HUMAN RESEARCH

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Management of spasticity and psychological symptoms through hypnosis in stroke survivors

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Abstract

Background: Studies have shown that stroke survivors are associated with physical as well as psychological symptoms. Spasticity is the main physical issue associated with stroke survivors and stress, anxiety, and depression are common.

Objectives: This study was conducted to investigate any effect of hypnosis on the psychological symptoms (anxiety, stress, and depression) and on the spasticity in the stroke survivors.

Methodology: For this purpose, quasi-experimental pre and post-test design was used to measure the effectiveness of the hypnosis on the psychological symptoms and spasticity associated with the stroke survivors. This study included 16 subjects with a mean age of 65 ± 6.27 y. All the hypnotic sessions were given to subjects during the evening hours to minimize the effect of time.

Results: The main results showed that hypnosis is an effective modality for the management of psychological issues including anxiety, stress, and depression ($p < 0.05$). Our data also showed that hypnosis is effective for the management of spasticity in upper limbs, however, it showed no effect on the spasticity in lower limbs.

Conclusion: The study showed that hypnosis can be an effective modality for the management of spasticity and the psychological symptoms of stroke survivors. To validate its effectiveness, further studies should be conducted with more subjects and with an increased number of sessions.

Key words: Psychological symptoms, anxiety, stress, depression, spasticity, hypnosis, circle technique, stroke

1. Introduction

Studies have been found that the incidence of stroke as a neurological disorder is much more prevalent in developing countries including Pakistan as compared to developed countries like Germany.[1] According to the world health organization, stroke is defined as the clinical syndrome with rapid onset of a focal cerebral deficit.[2] The rate of stroke incidences in Pakistan is still not available, the insufficient healthcare facilities due to the economic burden is one of the reasons behind this gap.[3] There is a variety of factors that enhance the risk of stroke and the worsening of the symptoms in stroke survivors. The literature has highlighted age, gender, certain diseases, high cholesterol levels,[4] obesity, previous history of stroke, family history, and sedentary lifestyle as the major influencers.[5,6]

Post-stroke spasticity is one of the major effects that influence an individual's quality of life and body

functioning. Spasticity introduces the muscle weakness and problems in motor activity of the patients after a stroke that makes the recovery even more challenging.[7] Spasticity is the development of rigid muscle tone following a stroke that involves spontaneous spasms.[8] This motor neuron syndrome creates barriers to optimal functional mobility that impairs the quality of life.[9]

In addition to physiological symptoms, stroke survivors also face psychological issues. One out of eight stroke patients experiences suicidal thoughts as a side effect of the illness.[10] A study has also showed that there is stroke-related depression due to the lesions and infections in the brain.[11] Moreover, the risk of depression is identified due to the area in the brain that is affected after stroke.[12] Certain demographics are associated with the depression in stroke survivors including low socioeconomic status, young age, and lack of social support.[12]

Most of the methods of treatment for stroke and related symptoms have devastating consequences. [13] Analysis of various techniques like anesthesia and intravenous alteplase administration has revealed that a lot of improvements are needed when it comes to treating post-stroke disturbance.[14] An example is that symptomatic intracranial hemorrhage is seen in patients of stroke who were treated with the most common medical treatments like endovascular treatment.[15] With some minor functional outcomes, these treatments still need great improvement in terms of effectiveness, long-term ease, and lesser duration of treatment with cost-effectiveness. [15, 16]

Hypnosis has a wonderful calming effect with the use of positive suggestions that influences mobility and relaxation.[17] A number of studies has reported that stroke management needs immediate interventions[18] and studies have concluded that through hypnosis, spinal plasticity is induced.[19] Another evidence that circle therapy has given about the evidence of pain management in breast cancer survivors has indicated that the hypnosis [20] may be helpful in the spasticity and psychological symptoms management among stroke survivors.[21] So, the aim of the study is to evaluate the effectiveness of hypnosis (circle technique) for the management of spasticity and psychological symptoms in stroke survivors.

2. Methodology

Study design: Quasi-experimental research design was used. The study followed the non-randomized pre-test-post-test design.

Participants: They were selected using purposive sampling, a form of non-probability sampling technique. Subjects were approached in the hospital settings and screened for the inclusion and exclusion criteria. The total sample size was (n = 16) for the intervention. Subjects were included either male or female (age range 55-85). Any person with hearing impairment and or any chronic disease/s was excluded from the study.

Setting: The procedure of the study will be carried out within the hospitals in Lahore public/private sector based on convenience.

Measures: Two measures for this study. Informed consent and demographic form were used with the measures given below;

Modified Ashworth Scale: That is developed and validated to measure spasticity was used in this study.[22]

Depression Anxiety Stress Scales: This is a questionnaire used to assess the psychological symptoms of depression, anxiety, and stress subscales with 42 items including depression, anxiety and stress scales by Lovibond & Lovibond in 1995.

Procedure: The participants were recruited with consent after describing the objectives of the research. The subjects were recruited after following the inclusion and exclusion criteria as described above. They were all assigned to the intervention group from clinical settings and they were briefed about the intervention.

Pre session assessment: Initially, pre-testing was done with rapport building before starting the intervention. The selected participants were assessed for the psychological symptoms (anxiety, stress, and depression) by using the DASS-21 Scale which has 21 items with three factors i.e. Anxiety, Stress, and Depression. The spasticity was assessed by using the Modified Ashworth Scale (MAS) which is a valid scale for the measurement of spasticity. According to this scale, the levels of spasticity was observed as:

- 0 (0) - No increase in muscle tone

- 1 (1) - Slight increase in muscle tone, manifested by a catch and release or by minimal resistance at the end of the range of motion when the affected part(s) is moved in flexion or extension

- 1+ (2) - Slight increase in muscle tone, manifested by a catch, followed by minimal resistance throughout the remainder (less than half) of the ROM (range of movement)

- 2 (3) - More marked increase in muscle tone through most of the ROM, but affected part(s) easily moved

- 3 (4) - Considerable increase in muscle tone passive, movement difficult

- 4 (5) - Affected part(s) rigid in flexion or extension is spasticity for upper and lower limbs.

  They were given intervention (four sessions) over a week. Their information was kept confidential.

Hypnotic Session, before giving a hypnotic session, a suggestibility test was performed to check the suggestibility of the subjects. Suggestibility is defined as the way to give the suggestion to the subjects during the state of the hypnosis. According to the Kappasonian model of hypnosis, there are two main types of suggestibility i.e. physical suggestibility and emotional suggestibility. It has been suggested that if the subject is suggested according to his/her suggestibility, hypnosis is more effective.[23] Suggestibility was tested through a test called, finger spreading test, in which the subject was asked to take his/her palm in front of his face, focus on the palm and was suggested, *"Your fingers are spreading, and spreading"*. This suggestion was continued tills the fingers were spread. This test was performed with both palms. Subjects were suggested with a low voice tone for one hand and with a loud tone for the other hand and finger spreading time was observed. The physical suggestible are more responsive to loud voice tone and emotions are more responsive to low voice tone. So, before the hypnotic sessions, all the subjects were tested for suggestibility

and they were given suggestions for reducing psychological symptoms and spasticity according to their suggestibility. Before the hypnotic session, the subjects were instructed not to open the eyes unless asked to do so. They were also instructed not to speak and raise their right index finger when they were asked something.

The hypnotic session was started when the subject was asked to sit on a recliner and asked to focus on a point in a picture. The subject was suggested repeatedly, *"not to blink the eyes and to close the eyes if you feel the eyes are tired"*. As the subjects were closing their eyes, they were suggested for relaxation and when they were relaxed, they were signaling with their fingers. During the state of relaxation and trance, they were asked to image the current state. They felt the current state, they signaled, and they were suggested, *"you will be feeling relax, calm and your upper/lower limbs will be getting relax and normal, and as feeling relax and your limb are getting normal, start drawing a circle clockwise and keep drawing until you are feeling all fine"*. As they were feeling fine, they stopped drawing the circle and they raised their fingers. Then they were distracted into another state of mind by telling something irrelevant, this is called break the state. In the same way, each subject received four sessions within a week. All the subjects received their sessions in the evening hours. Sessions of half an hour each minute each were delivered individually. In the end, post-testing was done to measure the change. Hypnosis was carried out with the help of suggestibility testing. The participants were given treatment based on their suggestibility type. Those with physical suggestibility were given suggestions in loud voice and those with emotional suggestibility were given treatment with a low voice and the suggestions used were specifically about pain relief, relaxation, and ease in movement. *Post-hypnotic assessment:* after the hypnotic sessions, the subjects were assessed again on both the scales i.e. DASS-21 and MAS.

3. Results

Results are represented in the following three sections.

3.1   Section I: Sample Description

The following section described the demographic variables of the subjects of the main study (*n = 16*), which includes the description of means, standard deviation, and frequencies of demographic variables shown in Tables 1.

Table 1 describes the data related to participants' age. The descriptive results showed that the mean age of participants was 65.06 years (SD = 6.27)

Table 1 also describes the frequency and percentages of demographic variables such as gender, duration of the stroke and suggestibility. It shows that out of 16 subjects, 5 (31.3%) subjects had stroke for ≤ 3 months and 11 (68.8%) had it for > 3 months. In 16 subjects physical and emotional suggestibility was observed in 9 (56.3%) and 7 (43.8%) respectively.

Table 1: Demographic variables of participants (n = 16)

Variable	F (%)
Age (Mean ± SD)	65.06 ± 6.27
Gender	
Male	9 (56.3)
Female	7 (43.8)
Duration of Stroke	
Less than 3 months	5 (31.3)
More than 3 months	11 (68.8)
Suggestibility	
Physical	9 (56.3)
Emotional	7 (43.8)

Table 2: Pre and post sessions effect of hypnosis on anxiety, stress, and depression in stroke survivors (n = 16).

Pair	Observation	Paired Difference			95% CI	
		Mean ± SD	t	p	LL	UL
Pair 1	Pre-session anxiety	31.75 ± 3.85	14.217	.001***	16.470	22.279
	Post-session anxiety	12.37 ± 3.44				
Pair 2	Pre-session stress	31.37 ± 3.07	18.527	.001***	16.924	21.325
	Post-session stress	12.25 ± 0.17				
Pair 3	Pre-session depression	33.62 ± 4.01	24.292	.001***	19.613	23.386
	Post-session depression	12.12 ± 4.56				

*Legend: df = 15, *** = p < .05, M = Mean, SD = Standard Deviation, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit.*

Table 3: Data regarding pre and post sessions effect of hypnosis on spasticity (upper and lower limbs) in Stroke survivors (n = 16).

Pair	Observation time	Paired Difference			95% CI	
		M ± SD	t	p	LL	UL
Pair 1	Pre-session Spasticity (Upper limbs)	2.68 ± 0.478	2.236	.041*	0.011	0.488
	Post-session Spasticity (Upper limbs)	2.43 ± 0.51				
Pair 2	Pre-session Spasticity (Lower limbs)	2.31 ± 0.704	1.861	0.402	-0.027	
	Post-session Spasticity (Lower limbs)	2.12 ± 0.500				

*Legend: df = 15, * = p < .05, M = Mean, SD = Standard Deviation, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit.*

3.2 Section II: Testing of Main Hypotheses

The following part contains the results of the main hypotheses determined through the paired Sample t-test.

3.2.1 Hypothesis I: Effect of hypnosis on psychological symptoms (Anxiety, Stress, and Depression

The first hypothesis of the main study was that there would be a positive effect of hypnosis on the psychological symptoms (anxiety, stress, and depression) among stroke survivors. To test this main hypothesis, a paired sample *t*-test was used (Table 2).

3.2.2 Hypothesis II: Effect of hypnosis on Spasticity

The second hypothesis of the main study was that there would be a positive effect of hypnosis on spasticity (upper limbs and lower limbs) among stroke survivors. To test this main hypothesis, a paired sample *t*-test was used (Table 3).

Table 3 shows that there is a marginal effect of hypnosis on spasticity in upper limbs. However, there is no effect of hypnosis on spasticity in lower limbs.

3.3 Section III: Testing of Secondary Hypotheses

This section describes the results yielded from the secondary hypotheses through an independent sample t-test.

3.3.1 Hypothesis I: Gender and Pre-hypnosis session.

The first secondary hypothesis of the present study states that females would experience more anxiety, stress, depression, and spasticity than males. To test this secondary hypothesis, an independent sample t-test was computed (Table 4). Table 4 shows that there is no significant difference in gender for any variable mentioned above.

3.3.2 Hypothesis II: Gender and Post-hypnosis session:

This secondary hypothesis of the present study states that hypnosis can be more effective modality on anxiety, stress, depression, and spasticity on females than males. To test this secondary hypothesis, an independent sample t-test was computed (Table 5).

Table 4: Comparison of effect of gender on pre-session anxiety, stress, depression, and spasticity (upper and lower limbs) (n = 16)

Variable	Gender	Mean ± SD	t	P <	95% of CI		Cohen's d
					LL	UL	
PSA	Male (9)	31.33 ± 4.582	-.47	.640 (ns)	-5.231	3.326	0.247
	Female (7)	32.28 ± 2.927					
PSS	Male (9)	30.22 ± 2.72	-1.8	.08 (ns)	-5.724	.455	0.915
	Female (7)	32.85 ± 3.02					
PSD	Male (9)	33.11 ± 2.47	-.99	.33 (ns)	-3.698	1.349	0.507
	Female (7)	34.28 ± 2.13					
PSSF	Male (9)	2.77 ± 0.44	.84	.41(ns)	-.316	.728	0.41
	Female (7)	2.57 ± 0 .53					
PSSH	Male (9)	2.11 ± 0.60	-1.3	.20 (ns)	-1.202	.281	0.66
	Female (7)	2.57 ± 0 .78					

Legend: df = 14, p > 0.05(ns), M = Mean, SD = Standard Deviation, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit. PSA = Post-session Anxiety, PSS = Post-session Stress, PSD = Post-session Depression, PSSF = Post-session Spasticity Upper limbs, PSSH = Post-session Spasticity Lower Limbs, m = months, ns = Not significant, s = Significant

Table 5: Comparison of effect of gender on post-session anxiety, stress, depression, and spasticity (upper and lower limbs) (n = 16)

Variable	Gender	Mean ± SD	t	P <	95% of CI		Cohen's d
					LL	UL	
PSA	Male (9)	13.55 ± 3.12	1.641	.123 (ns)	-.828	6.225	0.823
	Female (7)	10.85 ± 3.43					
PSS	Male (9)	12.44 ± 2.96	1.269	.792 (ns)	-3.096	3.985	0.132
	Female (7)	12.00 ± 3.65					
PSD	Male (9)	12.22 ± 1.85	.250	.806 (ns)	-1.684	2.128	0.126
	Female (7)	12.00 ± 1.63					
PSSF	Male (9)	2.55 ± 0.52	1.049	.312 (ns)	-.282	0.821	0.539
	Female (7)	2.28 ± 0 .48					
PSSH	Male (9)	2.11 ± 0.60	-0.12	.90 (ns)	-.590	.527	0.410
	Female (7)	2.14 ± 0.37					

Legend: df = 14, p > 0.05(ns), M = Mean, SD = Standard Deviation, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit. PSA = Post-session Anxiety, PSS = Post-session Stress, PSD = Post-session Depression, PSSF = Post-session Spasticity Upper limbs, PSSH = Post-session Spasticity Lower Limbs, m = months, ns = Not significant, s = Significant

Table 6: Comparative suggestibility on post-session Anxiety, Stress, Depression, Spasticity (upper and lower limbs) (N = 16).

Variable	Suggestibility	Mean ± SD	t	P <	95% of CI		Cohen's d
					LL	UL	
PSA	Physical (9)	10.88 ± 3.01	-2.19	.04 (s)	-6.719	-0.07	1.105
	Emotional (7)	14.28 ± 3.14					
PSS	Physical (9)	11.77 ± 3.38	-.662	.51(ns)	-4.574	2.416	0.336
	Emotional (7)	12.85 ± 3.02					
PSD	Physical (9)	11.77 ± 1.56	-.917	.375 (ns)	-2.649	1.062	0.460
	Emotional (7)	12.57 ± 1.90					
PSSF	Physical (9)	2.44 ± 0.52	.059	.953 (ns)	-.557	.589	0.038
	Emotional (7)	2.42 ± 0.53					
PSSH	Physical (9)	2.11 ± 0.60	-0.12	.905 (ns)	-.590	.527	0.060
	Emotional (7)	2.14 ± 0.37					

Legend: df = 14, p > 0.05(ns), M = Mean, SD = Standard Deviation, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit. PSA = Post-session Anxiety, PSS = Post-session Stress, PSD = Post-session Depression, PSSF = Post-session Spasticity Upper limbs, PSSH = Post-session Spasticity Lower Limbs, m = months, ns = Not significant, s = Significant

Table 7: Comparative effect of duration of the stroke on post-session anxiety, stress, depression, spasticity (upper and lower limbs) (n = 16).

Variable	Duration	Mean ± SD	t	P <	95% of CI		Cohen's d
					LL	UL	
PSA	< 3 (m) (5)	13.20 ± 5.01	11.60	.537 (ns)	-2.864	5.264	0.298
	> 3 (m) (11)	12.00 ± 2.68	3.84				
PSS	< 3 (m) (5)	11.60 ± 3.84	-.539	.598 (ns)	-4.705	2.814	0.273
	> 3 (m) (11)	12.54 ± 2.97					
PSD	< 3 (m) (5)	12.00 ± 2.44	-.191	.851(ns)	-2.224	1.860	0.090
	> 3 (m) (11)	12.18 ± 1.40					
PSSF	< 3 (m) (5)	2.40 ± 0.54	-.191	.851(ns)	-.667	0.558	0.094
	> 3 (m) (11)	2.45 ± 0.52					
PSSH	< 3 (m) (5)	2.20 ± 0.44	0.393	.700 (ns)	-.486	.704	0.225
	> 3 (m) (11)	2.09 ± 0.53					

Legend: df = 14, p > 0.05(ns), M = Mean, SD = Standard Deviation, CI = Confidence Interval, LL = Lower Limit, UL = Upper Limit. PSA = Post-session Anxiety, PSS = Post-session Stress, PSD = Post-session Depression, PSSF = Post-session Spasticity Upper limbs, PSSH = Post-session Spasticity Lower Limbs, m = months, ns = Not significant, s = Significant

Table 5 shows that there was no significant difference of gender for any variable mentioned above.

3.3.3 Hypothesis III: Suggestibility and Hypnotic effect on psychological symptoms and spasticity

The third secondary hypothesis states that emotional suggestibility will be more effective than physical suggestibility. To test this secondary hypothesis, an independent sample t-test was computed (Table 6). Table 6 shows that there was no significant difference of the type of suggestibility for all the variables mentioned above expect Post-anxiety which shows that emotional suggestibility was more effective in lowering anxiety.

3.3.4 Hypothesis IV: Duration of Stroke and Hypnotic effect on psychological symptoms and spasticity.

It was hypothesized that hypnosis will be more effective if stroke duration was less than 3 months as compared to more than 3 months. To test this hypothesis, an independent sample *t*-test was computed (Table 7).

As shown in Table 7 there was no significant difference of duration of the stroke on all the variables mentioned above.

4. Discussion

Studies have shown that hypnosis is an effective modality for the management of psychological as well as physical issues. However, there is limited data about effect of hypnosis on the management of psychological issues including stress, anxiety and depression, and physical symptoms (spasticity) in stroke survivors.

Studies on pre-post intervention design in behavioral and medical education are common by considering the feasibility of ethical concern and obviously with certain limitations.[24] Studies on positive psychology for the promotion of health have been conducted by using pre and post-test in medical sciences.[25] There can be the latent variables that may affect the dependent variable but in behavioral studies, even in the presence of the control group, researchers are unable to control the latent variables. It has been noted that pre-test-post-test designs have been used in psychological and behavioral experimental studies to measure any effect of the experimental treatments.[26]

Our study was designed to measure the effect of hypnosis on the psychological symptoms which included anxiety, stress, and depression. In order to measure such psychological symptoms, Depression, Anxiety, Stress Scale (DASS-21) consisting of twenty-one items was used. Initially, DASS-21 was developed by Lovibond & Lovibond in 1995, and since then it has been used widely for the measurement of psychological symptoms and also validated to measure such symptoms in the Pakistani population.[27] The hypnotic technique has shown a significant positive effect on three psychological symptoms observed. There is not sufficient data to show the effect of hypnosis on stress associated stroke. However, limited data showed that hypnosis was effective for managing stress associated with physical ailments.[28] Studies have shown an effect of hypnosis on depressive symptoms.[29] Yapko has suggested that hypnotic approach is linked with managing depression as it is a modality of altering patterns of mind for positive change and self-organization in perspective to cognitive and perceptual forms.[30]

In addition to stress and depression, studies have also shown that hypnosis is an effective modality in various medical issues including dentistry, surgery, pain, etc. and treatment of anxiety.[31] However, it is also suggested that hypnosis alone might not be so effective and it should be used with certain other modalities like cognitive behavior therapy (CBT).[32] To enhance the efficacy of the hypnosis, an associated technique, called Circle Technique (CT) has been introduced. CT has been suggested to be used along with hypnosis for the management of psychological stressors.[33] It is used during the hypnotic state and is associated with the suggestion as described in the procedure. The central dogma of the hypnosis might be in a way that subjects having the hypnotic treatment enable themselves to develop self-efficacy, which leads to self-regulation and lowers anxiety and improves the quality of life. Hypnosis might be effective in a way that all the stroke survivors experience different stressors which are stored in the subconscious mind and hypnosis has been evidenced as the best modality to reach the subconscious mind and suggestions given during the subconscious mind are effective in reducing the negative experiences including psychological issues.[34]

In our study, we also investigated the effect of hypnosis on the spasticity in both the limbs. We found that there was a marginal effect of hypnosis on the spasticity in the upper limbs but a study has shown no effect of hypnosis on the lower limbs. There is not much data to show an effect of hypnosis on spasticity, however, a research on few cases have shown that with hypnosis a qualitative improvement in movement and reduction in spasticity in upper limbs was observed.[35] This data is in agreement to our results which show a qualitative marginal reduction in the spasticity in the upper limbs when the subjects were provided with hypnosis associated with CT. The pre and post-session average scores of upper limb spasticity out of 4 were 2.68 and 2.43 respectively. However, no significant effect of hypnosis on the spasticity of lower legs was observed. The pre and post-session average score of lower limb spasticity out of 4 were 2.31 and 2.12 respectively.

Our study for the first time introduced the concept of suggestibility, which is defined as the way to give suggestions to the subjects during the state of hypnosis. Based on suggestibility, there are mainly two types of persons i.e. physically or emotionally suggestible. This concept was introduced by Kappas, that every person should be suggested according to his/her suggestibility to increase the outcome.[23] To comply with this principle, a suggestibility test was conducted for all the subjects through finger spreading techniques who were provided with our hypnotic sessions. Our data showed no difference whether the subjects were suggested through physical or emotional suggestibility. This might be due to the fact that all the subjects were suggested according to their suggestibility.

We also investigated the effect of hypnosis on the basis of gender which showed no significant difference of hypnotic effect of either suggestion given to males or females. However, a meta-analysis has shown that males were more suggested as compared to females in the management of smoking cessation.[36] This is contradictory to our results and this might be due to the principle of suggestibility, as generally females are more emotionally suggestible and males are physically suggestible. If either gender is suggested according to his/her suggestibility, they can be equally suggestible.

The hypnotic sessions were planned during the evening hours around 5 pm. This was designed to synchronize the experimental subjects as suggestibility may vary during the 24 hours of the day. Unpublished

data indicate that brain waves are slower (alpha waves) during the evening hours and if hypnosis is induced during evening hours, which may be more effective for hypnosis induction and suggestibility. So, our data for the first time that there might be a chrono-therapeutic effect of hypnosis. However, there is very limited data that support our study. A study has shown that there is a correlation between brain waves oscillations, hypnosis and suggestibility.[37]

5. Limitations

Our study have certain limitations. It cannot prove the effect of hypnosis either on psychological issues or spasticity for those subjects who are also affected with aphasia in addition to spasticity. It only focuses on the qualitative effect of hypnosis and cannot conclude the hypnotic effect on individual muscles of both upper and lower limbs. The data may not be implicated on other chronic diseases other than stroke victims, and remains limited to a small region and low-medium socioeconomic class. Studies have shown a variation of psychological issues among cultures.38

6. Recommendations

We recommend that studies should be designed to include larger sample size, preferably involving multiple centers, and with more hypnotic sessions.

7. Conclusion

Briefly concluding, our study showed for the first time that the hypnosis based Circle Technique has interesting results on the psychological issues associated with stroke survivors. However, our data showed a marginal effect of hypnosis on the spasticity of upper limbs and no effect on the spasticity of the lower limbs.

This study will be helpful in reducing the psychosocial issues of stroke survivors and their caregivers as well. This data will also help spread awareness about such cost-effective and side effects free psychotherapy and guide health professionals to include such interventions for a better quality of life of the stroke survivors.

8. Conflict of interest

Authors declare no potential personal / financial / academic interests relating to this publication of the data

9. Authors contribution

MR: Concept, experiments, writing

MW: Concept, and design of study

RPR: Research design and Review

10. References

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MY CORONA STORY

COVID diaries- One day at a time

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It's been an overwhelming 15 days!

When I announced to my kids and hubby over dinner that I was accepting the offer of an in-charge of a COVID ICU... there was a pin drop silence. Ishaan- my son looked at me with his large limpid eyes full of questions. And being the disinhibited child he is, asked me outrightly, "Mumma, will you be able to save my life if I get COVID? I don't want to die." I got a grip over myself, and in a firm no-nonsense tone told him "Don't talk rubbish. Nothing will happen to you or your Mumma. We have everything there for our safety. Don't pester me to order you a pizza next time if you have your head full of such thoughts!"

And every day since then has been a roller coaster of emotions. Fear, pride, strength, helplessness. Being away from my family and just moving between my ICU and hotel, my patients have become my current family. I know their sons and daughters, brothers and sisters by first names. I tell them stories the patients can't tell them.

"Do you know Hassan tried to bribe me with 530 rupees, squeezing discreetly into my hand, asking to be sent home?" I complained to his brother Iqbal who calls daily.

And I angrily snatched the mobile from the hand of a patient giving me the filthiest of abuses talking to her son "Sonu, yeh log mereko bhookha maar denge!" (Sonu, these people will starve me to death) complaining about tube feeds when she was craving anda-pav. But Sonu filled my heart with pride telling me how much confidence he had in us, and apologized on her behalf.

When my very first patient was about to be intubated, I made the mandatory professional phone call to his son informing him about his father being put on the ventilator. He was a 75 year old man who had lost sensorium to communicate or breathe effectively. There was a silence on the phone after I broke the news. His son said in a shaky voice. "We have not spoken to him since 5 days, can we just talk to him a last time?" All the professionalism in my voice was out of the window. I asked in a shakier voice "You didn't speak to him since he's admitted? He is not in a condition to talk now!" He said "No, his phone is not being answered" He died two days later, without any good byes. I was filled by guilt and have been personally charging patients mobile phones and urging them to stay connected. Inspite of knowing, that half of them will complain how awful we are. And how many times a day we prick them with needles or deny them food.

And when I do go home after a vigorous hot bath to scrub off every virus, and wear the N95 respirator at home, my son begs to sleep with me. "I'll wear a mask and sleep with you. Kuch nahin hoga. Main aapka baccha hoon na?" (Nothing will happen to me. I'm your baby after all) and my daughter-Ishika asks my permission every time before she hugs me or comes close to me.

When I took this up some colleagues told me "Tu yedi jhaali aahe!" (you've lost your sanity) Yes may be. "Main to pehle se hi yedi hoon!" (I was like that even long before). Others told me, "You will regret this soon". Yes, I might... but let's write about that then.

One day at a time. That's how we all are living right now.