of pre and post intervention, it was observed that this difference was extremely significant with p value <0.0001 and t- value 16.96 with 27degrees of freedom.

Table 5: Age presentation Pre and Post BBAT intervention

Sr. No	Age (Years)	Pre-intervention BDI- II Score Mean, SD	Post- intervention BDI- II Score Mean, SD
1.	20- 30 yrs.	28.83 ± 8.24	2.58± 2.84
2.	30-40 yrs.	29 ± 3.8	7.8 ± 1.75
3.	40-50 yrs.	34.67 ± 4.59	2.83 ± 2.63

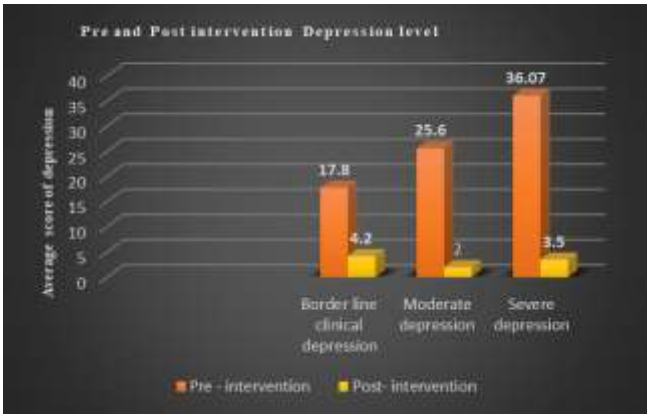


Graph 5: Age presentation Pre and Post BBAT intervention

BBAT Pre and Post intervention mean and standard deviation in the age group of 20 to 30 years was 28.83±8.24 and 2.58±2.84, while in 30 to 40 years age group was 29 ± 3.8 and 7.8 ± 1.75, in 40 to 50 years age population was 34.67 ± 4.59 and 2.83 ± 2.63.

Table 6: Pre and Post BBAT Depression level.

Sr. no	Depression level	Pre-intervention BDI- II Score Mean, S. D	Post- intervention BDI-II Score Mean, S. D
1.	Border line clinical depression	17.8± 0.80	4.2 ±3.27
2.	Moderate depression	25.6 ± 3.21	2 ± 1.8
3.	Severe depression	36.07 ± 3.45	3.5± 2.53



Graph 6: Pre and post BBAT depression level

BBAT pre and post intervention mean and standard deviation in Border line clinical depression was 17.8± 0.80; 4.2 ±3.27, while in moderate depression was 25.6 ± 3.21; 2 ± 1.8 and severe depression was 36.07 ± 3.45; 3.5± 2.53.

5. Discussion

Child disability is considered an overburden for their parents. Parents of disabled children faces the emotional stages of disturbances like mistrust, guilt, refusal, embarrassment, negative response and a sense of defenselessness and loneliness [8]. These disturbances are then transformed into depression, anxiety and other psychotic disorders. The response towards situations depends on their own perception and adopt stressful life situations [12].

Parents with depression begins with decreased overall motor activity, slower motor response times and disrupted gross and fine motor movements. All these, affects the relationship with their disabled children [13].

In the present study, total 38 participants were screened. Out of 38, 8 participants were excluded based on exclusion criteria. 30 participants were included. Due to personal reasons 2 participants dropped out of the study. Thus, a total 28 participants willingly participated and completed 6 weeks of intervention. Out of 28 parents, 61% was female and 39% was male. In 20 to 30 years of age group, total of 43% participants were present out of which 17% was male and 83% was female population. Similarly, in 30 to 40 years of age group, total of 36% participants were present, out of which both male and female participants were 50%, whereas in 40 to 50 of age group 21% of total participants were present, out of which 67%male and 33% female.

At the baseline, according to BDI- II scale, 18% participants fall under borderline clinical depression in which 20% were male and 80% female. 32% with moderate depression include 30% male and 70% female and 50% with severe depression consisting of 50% both male and female participants. At the baseline also, out of 21 questions of BDI- II scale the most affected components found in parents(both male and female) were disappointment (76%, 73%), irritation (64%, 82%), interest (73%, 59%), decision making (73%, 65%), inner-self (64%, 70%), efforts (27%, 35%), sleep (36%, 47%), fatigueness (36%, 29%), appetite (27%, 41%) and sexual behavior (27%, 35%). After six weeks of BBAT intervention, the affected components showed reduction in both male and female participants as follows: disappointment(36%, 29%), irritation(36%, 35%), interest(27%, 12%), decision making(18%), inner self (18%), efforts (0%, 6%), sleep (0%, 12%), fatigueness (9%, 6%), appetite (9%, 12%), sexual behavior (9%, 18%) respectively.

After 6 weeks of intervention using BBAT, the participants in clinical borderline depression showed 76% improvement while the participants with moderate and severe depression showed 92% improvement in their depression level. Overall, at the end of 6 weeks of intervention, the participants showed 90% reduction in the depression. The mean and standard deviation of BDI- II score Pre-intervention was 29.49 ± 7.86, mean and standard deviation post-intervention was 3.14 ± 2.52. Hence, null hypothesis is rejected and alternative hypothesis is accepted because the intervention is effective in reducing the level of depression in parents. These findings are supported by Trine Starup Madsen *et al*. who investigated refugee experiences of individual basic Body Awareness Therapy (BBAT) and the level of transference into daily life. All participants had learned to focus on their breathing as a way to cope with stressful situations and emotional outbursts. The traumatized refugees experienced the movements in BBAT as small and simple with big effects by relieving pain and tension, bring peace of mind and body, and make it easier to sleep. Positive changes in the contact to oneself and others were experienced and new coping strategies were developed. Traumatized refugees experienced positive effects from BBAT and was easily able to transfer into daily life [14].

Also, Lena Hedlund et. al who studied the experiences of schizophrenic patients with basic body awareness therapy. BBAT gave them a feeling of control and security and helped them to protect their integrity. The treatment process with BBAT constantly appeals to the awareness of surroundings, the body and bodily sensations and emphasizes the efforts to make voluntary movements that emanate from the body functions and this stimulates attention in a very direct, concrete and personal manner. The feeling of having greater clarity of thought might a result of greater alertness. The exercise with BBAT may have a specific influence on this function, resulting in clearer thoughts as well as increased ability to be mentally present and in better contact with the body [15].

Another supported study done by Gunvor Gard et.al who demonstrated clinical reasoning and clinical use of basic body awareness therapy in physiotherapy, body function, behaviour and interaction with self and others. The study resulted that Body awareness was understood as sensations and feelings in the body and a way to uncover emotions in social situations and how different emotions affects the person. BBAT was used as a whole-body treatment including thoughts, movements, emotions and relation to others and the environment. To focus on doing the movements much smaller in order to establish a sensory connection, use less energy and do the movement more natural BBAT was used as a whole-body treatment, to promote balance and stability, to teach about body, movements, and coping strategies [34]. Amanda Ludvik Gyllensten et. al who conducted study on Long-term effectiveness of Basic Body Awareness Therapy in psychiatric outpatient care. The treatment group also demonstrated a significant improvement compared with the controls in the BAS-I, regarding the attitudes to the body and symptoms, compared with the control group. Postural control, coordination and using less muscular tension in movements supports the present findings in the study [16].

Kirsten Ekerholt said that lived experience is irreducible, and can give access to pre-reflective and implicit, embodied knowledge. The study resulted that bodily felt sensation needs time to grow and the creation between the patient and the physiotherapist is based on the patients' bodily sensations. The breathing changes the muscular tension, or observable autonomic reactions, focus was to remind the patients that the stressors were temporary and would pass, and that they should not be persistent too long in the emotional state. Importance of becoming aware of embodied experiences, which might represent different aspects of the patients' lives [17].

The present study demonstrated that BBAT intervention reduces the depression and improves the coping strategies for natural adaptability of life in parents.

5.1 Limitation of study

1. Sample size was small.
2. Improvement in functional aspect was not considered in this study.

6. Conclusion

From the present study it is clear that Basic Body Awareness Therapy significantly reduces parental depression in parents of disabled children following six weeks of intervention. Hence it is concluded that Basic Body Awareness Therapy can be effectively used as psycho physiotherapeutic tool to reduce depression in parents of disabled children.

Clinical implication

There is a growing interest in therapies designed to increase body awareness. BBAT is an emerging therapy which helps to improve emotional and physical aspect along with movement pattern including breathing and awareness of body position. It improves postural control, balance, free breathing, and coordination. It is easily applicable and cost effective.

Basic Body Awareness Therapy may therefore be a useful complementary therapy in psychotherapy thus, it is effective in alleviation of disturbed emotional state as well as depression. Also, it enhances individual's natural adaptability and coping strategies to situations. Implementing BBAT in physiotherapy found to strengthen patient's functional improvement.

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